

For the Degree of Master of Science in Economics (one year)

Bridging the Atlantic

A Trade Effect Assessment of Services
Inclusion in a Canada-EU Trade Agreement

Oscar Sandberg

Department of Economics

2011

Supervised by Associate Professor Yves Bourdet and Associate Professor Joakim Gullstrand



LUND UNIVERSITY
School of Economics and Management

Abstract

The spaghetti bowl of regional trade agreements has been growing rapidly the past two decades. While services trade has often been excluded from these agreements, the recent trend suggests that a shift has occurred and that policy-makers are paying more attention to services trade. As Canada and the European Union (EU) are negotiating a bilateral trade agreement, services sector inclusion is a major component. The purpose of this thesis is to determine what effects a possible trade agreement between Canada and the EU will have on bilateral trade in various services sectors. A gravity model approach is used to investigate the link between trade barriers and services trade. These findings are then related to the expected outcome of the negotiations and sector-specific trade effects are estimated. The results show that trade barriers will decrease relatively more in Canada than in the EU and that Canadian imports of EU services will increase relatively more. The most profound trade effects are found in the telecommunications and the other business services sectors.

Keywords: *Canada, EU, CETA, gravity model, services trade, trade agreement*

Acknowledgement

It is with much gratitude that I thank my supervisors, Yves Bourdet and Joakim Gullstrand, for offering instrumental guidance and assistance throughout this thesis. I also thank Terry Collins-Williams and John M. Curtis for their valuable insights into the Canada – EU negotiation process. For these, I am most grateful. Many thanks also to Niels Krabbe for his knowledge and advice on comparable agreements and Teppo Tauriainen for the time he took to meet and discuss ideas.

Finally, I would like to express my special thanks to Janelle Witzel for her invaluable encouragement and support before, during and after the completion of this thesis.

Any errors in the following text are mine alone.

Waterloo, April 2011

Oscar Sandberg

(oscar.sandberg@gmail.com)

Table of Contents

- List of Tables 3
- List of Figures 4
- List of Abbreviations 5

- 1 Introduction 6
 - 1.1 Purpose and Methodology 7
 - 1.2 Outline 8
- 2 Cross-border Trade in Services 9
- 3 Services Trade in Canada and the European Union 12
 - 3.1 The Importance of Services 12
 - 3.1.1 Decomposing Trade in Services 13
 - 3.1.2 Exploring Bilateral Services Trade 15
- 4 A Treaty of No Excuse 17
 - 4.1 Services in Previous Agreements 17
 - 4.2 Services Inclusion in CETA 18
 - 4.2.1 Benchmark Agreement 20
 - 4.2.2 Negotiations and Liberalization Potential 21
- 5 Using the Gravity Model to Predict Trade 23
 - 5.1 The Gravity Model in Theory 23

5.2	The Gravity Model for Services Trade.....	24
5.3	Data.....	25
5.3.1	Trade Barrier Data	27
5.3.2	Independent Variables.....	28
5.3.3	Data limitations.....	30
5.4	Econometric Specification	30
6	Assessing the Impact on Bilateral Trade Flows.....	32
6.1	Regression Results	32
6.2	Robustness Check.....	35
6.3	Impact on Trade Barriers and Trade Flows.....	35
7	Conclusion and Discussion.....	38
Appendix A	Revealed Comparative Advantage Indices	41
Appendix B	Variables Included in the Analysis.....	42
Appendix C	Correlation of Independent Variables.....	43
Appendix D	Regression Results from Control Regression	44
	List of References.....	45

List of Tables

Table 2.1. Trade in services by mode of supply, year 1997 10

Table 3.1. Composition of Canadian services exports and imports 14

Table 3.2. Composition of EU services exports and imports..... 14

Table 3.3. Bilateral services imports 15

Table 3.4. Services trade between Canada and the EU, disaggregated by sector (%) 16

Table 4.1. Suggested services sector inclusion in CETA..... 19

Table 4.2. Services inclusion in EU-Korea FTA 21

Table 4.3. Potential services sector liberalization in a Canada-EU trade agreement..... 22

Table 5.1. Matching data of trade flows and trade barriers 28

Table 6.1. Regression results..... 33

Table 6.2. Trade restrictions’ effect on propensity to import services 34

Table 6.3. Estimated effects on trade barriers and trade flows 36

Table A.1. Revealed comparative advantage index vis-à-vis the world..... 41

Table B.1. Data sources..... 42

Table B.2. Summary statistics of independent variables..... 42

Table C.1. Spearman Ranking Coefficients 43

Table D.1. Control regression 44

List of Figures

Figure 1.1. Services RTAs notified through GATT/WTO in force as of January 2011 *7

Figure 3.1. Services exports/imports share of total trade in Canada and EU13

Figure 5.1. Sectoral share of services imports in 2007 (%)26

List of Abbreviations

CER	Closer Economic Relations agreement between Australia and New Zealand
CEPII	Centre d'études prospectives et d'informations internationales
CETA	Canada-EU Comprehensive Economic and Trade Agreement
EFTA	European Free Trade Association
EU	European Union
FTA	Free trade agreement
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GPA	Agreement on Government Procurement
IP	Intellectual property
NAFTA	North American Free Trade Agreement
MFN	Most favoured nation
NTB	Non-tariff barrier
OECD	Organisation for Economic Co-operation and Development
RCA	Revealed comparative advantage
RTA	Regional trade agreement
WTO	World Trade Organization

1 Introduction

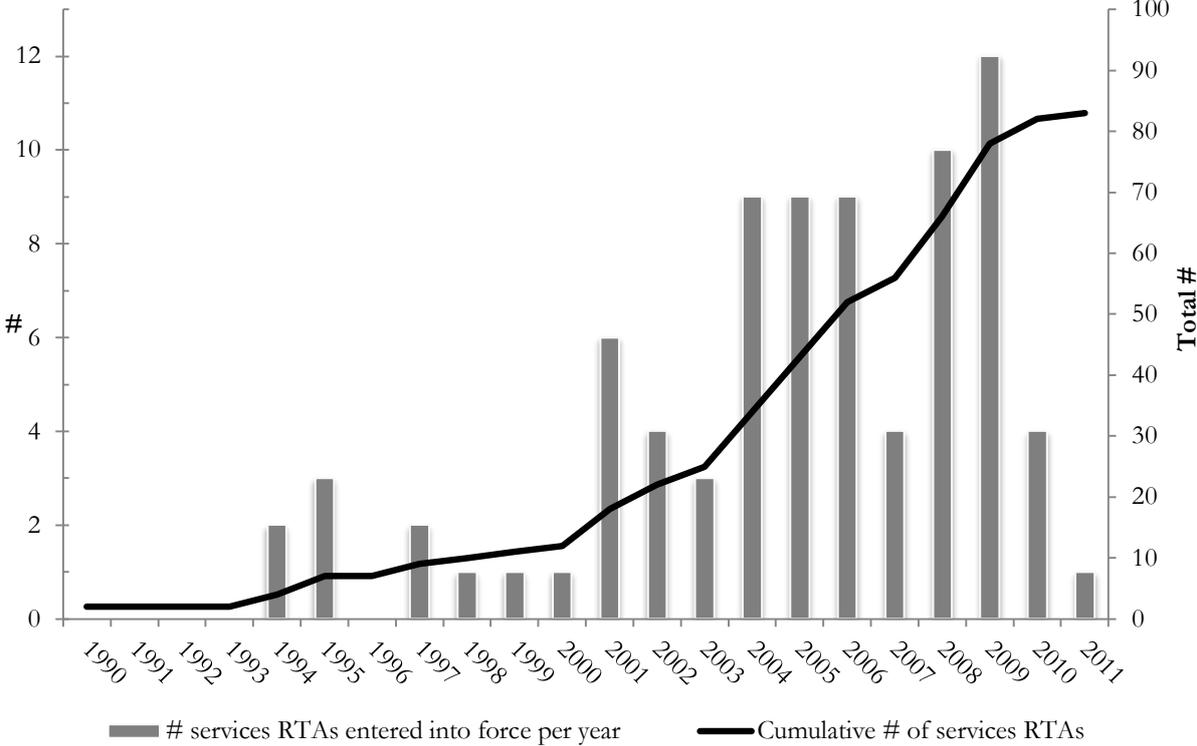
The current world trading system is sometimes characterized as being a spaghetti bowl. The playful term, coined by Jagdish Bhagwati (1995), describes a system of complex trade linkages between countries based on discriminating rules of origin in preferential trade agreements rather than economic efficiency. Such agreements, also known as regional trade agreements (RTAs), are arrangements between two or more countries – not necessarily close to each other – that create more favourable conditions for intra-regional trade than what is available for countries outside of the agreement. Though they break the guiding principle of non-discrimination, defined by the World Trade Organization (WTO) in both the General Agreement on Trade and Tariffs (GATT) and the General Agreement on Trade in Services (GATS), RTAs are accepted as important parts of the world trading system. In Europe and North America, agreements aimed at facilitating cross-border trade are known since long. Six European countries created an economic union for coal and steel products in 1951 and signed the *Treaties of Rome* six years later to create a common market for all goods. In North America, cross-border trade liberalization can be traced back to 1854 when the *Reciprocity Treaty* was signed by the colonies of British North America and the United States (US).¹

The spaghetti bowl has been growing especially rapidly the past two decades. As of January 2011, 205 RTAs were in force and notified to the World Trade Organization (WTO) (WTO, 2011). 83 included trade in services and, of those, only two were created before 1990.² This implies an explosive proliferation of services RTAs during the 1990s and the 2000s, illustrated in Figure 1.1, which coincides with stagnant, WTO-led multilateral negotiations aimed at reducing trade barriers on the global level.

¹ The treaty inter alia established free trade in several important raw materials and natural products, but was repealed by the US congress in the 1860s (Latulippe, 1976).

² The two pre-1990 RTAs are the European Community Treaty from 1958 (part of the *Treaties of Rome*) and the services protocol of the Australia New Zealand Closer Economic Relations Trade Agreement from 1989.

Figure 1.1. Services RTAs notified through GATT/WTO in force as of January 2011 *



* Including combined goods/services RTAs.

Source: Author’s calculations based on WTO (2011)

While the rapid increase is striking, it is important to note that RTAs including services more often have been excluded from bi- and plurilateral trade agreements. To expand, there are over 202 agreements regarding the trade in goods in force compared to the 83 agreements regarding the trade in services. The trend is however clear; negotiators and researchers alike are paying more attention to the sometimes forgotten, frequently neglected trade of intangible products. The question is what trade effects this new focus will result in.

1.1 Purpose and Methodology

The services sector is of major and increasing importance to economies and labour markets across the globe, but trade in services is much less explored than trade in goods. This thesis contributes to the literature on services trade. Its purpose is to determine what effects the suggested trade agreement between Canada and the European Union will have on services trade on the sector level. Within this, bilateral services trade flows in relation to the suggested trade

agreement are analyzed and trade flows and their determinants are assessed on the sectoral level through quantitative analysis using a gravity model of trade.

The analysis has been divided into two parts.

- a) The extent of services sectors inclusion in a future agreement is estimated through qualitative analysis of Canada's and EU's previous regional trade agreements and the ongoing negotiations.
- b) A cross-sectional gravity model of services trade is specified to estimate the impact of several explanatory variables. In this quantitative analysis, particular attention is given to interpreting the effect of the trade barrier coefficient, which is used as an indicator of how much trade flows may increase after implementation of an agreement.

1.2 Outline

The thesis is structured into six chapters. Chapter Two is about the special characteristics of cross-border trade in services. Chapter Three establishes the role of the services sector in Canada and the EU. Chapter Four assesses expected services sector inclusion in a Canada-EU trade agreement. Chapter Five presents the theoretical framework of the analysis and specifies a gravity model. Chapter Six presents and analyzes the results. Finally, Chapter Seven discusses the results and concludes the thesis.

2 Cross-border Trade in Services

The Uruguay trade round, 1986-1994, resulted in significant steps forward with the establishment of WTO and the inclusion of services in the world trading system through the creation of GATS. The latter achievement marked the first time services trade was included in the multilateral trading system, a major improvement in international trade law coverage. The services sector's share of GDP is around 50 percent in low and middle income countries, and more than 70 percent in high income countries (World Bank, 2010).³ However, trade in services as a share of GDP is only 15 percent in low-income countries, 10 percent in middle-income countries, and 13 percent in high-income countries. In other words, despite that more than 15 years have passed since GATS came into place, the services sector still seems to be under-traded.

