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The Strength of the Finnish Service Industry in International Trade

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Abstract

The thesis examined the strength of Finland's service industries in the international trade, and it was assigned by Craneworks Oy. In the recent times, services have become vital parts of a nation's economic engine and virtually the only source of new jobs especially in high-income countries, such as Finland. While the international trade is still driven by trade in goods, services have increasingly grown their share also in trade.

The quantitative research part of the thesis was implemented by using two revealed comparative advantage indices that measure a nation's degree of specialisation in the international trade. These widely used indices measure the comparative import and export levels of a country. The period examined in the thesis covered the years 2007 – 2012. The results were compared against the performance the Nordic countries and the EU.

The most notable findings of the thesis were that Finland is specialised in computer and information services and to a lesser extent in royalty and license fees and construction services. Finland's greatest disadvantages were in transportation and other business services categories. Finland, along with the other Nordic countries, also had low performance levels in financial and travel services.

In addition to the research, the thesis examined the theoretical framework behind the topic, most importantly deindustrialisation, Finland's economic characteristics, drivers of growth and theories on international trade. These were reflected against the actual findings in the discussion section of the thesis.

Keywords/tags (subjects)

international trade, Finland, specialisation, services, service industry

Miscellaneous

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Tiivistelmä

Opinnäytetyössä tutkittiin Suomen erikoistumista palvelujen kansainvälisessä kaupassa Craneworks Oy:n toimeksiannosta. Palvelut ovat erittäin tärkeä osa etenkin länsimaiden taloutta ja pitkälti ainoa uusien työpaikkojen lähde. Kansainvälinen kauppa perustuu edelleen enimmäkseen tavarahyödykkeiden vaihdantaan, mutta palvelut ovat kasvattaneet osuuttaan myös tällä osa-alueella.

Opinnäytetyön kvantitatiivinen tutkimus perustui kahteen paljastetun suhteellisen edun indeksiin, joilla mitattiin Suomen erikoistumista palvelujen kaupassa. Kansainvälisen kaupan tutkimuksessa laajasti käytetyt indeksit mittaavat maan suhteellisia vienti- ja tuontimääriä. Opinnäytetyössä tarkasteltiin vuosien 2007–2012 tuloksia, joita verrattiin Pohjoismaiden ja EU:n performanssiin.

Tutkimuksen tuloksista kävi ilmi, että Suomi on selvästi erikoistunut tietotekniikka- ja informaatiopalveluihin sekä jossain määrin myös rojalti- ja lisenssimaksuihin sekä rakennuspalveluihin. Kuljetus- ja muissa liike-elämän palveluissa Suomen performanssi oli huono. Lisäksi Suomi ja muut Pohjoismaat olivat yleisesti heikkoja rahoitus- ja matkailupalveluissa.

Varsinaisen tutkimuksen lisäksi opinnäytetyö käsitteli aiheen teoreettista taustaa, jonka tärkeimmät aspektit olivat teollistumisen väheneminen, Suomen talouden piirteet, kasvun tekijät sekä kansainvälisen kaupan teoriat. Teoreettista taustaa verrattiin varsinaisiin tuloksiin opinnäytetyön pohdintaosiossa. Opinnäytetyö suositteli Suomen ottavan palvelut ja palveluiden viennin huomioon taloudellisessa päätöksenteossa ja painotti tarvetta tarkemmille palvelujen kansainvälisen kaupan tilastoille.

Avainsanat (asiasanat)
kansainvälinen kauppa, Suomi, erikoistuminen, palvelut, palveluala

Muut tiedot

CONTENTS

1 INTRODUCTION

Today, service industries are of vital importance to economies. De-industrialisation, the decline in the share of manufacturing employment in advanced countries with the continuous increase of the share of services as employer, can be seen as the other fundamental economic phenomenon that has shaped the 20th century alongside with globalisation. Especially in high-income countries services have become the main source of growth. In Finland, services' share of the gross domestic product amounts to over 70% (*The World Bank National Accounts Data* 2014). The contribution of the tertiary sector for the welfare of nations is a key issue especially in high-income countries where services account for over 70% of total employment and for almost all employment growth (OECD 2005, 2).

Services also matter in trade. While the international trade is still largely driven by goods trade, the share of service trade has become increasingly important during the recent years and is only likely to grow in the future. In 2013, trade in services as percentage of the GDP was 12.1% on the global level and 20.9% in Finland (*The World Bank National Accounts Data* 2014). In Finland, service trade's share of exports has also grown. While the value of goods exports relative to the GDP decreased from 38% to 29%, the service exports grew from 6% to 13% between 2000 and 2012 (Ministry of Finance 2013, 15).

The research problem of the thesis was to examine the strength of the Finnish service industry in international trade by identifying in which part of the service sector's trade the country was at an advantage or disadvantage. This was done by using two revealed comparative advantage indices: the Balassa index and Lafay index. The Balassa index is widely used in practice to determine which sectors are strong or weak within a country (Hinloopen & van Marrewijk 2001, 1) and the Lafay index can be considered to derive from it. The indices measure the

proportional import and export levels of nations and regions. By examining the trade flows, the indices are used to ‘reveal’ the comparative advantage of a nation. The thesis examined the performance of Finland and compared it against the Nordic countries and the European Union’s aggregate performance in each service category. The period examined covered the years 2007 until 2012. The approach of including the Nordic countries and the European Union as comparison regions was chosen in order to form a more pervasive view of the results. In large scale developments of the international trade, examining performance data of only a single year without comparison regions would have offered only a short term and superficial perspective.

The author chose the topic due to a personal interest in this wide subject which can, nevertheless, be encapsulated in clear and cohesive results. Another reason for choosing the topic was that previous research on it was limited. Apart from a few international publications dating back to several years ago, virtually the only publications concerning Finland’s international service trade specialisation had been made by the Statistics Finland in the form of short periodic overviews. These publications did not include all service categories or examine them with the revealed comparative advantage indices along with other regions for comparison. One other publication (Fourie & Fintel 2009) was found that examined the global rankings of comparative advantage in services, and it included Finland. However, this research was limited only to analysing the year 2005 from a global and more general view. The European Commission also included a very brief section on Finland’s service trade’s comparative advantage between 2000 and 2011 in their economic paper (European Commission 2012, 23).

In addition to quantitative research, the thesis examines the theoretical framework behind the topic. First, this is done to define services and to explain their recent expansion and importance to modern economies, de-industrialisation and services’ affiliation to manufactured goods. Secondly, the thesis considers

the economic history and characteristics of Finland. This is relevant to the following section which covers the drivers of growth as these two sections are reflected in the discussion chapter in relation to the actual research findings. The chapter on the drivers of growth deals with both the traditional theories of growth and the drivers of growth specifically linked to services. In the last section of the theoretical framework, theories on the determinants of trade are examined. Trade is also examined from the perspective of service supply, as in many cases it is more complex than the supply of manufactured goods. The methodology section deals with the revealed comparative advantage indices, explaining their function and how to read their results. This chapter also describes the source of the trade data used in the thesis.

In the fourth chapter, the results of the research are listed in the order of each service category. Finland's, the Nordic countries' and EU regions' Balassa and Lafay results are described and sometimes accompanied with additional information on the service category. The conclusion chapter discusses the results, comparing the trade performance of Finland to the Nordic countries' aggregate performance and to a lesser extent to the European Union's results. The results are compared in more detail and reflected on by using the theoretical framework, in particular the economic characteristics of Finland and the drivers of growth. This section also aimed to find economic reasons to explain the findings on Finland's performance in certain service categories, especially when they clearly stood out from the general trading trends of the Nordic countries. In addition, the implications of the research and the potential of Finland in future of international service trade are discussed. Lastly, the limitations of the thesis are discussed, namely the complexity and limitations of the service trade data. The final chapter summarises the essential findings and offers future suggestions on the importance of services to Finland's and other nation's economies, Finland's trade of services and on the availability of trade statistics.

2 THEORETICAL FRAMEWORK

2.1 Defining Services

Definition of services

Services are defined as a diverse group of economic activities that are not directly associated with the manufacture of goods, mining or agriculture (OECD 2000, 7). Typically, services involve the provision of human added value in the form of labour, training, entertainment or other similar elements. Despite these definitions, the term ‘service’ is not without difficulties. The majority of literature accepts the basic characteristics that distinguish services from manufactured goods (Shostack 1977; Mills 1977; Grönroos 1990). The basic characteristics that apply to services are the following:

- Service itself is intangible;
- Service is more like a process or a performance than an object;
- Production and consumption are to an extent simultaneous;
- Services are produced mutually with the customer;
- The concept of services contains a great variety of activities and cannot be seen as a homogeneous group.

In addition to these features, several other characteristics have been associated with services. Perishability, or absence of materiality, is another important characteristic of services, as they commonly cannot be stored for later consumption although this varies with some services.

The service sector, or the tertiary sector, as a term, encompasses a large range

of activities. Services can cover “transport, telecommunication and computer services, construction, financial services, wholesale and retail distribution, hotel and catering, insurance, real estate, health and education, professional, marketing and other business support, government, community, audio-visual, recreational and domestic services”. (World Trade Organization 2010, 7.)

During the recent times, the differences of services and other economic activities have become more transparent due to the developments of information and communication technology. The attributes listed earlier and associated with services do not apply in all cases. Developments in technology have, for example, allowed the storing of data, such as films or computer software which can be preserved and consumed in future, thus removing the simultaneousness of production and consumption. While something like travelling to a foreign country or eating in a restaurant remains virtually as a completely intangible service, producing computer software often includes tangible aspects like the package in which it is delivered, making the end-product a partially manufactured good. The relationship of the service producer and the consumer has also gone through a vast change with the spread of the Internet which can remove the simultaneousness of production and consumption. This allows the service producer to make items like newspaper articles to be mass-consumed without the item itself having been mass-produced. The Internet has also become an extremely important tool for medical, banking, retail and financial services, and it has redefined the relationship of the producer and the consumer. The producers no longer has to be physically present when offering their services to the consumers if they can offer the service online. Telecommunication and entertainment services have also undergone significant changes as a result of this. (OECD 2000, 7–9.)

Services, like manufacturing, are a diverse group of economic activities. Both include knowledge-intensive areas, such as high-technology and medical services, as well as labour-intensive, low skill areas, such as cleaning services. A

major difference between services and manufacturing is in their cost structure. In manufacturing, substantial costs incur in the form of capital equipment and raw materials in mass-produced goods, whereas in services, particularly in knowledge-based services, such costs are small or close to non-existent. Services often place importance on intellectual capital over physical capital. For manufacturing, intellectual capital is also important, but the process requires strong consideration of corporeal capital. This difference leads to a difficulty of valuing services, whereas with manufacturing it is easier to measure the value of machinery and other tangible capital. (OECD 2000 10–11.)

Relationship of services and manufacturing

The relationship between manufacturing and services is complex with dissimilar views on their effect on each other. Arguments have been made that the economic shift from declining manufacturing to the growing service industries cannot be maintained in the long run due to services being critically dependent on the manufacturing sector. A contrary view argues that services have become the driving force of economic growth with manufacturing moving to countries that have a functional service infrastructure. (OECD 2000, 6–7.) In the end, posing a stark contrast between the service and manufacturing industries is difficult as their demand and creation can be strongly interlinked in many cases. For example, computer software and video games could not exist without computers, gaming consoles, monitors and television screens, let alone the supporting electricity network. Likewise travelling, which is a service, could not exist without a factory manufacturing the necessary transportation vehicles. In this way, services can be a great driver of growth for the segments of manufacturing from which the service can be considered to derive. Another example of their interlinked nature would be to examine the production cycle of a motor car, which relies on many services during its creation process. The car manufacturing process requires technical and market research, development, design and consulting. The employees involved in the manufacturing process require human

resource management and are likely entitled to healthcare services. All the required vehicle parts have to be transported to a factory, and the end product has to be taken to a retail location. The car is also likely to be advertised to the potential customers, and the sale of a car often involves additional services in the form of financing and insurance. Thus, whatever differences there exist, services and manufacturing can in many ways be complementary with the increase or decrease in one inevitably affecting the other.

