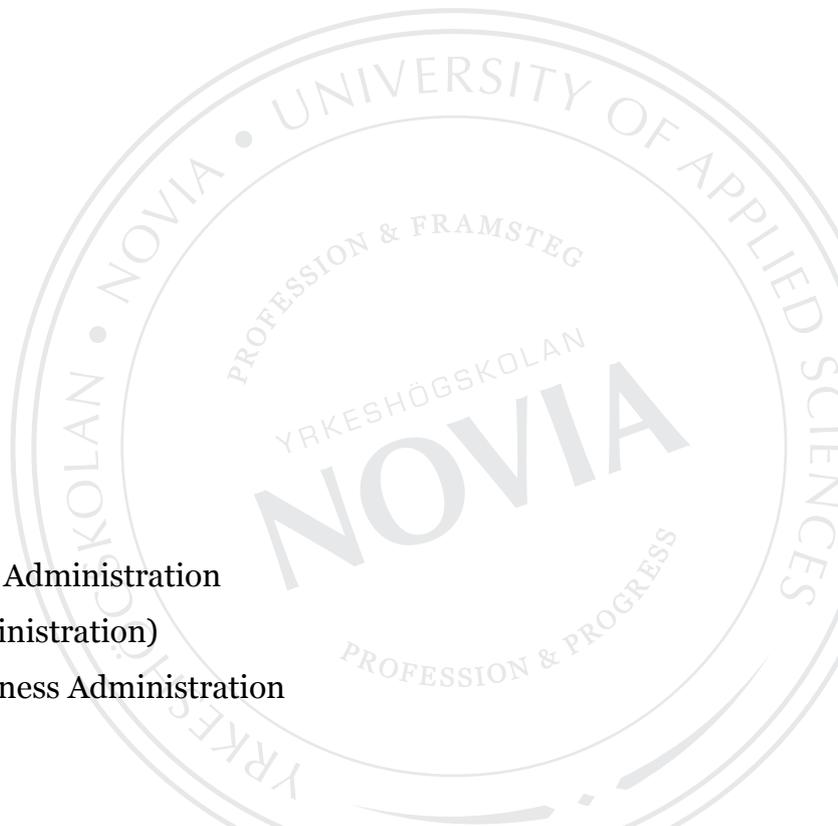


Sector-specific Impact of Trade Liberalisation

The CETA agreement and revealed comparative advantage

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Abstract

On the 21st of September 2017, the *Comprehensive Economic and Trade Agreement (CETA)* between the EU and Canada entered into force. The extensive free trade agreement eliminates more than 98 percent of tariffs between the two partners, in addition to removing non-tariff barriers by aligning regulatory practices concerning bilateral investments and the trade in services.

In this thesis, the impact of tariff reductions on the Finnish exporting industries are explored in order to uncover if there are sectors of the Finnish economy which stand to gain from the implementation of CETA. Historical trade flows between Canada and Finland are analysed using a combination of two quantitative techniques, a partial equilibrium model developed by the World Bank, coupled with an analysis of pre-agreement tariffs and measures of revealed comparative advantage.

The results suggest that while a reduction in tariffs will not likely lead to a structural change in Finnish exports to Canada in the medium term, exports of various types of land vehicles and marine vessels are likely to increase as tariffs are eliminated.

Language: English Key words: CETA, Trade agreement, Trade Liberalisation, Comparative Advantage, Revealed Comparative Advantage, Partial Equilibrium, Trade Policy

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Abstrakt

Den 21 september 2017 trädde *Comprehensive Economic and Trade Agreement* (CETA) mellan EU och Kanada i kraft. Det omfattande frihandelsavtalet avlägsnar mer än 98 procent av tulltarifferna mellan de två parterna. I tillägg till detta avskaffas en stor mängd icke-tariffära handelshinder genom anpassning av regleringspraxis som rör bilaterala investeringar och internationell handel av tjänster.

I detta examensarbete undersöktes effekterna av tariffsänkningen på den finländska exportindustrin för att utforska om det finns sektorer i den inhemska ekonomin som gynnas av införandet av CETA-avtalet. Historiska handelsflöden mellan Kanada och Finland analyserades med hjälp av en kombination av två kvantitativa metoder, en partiell jämviktsmodell som utvecklats av Världsbanken, kombinerad med en analys av belagda tariffer och avslöjade komparativa fördelar.

Resultaten tyder på att även om en sänkning av tariffer sannolikt inte kommer att leda till en strukturell förändring av den finländska exporten till Kanada på medellång sikt, kommer exporten av olika typer av land- och sjöfartsfordon sannolikt att öka till följd av avlägsnandet av tulltariffer.

Språk: engelska

Nyckelord: CETA, handelsavtal, internationell handel, liberalisering, komparativa fördelar, avslöjade komparativa fördelar, partiell jämvikt, handelspolitik

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Tiivistelmä

EU:n ja Kanadan välinen *Comprehensive Economic and Trade Agreement* (CETA) astui voimaan 21. syyskuuta 2017. Laaja vapaakauppasopimus poistaa yli 98 prosenttia kummankin yhteistyökumppanin välisistä tariffeista. Sopimus vähentää myös tullien ulkopuolisia esteitä mukauttamalla kahdenvälisiin investointeihin ja palvelujen kauppaan liittyvät määräykset.

Tässä työssä tarkasteltiin tullialennusten vaikutusta suomalaisiin vientiyhtiöihin selvittääkseen, onko olemassa sellaisia Suomen talouden sektoreita, jotka hyötyisivät CETA:n toteutuksesta. Kanadan ja Suomen välisiä historiallisia kauppavirtoja analysoitiin käyttämällä kahden kvantitatiivisen tekniikan yhdistelmää: Maailmanpankin kehittämää osittaista tasapainomallia yhdistettynä ennakkoehtojen ja paljastettujen suhteellisten etujen analyysiin.

Tulokset osoittavat, että vaikka tariffien aleneminen ei todennäköisesti johda suomalaisen Kanada-viennin rakenteelliseen muutokseen keskipitkällä aikavälillä, erilaisten kulkuneuvojen ja laivojen vienti todennäköisesti lisääntyy, kun tariffit poistetaan.

Kieli: englanti

Avainsanat: CETA, kauppasopimus, kaupan vapauttaminen, suhteellinen etu, paljastettu suhteellinen etu, osittainen tasapainomalli, kauppapolitiikka

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1. Introduction

1.1 An introductory note

On the 5th of May 2009, the European Union and Canada jointly announced the start of negotiations towards signing a Free Trade Agreement (FTA), with the aim of concluding negotiations and reaching an agreement by 2014 (Government of Canada and European Commission, 2011) (hereafter: Canada & Commission). What followed was 8 years of negotiations, legal scrubbing and various other parliamentary processes, eventually culminating in the provisional application of the Comprehensive Economic Trade Agreement (CETA) on the 21st of September 2017.

In short, CETA will abolish roughly 98% of all existing tariffs at the tariff-line level between the EU and Canada within 7 years of the implementation of the agreement. A reduction of this kind has a significant impact of the marginal export costs. In addition to the deep reduction in tariffs, CETA will also reduce non-tariff barriers (NTBs) to trade, thereby reducing the fixed trade costs of firms wishing to export goods to the partner market. The benefit of this reduction will naturally concentrate to industries and product groups currently subject to extensive regulation, a prime example being the motor vehicle and machinery industry. The agreement also includes sections aimed at increasing foreign direct investment (FDI), as well as clauses regulating investor disputes and intellectual property rights.

As inferred by the lengthy negotiations between the EU and Canada, finding a solution and reaching an agreement both parties are content with is not an easy task. Both parties naturally have their own agenda, in part formed by political pressure groups seeking to influence the final agreement, but also influenced by studies estimating the consequences of trade liberalisation on certain sectors of the economy. This type of ex-ante analysis of the economic impact a trade agreement may give rise to, often referred to as impact assessments, is usually considered a

mandatory exercise in order to provide negotiators and political decision-makers a sense of scale and idea of the potential repercussions following the signing of an FTA.

The popularity and use of Computable General Equilibrium (CGE)¹ models have grown significantly during the last couple of decades since becoming a standard tool in several academic fields, trade policy analysis being one of them ("CGE modelling of Free Trade Agreements," 2016, p. 1). Within the field of international trade, CGE models are frequently used to assess the repercussions of a change in trading patterns the application of an FTA can give rise to. It has become somewhat customary to conduct at least one, if not multiple, CGE-based impact assessments predicting the effects of a trade agreement. In the case of CETA, at least two, Hejazi & Francois (2008) and Kirkpatrick et al. (2011), have been commissioned by EU governing agencies.

Another industry workhorse is the gravity model, originally proposed by Tinbergen (1962). While both the CGE and gravity models are widely used within academia (Narayanan et al., 2015), they do have their drawbacks. Both models require vast amounts of data and in the case of CGE, computing power. While there are ongoing efforts to gather the needed data², neither of the models can be described as particularly accessible to the non-economist or non-statistician. For small- and medium sized enterprises (SME) looking to evaluate the impact of trade liberalisation on their own business, these traditional methodologies may very well be out of reach or simply too complex to provide useful insight into changes on their specific market segment.

¹CGE models will not be discussed in any greater detail, as they are not the subject of this thesis. Curious minds would do well to have a look at (Narayanan, Ciuriak, & Singh, 2015)

² E.g. the GTAP project at Purdue University (<https://www.gtap.agecon.purdue.edu>)

1.2 Research questions and methods

The objective of this bachelor's thesis is to study the potential sectoral effects on the Finnish economy of the newly minted CETA agreement between the European Union and Canada. The study departs from the traditional methodologies of CGE and gravity modelling, relying instead on simpler and more accessible methods. The central question the study concentrates on is the following:

- Are there sectors in the Finnish export market which stand to gain from tariff elimination under CETA? If so, which are they?

The results are formed on the basis of two distinct quantitative methods. In the first analysis, the impact on Finnish exporters are simulated using a Partial Equilibrium (PE) model. Through this analysis, the impact of tariff reductions on goods already being exported to Canada are estimated. Due to a limitation in the PE model, only goods which are currently exported to Canada are identified. A second analysis is performed with the aim to uncover products possessing the potential to become future exports to Canada as a result of the implementation of CETA.

The method used in the second analysis consist of three main techniques. First, sectors of the economy in which Finland possesses a comparative advantage are empirically identified. Product categories which will see a fall in tariffs, and therefore trade-costs, as a result of the implementation of CETA are singled out. In the last step, the ITP values are calculated for the categories in order to identify the potential for exports to the Canadian market.

1.3 Delimitations

The liberalisation of trade in services is a mainstay of the CETA agreement. While the agreement compromises clauses on public procurement, industrial standards and professional recognition among others, this thesis will focus exclusively on the trade in goods, and more precisely the impact of tariff reduction on Finnish

exporters. No attempt to quantify the effect on Canadian exports on import-competing goods will be made.

1.4 Disposition

The remainder of the thesis is structured as follows. Chapter 2 introduces the reader to the central theoretical concepts in trade theory, beginning with an introduction to the thinking of Adam Smith and David Ricardo and ending with an overview of the multilateral approach to trade agreements. Chapter 3 starts with an overview of what CETA entails for the EU and Canada, after which it is concluded with a presentation on a select group of impact assessments. Chapter 4 provides the context in terms of current trade between the Finland and Canada. Chapter 5 discusses and defines the methods used in the analysis. In chapter 6 the results of the study are presented, after which they are discussed in the concluding 7th chapter.

2. Making the Case for Free Trade

2.1 Why we trade

“There are two technologies for producing automobiles in America. One is to manufacture them in Detroit, and the other is to grow them in Iowa. First you plant seeds, which are the raw material from which automobiles are constructed. You wait a few months until wheat appears. Then you harvest the wheat, load it onto ships, and sail the ships eastward into the Pacific Ocean. After a few months, the ships reappear with Toyotas on them” (Landsburg, 1995)

While the notion of international trade is by no means a new phenomenon, global growth rates in trade have consistently outpaced that of GDP during the last 70 years. As a result of this acceleration, the ratio of international trade relative to world GDP is greater than ever (Feenstra & Taylor, 2014, p. 23). This increase is not only the consequence of increasing trade liberalisation; the decreasing cost of transportation and communication have also contributed significantly to increasing the volumes of world trade. (Krugman, Obstfeld, & Melitz, 2015, pp. 48-49)

In many ways, individuals and countries do not differ much when it comes to the reasons for trade, not completely surprising considering that the country essentially is an aggregate form of the individual. Countries, like individuals, trade because they are different from each other. Suranovic (1998, p. 30) suggest the following reasons for trade.

Differences in technology - Countries trade because they are technologically different from each other. Technology in this sense refers to the techniques utilised to turn inputs into outputs.

Differences in resource endowments - Countries trade because they differ in their resource endowments. This refers not only to their natural resources, such as farmland or forests, but also to the abilities and skill level of their workforce, as well as the amount of capital available for investment.

Differences in demand - Trade occurs because of differing levels of demand, and a difference in consumer preferences between countries.

Existence of economies of scale in production - Through trade, economies of scale can be achieved. Increased production leads to a lower per-unit cost.

Existence of government policies - Intervention by government agencies in areas of production and trade policy may lead to increased levels of trade.

2.2 Classical theories of trade

2.2.1 Adam Smith and the absolute advantage

“It is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy. . . . If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them with some part of the produce of our own industry, employed in a way in which we have some advantage.” (Smith, 1776)

In 1776, Scottish economist Adam Smith published “The Wealth of Nations”, a book that laid out the foundations of what we now know as the classical theory of international trade. Through his book, Smith sought to challenge the mercantilist beliefs held by the majority of western European governments at the time, including his native Great Britain. He argued that the policies implemented by the mercantilist governments, seeking to increase exports and decrease imports, were actually lowering the standard of living instead of increasing it (Husted & Melvin, 2010, pp. 54-55). Instead of attempting to produce every good a country needs within its borders, import restrictions should be lifted and concept of free international trade adopted, Smith contended. By allowing free trade between states, a country is able to focus its production resources into sectors and industries in which it possess the absolute advantage, the ability to produce a good utilising less production resources in comparison to other countries (Husted & Melvin, 2010, pp. 54-55).

To further illustrate his idea, Smith gave an example describing the operations of a pin factory. He explained that by cooperating and dividing the tasks that go into producing a pin between the workers of the factory, it was possible to raise their combined output far above what each worker could produce by working on their own, a process Smith designated the division of labour. He went on to argue that this was not only the case on the micro level of a worker in a factory, but also true on the macro level of a country. Through specialisation and trading with other

countries, countries would become better off and experience an increased standard of living. (Husted & Melvin, 2010, pp. 54-59)

2.2.2 David Ricardo's comparative advantage

In the years following Smith's publication, a number of economists pointed out the limitations in Smith's theory. In 1817 David Ricardo published "The Principles of Political Economy and taxation" through which he introduced the concept of comparative advantage.