When considering this apparent underdevelopment of cross-border services trade, the special characteristics of services trade should be understood. Firstly, services are intangible, difficult to transport, and impossible to store. A service is produced by a supplier for a consumer, but nothing tangible is exchanged between them (Hill, 1977, p. 336). This means that suppliers and consumers must be in close proximity, which is sometimes referred to as the proximity burden as having to be close translates into extra costs (Christen & Francois, 2009, p. 8). Even though the importance of proximity has been reduced in some sectors due to technological developments, the proximity burden, along with a second characteristic, has shaped the framework of international services trade. This second characteristic of services trade is jointness in production, or the need of complementary inputs – goods or other services – for effective services trade to take place (Francois & Hoekman, 2010, p. 648). Mirza & Nicoletti (2003, p. 16) propose that this characteristic reduces the overall intensity of services trade as suppliers need to perform interdependent tasks in both the importing and exporting country, thus having a more fragile supply chain than goods suppliers who mainly trade cross-border.

Using the characteristics of services trade, Sampson & Snape (1985) classified traded services into four different modes of supply – a classification which was later adopted in GATS, Article I, paragraph 2:

³ Data for 2007.

- Mode 1. *“from the territory of one Member into the territory of any other Member”* (cross-border supply);
- Mode 2. *“in the territory of one Member to the service consumer of any other Member”* (consumer crossing border);
- Mode 3. *“by a service supplier of one Member, through commercial presence in the territory of any other Member”* (local establishment);
- Mode 4. *“by a service supplier of one Member, through presence of natural persons of a Member in the territory of any other Member”* (worker crossing border).

Different services sectors are more or less associated with different modes of supply. Mode 1 services trade involves cross-border interaction between suppliers and consumers (e.g., e-commerce), while Mode 2, 3 and 4 services trade typically occurs within the borders of a country (Chen & Schembri, 2002, p. 220). In an assessment of services trade in relation to the four modes of supply, Karsenty (2000) estimates that around 40 percent of world services trade is supplied cross border, see Table 2.1. This suggests that more than half of the world’s total international services trade is provided within the borders of the country of consumption because of the mobility of consumers, suppliers or workers. The mobility of capital through foreign direct investment is crucial for Mode 3 trade, while the mobility of labour is needed to generate Mode 4 trade. Thus, mobility of production factors is an important part of international services trade.

Table 2.1. Trade in services by mode of supply, year 1997

Mode	Value (bn US\$)	% share
Mode 1	890	41.0
Mode 2	430	19.8
Mode 3	820	37.8
Mode 4	30	1.4
Total	2 170	100.0

Source: (Karsenty, 2000, p. 54)

Border barriers, such as tariffs and customs procedures, can be difficult to apply to services as no tangible products are actually crossing a border. If applied, such measures mainly affect Mode 1 supply and in general border measures play a minor role in protecting domestic service suppliers. Instead, protective governments impose regulations – non-tariff barriers (NTBs) – that limit

foreign service suppliers' domestic market access (Deardorff & Stern, 2008, p. 178). Typical NTBs vary between different services sectors and depend primarily on the mode of supply. Hoekman & Braga (1997) provide an overview of NTBs that is briefly summarised in the following paragraph.

To exclude foreign suppliers in the areas of transportation and telecommunications, quantity-based restrictions in the form of local content requirements and prohibitions have been, and are, common methods. Tariff-alike price-based instruments, such as dock dues and visa fees, discriminate based on origin and are common in transportation services. Price ceilings, which are also examples of price-based instruments, are common in financial and telecommunication services. Restrictions that require suppliers to fulfill certain standards or qualifications reduce foreign suppliers' ability to trade significantly. Licenses are often used to regulate professional services while industry standards – e.g. environmental standards – influence various sectors. Restricting the access to distribution networks necessary to provide certain services is a measurement often used in the telecommunications and transportation sectors. Regulations or domestic preference in government procurement is often driven by the aim of supporting local suppliers hence excluding foreign suppliers from public contracts. A final example of NTBs in the services sector is restrictions on secondary services used as input in the supply chain. Because of jointness in production this kind of measurement may seriously reduce service suppliers' ability to compete.

In summary, NTBs in the services sector either restrict market access to foreign suppliers or discriminate based on origin. The various restrictions available for governments make barriers to trade difficult to detect. The four modes of supply adds to the complexity and in this respect protection of the services sectors is less transparent than protection of the goods sector (Francois & Hoekman, 2010, pp. 652-653).

3 Services Trade in Canada and the European Union

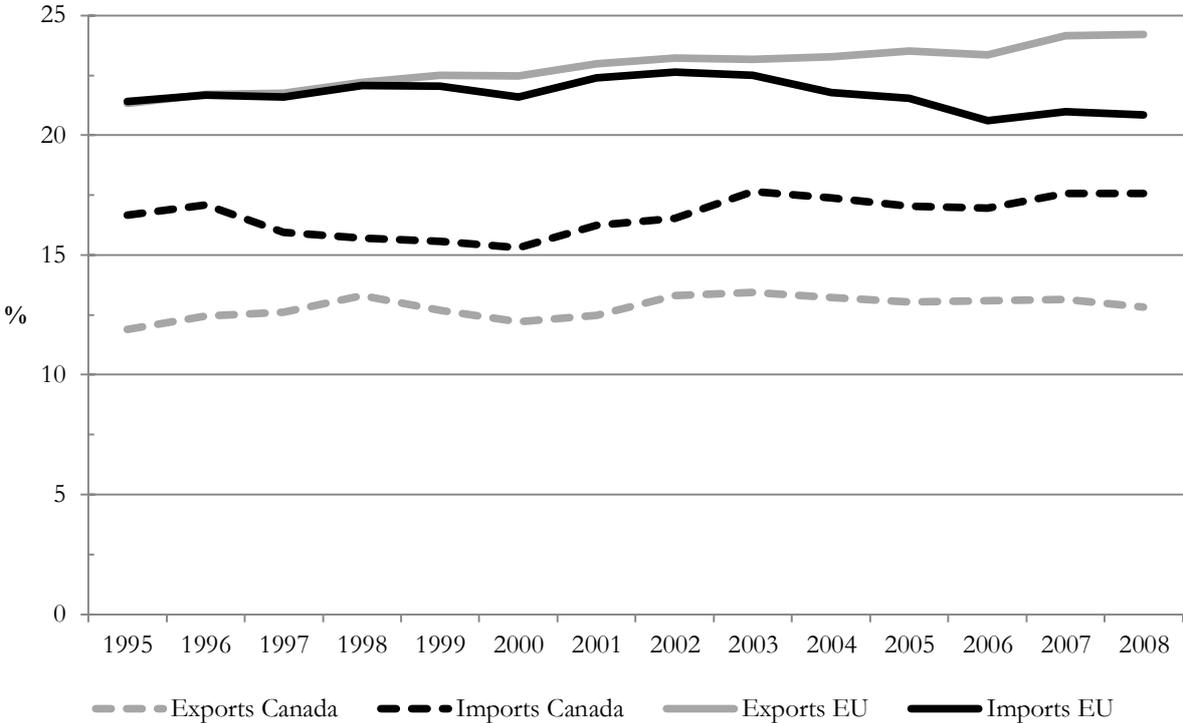
This section will discuss the importance of services sector inclusion in a Canada-EU trade agreement by analyzing the significance of services in the two economies. It will also provide a look at disaggregated services sector trade and analyze the partners' global competitiveness in the services sectors.

3.1 *The Importance of Services*

The services sector is a significant part of both the Canadian and the EU economies – at least two thirds of total GDP originates from service activities. In the EU, two thirds of the labour force is also employed in the services sector while in Canada no less than three quarters of the total employment is due to the services sector. The large domestic importance of services is however not directly reflected in the composition of international trade. The value of the EU countries' total trade was approximately 13,331 billion US dollars in 2007 (current value), almost fourteen times more than Canada's total trade of 969 billion US dollars (World Bank, 2010).⁴ As can be seen in Figure 3.1, trade in services represented only a small portion of these totals. For Canada, between 12 and 18 percent of total imports and exports originated from the services sector. For the EU the share was a bit higher – between 20 and 25 percent.

⁴ This difference reflects the difference in population sizes, as 495 million EU citizens divided by 33 million Canadians equals a factor of 15.

Figure 3.1. Services exports/imports share of total trade in Canada and EU



Source: Author’s own calculations based on data from the World Bank (2010)

3.1.1 Decomposing Trade in Services

To have a closer and more detailed look at the trade patterns, disaggregated services trade data from the OECD are presented in Table 3.1 and Table 3.2. The composition of Canada's and EU's services sector trade in 2004 and 2008 is shown and it can be noted that exports and imports for both partners are dominated by transportation, travel and other business services.⁵ The latter includes sub-sectors such as legal services, accounting, research and engineering. In general, the export patterns of Canada and the EU are very similar. The relative importance of travel exports has decreased, while the share of total exports for other business services has increased. On the import side, some differences between the partners can be observed; travel services constitute the largest category of imports for Canada (almost a third in 2008), but is less important for the EU. Instead the other business sector constitutes the largest category of imports for the EU (28 percent).

⁵ Data for EU27 is not available prior to 2004.

Table 3.1. Composition of Canadian services exports and imports

<i>millions of USD</i>	Exports				Imports			
	2004	2008	% share		2004	2008	% share	
Transportation	8 486	11 806	17.5	18.5	12 236	20 234	21.4	23.8
Travel	13 051	15 106	26.9	23.6	15 555	26 929	27.3	31.7
Communication	1 875	2 292	3.9	3.6	1 647	1 936	2.9	2.3
Construction	128	249	0.3	0.4	147	225	0.3	0.3
Insurance	3 186	3 576	6.6	5.6	4 709	5 918	8.3	7.0
Financial	1 126	3 107	2.3	4.9	2 155	3 731	3.8	4.4
Computer and information	3 007	4 616	6.2	7.2	1 699	2 190	3.0	2.6
Royalties and license fees	3 003	3 415	6.2	5.3	6 570	8 775	11.5	10.3
Other business	13 330	17 877	27.4	28.0	11 427	13 808	20.0	16.2
Personal, cultural and recreational	177	235	0.4	0.4	155	207	0.3	0.2
Government, n.i.e.	1 227	1 675	2.5	2.6	751	1 096	1.3	1.3
Total services	48 595	63 954	100	100	57 051	85 049	100	100

Source: OECD (2010b); author's own calculations.

Table 3.2. Composition of EU services exports and imports

(millions of USD)	Exports				Imports			
	2004	2008	% share		2004	2008	% share	
Transportation	233 889	403 395	21.4	22.4	226 838	361 152	22.7	22.5
Travel	283 031	389 160	25.9	21.6	278 455	388 590	27.9	24.2
Communication	26 985	46 150	2.5	2.6	27 180	44 040	2.7	2.7
Construction	23 254	46 849	2.1	2.6	17 704	34 210	1.8	2.1
Insurance	31 529	44 546	2.9	2.5	25 290	32 863	2.5	2.1
Financial	79 787	164 196	7.3	9.1	38 265	71 422	3.8	4.5
Computer and information	58 766	108 730	5.4	6.0	28 521	51 487	2.9	3.2
Royalties and license fees	43 021	68 553	3.9	3.8	59 369	93 597	5.9	5.8
Other business	276 310	488 158	25.3	27.1	261 223	441 536	26.1	27.5
Personal, cultural and recreational	14 473	17 111	1.3	0.9	16 344	21 640	1.6	1.4
Government, n.i.e.	21 959	23 223	2.0	1.3	20 247	30 846	2.0	1.9
Services not allocated	248	2 265	0.0	0.1	257	3 299	0.0	0.2
Total services	1 093 258	1 802 332	100	100	999 694	1 602 725	100	100

Source: OECD (2010b); author's own calculations

Assuming that trade patterns mirror differences in relative costs of production, trade data can be used to analyze competitiveness. Such analysis is of course distorted by trade barriers, but is nevertheless used in sector competitiveness studies, e.g., see Seyoum (2007) and Winters et al (2009). Using the definition of revealed comparative advantage presented by Balassa (1965), Canada's and EU's export shares relative to the world's export shares are calculated, see Appendix A for details and results. While this index is used to demonstrate comparative advantages, it uses trade data thus also capturing effects not considered in the neo-classical trade

theory such as economies of scale. The variables could therefore be interpreted as Canada's and EU's global competitiveness in the specific sector (Seyoum, 2007, p. 382). The results show that insurance and communication services, which include telecommunications and postal and courier, appears to be the strongest Canadian services sectors in terms of competitiveness. Exports of computer and information services, and other business services are also abundant compared to the world's export share. The EU indices give less obvious indications – which may be a consequence of the high number of EU countries included in the world comparator – but higher relative exports of communication, construction and other business services are found.