De-industrialisation

Broad developments have taken place in the economies of developed nations during the last decades. A significant change has been the decline of the manufacturing sector as an employer, which in Europe has led to a massive rise in unemployment since the early 1970s. De-industrialisation or post-industrialisation can be defined as a long-term decline in the share of manufacturing employment in the advanced countries with the other side of this development being the continuous increase of the share of services as an employer in the advanced economies. This characteristic has been fairly uniform across all advanced nations, while in the United States the effects have been more pronounced. (Rowthorn & Ramaswamy 1997, 5.)

	Stage		
Characteristic	**Agrarian**	**Industrial**	**Post-industrial**
Leading economic sector	Agriculture	Industry	Services
Nature of dominant technologies	Labor and natural resource intensive	Capital intensive	Knowledge intensive
Major type of consumer products	Food and handmade clothes	Industrial goods	Information and knowledge services
Nature of of most production processes	Human-nature interaction	Human-machine interaction	Human-human interaction
Major factor of economic wealth / growth	Nature's productivity	Labor productivity	Innovation and intellectual productivity

Table 1. Characteristics of the three stages of economic level. Information adapted from a World Bank publication (Soubbotina 2004, 67).

There are three stages of countries' economic level of which each has distinguishable characteristics (see Table 1). In the agrarian stage nature is the key element the productivity of which enables and largely sets the limits of economic wealth and growth. Most production processes involve direct interaction between people and nature. Agriculture is the leading economic sector with food and handmade products as the main type of consumer goods. In the second stage, the industrial phase, capital becomes the basis of dominant technology. Capital can be defined as all inputs into productions that have themselves been produced (Sloman 2007, 4). Examples of these are factories, machines and tools. Therefore, the nature of the most production processes shifts to the human-machine interaction with labour productivity being the major factor determining wealth and growth. In the third post-industrial stage, the key attributes change radically from physical capital to incorporeal capital. The nature of the most dominant technologies is knowledge-intensive, and most production

processes shift from the human-machine interaction to interaction between people. The major types of consumer products are information and knowledge services. Economic wealth and growth is largely achieved through innovation and intellectual productivity.

One way to examine the economic structure of a nation is to compare the shares of these three main sectors, agriculture, industry and services or the tertiary sector. The stage of an economy can be defined based on the proportions that each of these sectors contributes to the country's total output. Agriculture is the initial and the most important sector of a developing economy. During the industrialisation stage there is a large rise in the share of people, who were previously employed in agriculture, being employed in the manufacturing sector.

There are two factors that explain this shift. The first of these is Engel's law which, in essence, states that the proportion of income spent on food declines as the per capita income increases. This leads to a shift in the pattern of demand. In other words, as people's income rises, the percentage of money allocated to buying food decreases and the proportion of money spent on other goods increases. The amount of food that people consume does not decrease, food has only become cheaper to purchase. (Rowthorn & Ramaswamy 1997, 9–20.) This phenomenon has been observed in advanced economies during their de-industrialisation stage (Rowthorn and Wells 1987). The second factor is innovation. New farming techniques and machinery enable a rapid growth of labour productivity, which means that significantly less people are required to produce agricultural goods, most importantly food, for the consumer. The combined effect is a rapid, large scale shift of employment to industries and to an extent to services (Rowthorn & Ramaswamy 1997, 11–12.) Today, in the developed countries the share of primary production in GDP amounts only to a small fragment (see Figure 1). In Finland during 2011, the primary production had only a 2.7% share and the secondary production a 28.9% share of the gross domestic product at basic prices, while services amounted to 68.3% (Statistics Finland 2014).

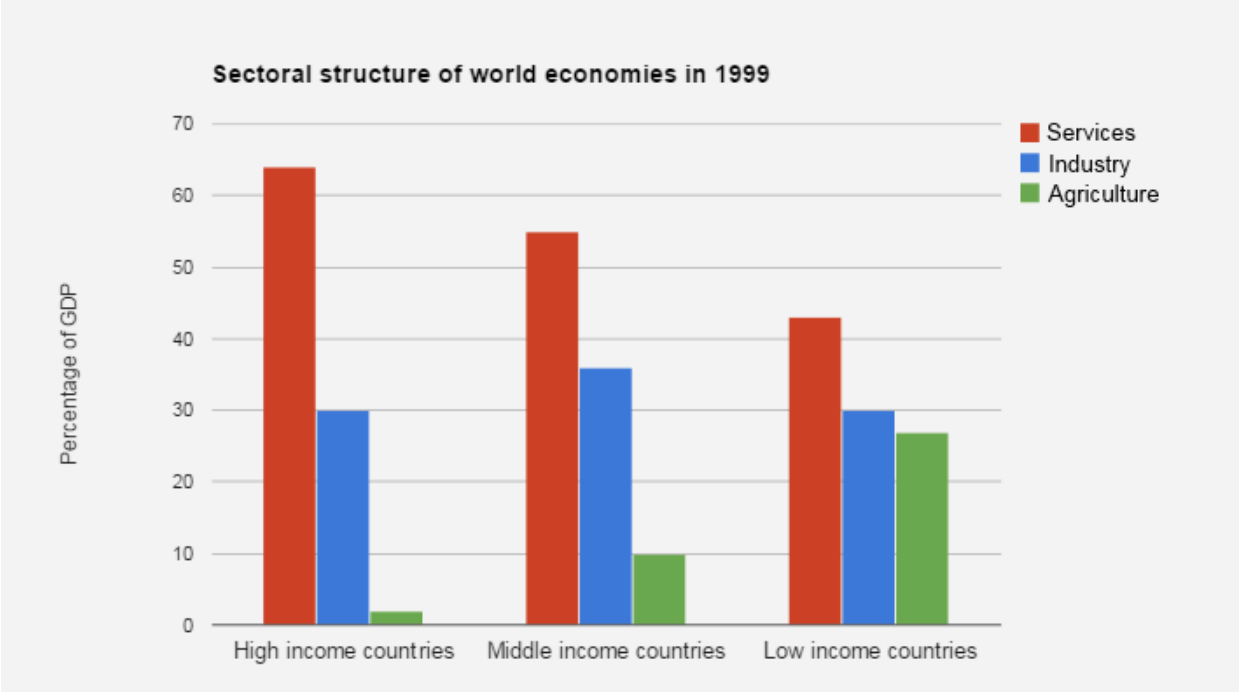

Figure 1. Sectoral structure of world economies in 1999. Data adapted from a World Bank publication (Soubbotina 2004, 63).

The shift from manufacturing to services in the developed countries began in the early 1970s. The reasons for de-industrialisation are different and less direct than those for industrialisation. The main reason for de-industrialisation is the differential productivity growth of manufacturing and services. Long term productivity growth is consistently faster in manufacturing than it is in services, which means that the employment pattern will shift from manufacturing into services as a smaller number of employees are able to produce more in manufacturing. While there have been variations in productivity growth in different periods of time, the manufacturing productivity growth has consistently stayed at a higher level across the industrialised countries. The reason for the service sectors' productivity growth being consistently lower than that of manufacturing could depend on the intrinsic characteristics of services one main aspect of which is inseparability. This means that most services require a human provider, which

ties more employment resources. The service sector will have to proportionally absorb more employment in order to keep its output aligned with the output of the manufacturing sector. (Rowthorn & Ramaswamy 1997, 11–12.)

Manufacturing practises can be standardised, and the information required for production can be formalised and easily replicated, making manufacturing “technologically progressive”, which is also a factor for de-industrialisation. In many services, particularly in personal services, standardisation and formalisation are not possible, which renders them into activities that experience low rates of productivity growth, making them “technologically stagnant”. However, some impersonal services, such as telecommunications, have attributes similar to manufacturing in regard to being easily formalisable and replicable. (Rowthorn & Ramaswamy 1997, 20–22.) Additionally, as income levels rise, people’s needs become less material oriented, and the demand shifts more towards services (Soubbotina 2004, 64–65). The shares of the three economic sectors as employers will therefore shift over time from the dominant agricultural sector to an industry-driven economy and eventually to a dominant service sector if an economy goes through all the three stages (see Figure 2).

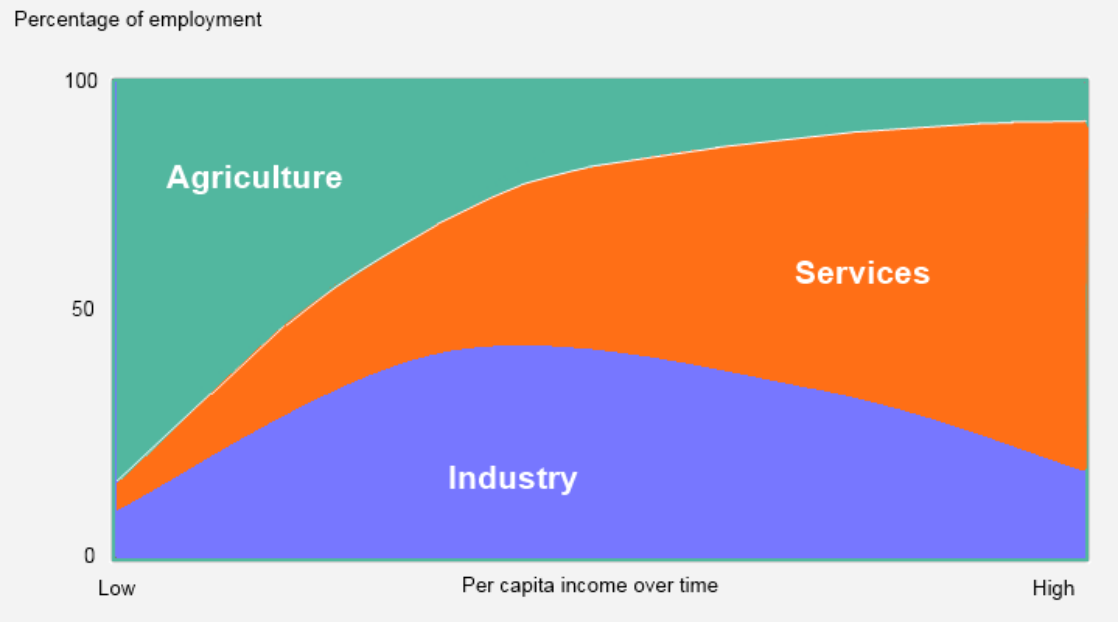

Figure 2. Proportions of the three main economic sectors in relation to employment and per capita income over time. Figure adapted from a World Bank Publication (Soubbotina 2004, 64).

In summary, de-industrialisation is a natural outcome of a successful economic development process, and it is generally associated with higher living standards. De-industrialisation has linkages to globalisation, and it has led to losses in manufacturing jobs, which can result in difficult times, for example, unemployment in certain countries and sectors. Even the growing service sector cannot fully compensate for the employment losses as a result of this. While the European nations have a rich industrial heritage and global power in advanced manufacturing, the amount of output and employment that manufacturing generates has been decreasing steadily and will likely continue to do so in the future. (Rowthorn & Ramaswamy 1997, 14.) Simultaneously, services accounted for four-fifths of the real added value and two thirds of the total added value in the EU between 1995 and 2005. In order to compete in the world economy, many

manufacturing firms have begun to extend themselves to the service sector especially due to the current economic crisis which highlighted the overcapacity of the European manufacturing sector. In the post-industrial society the growth rate of the economy will be determined largely by the productivity developments in the service sector as the manufacturing sector's productivity has already been maximised to a great extent. The productivity developments of the service sector are majorly affected by future advances in information technology and changes in the competitive structures within the sectors. (Uppenberg & Strauss 2010, 6–8.)