The concept put forward by Ricardo (1817) stated that countries should concentrate on the production of goods in which it possesses the greatest comparative advantage compared to other nations. The idea of comparative advantage seem counter-intuitive when one is first introduced to the theory. The first thing one must understand is the idea of opportunity cost, a concept that can be defined as the cost of giving up the second best alternative in a choice between two goods. This is not only true on a microeconomic level, whereby an individual consciously or, in some cases, subconsciously compute the opportunity costs of buying e.g a new car versus a new boat, but is also true on a macroeconomic level, given that the economy as a whole operates by the same resource constraints as the individual. Below is a classical example by Ricardo (1817) describing the amount of labour necessary to produce one unit of cloth versus one unit of wine.

Table 1 Illustration of absolute advantage

	Cloth	Wine
England	70 labour units	120 labour units
Portugal	80 labour units	90 labour units

As shown in the table above, England has the ability to produce cloth at a lower overall cost than Portugal (70 vs 80 labour units). Likewise, Portugal has the ability to produce wine at a lower cost than England. It can therefore be said that each country possesses an absolute advantage over one another, with England more

effective at producing cloth and Portugal has the absolute advantage in producing wine. To illustrate the concept of comparative advantage an alternative table is offered below.

Table 2 Illustration of comparative advantage

	Cloth	Wine
England	100 labour units	120 labour units
Portugal	80 labour units	90 labour units

From this, one can conclude that Portugal has an absolute advantage in producing both wine and cloth. Looking at the data it may be concluded that Portugal should be producing both cloth and wine, since it can do it with greater efficiency than England. This is however not beneficial, firstly because Portugal is limited by its production possibility frontier and does therefore not have the resources to produce both wine and cloth simultaneously. Secondly, resources in England would then be sitting idle, not producing anything. The solution is for England to produce cloth and Portugal is to concentrate on the production of wine since the Portuguese's comparative advantage ratio is greater in wine production, $120/90 = 1,33$ for wine vs $100/80 = 1,25$ for cloth. England should concentrate on producing cloth, since their comparative advantage lies in the production of cloth. Since the countries are trading the goods with each other, this creates the most efficient use of the available resources. (Krugman & Obstfeld, 2009, pp. 28-38)

2.3 The evolution of trade theory

2.3.1 The Heckscher-Ohlin Model

Heckscher (1919) and Ohlin (1933) developed a trade theory model incorporating two factors of production, compared to the single factor of labour assumed in Ricardo's and Smith's models of absolute and comparative advantages. They argued that since countries are inherently different in terms of their factors of production, such as capital, land and natural resources, and given the fact that not

all goods require the same amount of production factors, countries will then enjoy a comparative advantage in the production of goods which requires the factors of production in which it has an abundance of, as relative costs of that specific factor are lower. A country with a relative abundance of capital, in comparison to other factors of production, should therefore produce and export capital intensive goods, while a country with vast areas of land should concentrate on the production of goods which require this specific factor, such as wheat or corn production (Husted & Melvin, 2010, pp. 86-87). This model of the two-factor economy is often referred to as the Heckscher-Ohlin model or the HO-model for short, alternatively, factor-proportions theory (Krugman & Obstfeld, 2009, p. 54).

Throughout the years, the HO-model has been expanded by a multitude of theorems in addition to the original theory discussed above. One of the more controversial is the Factor Price Equalisation Theorem first suggested by Heckscher and Ohlin and later developed and proved by Samuelson (1948) which states that through free trade, there will be an equalisation in the price of identical production factors between countries. This theorem has however faced some controversy and disagreement regarding its usage and validity. Cho & Moon (2013, p. 12) among others point out that there are strict conditions to be met for the model to hold true; the theorem assumes there are no transportation costs, no barriers to trade, and no technological asymmetry between countries. On the other hand, a study by Ben-David (1993) on the effects of the lowering of trade barriers in western Europe as a result of the establishment of the EU found that following the liberalisation of trade, there was a reduction in the dispersion of incomes across the affected countries, suggesting that when conditions are met, the theorem holds true.

Another study by Leontief (1953b) on the validity of the HO-model when applied to American data on import and export produced some interesting and intriguing results. Leontief expected, in accordance with the HO-model, that the most capital abundant country in the world at the time, the United States, would import labour intensive goods while at the same time utilising their comparative advantage in exporting capital intensive goods. However, the data showed that the opposite was

in fact true. Leontief's calculations showed that the capital-labour ratio of import-competing goods were roughly 18,000 USD per worker-year, while the same ratio in exporting goods were only 14,000 USD per worker-year. This finding suggested that US imports tended to be produced using relatively capital intensive production methods, while exported goods tended to be labour intensive in their production. This direct contradiction to the HO-model is known as the Leontief paradox.

Naturally, numerous economists have attempted to find explanations for the unexpected results found in Leontief's study. Leontief himself argued in a succeeding paper, Leontief (1953a) that the original assumption in the HO-model that the American and foreign workers were equally productive was incorrect. He argued that the American worker was in fact three times as productive as their foreign counterparts and that by taking this fact into consideration, the US should instead be viewed as a relatively labour abundant country. By accepting these new assumptions, the results of the original study would conform with the HO-model.

2.3.2 New Trade Theory

As with other economic ideas the theory of trade is an ever evolving one. As new evidence come to light, there is a need to refine the theory once thought of as the closest to the truth. Data collected on international trade in the middle of the 20th century told an interesting story. It showed that the majority of international trade was conducted between developed nations possessing similar factors of production, producing the same type of goods (Krugman & Obstfeld, 2009, p. 132). During the end of the 1970s and the beginning of the 1980s an evolved theory on international trade emerged. Krugman (1979) and Lancaster (1979) independently developed trade models highlighting the consumers need for differentiated goods. The theories presented by Krugman and Lancaster were merged into what is now know as New Trade Theory (NTT)

In contrast to the theories discussed in previous sections, NTT does not base the explanations of trade patterns solely on the given comparative advantages of a country. Instead it focuses on the implications of intraindustry trade; the simultaneous exports and imports of goods requiring similar production factor endowments. (Krugman, 1979) stresses two important concepts as having a major impact on the flows of international trade, economies of scale and imperfect competition. When firms are experiencing the positive effects of economies of scale, they can also be said to be experiencing increasing Returns To Scale (RTS). Simply put, RTS is the variation in output productivity against the input of production factors. If input factors are increased 20% which in turn increases output by 30%, the firm is experiencing increasing returns to scale. Conversely, if input factors are increased 20%, but output is only increased 10%, the firm is experiencing decreasing returns to scale. Krugman & Obstfeld (2009, pp. 116-117) makes a distinction between internal and external economies of scale, where internal economies is concerned with the individual firms ability to increase returns to scale, while external economies considers the industry as a whole. External economies of scale occur in a situation in which an entire industry benefits from increased returns to scale due to the concentration of e.g. skilled labour through labour market pooling, making the production process more efficient.

Since large firms often derive gains from being economies of scale, they have an advantage over smaller firms in terms of lower production costs, an advantage that often leads to imperfect competition in the market. One form of imperfect competition is monopolistic competition. In such a state, the market contains a wide variety of manufacturers producing a similar but differentiated good. As the goods are not direct substitutes for each other and as long as the consumer has a utility for a diverse set goods, these factors give countries the incentive to trade even though the two countries possess similar factor endowments Krugman et al. (2015, p. 193). Furthermore, Krugman et al. (2015) suggest that because of external economies, history and accident play an important role in determining the current pattern of trade. A country possessing a large advantage because of external economies may retain that advantage, even though other countries could

produce it at a lower overall cost. In such a scenario, Krugman et al. (2015, p. 193) argues, it is possible for countries to loose from trade.

2.4 The gains from trade

The biggest single insight provided by trade theory is that countries gain from participating in international trade. Husted & Melvin (2010) classify these gains into three distinct categories.

The static gains from trade - The increase in the overall economic wellbeing of a country, keeping resources and technology constant, occurring due to an increase in consumption through market access, as well as reductions in production costs due to economies of scale in combination with an improved efficiency resulting from exploiting comparative advantages. (Husted & Melvin, 2010, pp. 147-148)

The dynamic gains from trade - The economic growth resulting from an increase in the available input resources or the increase in productivity of the existing resources as a consequence of trade. This can be due to an increase in the availability of intermediate products, such as raw materials; increased competition among firms, leading to an increased focus on research and development, hopefully resulting in new, innovative products; increasing economies of scale due to expanding export markets. (Husted & Melvin, 2010, pp. 149-150)

The political gains from trade - The increase in economic wellbeing resulting from the interdependency created when countries engage in trade. The integration of economies not only decreases the likelihood of hostility between trading partners, it may also produce a more stable environment, in which firms feel more comfortable investing in. (Husted & Melvin, 2010, p. 150)

2.5 Trade policy instruments and market barriers

In the following two sections, the various types of available trade policy instruments will be examined closer. We start by discussing the concept of a tariff before moving on to examine the implications a tariff on the domestic market. In the second section of the chapter, we examine the different variations of non-tariff barriers.

2.5.1 Tariffs

A tariff is often seen as the most basic trade policy tool. Simply put, a tariff is a special tax levied on imported goods. It can be applied as either a specific tariff; a fixed charge for each imported unit, or as an ad valorem tariff; calculated as a percentage of the value of the imported good. In cases where the applied tariff is a combination of the two tariff types, having components of both specific and ad valorem tariffs, it is known as a compound tariff. The intended effect of all types of tariffs is to raise the cost of the goods on the importers market. This is done primarily for two reasons. Either to raise revenue for the state, in which case the tariff is said to have a revenue effect; or as an intervention in order to shield domestic producers from the effects of foreign competition, in which the tariff is said to have protective effect (Husted & Melvin, 2010, pp. 150-156). Traditionally, the tariff has been used as a revenue stream to the government, but has over time transformed to include both revenue raising and protective elements. (Krugman et al., 2015, p. 239)

Figure 1 illustrates the effects of an import-tariff on the domestic market. When no tariff is imposed on the goods, price stands at P_1 . As demand D_2 is larger than supply S_1 at P_1 , there is a need to import a quantity equivalent to $S_1 - D_2$. When an import tariff is introduced, price increases to P_2 , causing a drop in demand to D_1 and an increase in domestic supply to S_2 , reducing import demand to the equivalent of $S_2 - D_1$. Should the state wish to fully protect domestic suppliers

against foreign competitors, it may increase tariffs from P_1 by $PA-P_1$ in order to make $D=S$. (Krugman et al., 2015, p. 240)

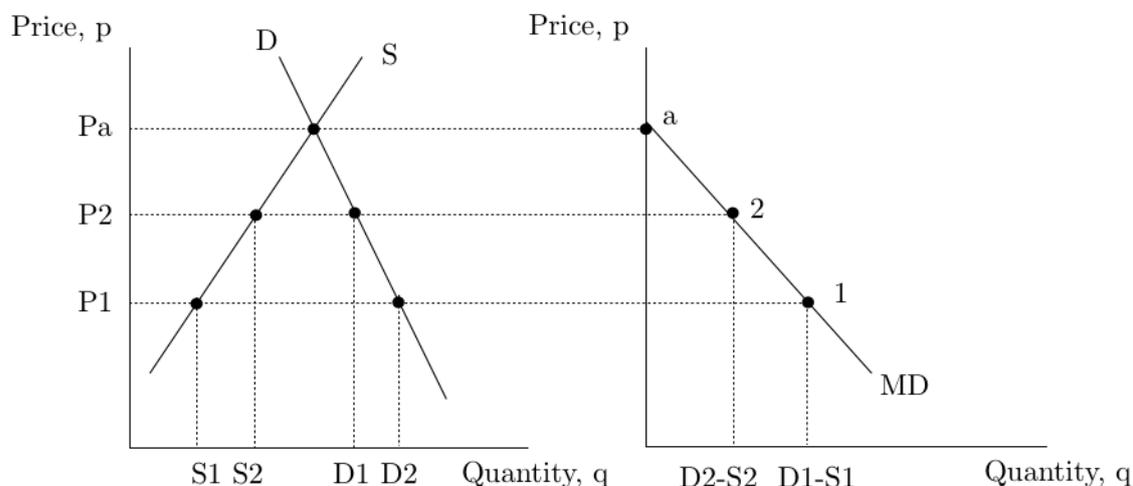


Figure 1 Tariff effects as described by (Krugman et al., 2015)

2.5.2 Non-tariff barriers

Literature on international economics and trade policy makes a clear point, tariffs and other traditional trade policy barriers are, in comparison to Non-Tariff Barriers (NTBs), of relatively small importance. In WTO (2012) it is found that a number of studies have attempted to quantify the effects of non-tariff measures on international trade. By averaging the studies, it can be concluded that NTBs are nearly twice as restrictive on trade in comparison to plain tariffs. Given that the data producing these result are over 10 years old, they cannot be reliably accepted as reflecting the current day situation perfectly. They do however suggest that since overall tariff rates have declined since then, it is likely that NTBs play an even larger role in overall trade restrictiveness relative to tariffs. The impact studies conducted on the macroeconomic effects of FTAs, explored in subsequent chapters of this paper, draw conclusions similar to the WTO report. In CEPII (2013, p. 8) we read “...the estimated trade restrictiveness of NTBs are large, and generally dwarfs that of tariffs” As figure 2 illustrates, the tariff is a very small proportion of the overall costs of trade, most of the cost consist of non-tariff based barriers. The graph is merely illustrative, and should not be taken at face value.

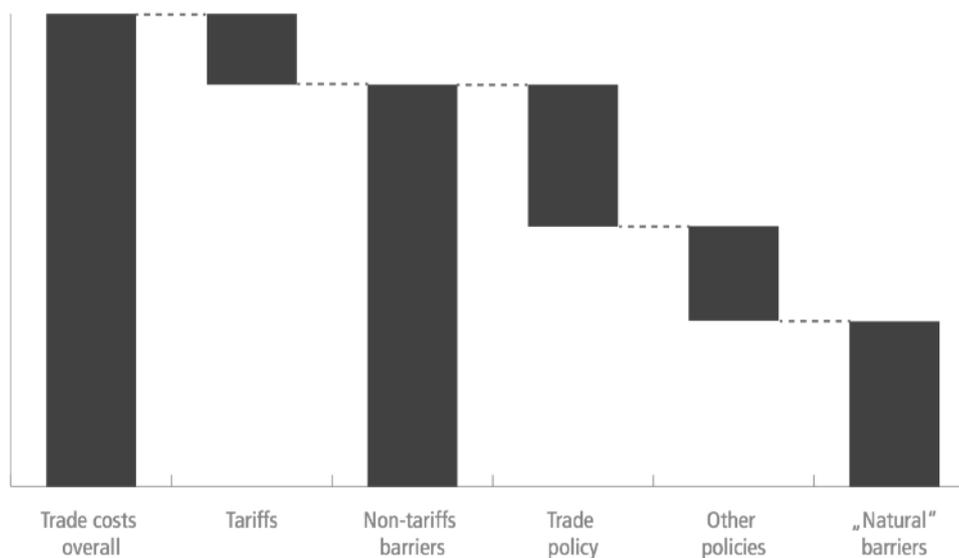


Figure 2 Illustration of trade costs (Published with permission by Felbermayr, Lehwald, & Heid, 2013)

The classification of NTBs is not as straightforward a process as that of standard tariffs. As is seen in figure 2, NTBs can be classified either as trade policy interventions, other policies, or natural barriers. Natural barriers are inherent barriers that exist in the marketplace, such as geographic distance or lack of a common language leading to difficulties in conducting business. Another trade barrier not commonly considered is that of asymmetric information. It is natural that the producer competing in their domestic market has access to more information than the foreign competitor (Wincoop, 2004, pp. 691-692).