3.1.2 Exploring Bilateral Services Trade

The EU is the world's largest exporter of services and Canada's second largest partner for trade in services (European Commission & Government of Canada, 2008). Meanwhile, Canada is the eighth largest exporter of services in the world and the EU's seventh largest services trade partner (Eurostat, 2010). The relative importance of the two partners differs substantially as evidenced in Table 3.3. While Canada imports one sixth of its total services imports from the EU, the EU only imports one fortieth of its total services from Canada. The larger size of the EU market explains this imbalance partly, but a complementary explanation could be that protection is higher in Canada.

Table 3.3. Bilateral services imports

<i>Year</i>	Canadian services imports from the EU		EU services imports from Canada	
	<i>millions of USD</i>	<i>% of total services imports</i>	<i>millions of USD</i>	<i>% of total services imports</i>
2003	8,331	15.9	7,687	2.2
2004	9,846	16.8	8,666	2.2
2005	10,684	16.3	9,231	2.1
2006	12,694	17.5	10,712	2.2
2007	14,583	17.7	13,461	2.4
2008	15,358	17.4	14,138	2.2

<i>Year</i>	Canadian services exports to EU25		EU25 services exports to Canada	
	<i>millions of USD</i>	<i>% of total services exports</i>	<i>millions of USD</i>	<i>% of total services exports</i>
2004	8,402	16.7	10,211	0.9
2005	10,310	18.5	11,171	0.9
2006	11,548	19.1	12,971	1.0
2007	10,900	16.8	15,840	1.0

Source: Author's calculations based on data from OECD(2010c)

Observing bilateral trade flows at the sectoral level, as in Table 3.4, a fairly similar trade pattern is visible. However, differences can be seen: transportation, insurance and financial sector exports from the EU to Canada are proportionally larger than EU imports from Canada. Travel and

other business services exports from Canada are proportionally larger in the bilateral relation. Note that since Canada does not report disaggregated services trade data in the recommended OECD categories, values were derived using EU export and import data alone.

Table 3.4. Services trade between Canada and the EU, disaggregated by sector (%)

	EU27 exports to Canada					EU27 imports from Canada					
	<i>Year</i>	2004	2005	2006	2007	2008	2004	2005	2006	2007	2008
Transportation		29.2	26.2	28.6	27.7	28.1	24.1	22.4	24.3	22.6	22.0
Travel		26.7	28.0	27.9	27.1	26.2	34.9	31.9	32.5	32.5	30.2
Communications		1.9	1.7	1.7	1.8	1.7	1.8	2.1	1.9	1.7	2.0
- Postal and courier services		0.4	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.3	0.2
- Telecommunications services		1.5	1.4	1.4	1.6	1.4	1.5	1.8	1.6	1.5	1.7
Construction		1.2	1.4	2.1	1.8	1.9	1.2	1.4	3.0	3.7	4.7
Insurance		7.4	7.3	3.0	4.7	6.2	2.9	4.6	2.9	3.1	2.4
Financial		5.5	5.8	7.8	9.0	8.7	1.4	1.9	2.1	2.2	2.0
Computer and information		3.8	4.8	5.0	4.1	4.7	2.2	2.9	3.1	3.4	4.2
Royalties and license fees		6.0	4.5	3.2	3.4	2.8	4.6	4.7	3.9	3.6	4.2
Other Business		16.2	18.4	19.1	18.7	18.0	23.5	24.0	24.0	24.7	25.4
Personal, cultural and recreational		0.7	0.6	0.6	0.5	0.7	1.4	1.8	0.8	0.7	1.9
Government services, n.i.e.		1.4	1.2	1.0	1.1	1.0	1.9	2.2	1.5	1.7	1.1
Services not allocated		0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	-
Total services		100	100	100	100	100.0	100	100	100	100	100

Source: Author's calculations based on data from OECD (2010c)

4 A Treaty of No Excuse

Economic agreements concerning Canada and EU member states have existed for some time. The oldest agreement still in force is a peace and commerce treaty between Great Britain and Sweden from 1654; since then some 400 agreements covering a wide range of economic issues have been agreed upon (European Commission & Government of Canada, 2008, p. 1). Formal trade relationships between sovereign Canada and the EU dates back to 1976 and the *Framework Agreement for Commercial and Economic Cooperation*, which created a structure for economic cooperation (ibid.). Since then a number of sectoral agreements have been concluded, but the agreement now being negotiated is more comprehensive and far-reaching than any of those previous. In fact, the Canada-EU Comprehensive Economic and Trade Agreement (CETA) has been set to be the most extensive bilateral agreement either partner has previously entered. In a joint study prior to the start of negotiations, the partners wrote:

The agreement should include, as a minimum, all the chapters of the most ambitious EU and Canadian bilateral economic agreements to date. (European Commission & Government of Canada, 2009)

With such ambitions, expectations are high. Given the domestic importance of the services sector in both Canada and the EU, far-reaching inclusion of services should be vital for an economic agreement that aims to be comprehensive.

In this chapter, the extent of services sector inclusion in CETA is estimated based on previous agreements and the ongoing negotiations.

4.1 Services in Previous Agreements

After much hesitancy, more than a century after the abolition of the *Reciprocity Treaty*, Canada entered into comprehensive free trade agreement negotiations with the US in the 1980s. The result of these negotiations was the *Canada United States Free Trade Agreement* of 1989, achieved largely thanks to two free trade-friendly leaders – Canada’s prime minister Brian Mulroney and US president Ronald Reagan (Capling & Nossal, 2009). The agreement removed formal trade barriers and addressed trade in services as one of the first RTAs (Foreign Affairs and

International Trade, 2011). Not long thereafter, trilateral negotiations started to create a continent-wide free trade zone that included Mexico, resulting in the *North American Free Trade Agreement* (NAFTA), effective since January 1, 1994. Canada has since signed RTAs with Israel, Chile, Costa Rica, EFTA, Peru, Colombia, Jordan and Panama, and has pending negotiations with a dozen more partners (Foreign Affairs and International Trade Canada, 2010). However, NAFTA remains Canada's most comprehensive services sector trade agreement. NAFTA applies to all measures affecting trade, including temporary movement of skilled workers and government procurement, but annexes in where the members make several reservations for specified existing and future measures regarding services trade and investment weaken the coverage.

In 2006, the European Commission adopted a new trade policy agenda to strengthen European competitiveness in the world. Within this, bilateral trade agreements were given greater importance than before and new trade areas such as services, intellectual property, investment, public procurement and competition were stressed. Additionally, liberalization of services trade was emphasized as “an important factor in future economic growth” (European Commission, 2006, p. 8). EU agreements including the trade in services have been notified under GATS with Chile, Mexico and 15 Caribbean countries (European Commission, 2010b). EU negotiations with India and the Republic of Korea (South Korea) have set ambitious targets for services sector inclusion focusing on (1) “reciprocally liberalising all trade in goods and services”, and (2) “tackling existing and future non-tariff barriers to trade” (European Commission, 2010a). While the EU-India negotiations have progressed slowly, the EU-Korea agreement is expecting provisional implementation in 2011. The European Commission (2009a, p. 7) describes the latter agreement as “by far the most ambitious services FTA ever concluded by the EU”. Due to its comprehensiveness, this agreement will be used as a benchmark when analyzing services sector inclusion in CETA in the following section.

4.2 Services Inclusion in CETA

On both sides of the table, negotiators are working under a complex but also rather similar legal framework. In both Canada and the EU, decision- and law-making institutions exist on both the federal/union level and the provincial/national level. This implies that there are more than two parties involved, e.g. while trade and commerce fall under the federal legislative power in Canada,

several possibly trade restricting measurements, such as regulation of professional services, is a matter for the provincial governments. EU external trade policies are similarly decided on the union level, but fiscal policy is a member state matter guarded carefully by national governments (European Commission & Government of Canada, 2008, pp. 4-8). These multilevel systems certainly complicate the negotiations which include nine Canadian provinces and 27 EU member states, in addition to the Canadian government and the European Commission.⁶

The goal is however to achieve trade liberalization, defined by Francois & Hoekman (2010, p. 659) as “deliberate actions that reduce discrimination”. Given the many indirect measures to protect services suppliers (see Section 2), trade liberalization requires a broad approach – i.e., reducing both border barriers and NTBs that restrict market access – to achieve substantial results in the services sectors. Such an approach was embraced by the European Commission & the Government of Canada (2009) in their scoping of an agreement. In addition to tariff elimination and bilateral investment facilitation, the agreement would include a number of additional areas. Fourteen areas of specific relevance are mentioned and many of them relate, directly or indirectly, to trade in services. Table 4.1 gives an overview of areas suggested to be part of the agreement that would affect services sector trade.

Table 4.1. Suggested services sector inclusion in CETA

<ul style="list-style-type: none"> ▪ Substantial coverage of service sectors to achieve market access and non-discrimination (measured in terms of numbers of sectors, volume of trade and modes of supply) ▪ Considerably higher levels of commitment than current WTO commitments ▪ Trade facilitation provisions and the reduction of technical barriers to trade ▪ Investment facilitation (pre- and post-establishment) ▪ Public procurement deals, at all levels of government, open to competitive bidding ▪ Regulatory provisions and cooperation ▪ Mutual recognition of professional qualifications ▪ Facilitation of temporary movement of persons related to trade and investment ▪ Protection of intellectual property (IP) and enforcement of IP rights ▪ Ensuring that monopolies and public enterprises do not create barriers to trade through cooperation in the area of competition policy

Source: European Commission & Government of Canada (2009)

In late 2009 the first round of negotiations started with the ambition of completing negotiations within two years.

⁶ As the only Canadian province, Newfoundland and Labrador chose not to participate in the negotiations.

4.2.1 Benchmark Agreement

As a reference point for how CETA might look like, the EU-South Korea agreement is used as liberalization of trade in services – beyond WTO commitments and Doha Round offers – is a key part of this agreement (CEPII/ATLASS, 2010, p. 26). The high inclusion of services in EU's most recent trade agreement reflects EU's position on services trade liberalization at the multilateral level where the European Commission is pushing for “considerable and real market opportunities” for service suppliers (European Commission, 2011). The EU-South Korea agreement declares that non-discriminatory treatment and market access are the basic principles by which bilateral trade in services shall take place, and establishes dispute settlement rules to ensure proper ratification.⁷ In addition to removing tariffs, the agreement reduces NTBs by including provisions on inter alia investments, intellectual property, public procurement, transparency of regulation, and standards and certificate recognition (European Commission, 2009b). The agreement uses a positive list approach in accordance with previous RTAs negotiated by the EU. This requires the parties to specifically identify all sectors to be included in the agreement, which is done in lengthy annexes where commitments are described in detail with conditions and exceptions. Remaining restrictions vary between different sub-sectors, but also depending on the mode of supply. In terms of sectors, the agreement covers important services sectors such as transportation, telecommunications, finance, environmental, construction, and professional services including architecture, engineering and legal services (Lee, 2009, pp. 10-11). Audio-visual services, national maritime cabotage and some air transport services are completely excluded from the agreement. According to Lee (2009, pp. 10-11), the EU showed special interest in including financial, transport, telecommunications, broadcasting and legal services, while South Korea requested market access for construction, financial, transportation, telecommunications and certain professional services.