De-industrialisation was one of the major global economic phenomena of the 20th-century in addition to globalisation. De-industrialisation will likely continue and expand to nations that are becoming increasingly wealthier, repeating the pattern that the western societies have already gone through. At the same time, the employment share and importance of services have continued in becoming more prominent in high-income countries. As with the other high-income countries, services transformed Finland's economy during the 20th century, and their importance as a source of employment and growth should not be underestimated.

2.2 Economic development and service sector in Finland

As the thesis examines Finland's contemporary performance in the international service trade, considering the economic history is useful for understanding what has shaped its current environment. In addition, Finland's positive and negative economic characteristics are evaluated, keeping in mind their effects especially on the service sector and trade in services. These characteristics and factors are intended to aid to form an image of the background framework of Finland's economy with the purpose of later reflecting it on the findings of the thesis in the discussion chapter.

Economic History of Finland

During the early 20th century Finland was a relatively poor and dominantly agrarian society with the gross national product roughly half of what the United Kingdom had at the time (Okko 2003, 184). Finland lacked financial, infrastructural and entrepreneurial resources to embark on any notable degree of industrialisation (Oinas 2005, 1229). The only actual industry was forest-based, and the capital it generated was further invested in the forestry industry. After gaining independence in 1917, Finland began to slowly change from an agrarian society into an industrial one and began to close the gap with the Western Europe during the 1920s and 1930s owing to processed wood products. This also laid ground for the internationalisation of Finland's forestry based corporations. (Kuisma 1999, 56, 67–72.) Finland's long run economic transformation is characterised by a relatively late industrialisation and the direct growth of services at the expense of the primary production. This is in contrast with the classical view of economic development, where the main pattern of economic growth first shifts from primary production to secondary production during industrialisation and from secondary production to tertiary production during the de-industrialisation stage. The relatively late industrialisation was one factor which enabled Finland to economically reach the rest of the industrialised nations at a surprisingly fast rate as Finland closed the gap with the wealthy western states by the 1970s. Services, on the other hand, played an important role in Finland's economic convergence with the western nations, especially during 1965 – 1980. (Kokkinen, Jalava, Hjerppe, & Hannikainen 2007, 2–4, 22.)

While the Finnish economy has diversified since, forestry products are still an important element of the nation's economic engine. Over time, metal and machinery became other important industries. Specialisation in forestry products had wider societal effects. It made engineering education a viable path and pushed forward the technological level of the nation. The remote location of

Finland put pressure on technological innovation in order to cut costs to compensate for the distance factor. (Oinas 2005, 1229–1230.) After the Second World War, Finland's economy has gone through deep structural transformations in terms of the composition of output and employment. (Böckerman 1999, 13.) After the war, the country saw a period of extremely rapid economic growth and the modern welfare state was created. The economic system remained relatively closed, and the forestry corporations exercised strong influence over business life. Economy was largely state coordinated, relied on cartels and was led by hierarchical corporations which were partially owned by the state. Investments were long term and weighted towards heavy industries. Most of the companies only engaged in exporting, having hardly any direct involvement in establishing business activities abroad. Services, especially health and education services, also saw growth owing to national social reforms with the creation of the welfare state. (Oinas 2005, 1229–1230.)

During the 1980s, discussion began on the need of modernisation and transformation into an "information society". This process was not easy to realise and it faced challenges from the traditional industrial core. During the 1980s, Finland's economy went through deregulation of the money market, and certain previously government owned businesses were privatised. National competitiveness became a priority. (Oinas 2005, 1229–1230.) By the mid-1980s, electrical cables, engineering products, chemicals and textiles comprised 55% of exports. Unlike in other countries, the telecommunications sector was not extensively owned by the state but by a large number of small operators, which helped to create a substantial cable business industry that formed one of the precursors of Nokia. At that time, Nokia was a widely diversified conglomerate that had strong roots in pulp and paper production. (Centre For Business Research 2011, 246.) While the 1980s were a period of weak economic development in Western Europe, Finland fared far better than the region on average during this period (Official Statistics of Finland 2007).

In the 1990s, Finland faced a significant period of economic depression which became to be termed as the Great Depression. One of the main reasons for it was the collapse of trade with the former Soviet Union, which was amplified by the high interest rates due to the unification of Germany and the heavy built-up of indebtedness of the domestic sector as a result of the earlier liberalisation of financial markets. All this added to a financial disruption and credit crunch. All sectors faced job losses during this period. In services, retail, transportation, finance, insurance, health and social welfare services lost more jobs than the other sub-sectors. (Böckerman 1999, 5–6, 16). Finland's currency depreciated, the GDP fell by more than 10%, and the unemployment rate soared to 17% in 1994. (Dahlman, Routti, & Ylä-Anttila 2006, 3, 18). Since 1994, the Finnish economy began to experience export-led recovery, owing to the devaluation of the Finnish markka.

While there had been discussion prior to the crisis on changing the business system, the recession acted as a catalyst in bringing about a major restructuring of the economy. During the recession the government embarked on a new strategy to promote investment across a wide range of novel business activities and facilitated innovation within the private sector. The new strategy was based on diversification away from the previously dominant forestry and engineering activities. (Centre For Business Research 2011, 246.) High technology and the ICT-sector became expressly important fields, and special attention was directed towards their development and innovation. The government started to increase its expenditure on research and development in 1991, which became a lasting policy. Links between growing technology companies and governmental agencies, such as VTT and Tekes, and the domestic technology oriented universities were established. A new competition policy, privatisation of government owned companies and further liberalisation of markets took place, which included removing restrictions on foreign ownership. As a result, the market became more open, internationalised and so exposed to international competition that the strongest firms learned to adapt to it and benefit from it. A principal example of this is Nokia which transformed from a diversified corporation with a vague image

into the largest mobile phone producer of its time. (Dahlman et al. 2006, 39–55, 75). Many of the current influential companies are offspring of the cluster created by Nokia, for example the video game giant Rovio Entertainment. The ICT industry became the third pillar of Finland's economy with the forestry related and engineering industries.

During the subsequent years Finland saw a rapid annual economic growth and significant growth of new industries, most prominently within the information, communication and electronics sectors. This strong growth was fuelled by structural changes and revised policies. In achieving this, Finland benefited from being one of the most ICT-intensive countries in the world and from the fact that it managed to successfully commercialise its innovations. Nokia was the flagship company of innovation and growth in Finland during this era. A small peripheral country that previously relied on forestry industry became a highly competitive nation with a fast growing economy and proven talent as a producer of knowledge-intensive products and services. Computer related services achieved the largest turnover rate of 56% between 1993 and1995 with a significant growth especially in the software services with small database services following after. Finland, following the trend of many OECD countries, saw large growth in employment in ICT-related services during the second half of the 1990s with this sector doubling its employment between 1995 and 2000. (Kuusisto and Meyer 2003, 7–16.)

In regard to services, it is possible to see distinct regionalism, which means that in the urban areas, especially in Southern Finland, services play a more important role, while the economic structure of Eastern and Northern Finland is characterised by primary production. Outsourcing is a notable driver of service growth, and in Finland this has been particularly relevant in the municipal services. Local authorities have intensively aimed to outsource or subcontract their service sector activities with the goal of cutting costs. The objective has been to transform the role from a municipal service producer to a service provider.

The outsourcing of cleaning services is an example of this. (Böckerman 1999, 15–16, 28.) Regional differences are also stark in knowledge-intensive services that are concentrated in the Uusimaa region (Kuusisto & Meyer 2003, 16–17).

In summary, Finland has transformed from a poor, largely agrarian society into a wealthy modern country in a relatively short window of time. Equally remarkable was its change from a natural-resource-based society into one driven by technology and knowledge. While the development of the nation lagged behind other western nations during the early part of the 20th century, at the end of it Finland was ranked amongst the most highly developed countries. Forestry industry was, and to this day to an extent is, the bedrock of Finland's economic engine. Its effect on the society was more complex than just purely economic as it created demand for education, particularly in engineering studies and increased the technological level of the nation. Many influential companies have some background in the forestry industry, even if their current line of business is entirely different. Over time, Finland's business system changed from a regulated corporate circle into an open economy. This created prosperity during the 1980s, which became rather short lived with the depression of the 90s. The harsh experience, however, forced Finland to diversify its economy, which gave rise to the extraordinary success story of the ICT sector.

Entering the 21st century, the view is less optimistic. The glory days of Nokia with its far reaching effects of creating wealth through its domestic supplier network are behind, and Finland, along with the EU region, is in the midst of economic hardships with no clear prospects of a way out at the current moment. Globalisation turned out to be a double-edged sword to Finland. While it had a part in causing the crisis of the early 1990s, it also was part of the solution by enabling the rapid growth of the ICT industry through access to the world market, foreign capital and knowledge (Dahlman et al. 2006, 106). The world wide production restructuration caused by globalisation has put a great deal of pressure on Finland to maintain competitive edge amidst harsh international competition.

Finland in Global Economy

Like any other country with an open economy, Finland faces competition on a global level. It has different positive and negative attributes that make it more or less attractive for businesses to operate and grow in.

A highly favourable characteristic of Finland is its educational system which has achieved very good results in global comparison. The country has a higher education system that provides expert personnel for the job market and excels in having a good availability of scientists and engineers for the labour pool. The education system is functional at all levels of education with a high academic performance in natural sciences. (Schwab & Sala-i-Martin 2011, 14, 176–177.) This has created a workforce equipped with skills needed to adapt rapidly to a changing environment, and it has also formed a basis for innovation and the adoption of high level technology. As was examined in the previous chapter, some of the most significant developments of Finland's economy have benefited from synergies between the higher education institutions and businesses. Between 2011 and 2012, Finland was ranked as an innovation powerhouse, attaining the 3rd position after Switzerland and Singapore (ibid., 14). In addition to the highly efficient education system, the basic infrastructure of the nation is good with a strong innovation financing system. The general economic and political situation is stable, and the system is transparent. As a trade partner, Finland is held in positive regard, and it is seen as an independent and reliable country. (Eloranta 2012, 35.)

Finland's other positive attributes are that advancement in employment positions is merit-based and that nepotism is generally uncommon. The level of corruption is also low by international comparison, and shareholders are able to affect the decisions of the top management with good corporate governance. (Schwab &

Sala-i-Martin 2011, 176–177.) Competitiveness varies between different sectors, some of which retain monopolies controlled by the government, while in many fields the markets have been opened for competition. The business environment in Finland is in general good. The institutions, laws and regulations are efficient in a global comparison and harbour favourable conditions for businesses. Foreign companies are attracted by a stable, reliable and functional society that has technological competence. Technology and technological competence is a major inviting factor for foreign investments to Finland. (Ali-Yrkkö et al. 2004, 60–62.) Formalities in establishing businesses are light, and there are efficient ways to arbitrate legal disputes. Custom practices and tariffs are not particularly burdening, and limitations on international trade are equally relatively small. As an EU member, many of these regulations are mandated by the supranational entity rather than Finland. Finland was ranked in the first place by the World Economic Forum report in 2011 in intellectual property protection category. Equally, in property rights, Finland was ranked as the first (Schwab & Sala-i-Martin 2011, 176–177).