One of the most commonly used NTB is the import quota, in which the state sets a restriction on the amount available to import over a specific time frame, usually one calendar year. There are also combinations of tariffs and quotas, usually called TRQs, shortened for Tariff-Rate Quota, whereby a certain volume of goods are allowed to be imported under a low tariff. When the quota is filled a higher tariff is activated for any additional imports. An embargo, a complete ban on the trade in a good, can be seen as a direct extension of an import quota. (Husted & Melvin, 2010, pp. 180-181)

Other forms of barriers include Voluntary Restraint Agreements (VRAs) which are, opposed to other NTBs, set by the exporting countries authorities. VRAs are usually implemented on the request of the importing country, often in order to forestall other trade restrictions (Husted & Melvin, 2010, p. 185). Various forms of government subsidies to domestic producers are further examples of NTBs (Krugman et al., 2015, pp. 239-240). National procurement programs which favour domestic suppliers over foreign competitors, or state funded “buy domestic” programs are also found to benefit domestic firms according to (Chiou & Yan-Shu, 2003).

Technical barriers to trade, such as the standards, regulations and procedures regarding health and safety, environmental certification or consumer protection laws often differ between countries, forcing the firm looking to export to comply with both foreign and domestic regulations and standards (Husted & Melvin, 2010, p. 190). An example of the impact of a combination of tariffs and NTBs can be found in the procedure facing EU automakers in exporting their cars to the US. Starting with development costs, differing safety regulations and crash testing procedures in the EU and US force European and US car makers to either modify their existing models to meet both standards or, as in most cases, create two different versions of the car, adding to R&D costs as well as reducing their economies of scale. When it comes to exporting the vehicles, the EU has a flat ad valorem import tariff of 10% on all cars. European manufacturers are charged 2.5% when exporting their cars to the US (Berkowitz, 2013). The exception is for commercial vans or pickup-trucks, which are charged at a rate of 25%. This exception goes all the way back to the 1960s when then US president Lyndon Johnson issued what is now know as the “chicken tax” on pickups, as retribution to France and West Germany placing an import tariff on American poultry (Dolan, 2009).

2.6 Organising trade

2.6.1 Market integration

(Suranovic, 1998, p. 110) suggests there are five distinct levels of market integration. Ranging from the simplest form of a free trade area, to the most complex structure of the monetary union.

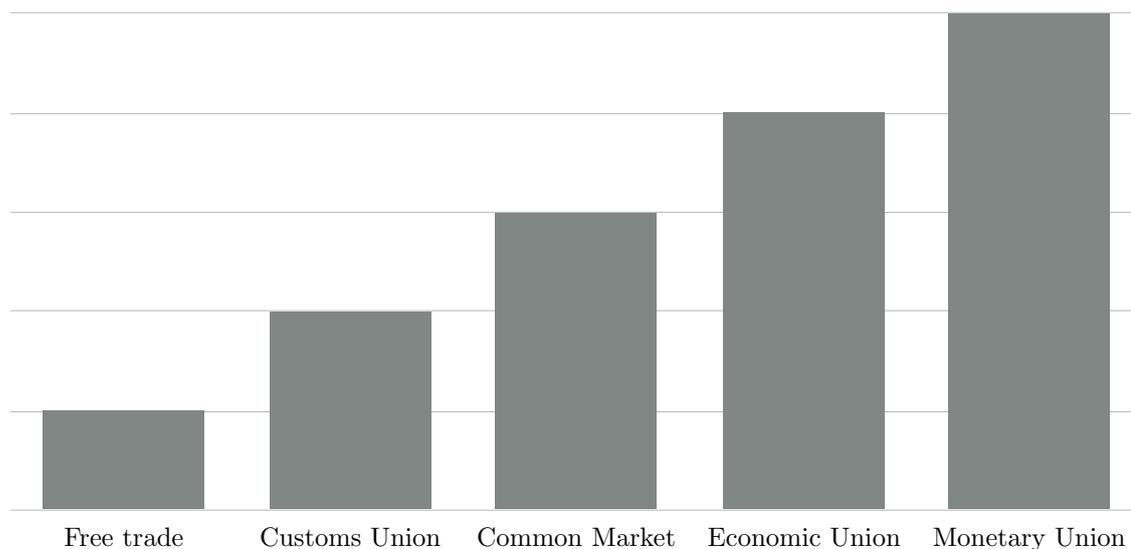


Figure 3 Levels of economic integration according to (Suranovic, 1998)

The monetary union is the most complex and intertwined form of market integration between two or more nation states. In a monetary union, a central monetary authority is created and takes on the role of the central bank of the participating member countries, setting and developing the monetary policy as well as issuing a common currency (Suranovic, 1998, p. 110). The European Union is an example of a Monetary Union (Husted & Melvin, 2010, pp. 263-264). Closely related, in the step preceding the monetary union there is the economic union. At this level of integration, fiscal and monetary policies are harmonised. Goods and services are traded freely within the union, as are the factors of production. The union members jointly set tariffs on goods and services imported from outside the union (Suranovic, 1998, p. 110). The EU can again be seen as an example of this level of market integration, having members who have as well as have not, adopted the Euro as their national currency (Husted & Melvin, 2010, p. 264).

The next step down is the common market. As in the preceding market forms, the movement of goods and services, as well as the production factors, are allowed to move freely between the common market participants. Common market member countries also set external tariffs on imports from non-participants, but do not agree to a common fiscal or monetary policy harmonisation (Suranovic, 1998, p. 110). In a customs union, the tariffs between member countries are removed and common external import tariffs are jointly decided upon. The free movement of labour and capital is however not a part of the customs union (Suranovic, 1998, p. 110). The first step on the ladder is that of a free trade area, in which the contractual parties agree to eliminate, or in some specific cases minimise, the tariffs on goods and services between them. The member countries maintain their own external tariffs on imports from non-member countries (Krugman & Obstfeld, 2009, p. 239).

2.6.2 Trade agreements

A trade agreement can be defined as a contractual agreement between two or more nations in which the parties agree to lessen levels of trade protection between one another. These agreements can be compartmentalised into two distinct types; multilateral or preferential (Krugman et al., 2015, pp. 286-289). In the two forthcoming sections both frameworks are briefly presented and discussed in both a historical sense as well as in a present day setting. In the third section, the shifting trends of trade agreements and their implications going forward are discussed.

2.6.2.1 The multilateral approach

As the framework name suggests, a multilateral approach to overseeing international trade policy involves a large number of countries engaging in negotiations and coming to a mutually agreed conclusion. Beginning with the trade negotiations in the wake of World War II that led to the signing of the General Agreements on Tariffs and Trade (GATT) in 1947, the multilateral approach to international coordination has dominated over its preferential counterpart. The

four defining principles of the GATT framework were: 1) The lowering of tariffs and the elimination of quota restrictions. 2) Tariffs should be implemented on the non-discriminatory “*most-favoured-nation*” basis, meaning that signatories must implement the same tariff-rate against all agreement participants. 3) Once an agreement of tariffs have been made, they may not be increased without due compensation to affected participants. 4) Disputes regarding trade policy are to be settled by consultations. (Husted & Melvin, 2010, pp. 221-223)

The meetings at which discussions are held are often termed as trade rounds. It is during these multilateral meetings that the participants negotiate the extent and terms of trade liberalisation to be applied between the signatories. Since 1947, eight of these trade rounds have been held at various locations across the globe, the last of which, known as the Uruguay round, saw the establishment of the World Trade Organisation (WTO) in 1994 (Husted & Melvin, 2010, pp. 220-223). With the establishment of the WTO, an international organisation was created, replacing the secretariat governing the then provisional GATT agreement. In addition to the incorporation of the original GATT rules on manufactured goods and commodities into the WTO rulebook, the new WTO agreements also contains rules regarding the trade of services, known as the General Agreement on Trade in Services (GATS). The new WTO rules also contains agreements on the Trade Related Aspects of Intellectual Property Rights (TRIPS) as well rules regarding the much debated dispute settlement procedures. Since the creation of GATT by 23 signatories in the late 1940s (Krugman et al., 2015, p. 287), the WTO has grown to 162 member countries (WTO, 2017), responsible for nearly 95 percent of world trade. (WTO, 2014)

The ninth and latest round of WTO trade negotiations began in Doha, Qatar in 2001, and were set to conclude by January 2005. Like previous rounds, the central aim of the Doha round is to further liberalise international trade, this time with increased emphasis on integrating more disadvantaged countries into the the global market (IMF, 2011). A total of 21 topics were put forward as open to negotiation, ranging from market access to issues regarding the environmental impact of trade

(Husted & Melvin, 2010, pp. 229-231). The negotiations began with an aim to reach an agreement under a single undertaking, meaning that a deal would not be struck before the members unanimously accepted all individual components of the agreement (IMF, 2011). This fact, in addition to the width of the agreement and the large number of participants, 153 at the start of negotiations, led to the breaking of the original deadline. Active negotiations continued throughout 2005 and 2006, but failed to produce an agreement (Husted & Melvin, 2010, pp. 230-231). In the years following the stranding of negotiations, several attempts were made to revive discussions. The latest of which, held in 2008, lasted a mere eight days before collapsing, mainly because of differing views on agricultural policy and market access (Krugman et al., 2015, p. 293).

2.6.2.2 The preferential approach

The alternative approach to the multilateral agreements negotiated under the umbrella of the WTO is the preferential trade agreement (PTA), also known as a regional trade agreement (RTA). The two main ways in which these agreements are arranged is either through the signing of a free trade agreement, in which the signatories agree to establish a free trade area (FTA) or, through the formation of a customs union (CU). The basis of both arrangements were briefly discussed in the previous section on market integration.

At this point, it is worth noting that even though there is a distinct difference in the formal process of PTAs compared to the multilateral proceedings conducted under the WTO, the desired outcome is the same, namely the elimination of trade barriers. The fact that they share a common goal means that they are not mutually exclusive, the establishment of PTAs between WTO member states are allowed under article XXIV of the WTO rulebook (Husted & Melvin, 2010, pp. 264-267). In fact, the only WTO member country not participating in a PTA is Mongolia, while the average WTO member is a signatory to 13 PTAs (Rocha & Teh, 2011). Continuing the discussion on the compatibility of multilateral and preferential agreements, it can be noted that Finland, by being a EU member, is

party to 37 PTAs³ with non EU member countries. In addition to this, Finland is naturally also able to engage in free trade with the other 27 countries making up the European Union.

In analysing the trade effects of PTAs, two concepts of trade dynamics are of particular importance; trade creation and trade diversion. The former can be defined as the increase in world trade resulting from an implementation of a PTA. The latter, trade diversion, can on the other hand be defined as the shift in trade patterns from low cost producers to higher cost PTA signatories (Husted & Melvin, 2010, p. 251). In short, trade creation leads to an increase in welfare, while trade diversion leads to a decrease. The desirability of a PTA therefore depends on whether trade creation outweighs trade diversion effects (Krugman et al., 2015, pp. 296-299).

As seen in figure 4, there has been a drastic increase in the number of PTAs signed since the early 1990s. By examining the data further, it can be concluded that the largest increase originates from agreements in which both parties are developing countries. The causes of this increase, as well as its implications on the compatibility of multilateral and preferential arrangements are discussed in the upcoming section of this chapter.

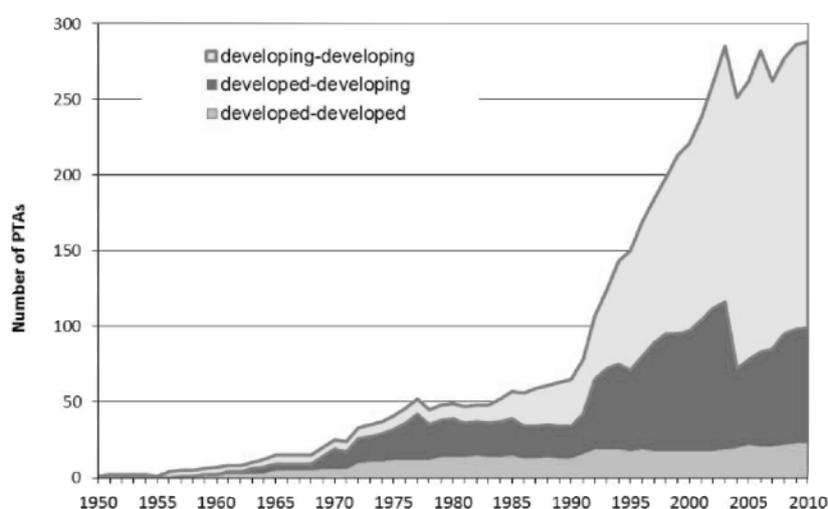


Figure 4 Source: World Trade Organisation (Published with permission by WTO, 2011)

³ For up to date information, see <http://rtais.wto.org/UI/PublicPreDefRepByCountryRTAList.aspx?membercode=246>

2.6.2.3 *The future of trade agreements*

In browsing recent literature on international trade, particularly research concerning the development and future of trade agreements, numerous attempts to explain the rapid raise in PTAs can be observed. Dieter (2009) argues that PTAs provide countries with more immediate reciprocal gains and positive benefits in comparison with multilateral agreements. He further argues that transnational corporations are pushing in the preferential direction, with their motivations being twofold; a need to gain access to previously closed markets, as well as arguing that agreements implemented by third-party countries risk giving them a competitive disadvantage in the market. Dieter (2009) also argue that since the length of the trade rounds conducted under the multilateral system have increased massively, it has become a problem for elected governments, given that the electoral cycle times tend to be shorter than trade rounds.

On a similar note, Moser & Rose (2012) conducted research on the survival rates of RTA agreements based on their time in negotiation. The results show that a survival probability of 0.5 is reached on approx. the 700th day of negotiation; at day 2000, the survival probability is practically zero. Since data points on multilateral negotiations are very limited, there has only been 8 successfully completed rounds, Moser and Rose approximate survival probabilities of multilateral negotiations by using average log. number of members in observed RTAs. Predictions on the survival probability of multilateral agreements resemble the previously observed results, 0.5 survival probability is observed at approx. day 1000. The authors conclude “*negotiations are more protracted when there are more countries at the negotiating table, and when countries are not from the same region*” (Moser & Rose, 2012)

On the issue of the effects the rise of preferentialism has on the multilateral approach to determining international trade policy, the literature appears to be split in two; those who see the discriminatory effects of PTAs as liberalising, and those who see them as purely discriminatory, eroding the benefits of the MFN

system favoured under multilateralism (Baldwin, 2004, pp. 1-2). Proponents of the multilateral system also argue that regionalism is dangerous due to the harmful trade diverting effects it has the potential to create (Husted & Melvin, 2010, p. 267). Chauffour & Jean-Christophe (2011, p. 137) conclude *“So far, there is little evidence that regionalism is overwhelmingly bad for the multilateral trade system, as some had feared, and there is some evidence that regionalism is associated with general liberalisation.”*

3. On CETA

3.1 The beginning

The idea of a trade agreement between the European Union and Canada were first mentioned by officials representing the EU in the middle of the 2000's. On the 5th of May 2009, the two partners jointly announced the start of negotiations with the aim of entering into a comprehensive free trade agreement (Canada & Commission, 2011). Although the EU and Canada share a rich cultural, political, and economic history of collaboration, formally dating back to 1976 and the signing of the bilateral Framework Agreement for Commercial and Economic Cooperation (Canada & Commission, 2011), the launch of negotiations marked a new era of cooperation between the partners. The start of negotiations to enter into CETA also marked a new era in European trade policy with Canada being the first western country to engage in bilateral trade talks with the EU, having previously been mostly focused on entering into agreements with developing countries or emerging economies.