In an assessment ordered by the European Commission, the remaining restrictions in services sector trade between EU and South Korea have been classified according to the extent of liberalization, see summary in Table 4.2 (CEPII/ATLASS, 2010, p. 26-31). Fully or highly liberalized services sectors include construction services, the telecommunications sector, postal and courier services, computer services and certain business services. In the telecommunications sector, the EU-Korea agreement removes foreign ownership restrictions. This is especially

⁷ A safety net is also included: A general safeguard clause allows for reestablishment of MFN duties in cases when increases in imports threatens to cause serious injury on specific sectors

interesting in the context of a Canada-EU agreement since the Canadian telecom sector is heavily regulated and excluded from NAFTA. With regards to the EU-South Korea agreement, the transportation sector remains protected with the exception of some maritime services (European Commission, 2009a, p. 7). High restrictions remain for financial and insurance services.

Table 4.2. Services inclusion in EU-Korea FTA

<i>Level of liberalization</i>	No or low remaining restrictions	High remaining restrictions
<i>Sector</i>	Telecommunications	Financial (except Mode 1 and 2 supply in South Korea)
	Postal and Courier	Insurance
	Construction	Distribution
	Computer and related	Education
	Research and development	Health and social
	Maritime transportation	Tourism and travel
		Personal
		Transportation other than maritime
		Energy

Note: The level of restriction is based on how many EU countries the restriction concerns or, for restrictions remaining in South Korea, the number and type of restrictions.

Source: CEPII/ATLASS (2010, pp. 26-31)

4.2.2 Negotiations and Liberalization Potential

Canada has a tradition of using a negative list schedule in RTAs, including the NAFTA and the Canada-Chile agreement (Stephenson & Prieto, 2002, p. 337). This approach involves specifying sectors to be excluded from the agreement and is the opposite of the positive list approach of the EU. The question of which approach to use has reportedly been a difficult negotiation issue, but according to Dr. John M. Curtis, former chief economist at the Canadian Department of Foreign Affairs and International Trade, the EU has recently accepted a negative list approach (Curtis, 2011; O’Neil, 2011). This signifies a break with previous EU RTAs and confirms the negotiators high ambitions since a negative list schedule generally is regarded as being more trade liberalizing and transparent (Francois & Hoekman, 2010, pp. 674-675).

Public procurement has been an area of controversy in the negotiations. The EU has been pushing for inclusion of government procurement on all levels of government while Canada has been more reluctant regarding such (Collins-Williams, 2011; Payton, 2010). Canada currently has an important exception under the international Agreement on Government Procurement (GPA) in that sub-governmental levels are not included, i.e., provinces/territories and municipalities (European Commission & Government of Canada, 2008, p. 76). The issue is politically sensitive

in Canada, especially on the provincial level, but is potentially important for the impact of the agreement. The European Commission (2008, p. 74) estimates that public procurement spending accounts for more than 16 percent of total EU output. Similar data has not been found for Canada. Data from the US in 1993 suggests that public purchases account for 20 percent of total income and – excluding military expenses – that construction is the second largest category of expenditure after wages (Francois et al, 1997 referred to in Evenett & Hoekman, 2005, p. 175). Inclusion of government procurement would consequently be a major liberalizing factor of services trade. Given that Canada’s request for a negative list approach was met by the EU, inclusion of public procurement in the agreement – one of EU’s top priorities – is more likely to be met. Such inclusion would mainly affect the construction, transportation and energy sectors (ibid.; Collins-Williams, 2011; Curtis, 2011).

According to Terry Collins-Williams, former Director of the International Trade Policy Division at the Canadian Department of Finance, ambitious inclusion of the mobility of skilled persons in the agreement have been put forward by Canada during the negotiations (Collins-Williams, 2011). Kirkpatrick et al (2011, pp. 39-40) carefully suggest that if temporary movement of labour is included in an agreement, it will mainly affect the financial and other business services sectors.

Table 4.3 summarizes the liberalization potential of CETA in a number of services sectors based on what is known about the negotiations and the EU-South Korea agreement. This summary will be used in Section 6.3 to estimate the trade impact after implementation of the agreement.

Table 4.3. Potential services sector liberalization in a Canada-EU trade agreement

Liberalization potential	Sector	Comment
High	Telecommunications	Mainly through liberalization of foreign ownership requirements in Canada
	Postal and Courier	As per EU-South Korea agreement
	Construction	Public procurement provisions and EU-South Korea agreement
Medium	Transportation	Mainly through maritime transportation liberalization and public procurement provisions
	Other business	With provisions on temporary movement of professionals
	Distribution	With public procurement provisions, EU-South Korea agreement suggests low potential
	Energy	With public procurement provisions, EU-South Korea agreement suggests low potential
	Financial	Through provisions on temporary movement of professionals
Low	Tourism and travel	Low inclusion in EU-South Korea agreement
	Insurance	Excluded from NAFTA and low inclusion in EU-South Korea agreement

5 Using the Gravity Model to Predict Trade

5.1 The Gravity Model in Theory

The gravity model of trade is a simple trade model used to assess or predict trade flows between countries or regions. It has had great empirical success and been widely used in studies employing both cross-sectional and panel data. Introduced in the 1960s, and developed formally by Anderson (1979), Bergstrand (1985, 1989) and others, the model is recognized to be compatible with most models of international trade, including Ricardian, Heckscher-Ohlin and monopolistic competition (Kimura & Lee, 2006, p. 94). The model, an economic adaptation of Isaac Newton's law of universal gravitation, assumes that products are differentiated by place of origin and that consumer preferences are homothetic and identical across countries. At its core, the gravity model relates bilateral trade flows to size of, and distance between, the trade partners; however, many additional variables have been added to the equation in empirical studies. Adding a dummy variable of RTA membership has proved useful for policy evaluations of various kinds, and since the 1990s, the gravity model has been a popular method of evaluating trade creating and diverting impact of RTAs (Carrère, 2006, p. 224). Ex-ante assessments of trade potential, such as this thesis, is another useful application of the gravity model.

In an article in the *American Economic Review*, Anderson and van Wincoop (2003) derive the theoretical gravity equation and specify the model based on economic theory. They argue that the gravity model often used in empirical literature lacks theoretical underpinnings and can be improved by including multilateral resistance variables that capture broader effects such as relative trade barriers. The authors conclude that relative trade barriers are determinants of trade and that trade barriers have an asymmetric effect on small and large countries. The theoretical gravity equation is derived such that

$$x_{ij} = \frac{y_i \times y_j}{y_w} \times \left(\frac{t_{ij}}{P_i \times P_j} \right)^{1-\sigma}$$

where x_{ij} is exports from country i to country j , $y_i(j)$ the incomes of i (j), y_w the world income, t_{ij} the bilateral trade costs, $P_i(j)$ the multilateral resistance variables of i (j), and σ the elasticity of

substitution between all goods. The equation shows that bilateral trade flows depend on the relative size of the trade partners, the bilateral trade barriers and the combined multilateral trade resistance. Through use of the multilateral trade resistance variable, it also shows that trade between two countries is not only affected by the absolute trade costs between trading partners, but also by how open each trading partner is towards the rest of the world. This means that bilateral trade may decrease when the importing country becomes more open towards the rest of the world, with unchanged absolute trade costs between the importer and the exporter. Multilateral resistance variables have, however, scarcely been used explicitly in empirical studies due to the complicated implementation process required. Instead, fixed importer and exporter effects have been used to control for the price indices P_j and P_i respectively (Walsh, 2008, p. 317). This is appropriate when analyzing cross-sectional data since there is no time dimension to consider. The use of a remoteness variable is another approach to control for the price indices. This approach approximates price indices on the basis of how distant, in economical terms, a country is from its trade partners.

5.2 The Gravity Model for Services Trade

Gravity modelling is often used to predict trade flows of goods, but applications of the model to services trade are less frequent. Though, Kimura & Lee (2006) find that gravity models of services trade consistently have a higher coefficient of determination than gravity models of goods trade, and therefore conclude that gravity models are better predictors of services trade than goods trade.

The theoretical gravity equation presented above has, although acknowledged, not been widely used un-adapted in empirical research due to difficulties in its practical implementation (Walsh, 2006, p. 8). However, various adaptations have been made and applied to total services trade by Kimura & Lee (2006), Lejour & de Paiva Verheijden (2007), Walsh (2008), OECD (2009), Francois & Hoekman (2010), and others. Certain independent variables are commonly included in adapted gravity models of services trade, including language, distance, RTA membership and adjacency. As shown in the following paragraph, the impact of a variable can differ according to study.

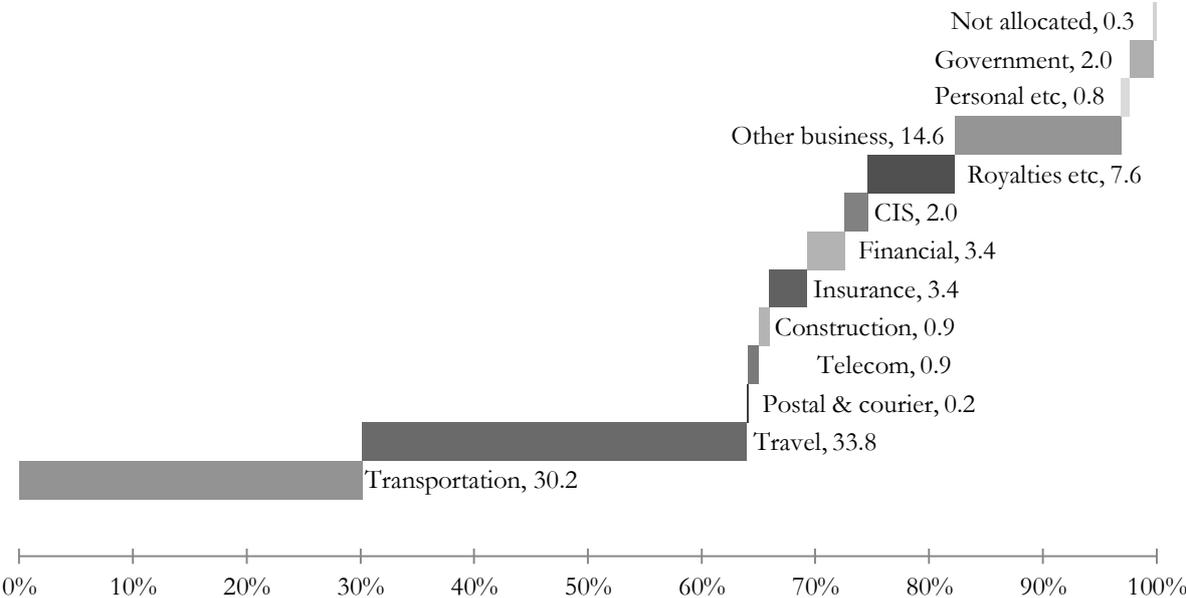
Kimura & Lee (2006) adapted a gravity model for the purpose of comparing the determinants of trade in services gravity modelling and goods gravity modelling using data from 10 OECD countries. They found that geographical distance is more important to explain services trade than goods trade, and that services trade is about 50 percent larger between countries that share a common language. They also found that membership to the same RTA is an important explanatory variable to both services and goods trade, and that greater economic freedom has a relatively greater impact on services trade than on goods trade. Lejour & de Paiva Verheijden (2007) similarly found that language differences and the level of product market regulation in the importing country hamper services trade. Though, in their analysis of intra-EU and inter-provincial Canadian services trade panel data, they found distance to be less important to explain services trade than goods trade, especially in the telecommunications and financial sectors. Walsh (2008) analyzed the determinants of trade in total services and four sectors – travel, transport, government and other services – employing different gravity models with panel data. The author used data from the OECD and found that GDP per capita and a common language are the most important determinants of services sector trade on the aggregate level. At the sectoral level, the wealth of the importer and a common language were key. Distance, contiguity and EU membership were found to be insignificant. The OECD (2009) also used gravity regressions to analyze the progress of their ongoing project to develop a *Services Trade Restrictiveness Index*. It found robust results for two sectors, telecom and professional services, but needs to further develop the index before application to multi-sector analysis. Francois & Hoekman (2010) studied the determinants of services trade and illustrated the effect of policy barriers to trade by integrating an openness index into a gravity model. They used the OECD's (2007) *Regulatory Restrictiveness Index* as an estimator of total trade barriers in the services sector and interacted the trade barrier variable with RTA membership. From this they found that trade barriers of the importing country have a significant negative impact on the services imports in several of the sectors studied.