The peripheral location of Finland and a relatively small population are some of the main discouraging factors for foreign companies. The domestic market of Finland is rather small and saturated, which has varying negative effects on the attractiveness of different market segments in Finland. The business and personal taxation regime is strict in Finland, along with the rest of the Nordic countries, which inevitably is unfavourable for the business environment. Employment expenses are also at a high level, and the labour market is inflexible. (Ali-Yrkkö et al. 2004, 60–62; Eloranta 2012, 36.) While Finland's general economic situation is stable, the poor short term prospects, for the time being, of the European Union's economy are also negatively reflected in Finland's economy. The amount of foreign direct investment (FDI) is relatively small. The number of companies sold to foreign buyers is comparatively high but on the other hand, the aggregate value of sales has been small which results in the low FDI flow to Finland (Ali-Yrkkö et al. 2004, 83). On a national level, Finland can be seen as a "jack of all trades, master of none" country in its current position in

regard to investment appeal. Finland fares among the top countries by many indicators, but, paradoxically, it is able to draw only a rather small amount of foreign investments, lacking a single, unique asset to attract significant investments (Eloranta 2012, 34–35). This is unfortunate given that FDI is important for the development of international trade in services (OECD 2000, 25).

2.3 Drivers of Growth

As services have become increasingly important for economies and especially significant for high-income countries like Finland, understanding what drives economic growth becomes an increasingly relevant question in order to secure their future growth. Examining the principles of drivers of growth is helpful in order to better reflect the findings of Finland's performance in trade of services and how they might develop in the future. First, the traditional theories on drivers of growth are viewed and then determinants specifically linked to services' growth are examined.

Long-term economic growth is driven by increases in the quantity and productivity of factors. Quantity of factors include workforce or average number of hours people work, raw materials and capital. For most nations, increase in capital stock, caused by investment, is the most significant source of growth. Capital investment allows manufacturers to increase their capital available per worker. This means that as the employee has access to more and better equipment, the person is able to produce more efficiently. This capital requires investment of which rate depends on several factors. The most important determinants of investment are the confidence of business people concerning the future demand of their products, profitability of the business, taxation, the growth of rate of the economy and the rate of interest. (Sloman 2007, 343–345.)

In practice, this is not as simple as investment does not lead to continuous

growth due to the law of diminishing returns. Additional investments do not necessarily lead to equal amount of growth of productivity that the first investment yields. In example, updating an office with personal computers yields significant productivity boost with the onset of the first computer, however the additional computers gradually offer lesser productivity gains. Once close to all of the office employees have a personal computer at their disposal instead of sharing limited number of computers, any additional computers introduced to the workplace would offer only an incremental increase in the output per employee. The second issue arises with the proportion of increase of capital which also is subjected to diminishing returns. The larger the capital stock, any investments for updating purposes requires greater proportion of investment. Once a large factory has had all its equipment updated to state-of-the-art standard, the investment required for the next improvement will be significantly higher than it would be in a small factory with older equipment that faces only an incremental update. In case of the large modern factory, the resulting increase of output is much smaller when compared to the proportional amount of investment. There exists a certain limit to which long term growth can be sustained by basing it on investment. Therefore, without technological progress or other means of increasing output, growth over extended periods of time cannot be based on investment alone. (Sloman 2007, 344–345.)

The other source of growth, productivity factors, includes skills of the workers, efficiency of the organisation on how it manages its inputs most efficiently and the productivity of its capital equipment. Physical capital is not the only way to raise productivity of workers; through education and training, the skills and expertise or the “human capital” of the workers increases, leading to productivity growth. Of productivity factors, technological progress is the most significant source of growth. Examples of these are developments of computer technology, better materials, new techniques in engineering and advances in communications due to the use of digital technology. All these factors have led to significant increases in the productivity of capital. (Sloman 2007, 345–347.)

In the long term, increases in technological progress are vital for faster rates of growth of economies as technology has the effect of increasing output from existing investment. Many economics argue that rate of technological progress is not a passive force but that it can be stimulated by devoting resources to research and education and by setting up incentives to innovate. Mere innovation alone however is not suffice to yield growth as the resulting knowledge has to be diffused in order to be of use. Endogenous growth theory argues that the rate of economic growth depends on the rate of technological progress and diffusion of the resulting knowledge. It also argues that these can be increased by actions of institutions, creation of incentives and by the role of governments. (Sloman 2007, 346–347.)

In summary, the canonical economic model refers to three key determinants: Capital, labour and total factor productivity which is a broad phrase referring to technological developments and anything not captured by capital and labour inputs, in example institutions, human capital and culture (Cobb & Douglas 1928).

Growth Factors of Services

The previous chapter examined the general theory on what drives economic growth. Tertiary sector is obviously bound by these theories too but it also has industry specific factors in relation to its growth, of which the most pressing are examined in this section. Technology and innovation are important contributors to the rise of the service sector, particularly to the expanse of telecommunication, information and business services. Technology has also affected transportation, wholesale, retail trade, finance and insurance sectors. Not only have technological advances benefited service growth but in many cases it has enabled the birth of a whole new types of businesses in the first place. (OECD 2005, 6–8, 20.) Investment in ICT has been an important facilitator of productivity gains and innovation in services. The benefits of investing in ICT however are only most effective when it is bundled with organisational changes. Investment

alone does not yield the best results. There are strong synergies between investment in tangible fixed capital and investment in knowledge, human and organisational capital that only together enable the most effective growth. Innovation is not achieved alone on investment on ICT capital. (Uppenberg & Strauss 2010, 16, 36, 50.) This also applies to government level, where instead of mere deregulation, “re-regulation” in form of establishing good governance and better regulatory framework is far more useful in creating comparative advantage in services (Marel 2011, 25).

Increase in capital per employee has been found to be a particularly important driver of productivity gains in services. However, the benefit of this is likely to vary as the amount of capital per employee differs greatly between different service sub-sectors. Individuals working in market services, transportation and communication are the most capital intensive with each person equipped with roughly 210 000 euros worth of productive tangible capital. In trade and tourism, employees are equipped with less than 40 000 euros on average. (Uppenberg and Strauss 2010, 22–23.)

While information technology is seen as the key driving force behind the growth of economy and the service sector, measuring this empirically is very difficult. Information technology is distributed unevenly among industries but it tends to concentrate in service industries that have experienced rapid growth. In addition, technology advances has been seen as a precondition for the expansion of banking, finance, air transport, and trade industries. (Kuusisto & Meyer 2003, 12.) Advances in ICT have undoubtedly increased the growth of manufacturing industries too.

Globalisation and the expansion of service sector are strongly interrelated as services have reduced distance, stimulated multinational companies, increased productivity and introduced new dynamics to economies. The onset of the two phenomena occurred at same time which is telling of their interrelationship and without services, globalisation would not have reached its present stage of

development. (Cuadrado-Roura, Rubalcaba-Bermejo, Bryson 2002, 1–52.) Globalisation is defined by International Monetary Fund (1997, 45) as “the growing economic interdependence of countries worldwide through increasing volume and variety of cross border transactions in goods and services, freer international capital flows, and more rapid and widespread diffusion of technology.” There are four identifiable dimensions of service globalisation. These are international trade of services, international brands and trademarks, internationalisation of production and international networks. Brands have become an increasingly important strategic tool and a necessity for companies to in order to consolidate new markets, differentiate, signal market value, be a source of competitive advantage and form an identifiable commercial language in a highly competitive business world. Internationalising production is another important constituting factor in service globalisation. This refers to companies adopting common frameworks, such as quality management system standards, which can industrialise tertiary activities, making their internationalisation easier. Finally, international networks enable globalisation of service firms through formal or non-formal collaboration structures through which they can share knowledge and expertise. (Cuadrado-Roura et al. 2002, 43–52.) Globalisation is also a noteworthy cause of growth for services in the form of outsourcing which owes to technological advances in information technology. Outsourcing benefits business service providers and the ICT sector while it has negatively affected workers in high-income countries who may have lost their job to someone in another part of the globe. Outsourcing have affected both high and low skilled jobs. (OECD 2005 6–8.) This has been prevalently seen in the manufacturing sector but also in services, especially in the outsourcing of call and support centres.

Services by large have seen much deregulation and increasing competition which has majorly contributed to their growth. In this, trade treaties have played an important role to liberalise markets. One of the most important of such treaties is the General Agreement on Trade in Services (GATS) in 1995 which overall goal was the liberalisation of trade in services by removing trade barriers to services, while the signing nations still have a degree of freedom in choosing the extent of

liberalisation in their country. Other core principles of GATS are non-discrimination by removing most favoured nation treatments, essentially meaning that all signatory nations must treat each other with equal trade terms and by creating transparency amongst the signatory nations. Trade in services was outside the scope of the multilateral trading systems until GATS. The removal of formal entry barriers has helped foreign companies to enter new markets. New airline companies in particular have benefited from this and have witnessed large growth. As markets are deregulated, new companies expand onto the markets and increase competition which can foster innovation as even established companies are forced to differentiate themselves from the competitors by offering something distinctive. In competitive environments, companies are forced to innovate in order to stay in the market. Innovation by one company often leads to a response from the rivals which further increases the productivity effects. Deregulation is important also as innovative service firms often require ability to experiment in the market with new products, processes and business models. Trade liberalisation can enable economically more rational market structure, reduced monopoly rents, thus decreased prices for customers. (OECD 2005, 2, 7–13.)

Labour and social policies matter in how easily nations can foster growth. Having an active workforce benefits both manufacturing sector and services. Overly strict employment protection legislation may damage service industry in fields that have a large cyclic variations in demand such as tourism services. High labour taxes may in particular hinder personal services as this field has a high proportion of low skilled workers and second income earners who may easily lose offered work if their wages are set higher. (OECD 2005, 15–17.) Value added tax weakened the relative position of private services when it was introduced to Finland in 1994 when the country became a member of the European Union (Böckerman 1999, 30). Finland has a general value added tax of 24% which is higher than the EU average regime. Reduction in value added tax in labour intensive service sector would reduce the amount of taxes collected but would in return increase the amount of performed working hours. There was a trial

between 2007 and 2010 when Finland alongside with several other EU nations lowered the value added tax in certain labour intensive services such as hairdressing services from 22% to 8%.

In the transition to knowledge-based service oriented economies, human capital becomes an important aspect to enterprises. Effective education policies are important as many services benefit from access to a pool of highly-skilled workers as growth and development of services relies heavily on human capital. In many service sectors the required skills are dynamic and their need can change rapidly. Government's education policies work best when the investments in human capital are more demand driven. Multidisciplinary and lifelong learning is important for developing human capital. (OECD 2000, 20, 36.) Mid-skilled labour is not a direct determinant for service specialisation but it can still be a contributing factor for more effective service exportation. This is considered to be due to a pull-effect as increased trade in high-skill intensive services increases the demand for mid-skilled labour. (Marel 2011, 25.)

Women's participation in the workforce has benefited service industry by significantly increasing the size of the available labour pool as throughout the 20th century women actively became part of the labour force for the first time. Agricultural and manufacturing sectors have always remained as male dominated sectors whereas women have always dominantly worked in services (Costa 2000, 108–109). Countries which have a high participation of women in the labour market also tend to have a high share of the population employed in services. Another important large scale demographic factor is the ageing of population in many western countries which has implications in particular for healthcare and personal services as the factor is likely to mark growth for these sectors in the future. (OECD 2005, 8, 15). Countries that have relatively high skilled labour force and capital stock employed in ICT will fare better in exploiting comparative advantage in services that use these factors of production. Business services are a service that intensely employ high-skilled labour (Marel 2011, 25).