A joint press conference in August 2014 with then Canadian Prime Minister Stephen Harper and President of the European Commission José Manuel Barroso marked the end of negotiations and the first step in ratifying the agreement (Draper, 2017). On the 5th of July 2016, the European Commission proposed the conclusion, and therefore the signature and provisional application of CETA, to the European Council. After the EC's approval on the 28th of October the same

year, the EU and Canada jointly signed CETA two days later. Due to the structure of the European Union, the agreement will not enter into full permanent effect before the all the member states individually ratify the agreement in accordance with their constitutional requirements (EC, 2017a). As of the 21st of September 2017, the CETA agreement is in provisional effect, following the approval of all member states and the European Parliament (EC, 2017c).

3.2 The building blocks of CETA

CETA is frequently named as a prime example of a ‘new generation’ Free Trade Agreement (Kohler & Storm, 2016). Like the ‘traditional’ FTAs discussed in previous chapters, the elimination or broad reduction in tariffs still take centerstage in these new generation FTAs, but unlike their traditional counterpart also include a multitude of additional features and provisions intending to further liberalise trade between their respective signatories. The Commission itself outlines the seven main parts of the CETA agreement in (EC, 2017b).

I. Liberalisation the trade of goods

A reduction of 98% in Canadian tariffs at the tariff line level, making EU exports in Canada cheaper. A similar reduction is applied on Canadian exports to the EU.

II. Liberalisation the trade of services

Aligning and partially eliminating regulation in selected sectors, as well as providing a framework for recognising qualifications in regulated professions.

III. Opening up public procurement

Opening up possibilities for EU and Canadian firms to participate in public procurement programmes in both markets. Eliminating clauses giving preference to domestic firms.

IV. Increasing investment

Aligning regulation in order to increase bilateral investment flows.

V. Protecting intellectual property

Improving intellectual property rights for EU firms in Canada and vice-versa for Canadian firms in the EU.

VI. Sustainable development

Establishing legally binding commitments in the domains of environmental protection and labour rights.

VII. Smaller companies

Making it easier for SME to export, through lowering barriers to entry.

At this point it should have become evident to the reader that CETA is considerably more complex than a standard Free Trade Agreement. What also becomes evident is that FTAs like CETA certainly have the potential to greatly impact bilateral trade flows and as a result, the domestic economies of the signatory countries. Agreements between dominant economic powers may of course, as we saw in previous chapters, also exert externalities on economies not party to the agreement. The exploration of these types of externalities will however not be discussed in this particular paper. Room will instead be given to a brief presentation and overview of a selection of the impact studies conducted on the potential effects of CETA on the economies of Canada and the EU.

3.3 Assessing the impact of CETA

As we saw in the literature overview in chapter 2, standard trade theory maintains that trade liberalisation generally produces a positive net effect on the economy. This insight is also one which an overwhelming majority of academic economists agree on⁴. One would be hard-pressed to find another issue on which the opinions of the community are almost universally aligned.

While economists might agree on issue of free trade, the same cannot be said for society at-large. Firms standing to benefit from increased exports generally express a more favourable view of trade liberalisation, while import-competing firms and certain civil society groupings argue that foreign made goods and products will have a negative impact on the domestic market, resulting in the loss of jobs (Krugman & Obstfeld, 2009, pp. 40-42). It is therefore in the general public's interest to have access to objective research examining the potential impact trade liberalisation may have on the domestic economy. As has been the case for all major trade agreements in recent years, a number of quantitative studies have been produced seeking to predict the impact of the CETA agreement on the involved nations. In the subsequent sections of this chapter, a selection of these impact

⁴ 95% of surveyed economists agree with the statement "Freer trade improves productive efficiency and offers consumers better choices, and in the long run these gains are much larger than any effects on employment." The Initiative on Global Markets Economic Experts Panel: <http://www.igmchicago.org/surveys/free-trade>

studies are briefly presented and discussed. An overview of their results can be found in appendix 1.

3.3.1 The Joint study

The first relatively widely cited impact study of an FTA between Canada and the EU was commissioned by the European Commission and the Canadian federal government at following the annual bilateral summit in June 2007 (Hejazi & Francois, 2008). The study, often referred to simply as ‘The joint study’ instead of its full name of ‘Assessing the the costs and benefits of a closer EU-Canada economic relationship’, predicted short-term static, as well as long-term dynamic gains for both the EU and Canada. Growth in real GDP⁵ is estimated to be 0,77% and 0,08% for Canada and the EU, respectively. In terms of total trade volume⁶, the joint study predicts an increase of 20,6% in Canadian exports to the EU and 24,3% increase in Canadian imports from the EU, of which 18,1 p.p and 21.2 p.p, respectively, stems from the trade in goods. (Hejazi & Francois, 2008)

3.3.2 The Sustainable Impact Assessment (SIA) study

The sustainable impact study, commissioned by the European Commission Directorate-General for Trade (DG TRADE), attempts to shine light on the economic, social, and environmental impact of CETA, taking a different approach compared to the joint and out of equilibrium studies. While using a similar methodology as the other two studies presented, the SIA study can be said to express a more nuanced and balanced assessment of the agreement, capturing not only the direct economic impact of CETA, but also the negative externalities⁷ caused by the re-allocation of production factors stemming from changes in export volumes.

⁵Compared to baseline after 7 years under maximum liberalisation scenario; removal of all tariffs on goods, removal of NTBs on goods and services.

⁶ Goods and services combined

⁷ E.g. Unemployment rates and environmental impact

On the aggregate level, the social impact of CETA is expected to be positive, with a small rise in real-wages in both the EU and Canada. The report does however acknowledge that not all sectors of the economy are likely to see an increase in output, with some industrial and agricultural sub-sectors expected to experience a decrease in output. The report also recognises there is high likelihood that the workers currently employed in these industries would be forced to accept work in less well-paid sectors of the economy. While the displacement of workers is expected to take place on both sides of the Atlantic, the effects are likely to be much smaller in the EU, due in large part to it being a more diversified economy (Kirkpatrick et al., 2011).

In terms of the environmental impact stemming from CETA, the SIA study recognises that while CO₂ emissions from trade-related transportation and increased output in some sectors⁸ is likely to rise modestly, most of the agreement related gains will be in non-polluting service sectors, limiting the overall environmental impact. The study also predicts that a small degree of Canadian imports will be diverted from the US to the EU. This trade diversion has the potential to offset some of the increase in transport related CO₂ emissions as the goods are relegated from the traditionally more polluting road transport to lower-polluting sea freight. (Kirkpatrick et al., 2011)

With regard to macroeconomic impact the SIA study projects only small increases in GDP growth rates. Canada is expected to see a 0.18 to 0.36 percent increase in GDP growth over the baseline at year 2020, significantly less than predicted by the joint study. The EU is however expected to see even smaller changes in GDP as a consequence of CETA. The SIA study predict increases of 0.02 to 0.03 percent of GDP over the baseline at 2020, amounting to one tenth of the Canadian expected net benefit. (Kirkpatrick et al., 2011)

⁸ Mining and mineral sectors, e.g. Canadian tar-sand extraction

3.3.3 *The Out of equilibrium study*

The Out of equilibrium study commissioned by the Canadian Centre for Policy Alternatives suggests that the CETA agreement will have substantial negative consequences for the Canadian economy in terms of rising unemployment and increasing wage inequality. The study can be said to serve two purposes, a critique of the CGE models⁹ utilised in two previous studies discussed in this chapter, as well as an alternative argument against CETA based on the classical national income function¹⁰.

The authors behind the study maintain that CETA will contribute to an increase in the Canadian current account deficit, mainly due to the structure of trade between the EU and Canada. While Canada mainly exports raw materials and commodities, a group of goods which has traditionally faced low tariffs and low NTBs, the Canadian imports from the EU mainly consist of high-value goods facing comparatively higher tariffs and NTBs. (Stanford, 2010) argue that this is due to the European firms being more efficient and therefore possessing a competitive advantage over their Canadian counterparts. Thus, when barriers to trade are lowered, European firms stand to benefit more than their Canadian competitors. The author concludes that this technological advantage will increase the EU's trade balance surplus with Canada, leading to a decrease in the Canadian national income. In addition to this, the production of high value added goods will re-locate to the EU, leading to a decrease in demand of Canadian labour. (Stanford, 2010)

⁹ It is worth noting that while GCE models are widely used in analysing the effects changing trade patterns, they are not without their critics, see e.g. (Capaldo, 2014) or (Taylor & von Amin, 2006)

¹⁰ As traditionally defined, $Y=C+I+G+EX-IM$

3.4 Conclusion

As we have seen in this chapter, the CETA is likely to have some positive impact on the partners bound by the agreement. The predictions concerning the impact on GDP growth vary between 0.02 percent (Kirkpatrick et al., 2011) and 0.08 percent (Hejazi & Francois, 2008) for the EU, and between a general decline (Stanford, 2010) to a positive growth of 0,77 percent (Hejazi & Francois, 2008) for Canada. It is worth highlighting that these growth rates are not year-on-year changes but rather the difference between the estimated base-rate, without CETA, and the predicted rate, with CETA, after 10 years. Secondly, the predictions results presented in the reviewed studies should not be taken at face value. While CGE models are considered a standard tool of empirical analysis in a large number of academic fields, ranging from international trade to environmental policy analysis, they have yet to be proven reliable through ex-post validation of the simulation results¹¹. The results produced by CGE simulations should instead be viewed merely as an indicator of the magnitude of change, not predictions of the future (Piermartini & Teh, 2005).

As a concluding note to this chapter it can be pointed out that at the time of writing this chapter, there has, to my knowledge, not been any study conducted attempting to quantitatively assess the impact of CETA on Finland. Estimates for sector specific impact can be found in (Hejazi & Francois, 2008), which to some extent can be extrapolated in order to form a rough idea of what the agreement entails to individual member states.

¹¹ The ex-post validations performed on previous trade agreements have provided mixed results, see e.g. (Grumiller, 2015)

4. Patterns of Trade

4.1 Introduction

In this chapter, the trade patterns of Finland and Canada are explored. The countries are first briefly presented separately, after which the bilateral trading relationship between the two countries is analysed. In the first section of the chapter, the data source is Statistics Finland. In the remaining sections, data from ITC based on UN COMTRADE statistics is utilised.

4.2 Trade patterns of Finland

The total trade volume¹² of Finland was 106,9 billion EUR in 2016, distributed between 51 878 MEUR in exports and 55 003 MEUR in imports. By looking at chart 1 below, it can be observed that Finland has seen a slight decline in imports, as well as exports over the last ten years, starting with the 2007-08 global financial crisis. What is also evident is that Finland has seen a drastic change in trade balance over the past decade, from a surplus of 6 billion EUR in 2006-07, to a 3 billion EUR deficit in 2016.

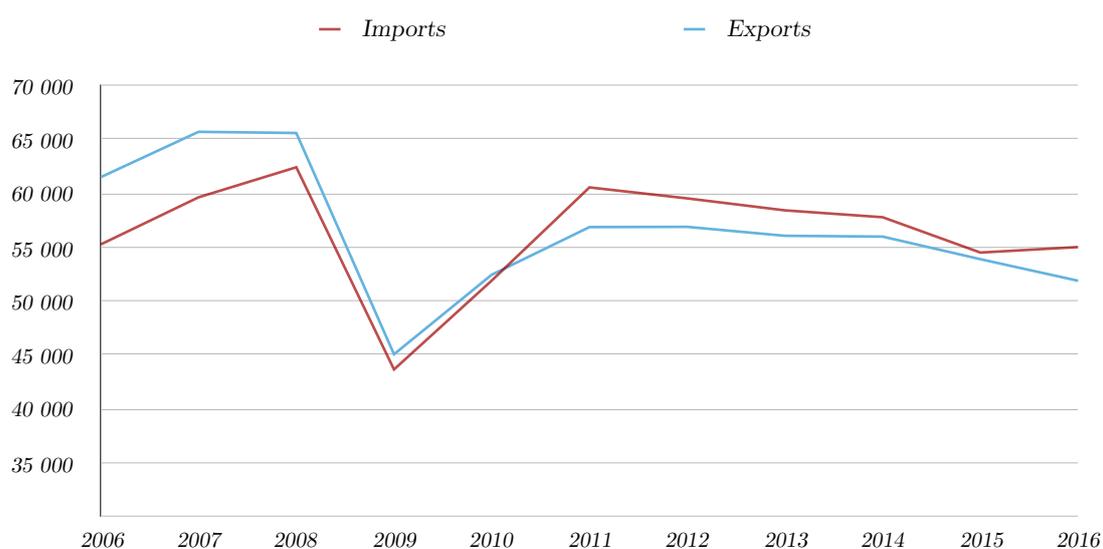


Chart 1 Trade volume of Finland 2006-2016 Source: Statistics Finland

¹² Intra-EU movement of goods and extra-EU exports and imports

As is usually the case¹³, Finland's largest trading partners are either geographically close or very large, as measured by GDP. Germany and Sweden alone, are receivers of a quarter of Finnish exports. The US, the Netherlands and Russia are also considerable importers of Finnish goods.



Figure 5 Distribution of Finnish exports. Source: (Simoes & Hidalgo, 2011)

Looking at the composition of exports listed in table 3, it can be noted that more than 55 percent of goods¹⁴ exported from Finland can be grouped into three main categories; forest industry products, such as paper and paperboard, packaging materials and pulp; products pertaining to the chemical industry, such as various polymers, fertilisers and organic chemicals; metal and metal products, e.g. raw iron and copper, and articles of metallic materials.

Table 3 Export indices of Finland. Source: Statistics Finland

Product type	MEUR	% Share of exports
Forest industry products	11 357	21,9
Chemical industry products	10 223	19,7
Metal and metal products	7 475	14,4
Machinery and equipment	6 949	13,4
Electric and electronics industry products	6 324	12,2
Other	9 549	18,4

¹³ The Newtonian gravity model of trade predicts that levels of trade are negatively correlated with distance and positively with size, in terms of GDP.