5.3 Data

The primary source of trade data used in the analysis is the *Statistics on International Trade in Services* provided by the OECD (2010c). The database includes import and export data from 1999-2007 for 42 countries and their partners, collected based on the guidelines in the *Manual on Statistics of*

International Trade in Services (OECD, 2010a). Both aggregated and disaggregated data are available, but data availability varies greatly between countries and sectors. The gravity model derived in this thesis uses data from 32 countries; the member countries of the OECD minus Estonia and Israel since these recently joined the organization and have not yet submitted data on bilateral services imports.⁸ Imports of services are used as trade flow measure. The analysis focuses on total trade plus eight sectors where trade flows from the OECD (2010c), and equivalent trade barrier data (see Section 5.3.1 below), are available. The sectors included are transportation, travel, postal and courier, telecommunications, construction, insurance, financial, and other business services. In Figure 5.1, the relative size of each sector in the 32-country dataset is illustrated. Though the included sectors represent 87 percent of the reported disaggregated trade flows, they only account for 65 percent of the total services trade reported by the included countries. This implies that the reporting of disaggregated services data is not complete and that total services trade conclusions based on sectoral data must be cautious.

Figure 5.1. Sectoral share of services imports in 2007 (%)



Source: Author’s calculations based on data from OECD (2010c)

⁸ The following countries are included in the analysis: Australia, Austria, Belgium, Canada, Chile, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, the Republic of Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States.

Using pooled cross-sectional data and focusing on the year 2007, the gravity model is estimated using services imports as the dependent variable. Not using panel data is a limitation since trade flows are relationships that change over time – a fact that has been recognized in the empirical literature lately (Walsh, 2008, p. 317). This limitation is however necessary since the existing trade barrier data are static. In total there are 9054 country pairs in the dataset, but only 3498 bilateral trade flows due to the inability of some countries to report trade with some or all partners. Trade values of zero have been excluded from the analysis, which technically could create a bias if legitimate zero trade flows are disregarded. It has however been considered more likely that the zero trade flows depend on failure to report accurate data.

5.3.1 Trade Barrier Data

Measuring barriers to services trade is problematic given that many or most barriers are indirect non-tariff barriers, as discussed above. To further complicate the task, various barriers affect various modes of supply therefore limiting the universal applicability of different measures. Also, as noted by various authors, including Francois & Hoekman (2010) and Walsh (2008), cohesive data of barriers to trade in services is not available. Instead, barriers are estimated using different methods which can be divided into two categories: direct measurements and indirect measurements (Hoekman & Kostecky, 2001, p 242). The former attempts to measure trade implications of an explicit policy, while the latter, which is used less commonly to measure services trade barriers, attempts to estimate barriers by comparing actual and predicted trade flows according to a specified model (Deardorff & Stern, 2008, pp. 182-185). An example of a direct measurement of services trade barriers is the trade restrictiveness index (TRI) developed in 2000 under the auspices of the Australian Productivity Commission (Australian Government, 2009). Their index is based on the frequency and severity of regulations, and covers seven services sectors in 34 countries. Walsh (2008, pp. 329-331) used the TRI to measure the effect of services NTBs in the importing country, but was unable to present significant results. Another example is the previously mentioned *Services Trade Restrictiveness Index* being developed by the OECD (2011). The project has two instruments: a services trade regulatory database with internationally comparable information on regulatory policies, and a scoring and weighing mechanism that translates the qualitative information into a trade restrictiveness index. The project is an attempt to create a cohesive and institutionalized database on barriers to services trade in the OECD countries and other major economies. To date, the index is not fully developed and datasets are not available.

The OECD has, however, in a series of papers fully developed the *Foreign Direct Investment Regulatory Restrictiveness Index* (RRI) to measure member countries' levels of restrictiveness toward foreign direct investment (Golub, 2003; Koyama & Golub, 2006; OECD, 2007). The current version of the index is from 2007 and provides data for 43 countries – OECD members and associates, China, India, Russia and South Africa – nine sectors and 11 sub-sectors. It therefore is more recent and includes more sectors than the TRI. The index measures discrimination against foreign investment, thus mainly addressing supply through local establishment, and ranges from open (0) to closed (1) foreign investment. As done by Francois & Hoekman (2010, pp. 665-666), the RRI will be used as the measure of trade barriers to services trade. Both Mirza & Nicoletti (2003, pp. 14-15) and Lejour & de Paiva Verheijden (2007, p. 400) found that market regulation in the importing country influences trade more than market regulation in the exporting country. In accordance with this and in following the example of Walsh (2008), the importing country's trade barriers are considered in this thesis.

Table 5.1 presents the eight included services sectors and how they have been matched with the equivalent sector of the RRI classification (OECD, 2007, p. 141).

Table 5.1. Matching data of trade flows and trade barriers

Trade data included for the following services sectors	Trade barriers estimated with the following sector index
<i>Data categorization by OECD (2010c)</i>	<i>Categorization by OECD (2007)</i>
Transportation	Transport
Travel	Hotels & Restaurant
Postal and Courier (sub-sector to Communications)	Distribution
Telecommunications (sub-sector to Communications)	Telecoms
Construction	Construction
Insurance	Insurance (sub-sector to Finance)
Other Financial Services	Banking (sub-sector to Finance)
Other Business	Business Service

5.3.2 Independent Variables

Several independent variables, in addition to the trade barrier variable, are included in the model.⁹ In the literature, different variables of size are used (e.g., GDP, GDP per capita and population).

⁹ Table B.2 in Appendix B shows descriptive statistics for the independent variables.

In this model size is defined as the combined economic mass of the bilateral trade partners, and computed as,

$$Mass = GDP_M GDP_X$$

where $GDP_{M(X)}$ is the gross domestic product of the importer (exporter), as collected from the *World Development Indicator* database (World Bank, 2010).

Distance is measured between the trade partners' capital cities and is usually interpreted as a proxy of bilateral trade barriers. The data is collected from datasets made available by CEPII (2006). There are several problems with this measurement, including the assumption of equal costs between all modes of transportation and the assumption that the capital city is the economic centre of a country. It is however, a simple measurement with a straight-forward interpretation that will complement the trade barrier measure.

Remoteness variables – proxies for the multilateral resistance terms – are used to control for average trade barriers. They are computed as defined in Carrère (2006, pp. 127-128) such that,

$$Remoteness_M = \prod_{p=1}^N Y_p Distance_{Mp}^{1/(1-\sigma)}$$

$$Remoteness_X = \prod_{p=1}^N Y_p Distance_{Xp}^{1/(1-\sigma)}$$

Where Y_p is the economic mass, as measured by GDP, of partner country p , and $Distance_{M(X)p}$ the distance between the importer (exporter) and the partner country p . The central elasticity value is denoted by σ and estimated by Carrère (2006) to be 4.

Qualitative information about the trade flow observations is also added by including dummy variables in the models. Dummy variables for neighbouring countries (Contiguity) and countries that share a common official language (Language) are added.¹⁰ To control for intra-RTA effects, dummy variables for membership of the EU, NAFTA and the Closer Economic Relations agreement between Australia and New Zealand (CER) are included. As the analysis focuses on

¹⁰ Data provided by CEPII (2006).

trade between Canada and the EU, dummies to capture characteristics specific to this bilateral trade relation are also included.

To test for multicollinearity, the spearman rank coefficients are calculated to reveal correlation between the independent variables. None of the coefficients are greater than 0.49 with the exception of the coefficient for distance and EU membership (see Appendix C for details); this correlation might be explained by the high number of EU countries in the dataset. To test the specification of the gravity equation, a robustness test where the distance and remoteness variables are excluded is performed in Section 6.2.

5.3.3 Data limitations

Measuring trade in services is difficult partly because of the special characteristics of services that have been presented in Section 2 above. Several methods and statistical domains are used in combination, but data can still not be linked to the modes of supply in a satisfactory manner even though GATS has been in place for 15 years (Maurer, Marcus, Magdeleine, & d'Andrea, 2008, p. 136-138). Overlapping data (e.g. travel services also include goods), incomplete reporting and sheer lack of data hamper the analysis of services trade and could partly explain the meagre supply of studies on trade in services. For the trade barrier data, the RRI index actually measures regulations that restrict market access of foreign companies (i.e., Mode 3 supply), but is used as a proxy of overall barriers to services trade. The OECD's database on international trade in services, on the other hand, covers mainly Mode 1 and 2 supply, with less coverage of Mode 3 and 4 supply (Walsh, 2008, p. 319). Even though the two databases have been used together in previous studies (see Francois & Hoekman, 2010), this discrepancy in data coverage is considered when analyzing the results.

5.4 Econometric Specification

The natural logarithm is taken of all continuous variables (including the RRI variable) in order to establish a linear relationship and to facilitate the interpretation of the regression results.¹¹ In addition to the dummy variables presented above, a dummy variable for each sector is added to

¹¹ To be more precise, the continuous variables have been converted to $\ln(\text{value}+1)$.

clear the results from sector-specific characteristics. Interacted dummy variables are also added by multiplying the sector dummies with the equivalent trade barrier variables. This interaction allows for different regression slopes depending on sector, which will give an indication on how specific sectors differ from the general regression trend (Barreto & Howland, 2006, pp. 208-210). The industry and integrated dummy variables for total services are dropped to avoid perfect multicollinearity.¹² The propensity to import services is now specified as:

$$\begin{aligned} \ln imports_{iMX} = & \beta_0 + \beta_1 \ln RRI_{iM} + \beta_2 \ln MASS_{MX} + \beta_3 \ln Distance_{MX} + \beta_4 \ln REM_M \\ & + \beta_5 \ln REM_X + \beta_6 Contiguity + \beta_7 Language + \beta_8 EU + \beta_9 NAFTA \\ & + \beta_{10} CER + \beta_{11} CAN imports from EU + \beta_{12} EU imports from CAN \\ & + \beta_{13} Industry_i + \dots + \beta_{20} Industry_i + \beta_{21} Trade Barrier_{iM} \cdot Industry_i \\ & + \dots + \beta_{28} (Trade Barrier_{iM} \cdot Industry_i) + \varepsilon \end{aligned}$$

Where i is the observed services sector, M the importer, X the exporter, and where

RRI_{iM} = Regulatory restrictiveness index value (barrier to trade) in sector i of importer

$Distance_{MX}$ = distance between capitals of importer and exporter

$CAN importer EU exporter$ = dummy variable for when Canada is the importer and an EU country the exporter

$EU importer CAN exporter$ = dummy variable for when an EU country is the importer and Canada the exporter

$Industry_i$ = dummy variable for sector i

$Trade Barrier_{iM} \cdot Industry_i$ = interacted variable

The variables for economic mass, contiguity, language, and membership of a RTA are expected to have positive signs since these are variables that, in theory, would increase trade as they grow. Distance, the trade barriers and interacted variables (which will be interpreted together) are all expected to have negative signs since these are variables that, in theory, would result in lower trade.

¹² This implies that total services are the base case and that the regression intercept (B_0) and general trade barrier slope (B_i) will reflect total services.

6 Assessing the Impact on Bilateral Trade Flows

6.1 Regression Results

The regression is estimated using the computer software PASW Statistics 18 and the results are shown in Table 6.1. All continuous variables have the expected signs and are highly significant. The general dummy variables of contiguity, language and RTA membership also have the expected signs and are highly significant. Though, the NAFTA coefficient has a negative sign contradictory to intuition and what was predicted; this is not significant and conclusions are therefore not made on whether NAFTA countries actually trade less in services with each other than with other countries. The EU and CER dummies are significant on the one percent and five percent level, respectively. These coefficients indicate that intra-EU services trade is roughly 20 percent higher and intra-CER trade more than 170 percent higher than what the gravity model predicts.¹³ In a similar exercise, Francois & Hoekman (2010, pp. 665-666) interacted the RRI variables with EU and NAFTA membership dummies and found evidence for limited services integration within the EU, but no such evidence within NAFTA. In an earlier, but still comparable, study, Park (2002) examined services sector integration in five RTAs and found that services sector integration, in terms of a significantly higher intra-RTA trade, can only be proven within the EU.¹⁴ It should be considered that the high CER coefficient may reflect the dummy variable catching similarities between Australia and New Zealand other than the trade agreement in place.