Secure intellectual property right framework is important especially to knowledge intensive services like software, computing and communication services. As the markets in services globalise and become more competitive, an intellectual property protection system that provides both incentives to innovate while facilitating technological diffusion becomes increasingly crucial and requires more monitoring. Harmonisation of international laws further assists the spread of ideas and their diffusion by reducing uncertainty for patent holders (OECD 2005, 19–20). Harmonising regional jurisdictions can alleviate loss of service trade due geographical trade costs which has especially happened in the EU. While the EU is the most developed services regional trade agreement area in the world, it still lacks a single European service market which would take the trade gains of having a harmonised regional jurisdiction further. (Marel 2011, 25.)

Wide range of factors have enabled and driven the expansion of services. Globalisation and the spread and diffusion of information and communication technology are at the forefront of these factors. ICT has laid foundation for many new services that could not exist without it while allowing the expansion of many pre-existing services. These factors have also greatly boosted and transformed the manufacturing sector too. Myriad additional factors act as growth determinants for services. Availability of capital, effective labour and social policies, functional legal framework, trade treaties and shifts in demographic factors have too enabled and contributed to the rapid expansion of service sector throughout the 20th and the early 21st century.

2.4 Determinants of Trade

Classical trade theories

In order to examine the data of Finnish service trade, it is useful to first understand why trade occurs between countries in the first place and how each nation benefits from it. Trade theories have a history dating back several centuries and during that time they have radically evolved to best explain the trade of their own era. The classic theory of international trade can be traced back to Adam Smith whose criticism (1776) on mercantilism led to developments in the field. Smith argued that bilateral trade is useful for both of its practitioners and disapproved intervention policies on trade imposed by the state as trade should flow naturally according to market forces. Smith proposed that if foreign firms provide goods at lower price than the domestic producers do, the good should be imported instead of being produced domestically. He saw that it was critical for countries to develop and protect their own competitive strengths. Part of products on which production nation had no absolute advantage on (the ability to produce a good more efficiently than the other) should be traded away. Goods in excess of domestic needs would be exported in order to import other goods. Absolute advantage emerges from natural endowments and also from acquired advantages such as from skillsets and from the technological level of a country. Smith's theory provided a basis for a new and positive outlook on international trade but in practice it alone could not explain trade adequately. The argument that gains from trade are realisable only when a country has an absolute advantage in producing a good limited the theory. In reality, instead of being absolute, advantages of countries are relative.

David Ricardo (1817) proposed the theory of comparative advantage, arguing that gains from trade would depend rather on relative (comparative) advantage than on absolute advantage. Even if a country had no absolute advantage on the goods it produced, it would still benefit from trade as it would in the case if the

country had an absolute advantage in many areas. Relative prices under autarky (country not partaking in any international trade) determine which goods are exported and imported. Each country specialises in producing a good in which the relative costs are lower. If there are two countries with one of them having an advantage in production of both goods, they can still gain more together overall by each specialising in the good they can produce most efficiently. Ricardo's famous example of this was Portuguese wine for English wool. While Portugal had absolute advantage in production of these two goods, both countries could still gain more in the end via trade by specialising in what they could produce most efficiently. Thus the trade patterns are determined by opportunity costs (cost measured in terms of the best alternative forgone) of production. In other words, countries will specialise in doing what they do relatively, not absolutely, better. The classical Ricardian model has one factor of production, labour, which forms country's production mode through discrepancies in productivity. Ricardian model emphasises technological differences to determine productivity, hence the trade patterns. Ricardo's theory of comparative advantage managed to advance the theoretical side of international trade further and it had apparent success for a while. However, the theory met disapproval, most seeing its assumptions as too strict to be on par with reality. Some of the criticism points out that the Ricardian theory presumes that perfect competition takes place and consumer preferences to be identical which is not the case in practise. It also assumes constant cost of production and lack of trade barriers of which neither exists in reality (Fletcher & Luttwak 2010).

The next major step in theories explaining patterns of international trade was the Factor Proportions Theory (Heckscher-Ohlin model) by Eli Heckscher (1919) and Bertil Ohlin (1933). Their neoclassical theory builds on Ricardo's comparative advantage theory. The most notable addition is that the model introduces comparative advantage to arise from differences in relative national factor endowments (the amount a country is endowed with resources like labour and capital), whereas Ricardian model only had labour as the basis of comparative advantage. In Heckscher-Ohlin model, capital and labour are the two factor

endowments that differ between countries and there are two goods traded between two countries. This has been referred as the 2*2*2 model. According to the theory, productivity differences no longer explain trade as nations are assumed to hold identical technologies. The model predicts that countries will export goods that intensively use factors that are locally abundant, while importing goods that intensively use of factors that are locally scarce. Like the previous theories, Heckscher-Ohlin model was found not to explain trade accurately enough. The theory turned out to have contradictions when evaluated using actual trade statistics. Leontief (1953) examined the trade data of 200 US industries and conducted series of calculations. According to Ohlin's theory, USA should export capital intensive goods while importing labour intensive products. His findings did not reflect this; net imports of US were in fact more capital intensive than the net exports. Similarly mismatched with the theorem were the exports which were more labour intensive.

New Trade Theories

Helpman and Krugman's (1985) work lead to realisation of the New trade theory which differs vitally from the previous classical trade theories as it sees that international trade is not based on constant returns to scale, similar goods or perfect competition. As firms grow larger in size, the average cost of unit decreases due to economies of scale. There exists two types of economies of scale; internal and external. Internal economies of scale involves the firm's ability to utilise productive factors most effectively, facilitate labour division with specialisation and utilise machinery to the maximum level. In external economies of scale, average cost of production depends on the size of the industry and can decrease as the industry grows over time. External economies of scale benefit from knowledge spillover and technology diffusion. Efficient use of transportation,

communication facilities and natural resources are also characteristics of external economies of scale. Clustering is closely linked to this. Clustering can be understood as geographic concentrations of interconnected firms and related factors such as universities. Silicon Valley is an example of a location where semiconductor and software companies have formed a cluster. Clustering benefits companies by allowing them better access to specialised labour markets, suppliers and knowledge spillovers.

Another aspect of the New trade theory is that it considers companies not to operate under perfect competition as markets are prone to monopolies, oligopolies and skewed competition. Lack of competition may lead to established firms to exert higher prices but as supernormal profits would attract competitors to enter the market, this would lead to decreased prices and return to normal profits. As competing in prices becomes more difficult, product differentiation becomes an important factor in achieving market power. This leads to a wider variety of goods and services available to the consumer. Traditional trade theories see trade occurring between nations as inter-industry trade where trade occurs between different industries. The New trade theory instead observes trade as intra-industry trade where trade occurs within industries between similar countries as simultaneous import and export of similar types of goods and services. An example of this would be the concurrent trade between USA and Europe with their Boeing and Airbus aircrafts. Intra-industry trade has grown significantly since the 1980s amongst the most developed countries and it is especially relevant for wealthy countries, like Finland, in trade of products and services (Shelburne & Gonzalez 2004).

The New trade theory managed to explain many of the puzzling patterns that marred the preceding theories by shifting the unit of trade analysis from countries to industries. Nevertheless, some parts of the trade data did not sit well with the predictions of the New trade theory (Ciuriak et al 2011, 3). Most importantly why exporting firms consist of only a few highly productive firms. Melitz (2003) and

Helpman (2004) began a new trend in international trade studies which main idea was to shift the unit of trade from the industry to the firm in analysis process. The theory became to be known as the “New-new trade theory”, while the more formal description “the firm heterogeneity model” construes its underpinnings more accurately. While the theory’s models share many features with the New trade theory, it incorporates aspects of differences in firms’ characteristics within and across industries, particularly in regards to productivity, to explain trade better. As trade has become more global and liberalised, in the ensuing increased competition the least efficient firms are forced out of the market while the resources are allocated to the most efficient companies within industries. Thus the performance of firms begins to have greater impact on trade than what individual nations may have.

The theories on international trade have a history of several centuries and during that period they have significantly evolved and adapted to best explain trade during their own era. The traditional trade theories were rooted in the principle of comparative advantage with countries as the basic unit used in the analysis. The traditional trade theory was refined with the Heckscher-Ohlin model which introduced capital as a factor of production. According to the traditional trade theories, countries trade due to their different terms of technology or relative factors of production, most importantly labour, capital and land. The theories based on comparative advantage had some success in explaining trade but they turned out to be too narrow to answer explain trade completely. The traditional model predicted that nations would trade different products as inter-industry trade. Towards the latter part of the 20th century, trade statistics showed that a notable proportion of trade appeared to be intra-industry trade and occurred between countries that were similar in their factor supplies and technological level. Example of this is the high level of trade occurring within the EU region which would be in contradiction with the classical trade theory.

The New trade theory shifted the focus from countries to industries. Monopolistic competition, economies of scale and differentiated products were some of the key

aspects that were incorporated into the models to explain trade. Most recently, the shift has refocused from industries to firms with the “New-new trade theory”. Trade theories specifically deal with trade of goods rather than services as large scale trade in services is a relatively new phenomenon and its contribution to overall trade has been relatively small so far. The availability of cohesive data at multinational level has also been lacking for most of the period. Therefore, it must be considered whether the theories have bearing on service trade. Analyses on the topic have found that traditional trade theories go a long way in explaining trade patterns in services (Sapir & Lutz 1981, 21; Deardorff 1985). Thus, they are useful in forming a part of the theoretical framework to offer a degree of insight in the potential advantages and disadvantages of Finland in international trade. The new trade theories explains the new macro setting under which firms have to operate, albeit specific the linkages to services are hardly explored in research. From the New trade theory, perhaps the most relevant aspect specifically linked to services is the intra-industry trade of which large proportion of service trade is.

Supply Modes of Services

Service trade differs fundamentally from trade of manufactured goods. The main reason for this is that services are supplied through different means. Manufactured goods have to enter a nation, one way or the other, in a physical form. Whether this is by sea, air, rail or road transportation, trade in this form can be far more readily monitored and measured. Services do not cross borders in the same way as goods do. For example, in selling of consulting or computer services, they does not have to cross borders but are likely performed via data or document form.

Services are not a homogeneous group and for some services certain supply

modes are practically impossible which makes aggregate measurements of net exports more difficult. In contrast to merchandise trade which is usually measured by cross-border transactions, the General Agreement on Trade in Services (GATS) covers four supply modes of delivery for services:

- *Cross-border supply* involves services delivered from the territory of one member into the territory of another member nation. This mode of trade is similar to trade in merchandises in which goods cross a border. However, only a limited portion of all service trade occurs this way.

- *Consumption abroad* involves service supplied in the territory of one nation to a consumer visiting from another member nation. Travel services are an example of this mode of supply.

- *Commercial presence* involves that service is provided through the commercial presence of the service providing entity of one member nation in the territory of another. Financial and banking services can be considered to represent this mode, where a service company from one nation establishes a business operation in another's territory.

- *Presence of natural persons* occurs when services are provided by nationals of one member in the territory of the other. The supplier is present as a natural person. Construction or consultancy service can be an example of this mode of supply.

In the first two modes of supply, the service supplier is not present in the territory of the consumer's member nation. In the two latter modes, the supplier is present. All in all, these four modes of supply enable a much broader and complex concept of trade than the traditional cross-border supply of goods. Service transaction can be supplied by foreign subsidiaries or individuals who have

temporarily travelled to a foreign country to perform or conversely consume a service. Thus, accounting the specific levels of trade occurring through these ways becomes more difficult. Also, trade policies do not affect border measures to services but domestic policies on businesses do. As companies do not export services across borders but rather often establish subsidiaries or affiliates in the foreign country to supply the service, they are not affected by trade policies but by market access and internal regulations which makes explaining service trade determinants more complicated.