¹⁴ By value in 2016

While there are natural changes in the composition of exports over time, mainly resulting from technological advancements and a transformation in world demand (Husted & Melvin, 2010, pp. 13-18), these are sectors of the economy Finland has relied upon for an extended period of time to sustain its exports. A schoolbook example of how these types of changes can affect an entire industry and indeed a whole country, is the transformation the Finnish forest industry went through in late 20th and early 21st century (Hämäläinen, 2011).

Table 4 Import indices of Finland. Source: Statistics Finland

Product type	MEUR	% share of Imports
Chemical industry products	10 050	18,3
Electric and electronics industry products	8 061	14,7
Transport equipment	5 950	10,8
Products from mining and quarrying	5 663	10,3
Machinery and equipment	5 108	9,3
Other	20 173	36,7

Examining the composition of imports to Finland in table 4, it can be concluded that the largest categories consist of chemical industry products, electric and electronics industry products, and transportation equipment. These sectors combined, account for approximately 40% of imports.

4.3 Trade patterns of Canada

The total bilateral trade in goods between Canada and the rest of the world was approximately 1.05 trillion Canadian dollars in 2016, with exports accounting for 515 billion CAD and imports for 533 billion CAD. Canada is therefore, like Finland, a net importer of goods. The largest export groups consists of; transportation, mainly motor vehicles and part thereof; crude oil and other types of fuel; machinery and electrical equipment.

Table 5 Export indices of Canada. Source: UN COMTRADE statistics

Product type	MCAD	% share of exports
Transportation	75 127	19,3
Fuels	62 312	16,1
Machinery and electrical equipment	42 649	11,0
Other	34 047	8,9
Metals	27 673	7,1
Wood	27 670	7,1

Table 6 Import indices of Canada. Source: UN COMTRADE statistics

Product type	MCAD	% share of Imports
Machinery and electrical equipment	101 497	25,2
Transportation	76 967	19,0
Other	35 020	8,7
Chemicals	34 796	8,6
Fuels	25 321	6,3
Metals	24 579	6,1

Canadian bilateral trade can be described as being highly concentrated around the mining and oil & gas industries, importing a large part of the machinery and equipment necessary to extract the raw materials it exports to the rest of the world. It can also be noted that the Canadian trade in goods is highly concentrated in terms of regionality and income level. In 2016, roughly 76% of Canadian exports were bound for the US, with goods moving in the opposite direction amounting to 52% of Canadian imports. The same year, over 80% of total trade was conducted with other high income countries, as can be seen in figure 6.

**Figure 6 Distribution of Canadian exports. Source: (Simoes & Hidalgo, 2011)**

4.4 Current Canadian-Finnish trade

As of 2016, the value of the bilateral trade between Canada and Finland amounted to 820 MEUR, consisting of 428 MEUR worth of Canadian exports to Finland, and 393 MEUR worth of Finnish exports to Canada.

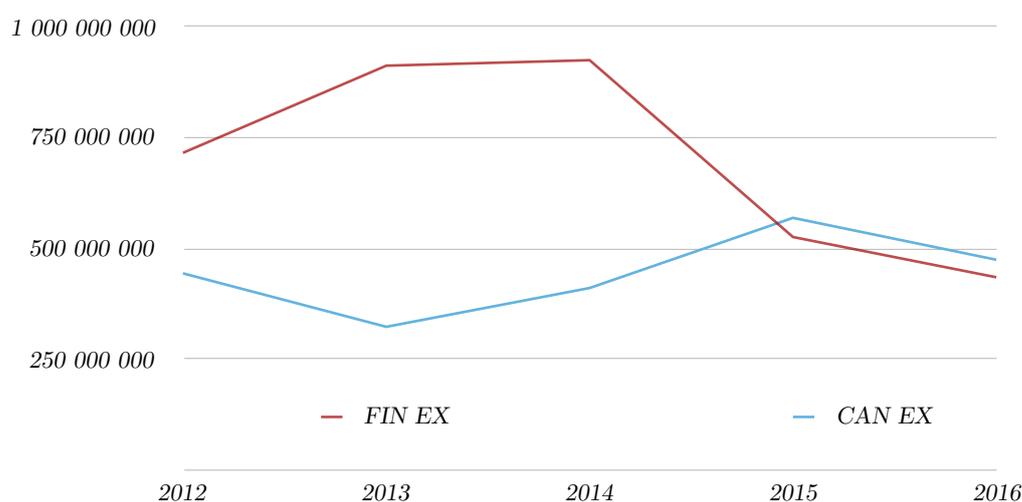


Chart 2 Bilateral trade between Finland and Canada. Source: UN COMTRADE Statistics

Thus, it can be concluded that Finland has a slight deficit of 35 MEUR in the trade balance towards Canada. This has however not always been the case. The historical data illustrated in chart 2, shows that Finnish exports to Canada has been cut in half since the highpoint in 2014. The single largest contributing factor to this decrease in total exports is the decline in exports of mineral fuels and oils, falling from 271 MEUR in 2014 to 18 MEUR in 2016. With 0,76% of Finnish exports going to Canada and 0,13% of Canadian exports going to Finland, they are each others 22nd and 33rd, respectively, largest trading partner.

As is seen in table 7 below, Finnish exports to Canada consist mainly of industrial machinery and vehicles of various types, mostly automobiles and vehicles used in the Canadian natural resources industries. Finnish imports from Canada consist mainly of natural resources and other commodities. Various kinds of natural minerals and fuels stand for approximately 55% of imports.

Table 7 Bilateral trade between Finland and Canada. Source: UN COMTRADE Statistics

Product	CAN EX to FIN % of total	FIN EX to CAN, % of total
Machinery and electrical equipment	8,5	33,1
Other	6,9	18,7
Transportation	12,6	15,9
Metals	2,3	8,8
Minerals	29,1	7,2
Fuels	24,8	4,8
Wood	1,34	3,7
Plastics and rubber	3,3,	3,1
Chemicals	3,9	2,1
Food products	1,1	0,8
Total (US\$ Thousand)	428 408	392 584

5. Methodological Review

In this chapter, the methods used to answer the research questions are presented and discussed. It begins with an introduction to HS-nomenclature, before continuing with an overview of the Partial Equilibrium (PE) model used in the first analysis, covering the general theory as well as the practicalities of performing the PE analysis. In the subsequent sections, the datasources utilised in the second quantitative analysis are defined, as are the mathematical models used to calculate the RCA and ITP values. The chapter concludes with a description of the practical work needed to compile and analyse the gathered data.

5.1 The HS-Nomenclature

The Harmonised Commodity Description and Coding System, often referred to as the Harmonised System or just HS, is an international product identification system developed by the World Customs Organisation (WCO) and used by over 200 countries worldwide (WCO, 2016). The HS is divided into 21 sections containing a total of 99 chapters. Chapters are divided into headings, which are further divided into sub-headings (COMTRADE, 2017). An explanatory example is of assistance in this case.

The first two digits of the HS code specify the chapter, often referred to as the HS2 level, in which the goods are classified, e.g. chapter 52 = Cotton. Chapter 52 is further divided into 12 sections (HS4-level), e.g. 5204 = Cotton sewing thread, whether or not put up for retail sale. Section 5204 is divided into three subsections (HS6), e.g. 520411 = Not put up for retail sale, containing 85 % or more by weight of cotton. The HS code for a roll of cotton sewing thread, not intended for retail sale and containing >85% of cotton, would then be 520411 (WCO, 2012).

5.2 Equilibrium theory

As mentioned in the introductory chapter of this thesis, the Computerised General Equilibrium (CGE) is considered an industry workhorse within the field of international trade and policy analysis. Without going into too much detail, the GE model attempts to explain how changes in production and consumption of goods and services affect the economy (Husted & Melvin, 2010, pp. 31-34). This is done by tracing the circular flow of income from labour and capital in the economy. As prices are changed as a result of a policy decision, the model seeks to set new market clearing prices and quantities, putting the economy back into equilibrium (Narayanan et al., 2015, pp. 5-8). The main reason for the methods rise to the top has been the evolution of trade agreements, as discussed in chapter 3. These new types of trade agreements, focused not only on reducing tariffs but also on reducing NTBs within the services sector and increasing bilateral investments, require an advanced approach to modelling changes in trade patterns (Narayanan et al., 2015, p. 5).

In cases where the GE approach is deemed inaccessible, because of reasons previously mentioned or otherwise unnecessarily complex for the task at hand, a Partial Equilibrium (PE) model may be of use instead. While both models share the same core functionality, setting supply and demand into equilibrium, the main difference between GE and PE models is in its scope. While GE model attempts to capture the effects of a policy change on the market as a whole, the PE model only captures the effect on one specific market (Narayanan et al., 2015, p. 23).

One of the main advantages of utilising a PE model, is the inherent ability to model the effects of trade liberalisation on specific commodities or groups of products. In contrast, most GE models aggregate the economy into only a few sectors, making in-depth analysis impossible. For this reason, the PE model is found to be a suitable method for use in this study.

5.3 WITS-SMART model

The World Bank developed SMART¹⁵ model is a multi-country, multi-commodity partial equilibrium model used for assessing the implications of tariff reductions on specific sectors of the economy. The results the SMART model produces cannot technically be referred to as predictions, as they are the results of a counterfactual analysis using actual trade data subject to user specified scenarios. That is, what would have happened to trade flows in the base year, given the specified changes in tariffs.

The web-based application is accessible through World Integrated Trade Solution (WITS) and utilises trade and tariff data from the UNCTAD TRAINS database. The SMART model can simulate changes in imports and exports, as well as trade diversion and creation. As this thesis is limited to assessing the impact on Finnish exporters, this is the only result of interest in this particular case.

The SMART model is built upon around user-defined scenarios of tariff reduction, in which the user specifies the parameters needed to perform the simulation. The user specifies the home country (the country in which tariffs are reduced), the partner countries (the countries which benefit from the reduction), the products effected by the tariff reduction (classified by HS-code), the substitution elasticity, the supply elasticity and finally the new tariff to be applied. In this study the following scenario was used:

¹⁵ The World Bank: wits.worldbank.org/WITS/WITS/TariffAndTradeSimulations/SMART/SmartQuery.aspx?Page=SMART

Home country = Canada
Partner country = All EU28-countries
Products = All HS codes
Substitution elasticity = 1,5
Supply elasticity = 99
New tariff = 0

In terms of elasticities, the import demand elasticity have been pre-defined by SMART and varies according to product group. The substitution/Armington elasticity is definable, but the default value of 1,5 has been kept. One reason for maintaining the default value is the lack of consensus in the literature. The default value of 1,5 is in part supported by work performed by (Gallaway, McDaniel, & Rivera, 2003), who find that long-run estimates range from 0.52 to 4.83 at the 4-digit level, with short-run estimates roughly half as high. The export supply elasticity has been set to 99, meaning infinite elasticity. This is justified as the tariff reductions are relatively small and Canada considered a small market for most goods, it is therefore assumed that the exporting country is able to increase exports to meet increasing import demands without an increase in global prices.

After completing the simulation, the results were downloaded and imported into Microsoft Excel for data sorting and analysis. The HS6 level data was converted and summed to HS4 level, after which it was cross referenced with annex 2A of the finalised CETA agreement in order to exclude product categories not included tariff elimination.

5.4 Revealed comparative advantage

As discussed in chapter 2, Ricardo's theory of comparative advantage is a key concept in international trade. It can be of help in understanding why nations trade in the way they do and why the the composition of trade look like it does (Bowen, 1998, pp. 15-16). While there are multiple ways of measuring the comparative advantage of a nation relative to the rest of the world (Moenius, 2006), a widely used method in practical trade analysis is to study the export patterns of the target country (Bowen, 1998, pp. 16-18). The underlying

comparative advantages a country possess can thus be “revealed” through the empirical study of its trade flows. This concept of Revealed Comparative Advantage (RCA) is often attributed to (Balassa, 1965), and often referred to in the literature as the Balassa-index or BRCA.

At this point, it is important to note that the Balassa-index does not point out the underlying sources of comparative advantage a nation possesses, whatever they may be. It merely provides us with the possibility to infer what they are, given the basic assumption, that countries specialise in producing the good in which they maintain a comparative advantage, of the Ricardian theory.

Utilising the definition of RCA, as presented by (Balassa, 1965), RCA indices for Finland were calculated using the following equation:

$$RCA_j^i = \left(\frac{ex_j^i}{\sum ex_j} \right) / \left(\frac{\sum ex_w^i}{\sum ex_w} \right)$$

Equation 1

Where,

RCA_j^i is the revealed comparative advantage of good i in country j

ex_j^i is exports of good i from country j

$\sum ex_j$ is the sum of all exports from country j

$\sum ex_w^i$ is the sum of world exports of good i

$\sum ex_w$ is the sum of world exports

If $RCA_j^i > 1$, the country is said to possess a revealed comparative advantage in the production of good i , and is said to be specialised in the production of that good. Similarly, if the value is < 1 , the country is said to have a disadvantage compared to the rest of the world.

5.5 Indicative trade potential

The Indicative Trade Potential (ITP) is a simple measure of potential trade between two countries. While not extensively covered in the conventional literature on international trade analysis, it has found some practical use in market research and exploration studies, aimed at assessing the possibilities of increasing exports¹⁶.

The ITP is defined as follows in (Helmets & Pasteels, 2006):

$$ITP^i = \min[ex_a^i, im_b^i] - im_{b,a}^i$$

Where,

ITPⁱ is the indicated trade potential for good *i*

ex_aⁱ is the export of good *i* from country *a*

im_bⁱ is the import of good *i* to country *b*

im_{b,a}ⁱ is the import of good *i* to country *b* from country *a*

Equation 2

The formula suggest that when ITP is positive, the target country *b* is an importer of good *i* and is thus considered to have a demand for good *i* while country *a* is an exporter of good *i*, representing supply, a potential to increase exports to the target market exists.

An additional measure of “Relative ITP” is added. RITP is defined as follows:

$$RITP^i = \left(\frac{ITP^i}{EX_j^i} \right)$$

Equation 3

That is, when RITP is = 1, the importing country is theoretically able to absorb all of country *j*'s exports of good *i*.

¹⁶ See e.g. (Rensburg & Nqaba, 2014), (Péridy, 2005) or (Cieslik, 2017)

5.6 Data sources

In order to reliably estimate the revealed comparative advantage of nation, detailed export and import data at, or close to, the tariff-line level is needed. A suitable data source for the analysis of trade patterns are the official foreign trade statistics of the countries involved in the analysis (Bowen, 1998). One large benefit of this method is the non-need of sampling, as the data is considered a complete and accurate account of the movement of goods. As the data has already been collected and processed to some extent by the governmental agency responsible for statistical reporting, research using this type of data is often referred to as secondary research (Bryman, 2001, p. 196).

The trade data used in the second analysis is compiled by the International Trade Centre, a joint organisation of the World Trade Organisation (WTO) and the United Nations (UN), based on data from the national statistical agencies and other statistical aggregators. In this particular analysis, statistics from UN COMTRADE (United Nations Commodity Trade Statistics Database) and Eurostat are used. The primary reason for choosing ITC as the datasource was the detailed longitudinal, currency corrected tariff-line level data available. The data used in the analysis covers all bilateral trade in goods between Canada and Finland over the period of 2012-2016 at the HS2 and HS4 level¹⁷.