There is strong evidence that language is an important determinant of services sector trade. Countries with an official language in common had 125 percent higher bilateral services imports than countries that did not share a common language.¹⁵ Walsh (2008, p. 321) suggests that the language dummy might include other cultural and historical linkages between countries, not estimated in the model. The results from the general dummy variables also show that neighbouring countries have 25 percent higher services trade than non-neighbours, a result that is significant on the one percent level. Canadian imports from the EU were found to be 66 percent

¹³ After transformation of the variables: $100 \cdot e^b - 1$

¹⁴ NAFTA, ASEAN, MERCOSUR and ANDEAN were the other included RTAs.

¹⁵ Similarly, the language coefficient 0.810 is transformed to reflect the percentage using $100 \cdot e^{0.810} - 1 = 125$.

higher than what the model predicts, the only bilateral control dummy found to be significant. This could indicate that Canada is more open to services imports from the EU. Another possible explanation is that historical ties to certain EU countries are reflected in trade volumes.

Table 6.1. Regression results

	Unstandardized		t-value	Significance
	B	Std. Error		
Intercept (b ₀)	-5.834	0.310	-18.826	0.000
<i>ln</i> RRI importer (b ₁)	-5.518	0.950	-5.806	0.000
<i>ln</i> Mass (b ₂)	0.751	0.010	78.536	0.000
<i>ln</i> Distance (b ₃)	-0.889	0.032	-27.973	0.000
<i>ln</i> Remoteness importer (b ₄)	0.025	0.004	6.273	0.000
<i>ln</i> Remoteness exporter (b ₅)	0.019	0.003	6.026	0.000
<i>General dummy variables</i>				
Contiguity (b ₆)	0.226	0.082	2.772	0.006
Language (b ₇)	0.810	0.070	11.639	0.000
EU27 (b ₈)	0.187	0.055	3.415	0.001
NAFTA (b ₉)	-0.321	0.238	-1.350	0.177
CER (b ₁₀)	0.997	0.414	2.408	0.016
CAN imports from EU (b ₁₁)	0.511	0.176	2.911	0.004
EU imports from CAN (b ₁₂)	-0.068	0.108	-0.631	0.528
<i>Sectoral dummy variables</i>				
Sector: Transportation (b ₁₃)	-1.759	0.164	-10.723	0.000
Sector: Travel (b ₁₄)	-2.005	0.131	-15.277	0.000
Sector: Postal and Courier (b ₁₅)	-6.079	0.250	-24.293	0.000
Sector: Telecommunications (b ₁₆)	-4.289	0.190	-22.573	0.000
Sector: Construction (b ₁₇)	-4.181	0.192	-21.786	0.000
Sector: Insurance (b ₁₈)	-4.759	0.211	-22.507	0.000
Sector: Financial (b ₁₉)	-4.056	0.171	-23.677	0.000
Sector: OtherBusiness (b ₂₀)	-2.138	0.149	-14.300	0.000
<i>Interacted dummy variables</i>				
(<i>ln</i> RRI importer) * Sector: Transportation (b ₂₁)	4.459	1.038	4.295	0.000
(<i>ln</i> RRI importer) * Sector: Travel (b ₂₂)	3.077	1.386	2.220	0.026
(<i>ln</i> RRI importer) * Sector: Postal and Courier (b ₂₃)	16.389	4.575	3.582	0.000
(<i>ln</i> RRI importer) * Sector: Telecommunications (b ₂₄)	3.878	1.442	2.689	0.007
(<i>ln</i> RRI importer) * Sector: Construction (b ₂₅)	-3.796	3.077	-1.233	0.217
(<i>ln</i> RRI importer) * Sector: Insurance (b ₂₆)	6.877	1.834	3.750	0.000
(<i>ln</i> RRI importer) * Sector: Financial (b ₂₇)	3.923	1.325	2.960	0.003
(<i>ln</i> RRI importer) * Sector: Other Business (b ₂₈)	3.407	1.101	3.095	0.002

Dependent variable: ln Import value

N = 3498 R² = 0.795 Adjusted R² = 0.794

Since both the dependent variable and the RRI index are logged, the RRI coefficient can be interpreted as the elasticity of services imports with respect to trade barriers. The interaction

terms can be understood as being sector-specific adjustments to the slope attached to the general RRI variable, and should accordingly be analyzed together with the general RRI coefficient (Barreto & Howland, 2006, pp. 208-211). Thus, the significant interacted RRI coefficients are added to the general RRI coefficient to obtain the results shown in Table 6.2. Note that the interacted RRI coefficient for construction services was insignificant and that construction therefore only includes the general RRI coefficient.

Table 6.2. Trade restrictions' effect on propensity to import services

Services sector	RRI coefficients	Number of valid observations
Total services	-5.518	791
Transportation	-1.059	729
Travel	-2.441	714
Postal and Courier	10.871	81
Telecommunications	-1.640	189
Construction	-5.518	183
Insurance	1.358	219
Other Financial Services	-1.596	220
Other Business	-2.111	372
		3498

The negative elasticity in most sectors is expected, but the magnitude is substantial. For example, a 10 percent decrease of RRI in the other business sector would lead to a 21 percent increase of trade in other business services. Lejour & de Paiva Verheijden (2007) estimated two gravity models for Canadian interprovincial and intra-EU trade respectively, and found that market regulation in the importing country is an important explanatory variable to services trade between EU countries. The results presented in Table 6.2 seem to confirm these results.

The coefficients for postal and courier and insurance services are positive, implying that more regulation results in increased trade. This is not likely to be true and therefore, these two sectors are disregarded in the following analysis. The matching of postal and courier trade data with the RRI index for the distribution sector (see Table 5.1) may have been erroneous, or the limited number of postal and courier trade flow observations might have caused the selection to become misrepresentative. Insurance services also have rather few observations, but the positive coefficient is more difficult to explain without regarding data collection methods of the OECD more carefully.

6.2 Robustness Check

A second regression is run to check the robustness of the results obtained in the previous section. Distance and both of the remoteness variables are dropped in the control regression since these variables showed higher correlation values in the spearman test. The results are shown in Appendix D.

All variable coefficients keep the same sign in the new model with the exception of NAFTA membership, but this is insignificant in both the original and the control regression. The coefficient of determination decreases from 0.795 to 0.736 suggesting, not surprisingly, that some explanatory power has been lost. In the control regression, the RRI coefficients are higher in absolute value (in all cases but telecommunications), but the differences are smaller than the corresponding standard errors. Both the EU and CER dummies have substantially higher coefficients in the control regression, which might be explained by the negative correlation between distance and the membership that these organizations demonstrated earlier. Overall, the control regression suggests that the results are quite robust to the specified gravity model. It is, however, important to remember the data limitations discussed in a previous section. The positive trade barrier coefficients for two of the included sectors emphasize the need for improved accuracy in services trade flow and trade barrier data.

6.3 Impact on Trade Barriers and Trade Flows

In Chapter 4, the extent of services sector inclusion in a Canada-EU RTA was assessed and sectors were divided into groups of low, medium or high liberalization potential. In order to estimate trade flow effects after the implementation of an agreement, these results will be translated into quantitative information and combined with the regression results from Section 6.1.

The EU effect of 20 percent found in the regression analysis suggests some integration of the internal EU services market. A Canada-EU agreement is not likely to reach the same level of integration, but the EU case could be used as a point of reference. The OECD (2007) does not present a RRI value for the EU in total. Instead, a weighted average of the RRI values of the EU countries included in the analysis has been calculated. This does not necessarily correspond to the extra-EU protection, but is the best possible estimate.

The two first data columns in Table 6.3 show the 2007 RRI variables for Canada and the calculated ones for the EU; it is noticeable that trade restrictions as measured by the RRI are lower in the EU than in Canada.¹⁶ Bilateral trade liberalization would likely open up the Canadian market relatively more than the EU market given that sector inclusion and provisions are reciprocal. This should be and is reflected in the analysis. Thus, to estimate the bilateral post-implementation variables, initial trade barriers and reference values are weighted depending on the expected impact of the agreement. The reference values are based on the protection of the countries (Canada plus EU countries) with the lowest RRI values. More specifically, the first quartile of the RRI of the included countries is used. The weight, which adds up to unity, is determined according to the level of liberalization potential in each sector. This means that current values are given the weight 0.5 in high potential sectors, 0.75 in medium potential sectors, and 0.95 in low potential sectors.¹⁷ The new values obtained are estimated theoretical index values that are not in themselves of interest for the analysis. To interpret the reduction in protection, percentage values for the relative change in RRI is calculated and shown in the middle section of Table 6.3. In Canada, the biggest reduction in protection towards EU suppliers can be spotted in postal and courier, telecommunications and construction services – the three sectors with the highest liberalization potential. Substantial trade barrier reductions are also estimated in the other business, financial and transportation sectors. Travel and insurance demonstrate the lowest increases. In the EU, the biggest reductions are in the other business services. This can be explained by the large difference between current EU protection and the reference value. Considerable reductions are also estimated in telecommunications, postal and courier, construction, and financial services.

Table 6.3. Estimated effects on trade barriers and trade flows

Sector	Potential*	Current RRI (2007)		Δ RRI (%)		Δ Imports (%)	
		CAN	EU**	CAN	EU	CAN	EU
Transportation	Medium	0.413	0.218	-13.8	-3.6	14.6	3.9
Travel	Low	0.150	0.027	-4.3	-1.3	10.4	3.3
Postal and courier	High	0.150	0.027	-42.7	-9.5		
Telecommunications	High	0.525	0.102	-43.1	-14.5	70.8	23.8
Construction	High	0.150	0.027	-42.7	-8.7	235.4	48.2

¹⁶ The EU countries are among the OECD countries most open to foreign investment, especially vis-à-vis other EU members (OECD, 2007).

¹⁷ E.g., to calculate the new RRI value for a high potential sector i in country j the following formula is used,

$$RRI_{ij} = 0.75 \cdot \text{first quartile of } RRI_i + 0.25 \cdot RRI_{ij}$$

Insurance	Low	0.200	0.112	-2.9	-1.2		
Financial	Medium	0.225	0.099	-17.6	-7.9	28.0	12.7
Other business	Medium	0.175	0.078	-21.9	-18.3	46.1	38.7

* Liberalization potential as estimated in Section 4.2.2.

** RRI for EU has been calculated as a size weighted average of the RRI values for the 20 EU countries included in the analysis. GDP 2007 was used as size measure.

Source: Author's calculations based on OECD (2007)

As the regression results indicated unrealistic positive RRI-coefficients for insurance, and postal and courier services, these sectors are not considered when estimating the agreement's effect on trade flows. For the remaining sectors, trade impact is calculated simply by multiplying RRI elasticity with the estimated change in RRI. The results presented in the right section of Table 6.3 reveal that Canadian imports from the EU will increase relatively more across all sectors. This is expected given Canada's higher current protection reflected in the RRI change estimates. The values for construction services are very high, but should be interpreted with caution. From the regression analysis, no significant coefficient was found for the interacted construction sector term, thus its coefficient consists only of the general trend. The number of observations in the construction sector was also limited to only 183, which might have caused a selection bias. Considering the remaining sectors, the estimates suggest that Canadian imports of European telecommunication services will increase by 71 percent, while European telecommunication services will increase by 24 percent. Other business services is the sector with the largest increase of European imports from Canada, 39 percent, while Canadian imports from the EU will increase by 46 percent in this sector. It is also the sector where Canadian negotiators have been pushing most for liberalization (Collins-Williams, 2011). Of the sectors included in the analysis, the agreement will have the lowest impact on travel and transportation services; though, this is not to say there will be no effect as the estimates still suggest noticeable increases in imports, especially on the Canadian side.

Predicted trade flows are not calculated for the services sector in total since this would require a classification of the full agreement in high, medium or low liberalization potential. While this kind of classification has been done on the sectoral level, it is not considered to be sufficiently accurate to adapt to the aggregate level, mainly for two reasons. Firstly, the difficulties in foreseeing the full agreement and its implications, as well as the importance of and interaction between different sectors, including goods, would make a classification unreliable. Secondly, the analysis does not cover all services sectors. Thirty-five percent of all services imports reported to OECD by the 32 included countries are not included in the analysis because trade barrier data was lacking.

7 Concluding Discussion

Canada and the European Union entered into negotiations with the objective of creating a more ambitious bilateral trade agreement than either party currently has. To achieve this, high services sector inclusion is crucial given the production and trade patterns of the partners.