3. Methodology

The thesis uses quantitative research method by examining the import and export levels of services from 2007 until 2012 of Finland and the aggregate volumes of the Nordic countries and the European Union as consisting of the current 28 member countries. The research carried out by the thesis can be classified as quantitative research. Quantitative research can be defined as a type of research that is “explaining phenomena by collecting numerical data that are analysed using mathematically based methods (in particular statistics)” (Creswell 1994). The thesis obtained data from International Trade Centre’s Trade Map statistical database which uses International Trade Centre, United Nations Conference on Trade and Development and World Trade Organization as the source of its data for the joint dataset. Finnish Customs and Statistics Finland provide the data regarding Finland for these databases. The trade data calculated for the Nordic countries consists of trade statistics of Sweden, Norway, Denmark, Finland, Iceland and Faroes Island. Government services category, such as transactions of embassies and consulates, is omitted from the research as it cannot be considered to be meaningfully tradable.

Revealed Comparative Advantage Indices

The thesis uses two calculations which examine the nation’s import and export levels to evaluate whether it has a comparative advantage in trade of a specific service. Comparative advantage in regards to international trade is defined as “A country has a comparative advantage in the production of good if it can produce it at a lower opportunity cost: i.e. if it has to forgo less of other goods in order to produce it.” (Sloman 2007, 398).

The first index used in the thesis is the Balassa index. The index can be

described as “The ratio of the industry’s share in the country’s exports relative to its share in world trade.” (International Trade Centre, 35). The idea to determine country’s sectors in which it is ‘strong’ was first proposed by Liesner (1958) but the idea was refined and popularised by Béla Balassa (1965, 1989). Using the index, the export flows ‘reveal’ country’s sectors in which trade it is “strong” in which is the reason why the index is also known as Revealed Comparative Advantage (RCA) index. The Balassa index is widely used in practice to determine which sectors are strong or weak within a country (Hinloopen and van Marrewijk 2001, 1). Balassa and others have used other measurements than export statistics such as production, consumption and import data to construct trade performance indicators. However due to data availability, export data is used in this thesis to calculate this index. The Balassa index formula is presented below:

$$RCA_{i,x} = \frac{Exp_{i,x}}{Exp_{i,w}} \Big/ \frac{TExp_{x}}{TExp_{w}}$$

Exp i,x refers to the export of service i of country x;
Exp i,w refers to world’s exports of service i;
TExp x indicates the total service exports of country x;
TExp w indicates the world’s total exports of service.

The interpretation of the Balassa index is straightforward; a country is considered to have a comparative advantage if the index value is higher than 1 in a particular sector (Hinloopen & van Marrewijk 2001, 4). A value over 1 suggests that the share of a certain product or a service in country’s trade is relatively higher than it is in the global trade level.

In addition, the thesis considers the results of the Lafay index of international specialisation. The definition of the index is “Comparison, expressed in thousands

of GDP, of the industry's balance of trade to a theoretical balance corresponding to the absence of specialisation." (International Trade Centre, 37). The index was established by Lafay (1992) and the main advantage of it is that, unlike the Balassa index, it takes into account import levels.

The Lafay index formula is presented as:

$$LFI_j = 100\left(\frac{x_j - m_j}{x_j + m_j} - \frac{\sum_{j=1}^{N}(x_j - m_j)}{\sum_{j=1}^{N}(x_j + m_j)}\right)\frac{x_j - m_j}{\sum_{j=1}^{N}(x_j + m_j)}$$

j refers to sector;
x refers to export;
m refers to import.

Again, interpreting the results is straightforward; *LFI* greater than 0 suggests specialisation while *LFI* lower than 0 suggests de-specialisation.

The Balassa index alone cannot sufficiently explain whether a country has comparative advantage in international trade. The Balassa index may reveal that a country is relatively active and specialised in exporting a certain good compared to the global standard trade level. (International Trade Centre, 37.) However, this may be misleading as the country's net trade balance (the difference in value between imports and exports) in a specific good may still be negative if it imports more of the good than it exports. In this case, the Balassa index could still give positive results, falsely suggesting comparative advantage. This is especially relevant to consider, as many services are exchanged in intra-industry trade, where imports and exports are simultaneous, which can easily cause misrepresentation of the results. This cannot be examined solely with the

Balassa index as it only takes into account the export levels. When evaluating both the Balassa and the Lafay index, the results are less biased as they take into account both imports and exports and therefore better reflect the potential real advantage. Only if both indices have positive values, the country is specialised as compared to the world's average level of trade with a positive net trade flow. Neither of the indices explain what the factors behind the comparative advantage are as a mere indices cannot explain such complex issues.

To summarise how to read the results, the Balassa index is used to examine whether a nation has specialisation by having a higher ratio of the industry's share in the country's exports relative to its share in the world trade. The Lafay index too measures specialisation but takes into account import volumes, using relative net trade flows as a measure of comparative advantage and thus corrects the possible bias of the Balassa index on countries' trade competitiveness. Only when both indices are positive, there can exist real comparative advantage in service trade.

4. Results

Transportation

Finland is at a discernible comparative disadvantage in the international trade of transportation services. This is a notable contrast to the Nordic countries which on average have a clear advantage in this sector as measured by both indices. In Finland, the Lafay index suggests that net trade in this service is at a comparative disadvantage whereas the Nordic aggregate performance suggests specialisation. The Balassa index, too, suggests that Finland has no specialisation in this service. Finland also fares below the average performance when compared to the EU regions' performance. Transportation measured in this category comprises all forms of transportation, the majority of which consists of sea, air, rail and road transport. An exception to Finland's otherwise negative performance is air transport in which Finland's trade balance is positive and higher by absolute value than it was in Sweden, Norway or Denmark in 2012. Finland's disadvantage in transportation services was largely similar already in 2002.

Travel

Finland is at a rather similar level of performance in travel services with the Nordic countries that on average have consistently been at a comparative disadvantage as measured by both indices. Generally speaking, travellers from Finland or the Nordic countries spend more money abroad than travellers spend in them overall. Travel services in Finland have remained import driven. However, the trade balance in the other Nordic countries overall is comparatively even more de-specialised. The aggregate performance of the EU region is also at a disadvantage in this service category. The Lafay index results for EU are more balanced while still suggesting lack of specialisation.

Communication services

Finland is at a disadvantage in communication services along with the Nordic regions' average which is different from the EU aggregate. This suggests that the region is more active in trade according to the Balassa index. The Lafay index suggests that Finland's net trade specialisation is neutral, which is also the case with the Nordic and EU regions.

Construction services

In 2012 Finland had specialisation in construction services. This is clearly different from the Nordic and EU average, which suggests no specialisation. There was a notable, positive development between 2007 and 2008 in the Balassa index. Since 2008, the Lafay index has been positive suggesting net trade specialisation, giving Finland a real comparative advantage in the trade of this service. Finland's specialisation has had some fluctuation in this service category, but it has remained generally positive after 2007 except in 2011 when the Lafay index was neutral. In the Nordic countries and in the EU region, net trade specialisation has stayed neutral.

Insurance services

In the trade of insurance services Finland, alongside with the Nordic region, is at a clear disadvantage according to the Balassa index. The Lafay index suggests that net trade specialisation is neutral in Finland and in the Nordic countries. The Balassa index suggests that the EU region has a degree of specialisation in the insurance services while the Lafay index is neutral. The trade performance has had little fluctuation over the years, even when the insurance services amount to less than one percent of all service trade in Finland.

Financial services

In financial services, Finland and the Nordic region are at a disadvantage according to the Balassa index. The net trade balance measurements in the Lafay index have also been generally neutral while Finland had a small degree of

specialisation in 2008 and 2009. The EU region, on the other hand, has specialisation as measured by both indices signalling that the EU region as a whole has a real comparative advantage in this service category.

Computer and information services

Finland has a distinct comparative advantage in computer and information services. The EU and Nordic regions also have specialisation in this service category in terms of both indices. However, Finland's advantage is notably more pronounced. The Balassa index suggests that Finland enjoys evident specialisation in the trade of this service category. In addition, the Lafay index submits that the relative net trade in computer and information services is highly positive, suggesting real comparative advantage in this service category. This is also the case with the Nordic and EU average, but their performance is not as considerably positive as it is in Finland while still suggesting specialisation. The trade performance of the Nordic and EU regions in this service category is very similar. As with construction services, there has been fluctuation in Finland's performance, especially between 2007 and 2008 when the Balassa index rose from 1.79 to 5.32 and the Lafay index increased from 1 to 10. However, unlike with construction services, Finland has consistently enjoyed specialisation in this category.

It must be noted that this category consists of two different services in which the trade profile is very different. The information services' share of this category has only been less than two percent, and the net trade has been negative. The rest of the trade in this service category consists of computer services, and it is in this service where Finland's specialisation is. Computer services cover hardware and software consultancy and implementation, which broadly covers various consultation, design, programming, development and support services. Information services cover database and news agency services.

Royalties and license fees

Finland has real comparative advantage in royalties and license fees as measured by both indices. Between 2007 and 2012, Finland's trade performance in this service went through a positive development as initially it had no advantage in this service category. In Nordic region's aggregate performance, net trade is also specialised, however Balassa index suggests lack of specialisation. Both indices suggest that EU's trade in this category is without comparative advantage.

Other business services

Finland's profile matches the Nordic and EU regions' average trade profile with Balassa index results which suggests some degree of specialisation. However, Finland's Lafay index specialisation has reversed from highly positive to ostensibly negative between 2007 and 2012 which is in contrast to the Nordic average performance. Nordic regions' Lafay index remains positive although it too has decreased between 2007 and 2012. Lafay index has generally remained neutral in the EU region. Other business services comprise of many different subcategories in which Finland's performance varies. In operational leasing services, miscellaneous business, professional and technical services the trade balance is negative while in merchanting services the balance was positive. However, even with this exception, the net trade balance of Finland in this service category remains clearly negative. Other business services is the single largest service trade group, amounting to 36% of Finland's total trade.

Personal, cultural and recreational services

In personal, cultural and recreational services, Finland is at comparative disadvantage as measured by both indices which is aligned with the average Nordic performance. In the EU region on average, Lafay index is neutral while Balassa index suggests slight specialisation. Personal, cultural and recreational services are the smallest service category in terms of trade volume, amounting to less than one percentage of Finland's total service trade.