In addition to data on bilateral trade, a detailed dataset on applied MFN and non-MFN applied tariffs at the HS2 and HS4 level was also needed. This data is provided by the WTO, and downloaded through their Tariff Download Facility¹⁸. A brief overview of the HS system is provided in the forthcoming section of this chapter.

¹⁷ Available at the International Trade Center: <http://www.trademap.org/Index.aspx>

¹⁸ Available at The World Trade Organization: <http://tariffdata.wto.org>

5.7 Compilation and analysis

As mentioned earlier, the data constituting the basis for the calculations and subsequent analysis was downloaded from the ITC's TradeMap portal and the WTO Tariff Download Facility. The data needed to perform the analysis was naturally not all available in one single file, and would thus have to be combined at a later stage in order to perform the needed calculations. The following data was needed:

- Total world export on HS2 and HS4 levels over a period of 2012-2016
- Exports from Finland on HS2 and HS4 levels over a period of 2012-2016
- Exports from Finland to Canada on HS2 and HS4 levels over a period of 2012-2016
- Canadian Imports from the world on HS2 and HS4 levels over a period of 2012-2016
- Canadian export to the world on HS2 and HS4 levels over a period of 2012-2016
- Average MFN tariffs on Canadian imports at HS4 level

At this stage, a decision on the choice of software for analysing the data had not been made. The decision-set consisted of the well-known Microsoft Excel, IBM's SPSS, and the econometric analysis software Gretl. After careful deliberation, Excel was chosen due to its ease of use and general suitability for the tasks at hand.

The data was downloaded in Microsoft Excel .XLS format, after which it was cleaned of unnecessary variables and formatted in order to facilitate the calculations. The data was then combined from the various files into one single file consisting of multiple sheets, after which data was merged based on HS code into one single sheet. RCA and ITP calculations were performed. The results were then cross-referenced with annex 2A of the final agreement in order to verify that no relevant clauses exist, preventing the elimination of tariffs in the selected categories.

6. Results

In this penultimate chapter the results of the study are presented. Categories of products at the HS2 level in which Finland currently has a RCA are listed and presented, as are the findings at the HS4 level. The results of the PE simulation and secondary analysis using RCA and ITP values are presented, after which they are discussed in the final chapter.

6.1 The revealed comparative advantage of Finland

Out of the 98 HS-codes surveyed, an RCA is found to be present, i.e. > 1 , in 25 instances. The largest RCA can be found within HS-code 43 - Fur-skins and artificial fur with an value of 17.4 in 2016. Lagging some way behind are the more traditionally large sectors of the Finnish economy, namely the closely related wood and paper industries.

Table 8 RCA of Finland at HS2 level

Product category	RCA 2014	RCA 2015	RCA 2016
Fur-skins and artificial fur	18,4	24,6	17,4
Paper and paperboard	13,8	14,6	14,9
Pulp of wood	10,6	11,1	11,7
Zinc	10,5	11,4	11,1
Wood and articles of wood	5,8	5,9	6,1
Nickel	4,6	4,4	6,8
Iron and steel	3,0	3,3	3,3
Other base metals	3,4	3,4	2,9
Albuminoidal substances	2,9	2,8	3,0
Ships, boats and floating structures	3,3	3,0	2,6
Arms and ammunition	3,8	3,2	2,3
Copper	2,2	2,3	2,4
Fertilisers	1,4	1,7	1,8
Tanning or dyeing extracts	1,9	1,8	1,7
Inorganic chemicals	1,6	1,6	1,7
Articles of stone, plaster, cement, asbestos, mica materials	1,8	1,6	1,5
Dairy produce	1,6	1,6	1,5
Optical, photographic, cinematographic, measuring, checking, precision	1,4	1,4	1,4
Impregnated, coated, covered or laminated textile fabrics	1,3	1,3	1,2
Wadding, felt and nonwovens	0,9	1,1	1,2
Explosives	1,3	1,0	1,3
Machinery, mechanical appliances, nuclear reactors, boilers	1,2	1,2	1,1
Printed books, newspapers, pictures and other products of the printing	1,2	1,1	1,1
Plastics and articles thereof	1,2	1,1	1,1
Miscellaneous chemical products	1,1	1,1	1,1

Other industries showing a relatively large RCA value are the mining and mineral industries, with zinc, nickel, iron and steel all showing RCA values above 3. These four commodities are also responsible for a significant part of Finnish exports, amounting to a combined value of 4,4 billion EUR in 2016, or 8% of total exports.

Moving on from chapter to heading level data, there is a noticeable increase in RCA values. This is however to be expected, as the heading level data is considerably more precise in its definition and larger variances in values are likely. The below table contains the mean average RCA for the years 2015-16 for the 20 product headings with the largest RCA. Values have been averaged in order to minimise the effect of an abnormal increase in export values in any one year.

Table 9 RCA of Finland at HS4 level

Product code	Product category	2015/16 Average
7401	Copper mattes	68,7
4806	Vegetable parchment, greaseproof papers, tracing papers	62,3
4810	Paper and paperboard, coated on one or both sides with kaolin	45,7
3807	Wood tar; wood tar oils	45,1
4301	Raw fur-skins, incl. heads, tails, paws	40,8
8439	Machinery for making pulp of fibrous cellulosic material	39,1
7219	Flat-rolled products of stainless steel	25,0
1004	Oats	22,1
2706	Tar distilled from coal, from lignite or from peat	18,9
3803	Tall oil, whether or not refined	18,3
8436	Agricultural, horticultural, forestry, poultry-keeping machinery	17,2
4705	Wood pulp	16,5
4703	Chemical wood pulp, soda or sulphate	16,0
3507	Enzymes	14,3
4807	Composite paper and paperboard	14,3
3806	Rosin, resin acids and derivatives thereof	13,9
9303	Firearms and similar devices	13,7
4407	Wood sawn or chipped lengthwise, sliced or peeled	13,6
7901	Unwrought zinc	13,5
4804	Uncoated kraft paper and paperboard	12,7

As in the chapter level data, the forestry related categories are well represented on the heading level, with “Paper and paperboard, coated on one or both sides with kaolin” and “Machinery for making pulp of fibrous cellulosic material” maintaining RCA’s of 45,7 and 39,1, respectively. Other product categories related to the wood

and paper industries also scoring high are, “Vegetable parchment, greaseproof papers, tracing papers”, “Wood tar; wood tar oils”, “Composite paper and paperboard” and “Chemical wood pulp, soda or sulphate”.

6.2 Tariffs and duties

While the tariffs Canada applies to goods imported into its market are already considered low by international standards, amounting to a weighted average of 3.1% in 2015¹⁹, there are some areas of the economy which are deemed to be in need of extra protection through higher tariffs. A classic example of a sector which is deemed to be of national importance are the agricultural and food industries. This is also the case for Canada.

Filtering the HS4 level data according to the logic: products in which RCA of Finland is >1 and where Canadian applied tariffs are >0 , yields a list of 64 product categories. Among the products currently facing the highest tariffs are, Barley (57,8%), Cruise ships (24,2%), Maritime vessels (20,6%), Garments (12,6%), Whey (11%) and Yachts and other pleasure vessels (8,3%). The complete list can be found in appendix 2. Several products and sectors important to the Finnish economy can be identified among the 64 categories. Among them are, Motor vehicles, facing tariffs of 3 to 6 percent, and accounting for roughly 1200 MEUR of exports. Car tyres, facing tariffs of 3,1% and accounting to 350 MEUR of exports, as well as the aforementioned ship and vessel building industries, which together account for roughly 750 MEUR of exports in 2016.

6.3 Partial Equilibrium results

The PE analysis was carried out with the parameter set as described in chapter 5. The complete list of HS4 levels in which an increase is predicted is available in appendix 3. In table 10 below, the top 12 product codes are listed, sorted by the

¹⁹ Current statistics for most countries can be found at The World Trade Organization https://www.wto.org/english/res_e/statis_e/statis_maps_e.htm

simulated changes in exports from Finland to Canada following the introduction of tariffs eliminations under CETA. These categories account for roughly 82 % of the totals estimated change. The simulated total impact on Finnish export to Canada is 14,3 million USD, and increase of 2,3 percent over the baseline 2016 level.

Table 10 PE simulation results, top 12 categories by change in value.

Product code	Change in EX (USD)	% Change	Staging Category (SC)
Motor vehicles for the transport of goods	3 073 455	11 %	B
Petroleum oils and oils obtained from bituminous minerals	2 939 966	6 %	
Motor cars and other motor vehicles, personal transport	2 238 442	6 %	D
New pneumatic tyres, of rubber	1 308 942	11 %	
Firearms and similar devices	578 472	15 %	
Parts and accessories for tractors	415 483	8 %	
Yachts and other vessels for pleasure or sports	305 301	29 %	
Base metal mountings, fittings and similar articles	221 611	7 %	
Surveying equipment	155 031	5 %	
Parts of footwear	150 871	30 %	
Tractors (other than tractors of heading 8709)	149 374	6 %	
Hand tools	148 311	14 %	
Total for all categories	14 277 568	2,3 %	

As is seen, the largest increases in exports are found in the transportation sector, with vehicles for the transport of persons and goods responsible seeing an increase in excess of 5 MUSD, an increase of 6-11% over 2016 values. Some of these categories are however subject to different staging categories in CETA, meaning that the tariff reduction will not be immediately in effect. The tariffs for “Motor vehicles for the transport of goods” (Staging category B) will be removed in four equal stages during the first four years of the agreement, meaning that goods in this HS-category will be completely tariff-free on the 1st of January 2020. Similarly, Motor cars and other motor vehicles, personal transport (D) will be tariff-free on the 1st of January 2024 (CETA, 2017, p. Annex 2A).

The petrochemical industry is also expected to see a slight increase in exports to Canada, but not as much as to make up for the previously mentioned decrease experienced in 2015. Manufactures of rubber tyres are also expected to experience a slight increase in demand on the Canadian market as a result of tariff eliminations.

6.4 Combined RCA/ITP results.

As mentioned in the introductory chapter in this thesis, the PE simulation is not able to capture the effects of CETA on goods not currently being exported to Canada. Due to this limitation, the alternative analysis was conducted with the aim to uncover export opportunities arising from tariff eliminations. In table 11 below, the main findings of the second analysis are presented. The basic logic leading to the results is as follows: Goods in which Finland possess an $RCA > 1$; and exports to Canada under 2016 = 0 and average tariff faced by Finnish exports is > 0 and ITP is > 0 .

Table 11 Results of RCA/ITP study in Finnish exports to Canada

Product label	Avg RCA 2015/2016	Avg tariff	ITP 2016 (EUR)	RITP	SC
Cruise ships, excursion boats, ferry-boats	3,58	24,2	235 978 000	0,5	B-D
Motor vehicles for the transport of ≥ 10 persons	1,72	6,1	118 116 000	1,0	C
Special purpose motor vehicles	3,27	4,4	101 732 000	1,0	
Paints and varnishes, incl. enamels and lacquers	3,39	6,5	58 384 000	1,0	
Whey	4,42	11,0	52 770 000	1,0	E
Casks, drums, cans, boxes and similar containers	3,16	6,5	51 363 000	1,0	
Articles of asphalt or of similar materials,	5,17	4,5	29 199 000	1,0	
Barley	1,38	57,8	25 526 000	1,0	C
Fruit and nuts	1,64	7,9	21 977 000	1,0	
Articles of asbestos-cement	5,58	5,0	21 296 000	1,0	
Vessels, incl. warships and lifeboats	2,30	20,6	7 274 000	1,0	B
Propellent powders	7,43	6,5	6 267 000	0,6	
Prepared explosives (excluding propellent powders)	1,95	6,5	6 020 000	1,0	
Scissors, tailors' shears and similar shears	2,59	7,0	5 383 000	1,0	
Anti-freezing preparations and prepared de-icing fluids	1,42	6,5	4 924 000	1,0	
Balloons and dirigibles	2,34	5,5	351 000	1,0	
Total			746 560 000		

As observed in the table below, the Finnish shipbuilding industry may be considered large benefactors of the CETA agreement. The tariffs for marine vessels have traditionally been relatively high in Canada, ranging between 15 and 25 percent. This is also an industrial sector in which Finland has a considerable comparative advantage and large production resources. The calculated ITP value is in excess of 240 MEUR. It should be evident, but it may still be worth noting that because of how the ITP value is calculated, the actual import demand for marine vessels will most likely be considerably higher following the gradual reduction in

tariffs over the coming years. The same logic is of course true for other product categories historically facing steep tariffs.

7. Discussion and Conclusion

The purpose of this thesis was to find an answer to the question stated in the introductory chapter, ‘Are there sectors in the Finnish export market which stand to gain from tariff elimination under CETA? If so, which are they?’ I find that this question has been answered to the extent possible utilising the methodologies selected to complete this thesis. The PE analysis clearly shows that the Finnish automotive transport sector is, by far, the industrial sector which stands to gain the most from Canadian tariff elimination. The PE simulation show that had Canadian tariffs been eliminated at the start of 2016, automotive transportation related exports would have been roughly 9 percent higher at the end 2016. The simulation is however a crude simplification of the real world, not taking into account other important factors impacting trade flows. The impact of non-tariff-barriers and measures, as discussed in chapter 3, is not accounted for in the simulation.

While the PE analysis is a simple and easy to use tool for estimating the impact of changes in trade policy, this simplicity is also its greatest weakness. As global tariff-rate levels decrease, their importance in the overall trade-cost equation is also diminished. Following this logic, it is not inconceivable that the PE simulation is severely under-estimating the impact of CETA on exports. Similarly, the simulation merely takes the marginal costs of exporting into account, overlooking the fixed costs associated with export goods to foreign markets.

In the second analysis, using a combination of revealed comparative advantage and indicative trade potential estimations, the shipbuilding industry show significant export-led growth potential. The same goes for the automotive and, to a lesser extent, the agricultural industry (barley and whey) The latter being a traditionally well-protected sector of the domestic economy. How the removal of tariffs will

effect these “new” exports remains to be seen, it is however probable that the volume of trade within these product categories will increase as trade costs decrease.

Another reason to suspect that the analysis underestimates the effect on exports is that it does not take one important component of exports into account, namely the services sector. As the services share of total exports continue to increase, it is likely that a large part of the increase in total exports will be contributed to the services sector. This is line with the results found in (Kirkpatrick et al., 2011) and (Hejazi & Francois, 2008).

The combination of these two methodologies does however offer up two noticeable advantages over the GCE and gravity methodologies frequently used in similar, albeit more extensive, studies. It is considerably more accessible to non-experts, while at the same time being much more detailed from a tariff analysis perspective, being capable of providing dis-aggregated results down to the HS6 level. As a comparison, the current version of the GTAP CGE breaks down trade flows into 57 distinct sectors, e.g. “Manufactures” (GTAP, 2014).