Based on what is known about the current negotiations and on a previous agreement between the EU and South Korea – a recent far-reaching agreement in terms of services sector inclusion – the liberalization potential of various sectors was estimated and categorized. Then, a gravity approach was used to analyze the projected trade agreement's impact on bilateral services trade. Using a pooled cross-sectional dataset, the effect of non-tariff barriers on imports was estimated for eight services sectors – transportation, travel, postal and courier, telecommunications, construction, insurance, financial and other business services – by including a trade barrier measure among the explanatory variables in the regression. Unlike Walsh (2008), but consistent with Francois & Hoekman (2010), significant results are found for most trade barrier variables in the regression analysis.

Interpreting the trade barrier coefficients with the liberalization potential of each sector led to the estimation of post-implementation trade flows. Of the sectors included in the analysis, the estimates suggest that the most profound trade effects will be seen in the telecommunications sector and in the area of other business services. A simple analysis of global competitiveness showed that both of these sectors are relatively strong in Canada and the EU in comparison to the rest of the world. Canadian telecommunications sector imports from the EU are estimated to increase by 71 percent while Canadian other business services sector imports from the EU are estimated to increase by 46 percent. Telecommunications is a negotiation focus of the EU as Canada currently restricts foreign ownership. The results obtained in this analysis presume that those restrictions will be lowered or removed as has been advocated strongly by the EU. EU telecommunications sector imports from Canada are estimated to increase by 24 percent while EU other business services imports from Canada are estimated to increase by 39 percent. The latter sector includes professional services such as engineering and architecture, and has been a negotiation focus of Canada. The other business services sector is much larger than the telecommunications sector in terms of current bilateral trade as it accounts for 25 percent of EU imports from Canada and 19 percent of EU exports to Canada in 2007 (see Table 3.4). In terms

of volume and total trade, this means that trade barrier reductions in the other business services sector would increase trade more than trade barrier reductions in the telecommunications sector.

Transportation and travel are the biggest sectors in the bilateral trade relation. Though the estimated import increases in the transportation and travel sectors due to trade barrier reductions are smaller in relative terms, the size of the sectors suggest that increased trade, even if small, might have considerable effects on total trade. Within the transportation sector, Kirkpatrick et al (2011) suggests that the reduction of barriers in maritime transportation is likely to be the biggest source of liberalization in the Canada-EU agreement. It is also likely that boosted goods trade will increase services trade especially in the transportation sector, a relation that has not been addressed in this thesis.

The results regarding trade flows in this thesis are not fully comparable with European Commission and Government of Canada (2008) estimates based on a general equilibrium model, as they did not provide estimates on the sectoral level. However, the results of both models points in the same direction. Their model suggested the agreement would increase Canadian exports to the EU by 14 percent and EU exports to Canada by 13 percent.

Another important conclusion from the analysis is that barriers will be reduced to a greater extent in Canada than in the EU. In other words, Canadian imports of EU services will increase relatively more than EU imports of Canadian services, and the importance of the Canadian market for EU suppliers will increase more than the importance of the European markets for Canadian suppliers. This difference is the result of Canada's higher current protection level, but also the substantially larger size of the EU market and EU competition. It suggests that greater efficiency gains will be made by Canada.

There are many caveats to be considered when interpreting the results, with the four key ones being mentioned here. Firstly, negotiation rounds in Ottawa and Brussels promise results, but a final agreement has not yet been agreed upon. Even after successful conclusion of the negotiations, ratification being required by multiple levels of government on both sides of the Atlantic creates uncertainty. The liberalization potential of the agreement has been based on the trade agreement objective of the EU and Canada, but if this ambitious objective is not realized, the estimates presented in this thesis will be too high. Secondly, the trade data is not complete and this reduces the reliability of the results. The OECD database used covers mainly Mode 1 and 2 supply, and many countries frequently fail to report any disaggregated data at all. Also, the

trade barrier data which was used for want of a more complete measure is an index of restrictions to foreign direct investment that may not necessarily correspond to barriers of services trade. Thirdly, the gravity model is, like any other economic model, a simplified framework of a complex process. It does not take potential dynamic effects such as the interaction of goods and services trade into account. Rather, it focuses on the direct short term implications of trade liberalization. Fourthly, the author has made several assumptions both in determining level of liberalization potential and in interpreting the results. Other studies may use different assumptions and reach different conclusions.

Future assessments built on the actual outcome of the negotiations would generate more reliable results. For such assessments, more careful consideration of the different modes of supply could increase accuracy. Extending the gravity model to include panel data could also improve the results since such data would increase the sample size and include the time dimension of trade flows. A prerequisite for such time series analysis is consistent trade barrier data covering multiple years. When established, the *Services Trade Restrictiveness Index* currently under development by the OECD might contribute in this regard.

Appendix A Revealed Comparative Advantage Indices

Using the original definition as presented by Balassa (1965), indices for Canada and the EU vis-à-vis the world have been calculated by using the following formula:

$$RCA = \frac{\frac{x_{ij}}{x_{it}}}{\frac{x_{wj}}{x_{wt}}}$$

Where x_{ij} is country i 's sector j exports, x_{it} all exports of country i , x_{wj} the world's sector j exports, and x_{wt} total world exports. A value greater than unity implies a comparative advantage, while a value of less than one indicates a comparative disadvantage. The results are shown in Table A.1.

Table A.1. Revealed comparative advantage index vis-à-vis the world

	Canada				EU			
	2005	2006	2007	2008	2005	2006	2007	2008
Transportation	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.0
Travel	1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.0
Communication services	1.7	1.6	1.6	1.7	1.2	1.2	1.2	1.2
Construction services	0.2	0.2	0.2	0.2	1.2	1.2	1.2	1.1
Insurance services	2.9	2.5	2.5	2.4	0.9	1.0	1.0	1.0
Financial services	0.5	0.5	0.5	0.6	1.0	1.0	1.1	1.1
Computer and information services	1.4	1.4	1.3	1.2	1.1	1.0	1.0	1.0
Royalties and license fees	0.7	0.8	0.8	0.8	0.6	0.6	0.6	0.6
Other business services	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Personal, cultural and recreational services	0.3	0.3	0.3	0.3	0.9	0.8	0.8	0.7
Government services, n.i.e. *	-	-	-	-	-	-	-	-

Note: The world is defined as OECD countries, Brazil, China and India due to insufficient data availability. Two missing values have been extrapolated.

* Data not available for all countries.

Source: author's own calculations based on data from OECD (2010b)

Appendix B Variables Included in the Analysis

Table B.1 shows the variables included in the regression analysis with a brief explanation and the source of data. The control variables and the interacted variables are not shown. Table B.2 shows summary statistics for the independent variables.

Table B.1. Data sources

Variable	Explanation	Unit	Source
Imports i	Import value sector i	millions of USD	OECD (2010c)
RRI i	Importer's Regulatory Restrictiveness Index for sector i	Index ranging from 0-1	OECD (2007)
Mass	Economic mass of trade partners calculated as (GDPM*GDPX)		Author's calculations based on World Bank (2010)
Distance	Distance between trade partners' capitals	Kilometers	CEEPH (2006)
Remoteness _M	Remoteness of importer, as defined in Carrère, 2006, p. 227.		CEEPH (2006); World Bank (2010)
Remoteness _X	Remoteness of exporter, as defined in Carrère, 2006, p. 227.		CEEPH (2006); World Bank (2010)
Contiguity	Dummy variable for countries sharing a common border		CEEPH (2006)
Language	Dummy variable for countries sharing a common official language		CEEPH (2006)
EU27	Dummy variable for members of the EU		
NAFTA	Dummy variable for members of NAFTA		
CER	Dummy variable for members of CER		

Table B.2. Summary statistics of independent variables

	Minimum	Maximum	Mean	Std. Deviation
RRI importer	.011	.700	.129	.117
Mass	1.20E8	6.07E13	7.11E11	3.34E12
Distance	60	19,586	5,521	5,407
Remoteness importer	.972	35.606	7.064	8.391
Remoteness exporter	.972	35.641	7.052	8.183
Contiguity	0	1	.07	.249
Language	0	1	.08	.266
EU27	0	1	.40	.489
NAFTA	0	1	.01	.075
CER	0	1	.00	.043
CAN imports from EU	0	1	.02	.140
EU imports from CAN	0	1	.02	.140

N = 9504

Appendix C Correlation of Independent Variables

Table C.1 presents the spearman rank coefficients of the independent variables in the gravity model.

Table C.1. Spearman Ranking Coefficients

	ln_RRI importer	ln_Mass	ln_Distance	Contiguity	Language	ln_Remoteness _M	ln_Remoteness _x	EU27	NAFTA	CER	Canadian imports from the EU	EU imports from Canada
ln_RRI importer	1.000											
ln_Mass	-0.024 (0.019)	1.000										
ln_Distance	0.153 (0.000)	0.173 (0.000)	1.000									
Contiguity	-0.028 (0.007)	0.041 (0.000)	-0.391 (0.000)	1.000								
Language	-0.002 (0.814)	0.125 (0.000)	-0.004 (0.697)	0.266 (0.000)	1.000							
ln_Remoteness _M	0.214 (0.000)	0.241 (0.000)	0.491 (0.000)	-0.130 (0.000)	0.006 (0.573)	1.000						
ln_Remoteness _x	-0.007 (0.515)	0.178 (0.000)	0.477 (0.000)	-0.137 (0.000)	0.005 (0.656)	-0.030 (0.003)	1.000					
EU27	-0.136 (0.000)	-0.217 (0.000)	-0.718 (0.000)	0.219 (0.000)	-0.074 (0.000)	-0.423 (0.000)	-0.442 (0.000)	1.000				
NAFTA	0.053 (0.000)	0.114 (0.000)	-0.025 (0.013)	0.182 (0.000)	0.073 (0.000)	0.048 (0.000)	0.048 (0.000)	-0.061 (0.000)	1.000			
CER	0.043 (0.000)	-0.019 (0.070)	-0.003 (0.775)	-0.012 (0.258)	0.151 (0.000)	0.068 (0.000)	0.069 (0.000)	-0.035 (0.001)	-0.003 (0.748)	1.000		
Canadian imports from the EU	0.153 (0.000)	0.069 (0.000)	0.056 (0.000)	-0.038 (0.000)	0.086 (0.000)	-0.054 (0.000)	-0.078 (0.000)	-0.116 (0.000)	-0.011 (0.294)	-0.006 (0.545)	1.000	
EU imports from Canada	-0.024 (0.020)	0.069 (0.000)	0.056 (0.000)	-0.038 (0.000)	0.086 (0.000)	-0.074 (0.000)	-0.051 (0.000)	-0.116 (0.000)	-0.011 (0.294)	-0.006 (0.545)	-0.020 (0.048)	1.000

N = 9504

Note: Significance values within brackets

Appendix D Regression Results from Control Regression

To check the robustness of the estimated gravity equation, three variables are dropped – distance, remoteness of the importer, and remoteness of the exporter – and a new regression is run. The results from the control regression are presented in Table D.1.