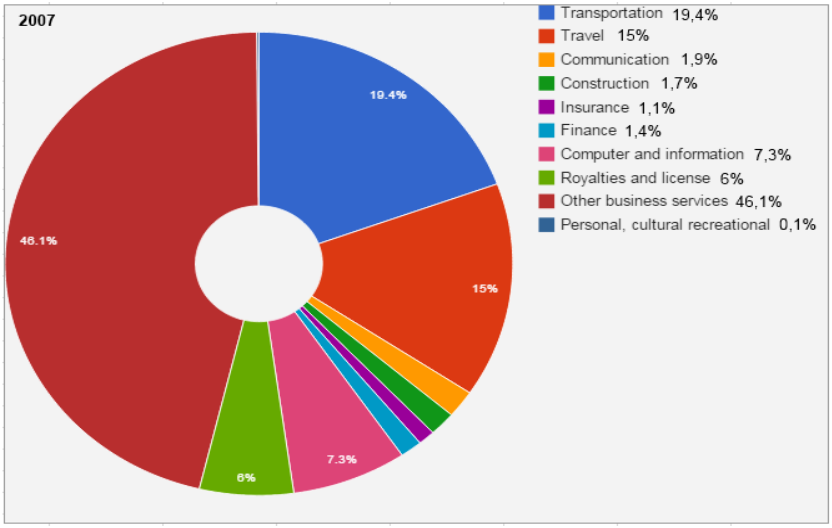

Figure 3. Finland's total trade levels in 2007

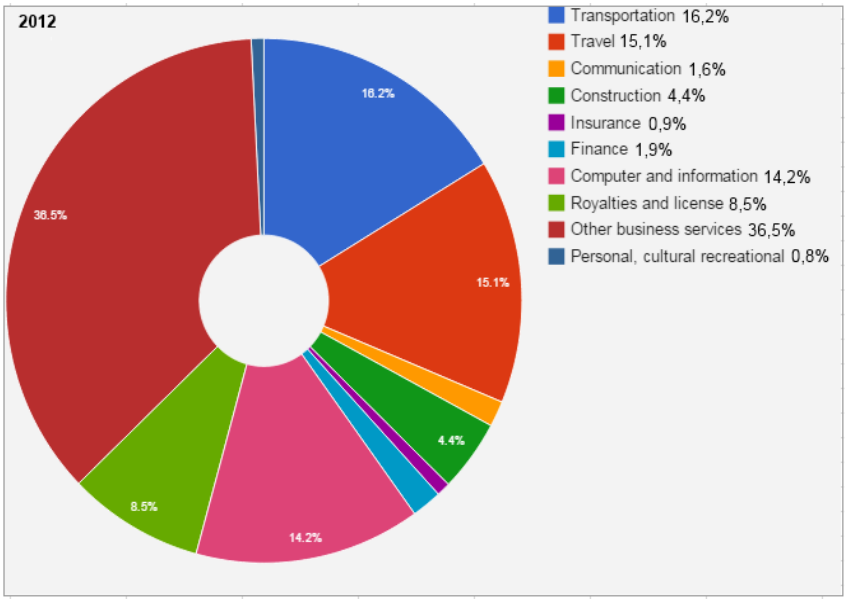

Figure 4. Finland's total trade levels in 2012. Figure over 100% due to rounding

5. Discussion

The thesis was able to identify service sectors in which Finland's performance in the international trade can be considered to have specialisation. Similarly, the thesis also determined sectors in which Finland was suggested to be lacking specialisation. In order to establish comparison regions, the performance of the Nordic region and the European Union's aggregate performance was measured, against which Finland's performance can be contrasted. The Nordic region was used as the primary comparison region due to Finland's reasonable similarity and affiliation with it. The next section takes an overview of the results while the section following that examines Finland's potential in service trade, taking into account its characteristics and the factors that are considered to drive the growth of services as was explored earlier in the thesis. After that, the limitations of the thesis are acknowledged.

5.1 Overview and Discussion of the Results

In the international service trade, Finland's most distinctive advantage is in the computer and information services category. Trade in this service category is highly specialised as measured by both indices. Its share of exports relative to its share in the world trade is high, and the net trade is clearly export driven. The Nordic and EU regions also have a degree of specialisation in this service industry, but Finland's performance is notably higher. Finland's successful performance in this service has remained consistent, and the overall performance developed positively between 2007 and 2012. The period between 2007 and 2008 seems to have been of importance as Finland's Balassa index result grew significantly during that year, rising from 1.79 to 5.32 while the Lafay index jumped from 1 to 10. The reason for this was largely due to the increased

financial transactions of international groups and concentration of group activities into Finland (Official Statistics of Finland 2010).

The thesis found that Finland also has a degree specialisation in the trade of construction services and royalties and license fees. The period between 2007 and 2008 also seems to have been important for the construction service as the Balassa index increased from 0.78 to 1.55 while the Lafay index turned positive from 0 to 1 during that time. Again, this is largely due to the increased financial transactions of international groups and concentration of group activities into Finland (Official Statistics of Finland 2010). After 2008, Finland retained its specialisation in this service category with the exception of 2011 when the Lafay index was neutral. Over the course of the period examined in the thesis, royalties and license fees went through a positive development in which Finland's performance increased notably. Subsequently, in this service category Finland came to have a real comparative advantage as measured by both indices. Finland's specialisation in the construction service trade and in royalties and license fees is unique in the sense that a real comparative advantage in these services is not present in the Nordic countries or in the EU region overall. The advantage in the construction services could turn out to be transitory as the advantage is not particularly evident. Moreover, in 2011 the Lafay index suggested a neutral trade balance specialisation.

There were also services in which Finland was found to be at a comparative disadvantage. The most notable of these was the transportation services. Finland's performance in transportation service has remained consistently negative as measured by both indices, which is in stark contrast with the performance of the Nordic region. The Nordic region overall performed very well in this service category, and it can be considered to have an evident comparative advantage in the transportation services. The EU region also had a degree of specialisation in the trade of this service category. The only exception to Finland's otherwise negative performance is air transportation in which Finland's net trade

has been clearly positive.

Performance in other business services is another service category in which Finland is at a distinct disadvantage also when compared to the Nordic region according to the Lafay index results. Between 2007 and 2012, other business services changed from highly export driven to import driven services. Within other business services, trade is clearly deficient in the research and development services, advertising, market research, public opinion polling services and in unclassified business services (Official Statistics of Finland 2012). Unclassified business services include merchanting and other trade-related services, operational leasing, other business services and unclassified intra-group services. Of these, only trade in merchanting services has been on surplus. The negative development in other business services is at odds with the Nordic average performance which, though decreased, still enjoys a small degree of specialisation.

Compared to the Nordic average performance, Finland's performance varies in certain fields of the service trade. Similarly, the Nordic average deviates in parts from the general EU regions' performance. The Nordic countries on average have specialisation in transportation and other business services when compared to the European Union. Another notable difference between these regions occurs in insurance and financial services in which trade activity is very low in Finland and in rest of the Nordic region, while the EU maintains a real comparative advantage in the financial services. In travel services, the performance is roughly similar between the regions, suggesting de-specialisation and remaining import driven. The net trade levels are at a somewhat greater disadvantage in the Nordic countries on average than in Finland. In the rest of the service categories performance is roughly similar. Both the EU region and the Nordic countries perform well in computer and information services. In the trade of communication services the EU region is a little more specialised, but the trade balance remains neutral in both. In personal, cultural and recreational services the EU region

performs slightly better, but the trade in this service category is very marginal.

While the period of time that the thesis covered was relatively short, certain strengths and weaknesses in Finland's service trade could clearly be established especially in regard to the advantage in computer and information services and the disadvantage in transportation and other business services. A major development that took place during the examined period was the decline of specialisation in the trade of other business services and the almost concurrent positive development in royalty and license fees. The year 2008 was momentous due to the increased financial transactions of international groups and the concentration of group activities into Finland, which lead to positive improvement in computer and information and construction services. During the same time trade in the other business services collapsed.

When examining the results, they inevitably have to be viewed from the larger macroeconomic perspective of which likely the most significant characteristic during this period has been the financial crisis and the global recession that has affected and continues to affect most of Europe and also other parts of the world. The onset of the financial crisis in 2007 can explain why the period between 2007 and 2008 caused principal changes to many trade trends. Surprisingly, not all the changes were negative. Once the global economic situation stabilises to "normal", it will be noteworthy to see how much there will be variation in these advantages and disadvantages or whether they can be considered to be fairly ingrained. In which way the recession has affected these findings is difficult to say as trade statistics on services have not been collected over extensive periods of time, and if they have been collected, this has happened with a lower level of detail.

5.2 Finland's Potential in Service Trade

When the results were examined, it came as no surprise that Finland consistently fared very well in computer and information services. It must be noted that this service category comprises of two different services. When the category is examined in more detailed level, the advantage was specifically in computer services, not in information services of which share of total trade is marginal. As a nation Finland has many favourable traits that benefit it in international trade of services and which may further its ability to specialise in providing services in foreign trade. Being one of the most ICT-intensive countries in the world has no doubt been a huge benefit for the country to be able to engage in successful trade of many services but this is likely especially reflected in the distinguishable advantage Finland has in computer services. As human capital has been found to be a clear determinant of computer and information services (Nyahoho 2010), Finland's success in this service can be explained fairly readily when attributed to this factor. Specialisation in royalties and license fees and construction services has been positively linked to research and development intensity. In these, Finland has been measured to fare well (Schwab & Sala-i-Martin 2011, 176–177) which can explain the level of specialisation Finland was measured to have in these services. On the other hand the Nordic countries too have good research and development institutions, yet their advantage was much lesser or non-existent which questions how direct these determinants are.

Finland's disadvantage in transportation services, a sector in which the Nordic region is specialised in, has to be interpreted through other explanations. Capital abundance seems to be important in performance of transportation services (Sapir & Lutz 1981, 13–14). If this is the case, at face value one would expect Finland not to be at comparative disadvantage in this service, however remembering here the historic background of Finland's economy which is characterised by late industrialisation and overall economic development can explain the relative disadvantage in this service. On the other hand, the success

of the other Nordic countries, particularly Norway's specialisation, can be explained by historical factors (ibid., 21). Additional reason for these levels of specialisation can be due to geographic reality in which Finland's position is unfavourable especially when compared to Norway and Denmark which have significant merchant fleets. It must also be noted that Finland's activity in air transportation services was significantly better and the trade balance in 2012 was highest in the whole region. Air transportation is historically newer service in which Finland may have had time to develop itself more in the same alignment with the rest of the region, unlike it could with the other transportation services. Finland's geographic location can also be of a less restricting factor in regards to trade in air transportation services than it is with sea transportation.

The greatest trade disadvantage Finland has besides transportation services is in other business services. Finland relies on large amount of imports in miscellaneous business, professional and technical services, namely in advertising, market research and public opinion polling and research and development services. Other Nordic countries have this characteristic too but Finland's import level of these services is especially high which contributes to its clearly negative Lafay index performance in other business services category. The apparent negative development in this service category that took place during the period the thesis covered can seem surprising as one might posit that Finland would possess the abilities to specialise in these types of services.

Explaining the reasons for poor performance in other business services is difficult and speculative due to limited amount of research on determinants of service trade on in depth level. However, one possibility for this could be Finland's comparatively poor footing in regards to foreign direct investment since, apart from this, with its many positive attributes like good education, infrastructure and technological level, Finland could have the necessary basis for not being at comparative disadvantage in this service category. FDI is an important aspect of international trade in services and especially important to business services as

these types of businesses usually require to set up physical presence in the country (OECD 2000, 25). In Finland, FDI flows have overall decreased from 2007 (Official Statistics of Finland 2013). Concurrently, the Lafay index of other business services fell sharply in 2008. As was observed in the earlier chapter of the thesis, Finland has many favourable characteristics that can act as determinants for specialisation international service trade. In relation to this service category, Finland's good education, infrastructure and technological structure could offer a basis for competence or at least balance its current very de-specialised disposition. Given that the Nordic region in general performs better in trade of these specific services, there could be opportunities in evaluating whether there would be room for domestic companies to expand to provide these services more in Finland or even in international trade. As was considered in the earlier part of the thesis, Finland's economic development and firm's internationalisation occurred relatively late. This no doubt has large scale effects on the overall tendency to partake in international trade. This factor can affect the finding of several categories but may have especially affected the development in other business services.