On the issue of improving and furthering the research undertaken, a couple of obvious, but nonetheless noteworthy suggestions come to mind. In order to broaden the understanding and thereby obtain a more complete account of what CETA entails for the firms producing goods for the domestic market, the impact of Canadian exports to Finland would also have to be taken into account. By including these import-competing goods in the analysis, the potential negative effects on domestic producers stemming from increased competition would also be uncovered. Secondly, using customised Armington/substitution elasticities for individual product categories would certainly add a degree of reliability to the research. However, due to the complexity and considerable data requirements necessary to reliably estimate Armington elasticities for individual categories, it was unfortunately not feasible to complete such an analysis at the HS4 level in this particular study.

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Appendices

Appendix 1

	The Joint Study		SIA		Out of Equilibrium	
	Canada	EU	Canada	EU	Canada	EU
Real GDP (+%)	0.77	0.08	0.18-0.36	0.02-0.03	-	+
Trade in goods (%)	18.1	21.2	0.54-1.56 (total CAN exports)	0.05-0.07 (total EU exports)	+	+
Trade in services	14.2	13.1	Not listed	Not listed	+	+
Sectors benefiting	Processed foods, primary agriculture, metals, transportation services	Processed foods, chemicals, machinery and equipment, and transportation services	Decrease in goods, fully offset by increase in services	Mostly services	Agriculture, minerals and metals benefiting	Chemicals, petroleum, machinery negatively effected.

Appendix 2

Products category	MFN applied tariffs
Barley	57,8
Cruise ships	24,2
Vessels	20,6
Garments made up of felt or nonwovens	12,6
Whey	11,0
Yachts and other vessels for pleasure or sports; rowing boats and canoes	8,3
Sugar confectionery not containing cocoa	8,0
Fruit and nuts	7,9
Scissors	7,0
Propellent powders	6,5
Prefabricated buildings	6,5
Paints and varnishes	6,5
Casks	6,5
Paints and varnishes	6,5
Prepared explosives (excluding propellent powders)	6,5
Baths	6,5
Anti-freezing preparations and prepared de-icing fluids	6,5
Peat	6,5
Builders' ware of plastics	6,5
Knives with cutting blades	6,4
Radiators for central heating	6,3
Motor vehicles for the transport of ≥ 10 persons	6,1
Rafts	6,0
Trailers and semi-trailers; other vehicles	6,0
Saddlery and harness for any animal	6,0
Balloons and dirigibles; gliders	5,5
Paints and varnishes	5,4
Articles of asbestos-cement	5,0
Structures and parts of structures "e.g.	4,9
Motor vehicles for the transport of goods	4,8
Articles of asphalt or of similar materials	4,5
Special purpose motor vehicles (other than those principally designed for the transport of ...	4,4
Lamps and lighting fittings	4,3
Cereal grains otherwise worked	4,2
Lubricant preparations	3,9
Bombs	3,9
Fishing rods	3,6
Firearms and similar devices which operate by the firing of an explosive charge	3,5
Articles of iron or steel	3,4
Hand tools	3,3
Coin	3,3
Articles of aluminium	3,3
Builders' joinery and carpentry	3,1
New pneumatic tyres	3,1
Tractors (other than tractors of heading 8709)	3,0
Cider	3,0
Other articles of copper	2,7
Padlocks and locks "key	2,6
Packing cases	2,6
Tableware	2,3
Self-adhesive plates	1,6
Tubes	1,3
Retreaded or used pneumatic tyres of rubber; solid or cushion tyres	1,3
Electrical signalling	1,1
Mechanical appliances	1,1
Petroleum oils and oils obtained from bituminous minerals (excluding crude)	1,0
Machinery	1,0
Surveying	0,9
Hydrometers	0,9
Direction finding compasses	0,8
Chain and parts thereof	0,8
Wood	0,6

Electrical apparatus for switching or protecting electrical circuits	0,3
Machines and mechanical appliances having individual functions	0,1

Appendix 3

Product code	Pre	Post	Change in EX
Motor vehicles for the transport of goods, incl. chassis with engine and cab	27 805 407	30 878 862	3 073 455
Petroleum oils and oils obtained from bituminous minerals (excluding crude); preparations containing ...	52 423 274	55 363 239	2 939 966
Motor cars and other motor vehicles principally designed for the transport of persons, incl. ...	35 673 732	37 912 174	2 238 442
New pneumatic tyres, of rubber	12 342 182	13 651 124	1 308 942
Firearms and similar devices which operate by the firing of an explosive charge, e.g. sporting ...	3 747 853	4 326 324	578 472
Parts and accessories for tractors, motor vehicles for the transport of ten or more persons, ...	5 401 826	5 817 309	415 483
Yachts and other vessels for pleasure or sports; rowing boats and canoes	1 045 035	1 350 336	305 301
Base metal mountings, fittings and similar articles suitable for furniture, doors, staircases, ...	3 336 806	3 558 417	221 611
Surveying, incl. photogrammetrical surveying, hydrographic, oceanographic, hydrological, meteorological ...	2 959 511	3 114 542	155 031
Parts of footwear, incl. uppers whether or not attached to soles other than outer soles; removable ...	497 312	648 183	150 871
Tractors (other than tractors of heading 8709)	2 544 213	2 693 587	149 374
Hand tools, the following: spades, shovels, mattocks, picks, hoes, forks and rakes, of base ...	1 061 935	1 210 246	148 311
Sugar confectionery not containing cocoa, incl. white chocolate	1 033 782	1 170 226	136 444
Structures and parts of structures "e.g., bridges and bridge-sections, towers, lattice masts, ...	630 676	760 201	129 525
Articles of plastics and articles of other materials of heading 3901 to 3914, n.e.s.	2 135 359	2 264 788	129 429
Refrigerators, freezers and other refrigerating or freezing equipment, electric or other; heat ...	1 508 417	1 621 699	113 282
Special purpose motor vehicles (other than those principally designed for the transport of ...	238 517	331 607	93 090
Padlocks and locks "key, combination or electrically operated", of base metal; clasps and frames ...	2 403 635	2 494 285	90 650
Electric instantaneous or storage water heaters and immersion heaters; electric space-heating ...	699 407	787 150	87 743
Sanitary towels (pads) and tampons, napkins and napkin liners for babies, and similar articles, ...	212 064	299 110	87 046
Fishing rods, fish-hooks and other line fishing tackle n.e.s; fish landing nets, butterfly ...	728 083	806 727	78 644
Articles of iron or steel, n.e.s. (excluding cast articles)	967 027	1 040 167	73 140
Radiators for central heating, non-electrically heated, and parts thereof, of iron or steel; ...	597 658	670 277	72 619
Microphones and stands therefor (excluding cordless microphones with built-in transmitter); ...	452 008	524 596	72 588
Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not ...	532 737	595 915	63 178
Hydrometers, areometers and similar floating instruments, thermometers, pyrometers, barometers, ...	1 876 081	1 937 569	61 488
Articles of vulcanised rubber (excluding hard rubber), n.e.s.	980 986	1 031 176	50 190

Bombs, grenades, torpedoes, mines, missiles, cartridges and other ammunition and projectiles ...	689 497	737 367	47 870
Articles of iron or steel, cast, n.e.s.	489 014	536 026	47 012
Machines and mechanical appliances having individual functions, not specified or included elsewhere ...	4 013 686	4 059 031	45 345
Lamps and lighting fittings, incl. searchlights and spotlights, and parts thereof, n.e.s.; illuminated ...	888 220	933 007	44 787
Furniture and parts thereof, n.e.s. (excluding seats and medical, surgical, dental or veterinary ...	417 402	462 138	44 736
Women's or girls' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, wind-cheaters, ...	123 026	163 117	40 091
Parts and accessories for weapons and the like of heading 9301 to 9304, n.e.s.	458 478	497 026	38 548
Seats, whether or not convertible into beds, and parts thereof, n.e.s. (excluding medical, ...	288 667	325 507	36 840
Articles of apparel, clothing accessories and other fur-skin articles (excluding gloves made ...	136 217	172 842	36 625
Stoves, ranges, grates, cookers, incl. those with subsidiary boilers for central heating, barbecues, ...	197 254	231 217	33 963
Builders' ware of plastics, n.e.s.	199 495	231 867	32 372
Containers, incl. containers for the transport of fluids, specially designed and equipped for ...	67 188	98 131	30 943
Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of ...	108 177	137 547	29 370
Other articles of copper, n.e.s.	285 065	313 198	28 133
Knives with cutting blades, serrated or not, incl. pruning knives, and blades therefor, of ...	190 632	218 067	27 435
Prefabricated buildings, whether or not complete or already assembled	212 525	239 297	26 772
Ceramic sinks, washbasins, washbasin pedestals, baths, bidets, water closet pans, flushing ...	153 988	180 396	26 408
Hand tools, incl. glaziers' diamonds, of base metal, n.e.s.; blow lamps and the like; vices, ...	323 251	348 007	24 756
Made-up articles of textile materials, incl. dress patterns, n.e.s.	60 761	84 029	23 268
Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion ...	743 887	765 819	21 932
Discs, tapes, solid-state non-volatile storage devices, "smart cards" and other media for the ...	1 221 952	1 241 027	19 075
Floor coverings of plastics, whether or not self-adhesive, in rolls or in the form of tiles; ...	102 832	121 778	18 946
Trailers and semi-trailers; other vehicles, not mechanically propelled (excluding railway and ...	148 084	165 919	17 835
Sacks and bags, of a kind used for the packing of goods, of all types of textile materials	55 143	72 953	17 810
Wrist-watches, pocket-watches and other watches, incl. stop-watches, with case of precious ...	106 593	123 257	16 664
Insecticides, rodenticides, fungicides, herbicides, anti-sprouting products and plant-growth ...	240 230	256 885	16 655
Tools, interchangeable, for hand tools, whether or not power-operated, or for machine tools ...	2 500 170	2 516 126	15 956
Tarpaulins, awnings and sun blinds; tents; sails for boats, sailboards or land craft; camping ...	7 096	22 993	15 897
Electric filament or discharge lamps, incl. sealed beam lamp units and ultraviolet or infra-red ...	152 740	168 247	15 507
Sanitary ware, and parts thereof, of iron or steel (excluding cans, boxes and similar containers ...	102 125	117 316	15 191
Mechanical appliances, whether or not hand-operated, for projecting, dispersing or spraying ...	639 378	654 429	15 051

Electrical signalling, safety or traffic control equipment for railways, tramways, roads, inland ...	210 370	225 170	14 800
Brooms, brushes, incl. brushes constituting parts of machines, appliances or vehicles, hand-operated ...	120 254	134 701	14 447
Jerseys, pullovers, cardigans, waistcoats and similar articles, knitted or crocheted (excluding ...	31 032	44 395	13 363
Gloves, mittens and mitts, knitted or crocheted (excluding for babies)	31 519	44 185	12 666
Regulating or controlling instruments and apparatus (excluding taps, cocks and valves of heading ...	7 969 356	7 981 144	11 788
Articles of nickel, n.e.s. (excluding powder, flakes, bars, profiles, wire, plates, sheets, ...	570 711	582 014	11 303
Bedlinen, table linen, toilet linen and kitchen linen of all types of textile materials (excluding ...	24 552	34 513	9 961
Women's or girls' suits, ensembles, jackets, blazers, dresses, skirts, divided skirts, trousers, ...	26 917	36 755	9 838
Chain and parts thereof, of iron or steel (excluding watch chains, necklace chains and the ...	290 292	299 896	9 604
Direction finding compasses; other navigational instruments and appliances (excluding radio ...	268 112	277 391	9 279
Drawing, marking-out or mathematical calculating instruments, e.g. drafting machines, pantographs, ...	76 368	85 642	9 274
Casks, drums, cans, boxes and similar containers, incl. rigid or collapsible tubular containers, ...	56 094	64 719	8 625
Table, kitchen or other household articles, and parts thereof, of iron or steel; iron or steel ...	54 501	62 720	8 219
Military weapons, incl. sub-machine guns (excluding revolvers and pistols of heading 9302 and ...	40 257	48 467	8 210
Artificial waxes and prepared waxes	71 298	79 020	7 722
Monumental or building stone, natural (excluding slate), worked, and articles; mosaic cubes ...	61 763	69 214	7 451
Soap; organic surface-active products and preparations for use as soap, in the form of bars, ...	14 247	21 660	7 413
Articles of apparel and clothing accessories, of leather or composition leather (excluding ...	27 937	34 605	6 668
Chocolate and other food preparations containing cocoa	60 663	67 062	6 399
Monitors and projectors, not incorporating television reception apparatus; reception apparatus ...	107 169	113 407	6 238
Fish, fresh or chilled (excluding fish fillets and other fish meat of heading 0304)	18 543	24 547	6 004
Retreaded or used pneumatic tyres of rubber; solid or cushion tyres, tyre treads and tyre flaps, ...	74 126	80 112	5 986
Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs	30 403	36 322	5 919
Optical fibres and optical fibre bundles; optical fibre cables (excluding made up of individually ...	1 131 778	1 137 407	5 629
Footwear with outer soles of rubber, plastics, leather or composition leather and uppers of ...	29 567	35 130	5 563
Knotted netting of twine, cordage or rope, by the piece or metre; made-up fishing nets and ...	56 537	61 896	5 359
Ceramic wares for laboratory, chemical or other technical uses; ceramic troughs, tubs and similar ...	100 818	106 018	5 200
Shoe polish, furniture wax and floor waxes, polishes and creams for coachwork, glass or metal, ...	31 586	36 624	5 038
Inner tubes, of rubber	70 874	75 817	4 943
Foliage, branches and other parts of plants, without flowers or flower buds, and grasses, mosses ...	63 317	68 175	4 858