Table D.1. Control regression

	Unstandardized Coefficients		t-value	Significance
	B	Std. Error		
Intercept (b ₀)	-10.673	0.291	-36.630	0.000
<i>ln</i> RRI importer (b ₁)	-6.781	1.048	-6.472	0.000
<i>ln</i> Mass (b ₂)	0.662	0.010	66.978	0.000
<i>General dummy variables</i>				
Contiguity (b ₆)	1.378	0.082	16.889	0.000
Language (b ₇)	0.860	0.078	11.003	0.000
EU27 (b ₈)	1.149	0.051	22.744	0.000
NAFTA (b ₉)	0.136	0.269	0.506	0.613
CER (b ₁₀)	2.588	0.441	5.864	0.000
CAN imports from EU (b ₁₁)	0.347	0.194	1.789	0.074
EU imports from CAN (b ₁₂)	-0.444	0.115	-3.849	0.000
<i>Industry dummy variables</i>				
Sector: Transportation (b ₁₃)	-1.785	0.186	-9.609	0.000
Sector: Travel (b ₁₄)	-2.078	0.148	-14.054	0.000
Sector: Postal and Courier (b ₁₅)	-6.006	0.283	-21.213	0.000
Sector: Telecommunications (b ₁₆)	-4.347	0.215	-20.225	0.000
Sector: Construction (b ₁₇)	-4.113	0.216	-19.038	0.000
Sector: Insurance (b ₁₈)	-4.900	0.239	-20.534	0.000
Sector: Financial (b ₁₉)	-4.071	0.194	-20.974	0.000
Sector: Other Business (b ₂₀)	-2.309	0.166	-13.893	0.000
<i>Interacted dummy variables</i>				
<i>ln</i> RRI importer * Sector: Transportation (b ₂₁)	5.395	1.164	4.633	0.000
<i>ln</i> RRI importer * Sector: Travel (b ₂₂)	3.252	1.572	2.069	0.039
<i>ln</i> RRI importer * Sector: Postal and Courier (b ₂₃)	18.160	5.184	3.503	0.000
<i>ln</i> RRI importer * Sector: Telecommunications (b ₂₄)	5.701	1.625	3.509	0.000
<i>ln</i> RRI importer * Sector: Construction (b ₂₅)	-3.162	3.481	-0.908	0.364
<i>ln</i> RRI importer * Sector: Insurance (b ₂₆)	8.791	2.067	4.254	0.000
<i>ln</i> RRI importer * Sector: Financial (b ₂₇)	5.025	1.501	3.347	0.001
<i>ln</i> RRI importer * Sector: Other Business (b ₂₈)	4.506	1.227	3.672	0.000

Dependent variable: ln Import value

N = 3498 R² = 0.736 Adjusted R² = 0.734

List of References

- Anderson, J. E. (1979). A Theoretical Foundation for the Gravity Equation. *The American Economic Review*, 69(1), 106-116.
- Anderson, J. E., & van Wincoop, E. (2003). Gravity with Gravitas: A Solution to the Border Puzzle. *The American Economic Review*, 93(1), 170-192.
- Australian Government, Productivity Commission. (2009, 18 February, 2009). Measures of Restrictions on Trade in Services Database Retrieved 23 March, 2011, from <http://www.pc.gov.au/research/researchmemorandum/servicesrestriction>
- Balassa, B. (1965). Trade Liberalisation and "Revealed" Comparative Advantage. *The Manchester School*, 33(2), 99-123.
- Barreto, H., & Howland, F. M. (2006). *Introductory Econometrics: Using Monte Carlo Simulation With Microsoft Excel*. New York: Cambridge University Press.
- Bergstrand, J. H. (1985). The Gravity Equation in International Trade: Some Microeconomic Foundations and Empirical Evidence. *The Review of Economics and Statistics*, 67(3), 474-481.
- Bergstrand, J. H. (1989). The Generalized Gravity Equation, Monopolistic Competition, and the Factor-Proportions Theory in International Trade. *The Review of Economics and Statistics*, 71(1), 143-153.
- Bhagwati, J. (1995) US Trade Policy: The Infatuation with FTAs. *Discussion Paper Series: Vol. 726*: Columbia University.
- Capling, A., & Nossal, K. R. (2009). The contradictions of regionalism in North America. *Review of International Studies*, 35, 147-167.
- Carrère, C. (2006). Revisiting the Effects of Regional Trade Agreements on Trade Flows With Proper Specification of the Gravity Model. *European Economic Review*, 50, 223-247.
- CEPII. (2006). Distances Retrieved August 8, 2010, from <http://www.cepii.fr/anglaisgraph/bdd/distances.htm>
- CEPII/ATLASS. (2010). The Economic Impact of the Free Trade Agreement (FTA) between the European Union and Korea *Report for the European Commission*.
- Chen, Z., & Schembri, L. (2002). Measuring the Barriers to Trade in Services: Literature and Methodologies. In J. M. Curtis & D. Ciuriak (Eds.), *Trade Policy Research 2002*. Ottawa: Department of Foreign Affairs and International Trade.
- Christen, E., & Francois, J. (2009). *Modes of Delivery in Services*. Mimeo. Department of Economics. University of Linz.
- Collins-Williams, T. (2011, January 14). [Personal Interview].

- Curtis, J. M. (2011, January 28). [Personal Interview].
- Deardorff, A. V., & Stern, R. M. (2008). Empirical Analysis of Barriers to International Services Transactions and the Consequences of Liberalization. In A. Mattoo, R. M. Stern & G. Zanini (Eds.), *A Handbook of International Trade in Services* (pp. 169-220). New York: Oxford University Press.
- European Commission. (2006). Global Europe: Competing in the World European Commission, External Trade.
- European Commission. (2009a). EU-Korea FTA: a quick reading guide (D. T. European Commission, Trans.).
- European Commission. (2009b, 20 Oct, 2009). Free Trade Agreement with South Korea - Memo Retrieved 24 August, 2010, from <http://trade.ec.europa.eu/doclib/press/index.cfm?id=467&serie=276&langId=en>
- European Commission. (2010a, 31 August). International Affairs: Free Trade Agreements Retrieved 15 January 2011, from http://ec.europa.eu/enterprise/policies/international/facilitating-trade/free-trade/index_en.htm#h2-2
- European Commission. (2010b, September 10). Overview of Regional Trade Agreements. *Bilateral relations* Retrieved March 29, 2011, from <http://ec.europa.eu/trade/creating-opportunities/bilateral-relations/>
- European Commission. (2011, 24 January, 2011). EU & WTO: The Doha Round Retrieved March, 2011, from <http://ec.europa.eu/trade/creating-opportunities/eu-and-wto/doha/>
- European Commission, & Government of Canada. (2008). Assessing the Costs and Benefits of a Closer EU-Canada Economic Partnership.
- European Commission, & Government of Canada. (2009). Joint Report on the EU-Canada Scoping Exercise.
- Eurostat. (2010) Statistics in Focus. *Vol. 37/2010*.
- Evenett, S. J., & Hoekman, B. M. (2005). Government procurement: market access, transparency, and multilateral trade rules. *European Journal of Political Economy*, 21, 163-183.
- Foreign Affairs and International Trade. (2011, March 4). Canada-United States Free Trade Agreement (FTA) Retrieved March 29, 2011, from <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/fast-facts-US.aspx?lang=en>
- Foreign Affairs and International Trade Canada. (2010, 24 August, 2010). Negotiations and Agreements Retrieved 24 August, 2010, from <http://www.international.gc.ca/trade-agreements-accords-commerciaux/agr-acc/index.aspx?lang=en#neg>
- Francois, J., & Hoekman, B. M. (2010). Services Trade and Policy. *Journal of Economic Literature*, 48(September), 642-692.

- Golub, S. S. (2003). Measures of Restrictions on Inward Foreign Direct Investment for OECD Countries. *OECD Economic Studies*, 36(2003/1), 85-116.
- Hill, T. P. (1977). On Goods and Services. *Review of Income & Wealth*, 23(4), 315-338.
- Hoekman, B. M., & Braga, C. A. P. (1997). Protection and Trade in Services: A Survey. *Open Economies Review*, 8(3), 285-308.
- Hoekman, B. M., & Kostecki, M. M. (2001). *The Political Economy of the World Trading System: The WTO and Beyond* (2nd ed.). New York: Oxford University Press.
- Karsenty, G. (2000). Assessing Trade in Services by Mode of Supply. In P. Sauvé & R. M. Stern (Eds.), *GATS 2000: New Directions in Services Trade Liberalisation* (pp. 33-56). Washington, D.C.: Brookings Institution.
- Kimura, F., & Lee, H.-H. (2006). The Gravity Equation in International Trade in Services. *Review of World Economics* 2006, 142(1), 92-121.
- Kirkpatrick, C., Raihan, S., Bleser, A., Prud'homme, D., Mayrand, K., Morin, J. F., . . . Williams, M. (2011). A Trade SIA Relating to the Negotiation of a Comprehensive Economic and Trade Agreement (CETA) Between the EU and Canada: European Commission.
- Koyama, T., & Golub, S. S. (2006). *OECD's FDI Regulatory Restrictiveness Index: Revision and Extension to More Economies*. Working Papers on International Investment. OECD. Paris.
- Latulippe, J.-G. (1976). Le traité de réciprocité 1854-1866. *L'Actualité économique*, 52(4), 432-458.
- Lee, J.-K. (2009). *Korea-EU FTA: Major Features and Implications*. Issue Report 08-09. Samsung Economic Research Institute.
- Lejour, A., & de Paiva Verheijden, J.-W. (2007). The Tradability of Services Within Canada and the European Union. *The Service Industries Journal*, 27(4), 389-409. doi: 10.1080/02642060701346706
- Maurer, A., Marcus, Y., Magdeleine, J., & d'Andrea, B. (2008). Measuring Trade in Services. In A. Mattoo, R. M. Stern & G. Zanini (Eds.), *A Handbook of International Trade in Services* (pp. 133-168). New York: Oxford University Press.
- Mirza, D., & Nicoletti, G. (2003). *Is There Something Special About Trade in Services*. Paper presented at the ETSG Conference, Madrid.
- O'Neil, P. (2011, January 25). Europeans opposed to Canada's 'negative-list' approach to trade. *National Post*. Retrieved March 8, 2011, from <http://www.financialpost.com/related/topics/Europeans+opposed+Canada+negative+list+approach+trade/4164047/story.html>
- OECD. (2007). OECD's FDI Regulatory Restrictiveness Index: Revision and Extension to More Economies and Sectors. In OECD (Ed.), *International Investment Perspectives 2007: Freedom of Investment in a Changing World* (pp. 135-151). Paris: OECD.

- OECD. (2009). *Testing the Services Trade Restrictiveness Index: Gravity Regressions and Trade Costs Analysis*. Paper presented at the OECD Experts Meeting on the Services Trade Restrictiveness Index (STRI), Paris. <http://www.oecd.org/trade/stri>
- OECD. (2010a, February). Manual on Statistics of International Trade in Services Retrieved March 29, 2011, from http://www.wto.org/english/res_e/statis_e/its_manual_e.htm
- OECD. (2010b). SourceOECD. SourceOECD Retrieved 15 August, 2010 <http://titania.sourceoecd.org>
- OECD. (2010c). Trade in Services by Partner Country (Publication no. 10.1787/data-00274-en). Retrieved 18 January, 2011
- OECD. (2011). OECD Experts Meetings on Trade in Services Retrieved March 25, 2011, from <http://www.oecd.org/trade/stri>
- Park, S.-C. (2002). *How Far Has Regional Integration Deepened? Evidence from Trade in Services*. Working Paper 02-17. Korea Institute for International Economic Policy. Seoul.
- Payton, L. (2010, February 10). EU wants all-access pass to Canadian procurement *Embassy* Retrieved February 28, 2011, from <http://www.embassymag.ca/page/view/eu-02-10-2010>
- Sampson, G. P., & Snape, R. H. (1985). Identifying the Issues in Trade in Services. *The World Economy*, 8(2), 171-182.
- Seyoum, B. (2007). Revealed comparative advantage and competitiveness in services: A study with special emphasis on developing countries. *Journal of Economic Studies*, 34(5), 376-388.
- Stephenson, S. M., & Prieto, F. J. (2002). Regional Liberalization of Trade in Services: Experiences from the Americas. In B. Hoekman, A. Mattoo & P. English (Eds.), *Development, Trade and the WTO: A Handbook* (Vol. 1). Washington, D.C.: The World Bank.
- Walsh, K. (2006). Trade in Services: Does Gravity Hold? A Gravity Model Approach to Estimating Barriers to Services Trade *IIIS Discussion Paper* (Vol. 183). Dublin: Institute for International Integration Studies.
- Walsh, K. (2008). Trade in Services: Does Gravity Hold? *Journal of World Trade*, 42(2), 315-334.
- Winters, L. A., Gasiorek, M., López Gonzales, J., Holmes, P., Méndez Parra, M., Rollo, J., & Shingal, A. (2009). *Innocent Bystanders: Implications of an EU-India Free Trade Agreement for Excluded Countries*. London: Commonwealth Secretariat.
- World Bank. (2010). World Development Indicators. Available from The World Bank Group World Development Indicators Retrieved 21 July, 2010 <http://data.worldbank.org/data-catalog/world-development-indicators>
- WTO. (2011). Regional Trade Agreements Information System. Retrieved 14 January, 2011, from World Trade Organization <http://rtais.wto.org/ui/PublicMaintainRTAHome.aspx>