With rest of the results, Finland's performance was not unusually apart from the general Nordic trade trends. Travel service specialisation is often explained through countries' natural endowments (Sapir & Lutz 1981, 4) in other words, country specific factors such as scenic attraction and rich cultural heritage in this case. This factor has not given the Nordic countries enough competitive edge to appeal to large flocks of tourists to enable specialisation. The consistent lack of specialisation in financial services in Finland and in the Nordic countries overall is based on many reasons but mainly on late liberalisation, crises and collapses in the early 1990s and general lack of commercial maturity in this field (Hyytinen & Pajarinen 2001, 39–40). In Finland, the 1990s crises and collapses were especially eminent. In trade of these two services, there is likely no meaningful and effective way for Finland to create specialisation in for the time being.

5.3 Limitations

The main limitation of the thesis was the difficulty of measuring service trade, the lack of detailed data and the relatively short period of time for which cohesive data, measured under same nationwide reporting system, is available. The statistics on service trade as compared statistics on goods trade are deficient and more complex by classification (Langhammer 2004, 3). As services are often intangible, they can escape the balance of payment (BoP) documentation in greater detail and avoid appropriate border registration. As services and products are not always clearly inseparable, this too may also distort the BoP statistics. As services are delivered in modes of supply which cannot be measured in as straightforward way as goods can be, the unrecorded trade in services is notably higher than it is in goods. (ibid., 3–4).

In some years the data was reported as an estimate. This was the case in Finland and the European Union's personal, cultural and recreational services' import and export data between 2007 and 2011. All Faroes Islands' import and export data for 2012 were estimates, however its share of the overall data is diminutive. The data for 2002 were all estimates and measured under a different reporting system thus they are hardly referenced in the thesis. Financial services data of Finland for year 2002 was not available. Of the EU's performance, Cyprus' data in 2011 was an estimate. Its effect on the region's overall findings is very small. As a result of all this, the findings cannot be expected to give unequivocal figures on the measure of comparative advantage. This limitation has to be taken into account but it is mitigated to an extent by the fact that the results themselves are considered more holistically and the results of the Lafay index are rounded into a single digit figure instead of being presented with decimal accuracy. Another factor that limited the thesis was the finite amount of available research on determinants of international service trade on a more precise industry level. This made evaluating the more detailed factors behind

Finland’s trade specialisation or de-specialisation difficult. This however did not affect the thesis’ actual research problem of identifying Finland’s strength in international trade on services. While it would have been interesting to examine the factors affecting trade performance more vigorously, it was not the actual research problem of the thesis in the first place.

6. Conclusions

The research problem of the thesis was to examine Finland's strength in international trade of services. This was to examine in which services' trade Finland can be considered to be specialised or de-specialised as measured by using two revealed comparative advantage indices. These indices used the import and export levels of countries to calculate their results. The thesis examined the period between 2007 and 2012. The results were contrasted again the Nordic region's overall performance and to lesser extent against the European Union's performance. The thesis was able to determine several service sectors in which Finland enjoyed clear specialisation in and conversely services in which trade it was de-specialised.

6.1 Finland's Specialisation in Service Trade

The thesis identified that Finland's strongest specialisation is in computer and information services and the specialisation had remained fairly consistent. To lesser extent Finland also performed well in royalty and license fees and in construction services. Finland's greatest disadvantages are in transportation services while the Nordic region on average fared well in trade of this service. In other business services Finland was also at disadvantage which was again apart from the general the Nordic trade trend. The period the thesis examined coincided with the global financial crises and recession. This affected the findings distinguishably when in 2008 the service trade went through stark development changes. In 2008, other business services trade specialisation deteriorated while computer and information services and construction services had positive developments. During the subsequent years, Finland also came to have specialisation in royalty and license fees. Finland and the Nordic countries were in general marked by low activity in insurance and financial services and they were overall de-specialised in travel services. In communication and personal,

cultural and recreational services, trade activity is also very limited and their share of total trade is rather marginal.

6.2 Future Suggestions

Future suggestions the author wishes to propose are twofold. First, it would be beneficial for Finland to direct attention to services in economic planning on a general level and to consider how to maintain and create specialisation in international service trade. Secondly, the thesis hopes to emphasise the accentuated need for more detailed service trade statistic systems and research on determinants of service trade.

As the thesis highlighted several times, services are of great importance to modern economies and especially significant for high-income countries like Finland. For such countries, they have largely become the engine of growth and virtually the only source of new employment (OECD 2005, 2). This however does not seem to be reflected in policy making which is still in many cases commanded by manufacturing sector in regards to designing tax, trade and support policies (OECD 2000, 37). Services should have a more important place in policy making and resources should be directed to identify Finland's capabilities and take them to maximum utilisation. This should be addressed with a clear strategy specifically regarding service sector which should also take into consideration international service trade. Creating a national strategy concerning these should become an agenda for the decision makers. This suggestion would universally benefit many other de-industrialised nations.

Finland already has many characteristics that promote growth of services. This includes an effective education system, innovativeness, good infrastructure, technological aptitude and that it is one of the most ICT intensive countries in the world. If the determinants of service growth discussed earlier in the thesis hold

merit, Finland should have a fair foundation in bracing for the future developments in service trade. The relatively weak FDI attainment however can hold it back in regards to certain service categories, particularly other business services, while verifying direct empirical linkages on this is impossible at this point. Other challenging aspects Finland faces in regards to economic growth of services are its rigid employment structure, high tax regime and small domestic markets. Finland's late economic development and businesses' internationalisation too can have so far hindered the realisation of its fullest potential. Regarding all this, the suggestion remains that Finland should create a strategy to maintain its current advantage in the services identified by the thesis while seeking possibilities in other services where there is reasonable potential. Global trade is going through large structural changes which has posed many challenges in particular for high-income countries. Exports brought economic success to Finland for a good period of time and enabled the relatively high living standards while in the most recent years the trade balance has been negative. In this, services can act as a balancing mechanism which they already have done to some extent. As the value of goods exports relative to GDP decreased from 38% to 29%, the value of service exports grew from 6% to 13% between 2000 and 2012 (Ministry of Finance 2013, 15). This is a meaningful example of why service trade matters.

The second suggestion of the thesis deals with service trade statistics. In their current form, the statistics are very limited. Considering the importance of services to economies and their growing role in international trade, the need for a cohesive and more detailed statistic system requires no complex justifications. As the existing statistics are, the data classification is too broad and at times the figures are based on too many estimates. There is a great deal research to be done in international trade of services. An effective trade data system would be a key requirement in order to derive further and more detailed analyses. Trade service data is not the only field where there is need for further improvements. Identifying determinants of service trade on a more service specific level would be of importance as extensive research would enable governments and

businesses to design policies to better foster the benefits of service trade. At the moment, the research literature is limited and where it exists, it covers services in too broad categories. With more robust statistics, theories and models, service trade could be analysed at a level of accuracy similar to that which goods trade have already reached. Given the recent macroeconomic developments and how they are most likely to continue, there is a lot of room for further research work in international trade of services.

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Appendices

Finland							
Sector	**2002**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Transportation	0,73	0,61	0,49	0,51	0,56	0,61	0,56
Travel	0,51	0,49	0,41	0,41	0,46	0,54	0,55
Communication	1,08	0,79	0,63	0,46	0,47	0,54	0,59
Construction	1,2	0,78	1,55	1,63	1,64	1,12	2,21
Insurance	0	0,28	0,26	0,23	0,17	0,07	0,23
Financial	0	0,22	0,27	0,25	0,29	0,33	0,33
Computer and Information	1,37	1,79	5,32	4,87	4,5	4,18	3,63
Royalties and license	0,9	0,94	0,79	0,94	1,31	1,67	1,78
Other business services	2,29	2,24	1,62	1,56	1,45	1,29	1,25
Personal, cultural and recreational	0,11	0,11	0,21	0,03	0,04	0,31	0,21

Table 1. Balassa index of Finland in 2002, 2007 – 2012. Source: Trademap.org statistics, own calculations.

Nordic Countries							
Sector	**2002**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Transportation	1,89	1,8	1,7	1,77	1,74	1,75	1,74
Travel	0,56	0,51	0,46	0,48	0,49	0,53	0,52
Communication	0,71	0,84	0,81	0,77	0,74	0,9	0,74
Construction	0,49	0,45	0,52	0,54	0,59	0,47	0,6
Insurance	0,38	0,41	0,41	0,33	0,3	0,3	0,34
Financial	0,2	0,19	0,24	0,29	0,26	0,34	0,37
Computer and Information	0,81	1,3	1,84	1,98	1,84	1,6	1,46
Royalties and license	0,46	0,78	0,75	0,84	0,88	0,89	0,93
Other business services	1,21	1,26	1,2	1,18	1,17	1,16	1,17
Personal, cultural and recreational	0,39	0,91	1,02	1,07	0,86	0,9	0,82

Table 2. Balassa index of Nordic countries in 2002, 2007 – 2012. Source: Trademap.org statistics, own calculations.

EU28							
Sector	**2002**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Transportation	0,98	0,99	1	1,01	1,01	1	1
Travel	0,94	0,91	0,89	0,86	0,82	0,82	0,81
Communication	1,09	1,11	1,11	1,09	1,21	1,2	1,28
Construction	1,19	1,06	0,98	0,98	0,96	0,9	0,85
Insurance	1,36	1,13	1,1	1,3	1,32	1,29	1,33
Financial	1,07	1,18	1,17	1,1	1,09	1,12	1,14
Computer and Information	1,24	1,26	1,26	1,27	1,28	1,27	1,3
Royalties and license	0,51	0,65	0,72	0,8	0,81	0,81	0,8
Other business services	1,13	1,07	1,08	1,09	1,12	1,12	1,12
Personal, cultural and recreational	1,22	1,3	1,29	1,37	1,52	1,54	1,55

Table 3. Balassa index of EU28 in 2002, 2007 – 2012. Source: Trademap.org statistics, own calculations.

Finland	**2002**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Transportation	−4	−6	−7	−4	−5	−6	−5
Travel	−3	−3	−2	−3	−3	−2	−1
Communication	0	0	0	0	0	0	0
Construction	0	0	1	1	1	0	1
Insurance	0	0	0	0	−1	0	0
Finance	N/A	0	1	1	0	0	0
Computer and information	1	1	10	6	8	8	6
Royalties and license	0	0	−1	1	2	3	3
Other business services	7	9	−1	−1	−2	−3	−4
Personal, cultural recreational	0	0	0	0	−1	0	−1

Table 4. Lafay index of Finland in 2002, 2007 – 2012. Source: Trademap.org statistics, own calculations.

Nordic Countries	2007	2008	2009	2010	2011	2012
Transportation	2	2	2	2	3	3
Travel	−6	−5	−6	−6	−6	−6
Communication	0	0	0	−1	0	0
Construction	0	0	0	0	0	0
Insurance	0	0	0	0	0	0
Financial	0	0	0	0	0	0
Computer and information	1	2	2	2	2	2
Royalties and license	1	0	1	1	1	1
Other business services	3	1	1	1	0	1
Personal, cultural, recreational	0	0	0	0	0	−1

Table 5. Lafay index of Nordic countries in 2007 – 2012. Source: Trademap.org statistics, own calculations.

EU28	2007	2008	2009	2010	2011	2012
Transportation	−1	−1	−1	−1	−1	−1
Travel	−1	−1	−1	−1	−1	−1
Communication	0	0	0	0	0	0
Construction	0	0	0	0	0	0
Insurance	0	0	0	0	0	0
Financial	3	2	2	2	2	2
Computer and information	1	1	1	1	1	2
Royalties and license	−1	−1	−1	−1	−1	−1
Other business services	−1	0	−1	0	0	0
Personal, cultural, recreational	0	0	0	0	0	0

Table 6. Lafay index of EU28 in 2007 – 2012. Source: Trademap.org statistics, own calculations.