Organic surface-active agents (excluding soap); surface-active preparations, washing preparations, ...	96 359	101 201	4 842
Video recording or reproducing apparatus, whether or not incorporating a video tuner (excluding ...	60 525	65 029	4 504
Articles for the conveyance or packaging of goods, of plastics; stoppers, lids, caps and other ...	55 766	60 032	4 266
Bodies, incl. cabs, for tractors, motor vehicles for the transport of ten or more persons, ...	32 710	36 659	3 949
Rafts, tanks, coffer-dams, landing stages, buoys, beacons and other floating structures (excluding ...	27 209	31 064	3 855
Propellent powders	30 620	34 443	3 823
Women's or girls' blouses, shirts and shirt-blouses (excluding knitted or crocheted and vests)	11 068	14 726	3 658
Footwear with outer soles and uppers of rubber or plastics (excluding waterproof footwear of ...	9 164	12 659	3 495
Cider, perry, mead and other fermented beverages and mixtures of fermented beverages and non-alcoholic ...	64 724	68 182	3 458
Beauty or make-up preparations and preparations for the care of the skin, incl. sunscreen or ...	60 938	64 379	3 441
Air or vacuum pumps (excluding gas compound elevators and pneumatic elevators and conveyors); ...	962 230	965 269	3 039
Paints and varnishes, incl. enamels and lacquers, based on synthetic polymers or chemically ...	33 418	36 455	3 037
Articles of jewellery and parts thereof, of precious metal or of metal clad with precious metal ...	14 169	17 057	2 888
Tableware, kitchenware, other household articles and toilet articles, of porcelain or china ...	44 761	47 480	2 719
Scissors, tailors' shears and similar shears, and blades therefor, of base metal (excluding ...	16 452	19 102	2 650
Men's or boys' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, wind cheaters, ...	8 684	11 234	2 550
Tubes, pipes and hoses, and fittings therefor, e.g. joints, elbows, flanges, of plastics	592 544	595 091	2 547
Electric accumulators, incl. separators therefor, whether or not square or rectangular; parts ...	39 021	41 304	2 283
Articles of apparel and clothing accessories, incl. gloves, mittens and mitts, for all purposes, ...	12 179	14 416	2 237
Shawls, scarves, mufflers, mantillas, veils and similar articles (excluding knitted or crocheted)	11 530	13 698	2 168
Other articles of wood, n.e.s.	21 884	23 874	1 990
Tricycles, scooters, pedal cars and similar wheeled toys; dolls' carriages; dolls; other toys; ...	19 853	21 742	1 889
Trunks, suitcases, vanity cases, executive-cases, briefcases, school satchels, spectacle cases, ...	12 328	14 139	1 811
Hats and other headgear, knitted or crocheted, or made up from lace, felt or other textile ...	7 653	9 448	1 795
Pumps for liquids, whether or not fitted with a measuring device (excluding ceramic pumps and ...	3 816 857	3 818 651	1 794
Women's or girls' suits, ensembles, jackets, blazers, dresses, skirts, divided skirts, trousers, ...	4 984	6 737	1 753
Articles of zinc, n.e.s.	45 847	47 542	1 695
Wrist-watches, pocket-watches and other watches, incl. stop-watches (excluding of precious ...	10 736	12 419	1 683
Starches; inulin	22 613	24 238	1 625
Twine, cordage, ropes and cables, whether or not plaited or braided and whether or not impregnated, ...	10 526	12 106	1 580
Sauce and preparations therefor; mixed condiments and mixed seasonings; mustard flour and meal, ...	11 943	13 492	1 549

Malt extract; food preparations of flour, groats, meal, starch or malt extract, not containing ...	10 483	11 954	1 471
Inorganic or mineral colouring matter, n.e.s.; preparations based on inorganic or mineral colouring ...	342 831	344 298	1 467
Men's or boys' suits, ensembles, jackets, blazers, trousers, bib and brace overalls, breeches ...	3 430	4 879	1 449
Parts and accessories for motorcycles and bicycles and for carriages for disabled persons, ...	44 236	45 609	1 373
Mattress supports (excluding spring interiors for seats); articles of bedding and similar furnishing, ...	4 491	5 817	1 326
Packing cases, boxes, crates, drums and similar packings, of wood; cable-drums of wood; pallets, ...	14 799	16 106	1 307
Cereal flours (excluding wheat or muslin)	15 376	16 610	1 234
Footwear with outer soles of rubber or plastics, with uppers other than rubber, plastics, leather ...	4 133	5 355	1 222
Hand-operated spanners and wrenches, incl. torque meter wrenches (excluding tap wrenches), ...	8 015	9 234	1 219
Headgear, whether or not lined or trimmed, n.e.s.	7 655	8 860	1 205
Telephone sets, incl. telephones for cellular networks or for other wireless networks; other ...	4 201 882	4 203 058	1 176
Lenses, prisms, mirrors and other optical elements, of any material, mounted, being parts of ...	41 591	42 764	1 173
Shaving preparations, incl. pre-shave and aftershave products, personal deodorants, bath and ...	7 511	8 662	1 151
Slide fasteners and parts thereof	3 585	4 701	1 116
Vacuum cleaners, incl. dry cleaners and wet vacuum cleaners	14 495	15 579	1 084
Builders' joinery and carpentry, of wood, incl. cellular wood panels, assembled flooring panels, ...	13 800	14 823	1 023
Blankets and travelling rugs of all types of textile materials (excluding table covers, bedspreads ...	3 030	4 052	1 022
Carpets and other textile floor coverings, woven, not tufted or flocked, whether or not made ...	2 826	3 843	1 017
Articles of aluminium, n.e.s.	18 711	19 672	961
Musical instruments, the sound of which is produced, or must be amplified, electrically, e.g. ...	12 410	13 340	930
Petroleum jelly, paraffin wax, micro- crystalline petroleum wax, slack wax, ozokerite, lignite ...	15 566	16 477	911
Glaziers' putty, grafting putty, resin cements, caulking compounds and other mastics; painters' ...	11 395	12 302	907
Food preparations, n.e.s.	5 059	5 916	857
Electric sound or visual signalling apparatus, e.g. bells, sirens, indicator panels, burglar ...	262 367	263 210	843
Primary cells and primary batteries, electrical; parts thereof (excluding spent)	11 290	12 090	800
Imitation jewellery	4 247	5 036	789
Table, kitchen or other household articles, sanitary ware, and parts thereof, of aluminium, ...	1 755	2 518	763
Lubricant preparations, incl. cutting-oil preparations, bolt or nut release preparations, anti-rust ...	9 590	10 344	754
Tableware, kitchenware, other household articles and toilet articles, of plastics (excluding ...	5 274	6 025	751
Articles for interior furnishing, of all types of textile materials (excluding blankets and ...	1 047	1 703	656
Hand-operated mechanical devices, of base metal, weighing ≤ 10 kg, used in the preparation, ...	7 928	8 483	555
Automatic goods-vending machines, e.g. postage stamp, cigarette, food or beverage machines, ...	9 580	10 131	551
Women's or girls' singlets and other vests, slips, petticoats, briefs, panties, nightdresses, ...	1 857	2 407	550

Sign-plates, nameplates, address-plates and similar plates, numbers, letters and other symbols, ...	3 836	4 375	539
Portable electric lamps designed to function by their own source of energy, e.g. dry batteries, ...	6 294	6 821	527
Tableware, kitchenware, other household articles and toilet articles, of ceramics other than ...	7 100	7 580	480
Apparatus and equipment for photographic or cinematographic laboratories, not elsewhere specified ...	10 537	11 015	478
Carpets and other textile floor coverings, tufted "needle punched", whether or not made up	1 768	2 220	452
Electrical lighting or signalling equipment (excluding lamps of heading 8539), windscreen wipers, ...	2 006 766	2 007 210	444
Parts of railway or tramway locomotives or rolling stock, n.e.s.	20 258	20 698	440
Women's or girls' blouses, shirts and shirt-blouses, knitted or crocheted (excluding T-shirts ...	896	1 334	438
Women's or girls' slips, petticoats, briefs, panties, nightdresses, pyjamas, negligés, bathrobes, ...	1 436	1 868	432
Curtains, incl. drapes, and interior blinds; curtain or bed valances of all types of textile ...	1 189	1 595	406
Pantyhose, tights, stockings, socks and other hosiery, incl. graduated compression hosiery ...	1 189	1 584	395
Perfumes and toilet waters (excluding aftershave lotions, personal deodorants and hair lotions)	3 868	4 262	394
Artificial flowers, foliage and fruit and parts thereof, and articles made of artificial flowers, ...	2 843	3 236	393
Paints and varnishes, incl. enamels and lacquers, based on synthetic polymers or chemically ...	2 507	2 894	387
Sewing needles, knitting needles, bodkins, crochet hoods, embroidery stiletos and similar ...	4 741	5 120	379
Tube or pipe fittings "e.g. couplings, elbows, sleeves", of iron or steel	237 827	238 193	366
Self-adhesive plates, sheets, film, foil, tape, strip and other flat shapes, of plastics, whether ...	304 592	304 951	359
Cocoa powder, not containing added sugar or other sweetening matter	4 079	4 437	358
Balloons and dirigibles; gliders, hang gliders and other non-powered aircraft	4 654	5 009	355
Articles and equipment for general physical exercise, gymnastics, athletics, other sports, ...	1 098 755	1 099 095	340
Jams, fruit jellies, marmalades, fruit or nut purée and fruit or nut pastes, obtained by cooking, ...	2 010	2 332	322
Tableware and kitchenware, of wood (excluding interior fittings, ornaments, cooperage products, ...	2 827	3 145	318
Handsaws, with working parts of base metal (excluding power-operated saws); blades for saws ...	21 546	21 845	299
Ceramic building bricks, flooring blocks, support or filler tiles and the like (excluding those ...	224	522	298
Peptones and their derivatives; other protein substances and their derivatives, n.e.s.; hide ...	4 884	5 181	297
T-shirts, singlets and other vests, knitted or crocheted	865	1 162	297
Photographic cameras, photographic flashlight apparatus and flashbulbs (excluding discharge ...	6 931	7 212	281
Cereal grains otherwise worked, e.g. hulled, rolled, flaked, pearled, sliced or kibbled; germ ...	662	943	281
Electromechanical domestic appliances, with self-contained electric motor; parts thereof (excluding ...	2 777	3 051	274
Files, rasps, pliers, incl. cutting pliers, pincers and tweezers for non-medical use, metal-cutting ...	1 737	2 007	270

Articles of stone or of other mineral substances, incl. carbon fibres, articles of carbon fibres ...	10 482	10 728	246
Prepared glues and other prepared adhesives, n.e.s.; products suitable for use as glues or ...	1 258	1 503	245
Articles of yarn, strip or the like of heading 5404 or 5405, or of twine, cordage, ropes or ...	706	946	240
Garments, knitted or crocheted, rubberised or impregnated, coated or covered with plastics ...	717	949	232
Glazed ceramic flags and paving, hearth or wall tiles; glazed ceramic mosaic cubes and the ...	1 245	1 462	217
Gas, liquid or electricity supply or production meters, incl. calibrating meters therefor	5 413	5 615	202
Wood, incl. strips and friezes for parquet flooring, not assembled, continuously shaped "tongued, ...	557 662	557 849	187
Candles, tapers and the like	1 368	1 541	173
Preparations for use on the hair	1 241	1 413	172
Wood marquetry and inlaid wood; caskets and cases for jewellery or cutlery, and similar articles, ...	955	1 098	143
Ties, bow ties and cravats of textile materials (excluding knitted or crocheted)	352	477	125
Baths, shower-baths, sinks, washbasins, bidets, lavatory pans, seats and covers, flushing cisterns ...	778	900	122
Made-up clothing accessories, knitted or crocheted; knitted or crocheted parts of garments ...	753	875	122
Men's or boys' shirts (excluding knitted or crocheted, nightshirts, singlets and other vests)	305	425	120
Hydraulic brake fluids and other prepared liquids for hydraulic transmission not containing ...	815	932	117
Reception apparatus for radio-broadcasting, whether or not combined, in the same housing, with ...	3 895	4 000	105
Railway or tramway track fixtures and fittings (excluding sleepers of wood, concrete or steel, ...	1 437	1 535	98
Tracksuits, ski suits, swimwear and other garments, n.e.s. (excluding knitted or crocheted)	433	529	96
Ball-point pens; felt tipped and other porous-tipped pens and markers; fountain pens, stylograph ...	804	895	91
Hard rubber, e.g. ebonite, in all forms, incl. waste and scrap; articles of hard rubber, n.e.s.	1 226	1 313	87
Seeds of anis, badian, fennel, coriander, cumin or caraway; juniper berries	16 088	16 169	81
Nutmeg, mace and cardamoms	1 769	1 849	80
Table, kitchen or other household articles, sanitary ware, and parts thereof, of copper; pot ...	1 102	1 181	79
Spoons, forks, ladles, skimmers, cake-servers, fish-knives, butter-knives, sugar tongs and ...	564	643	79
Articles of glass, n.e.s.	1 068	1 145	77
Fixed vegetable fats and oils, incl. jojoba oil, and their fractions, whether or not refined, ...	399	464	65
Special garments for professional, sporting or other purposes, n.e.s., knitted or crocheted	150	205	55
Sets of two or more tools of heading 8202 to 8205, put up in sets for retail sale	434	487	53
Vacuum flasks and other vacuum vessels, and parts thereof (excluding glass inners)	290	343	53
Women's or girls' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...	174	227	53
Clocks (excluding wrist-watches, pocket-watches and other watches of heading 9101 or 9102, ...	218	260	42

Revolvers and pistols (excluding those of heading 9303 or 9304 and sub-machine guns for military ...	241	273	32
Friction material and articles thereof, e.g., sheets, rolls, strips, segments, discs, washers, ...	647	676	29
Men's or boys' underpants, briefs, nightshirts, pyjamas, bathrobes, dressing gowns and similar ...	88	116	28
Electrical apparatus for switching or protecting electrical circuits, or for making connections ...	3 562 185	3 562 210	25
Skins and other parts of birds with their feathers or down, feathers, parts of feathers, down ...	224	247	23
Yarn of man-made staple fibres, put up for retail sale (excluding sewing thread)	141	164	23
Waters, incl. natural or artificial mineral waters and aerated waters, not containing added ...	113	136	23
Spectacles, goggles and the like, corrective, protective or other (excluding spectacles for ...	233	254	21
Cigarette lighters and other lighters, whether or not mechanical or electrical and parts thereof, ...	112	130	18
Wheat and meslin	1	18	17
Time switches with clock or watch movement or with synchronous motor	142	156	14
Other sugars, incl. chemically pure lactose, maltose, glucose and fructose, in solid form; ...	6 024	6 034	10
Statuettes and other ornamental ceramic articles, n.e.s.	148	158	10
Gloves, mittens and mitts, of all types of textile materials (excluding knitted or crocheted ...	23	33	10
Seeds, fruits and spores, for sowing (excluding leguminous vegetables and sweetcorn, coffee, ...	143	151	8
Matches (excluding pyrotechnic articles of heading 3604)	60	68	8
Saddlery and harness for any animal, incl. traces, leads, knee pads, muzzles, saddle cloths, ...	49	57	8
Tanned or dressed furskins, incl. heads, tails, paws and other pieces, scraps and remnants, ...	1 491 087	1 491 094	7
Men's or boys' overcoats, car coats, capes, cloaks, anoraks, incl. ski jackets, windcheaters, ...	17	22	5
Mixtures of odoriferous substances and mixtures, incl. alcoholic solutions, based on one or ...	521 427	521 431	4
Frames and mountings for spectacles, goggles or the like, and parts thereof, n.e.s.	166	170	4
Anchors, grapnels and parts thereof, of iron or steel	37	41	4
Articles of tin, n.e.s.	116	119	3
Articles of natural or cultured pearls, precious or semi-precious stones "natural, synthetic ...	28	31	3
Barley	4	7	3
Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and ...	15	17	2
Artist's, student's or signboard painter's colours, modifying tints, amusement colours and ...	15	17	2
Made-up clothing accessories and parts of garments or clothing accessories, of all types of ...	10	12	2
Scent sprays and similar toilet sprays, and mounts and heads therefor; powder puffs and pads ...	8	10	2
Tools, tool bodies, tool handles, broom or brush bodies and handles, of wood; boot or shoe ...	21	22	1
Preparations of a kind used in animal feeding	9	10	1
Anti-freezing preparations and prepared de-icing fluids (excluding prepared additives for mineral ...	5	6	1