

Upgrading the competitive advantage of paired border cities - comparative case study of Nogales-Nogales and Imatra-Svetogorsk

International Business

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Objective

The main objectives of this study are to contribute to the largely under-researched area of paired border cities by identifying the potential competitive advantages border cities may possess, and also the ways in which they can be analyzed and utilized. The two case paired border cities, Nogales-Nogales at the U.S.- Mexico border and Imatra-Svetogorsk at the Finnish-Russian border, demonstrate the opportunities and the existence of competitive advantage in paired border cities. The competitive advantages will be approached through the following question: "How can border cities as a pair upgrade their competitive advantage?"

Methodology

The theoretical part of this study is based on literature on economic geography and competitive advantage. The empirical data in this comparative case study consist of semi-structured interviews, personal perceptions, and border city seminars. The secondary data consist mainly on academic writings. A modified version of Porter's diamond model of national competitiveness was utilized as a foundation for theoretical framework. The main determinants of paired border cities examined in the empirical part are 1) factor conditions, 2) demand conditions, 3) related and supporting industries, and 4) business strategy, structure, and competition. Each determinant alone and together with other factors contributes to or detracts from competitive advantage.

Findings and conclusion

Paired border cities face many obstacles for development, and that is why the location at the border is often believed to hinder development. However, the advantages the location brings can be significant. The main findings of this research suggest that paired border cities do have potential to gain competitive advantage created by the location, and therefore may succeed better than other cities. This, however, requires policy makers in paired border cities to understand that the cities are constantly competing with other regions and cities. When considering cities, customers are companies, industries and clusters who bring tax revenue. In order to attract more companies to the region, paired border cities should take advantage of the competitive factors created by their locations and act in an entrepreneurial way by identifying, evaluating, and exploiting competitive opportunities.

The modified version of Porter's diamond model provides paired border cities a framework for recognizing their weaknesses and strengths, thus helping them to concentrate their resources on the right industries and clusters. This is especially important as cities cannot be competitive in all industries. Therefore, cities should be able to identify their competitive advantages, find out the industries that best match their strengths, and then market themselves to those industries.

Keywords: Competitive advantage, paired border cities, clusters, Porter's diamond model

Tutkimuksen tarkoitus

Tutkimuksen päätavoitteena on tuoda uutta tietoa rajakaupunkipareista tunnistamalla niiden potentiaaliset kilpailuedut sekä tavat, joilla niitä voidaan analysoida ja hyödyntää. Case-rajakaupunkiparit Nogales-Nogales USA-Meksiko -rajalla ja Imatra-Svetogorsk Suomi-Venäjä -rajalla havainnollistavat rajakaupunkiparien erityisiä mahdollisuuksia ja kilpailuedun olemassaoloa. Kilpailuetua lähestytään seuraavan kysymyksen kautta: "Miten rajakaupunkiparin osapuolet voivat yhdessä lisätä kilpailuetuaan?"

Tutkimusmenetelmät

Tutkimuksen teoreettinen osuus perustuu akateemiseen kirjallisuuteen talousmaantieteestä ja kilpailuedusta. Vertailevan case-tutkimuksen empiirinen data puolestaan koostuu semistrukturoiduista haastatteluista, henkilökohtaisesta tarkkailusta ja rajakaupunkiseminaareista. Sekundäärinen data koostuu pääasiassa akateemisista kirjoituksista. Teoreettisen viitekehyksen perustana käytin muokattua Porterin timanttimalia valtioiden kilpailukyvyistä. Case-tapauksissa tutkitut perustekijät ovat 1) tuotannontekijäolot, 2) kysyntäolot, 3) lähi- ja tukialat, sekä 4) yrityksen strategia, rakenne ja kilpailutilanne. Porterin timanttimalin mukaan jokainen tekijä yksinään tai yhdessä muiden tekijöiden kanssa lisää tai vähentää kilpailuetua.

Tutkimustulokset

Huolimatta siitä, että rajakaupungeilla on havaittavissa monia kilpailukyvyyn kehittymisen esteitä, sijainnin tuomat edut voivat olla merkittäviä. Tutkimuksen päätulokset osoittavat, että rajakaupungeilla on potentiaalia saavuttaa sijainnistaan johtuvaa kilpailuetua ja tätä kautta myös menestyä muita alueita tai kaupunkeja paremmin. Tämä edellyttää kuitenkin sitä, että rajakaupunkien päättäjät ymmärtävät kaupunkien olevan mukana jatkuvassa kilpailussa muiden alueiden ja kaupunkien kanssa. Kun on kyse kaupungeista, asiakaskunta muodostuu verotuloja tuovista yrityksistä sekä niiden muodostamista toimialoista ja klustereista. Houkutellakseen alueelle lisää yrityksiä, tulee rajakaupunkien pyrkiä hyödyntämään erityisiä sijainnin tuomia kilpailuetujaan ja kyetä itse toimimaan yrittäjämäisesti tunnistamalla, arvioimalla ja hyödyntämällä niille soveltuvia kilpailullisia mahdollisuuksia.

Muokattu versio Porterin timanttimalista antaa rajakaupungeille toimivan viitekehyksen tunnistaa omat heikkoutensa ja vahvuutensa, ja sitä kautta kohdistaa omat voimavaransa oikeille toimialoille ja klustereille. Tämä on erityisen tärkeää, koska kaupungeilla ei ole resursseja tavoitella kilpailukykyisyyttä kaikilla toimialoilla. Rajakaupunkien tulisikin kyetä tunnistamaan omat kilpailuetunsa, löytämään sellaiset tavoiteltavat toimialat tai klusterit, joihin ne pystyvät parhaiten vetoamaan sekä markkinoimaan itsensä niille.

Avainsanat: Kilpailukyky, rajakaupunkipari, klusteri, timanttimali

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1 INTRODUCTION

1.1. Background

“Contemporary cities are of at least two kinds: those that are vibrant and growing and those that are lagging. Human capital, agglomeration, knowledge spread or spillovers, industrial clusters, concentration of creative people, and global competition driven by a huge expansion of low cost labour and explosive innovation all play a role.” -Roger Stough (Acs, 2002, 247)

Like Roger Stough mentioned, there are many factors influencing the growth and development of cities. All cities want to become vibrant and growing, but the increasing competitive pressure caused by the globalization is making it more challenging. In response, cities are trying to find competitive advantages that would create jobs and economic growth. The opportunities for development are different depending on the location. For example, the emergence of a certain industry can be a result of an advantage that a specific location offers. An advantage created by geographical location can be significant as it is usually more permanent than most other competitive advantages. Still, advantages created by geographical location can be developed over time (Karlsson et al. 2005, 12) making it possible for policymakers to increase or to create those advantages.

One way to develop the advantages of cities is to better the reputation the cities have. Simon Anholt emphasizes the importance of positive image. According to him, the positive image is not only important for companies and their products, but also for places like countries, regions, and cities (Simonanholt, 2010) A better image has a direct effect on countries' success, prosperity, and international status (Suomen kuvalehti, 2010). The same applies for regions and cities. Anholt has concentrated on national brand, meaning the image that people have of a nation. This image is emphasized in-global competition (ibid, 2010) and is something that also cities should concentrate on.

Paired border cities - cities close to each other but separated by a national border - are especially interesting from the competitive point of view because of their location in the interface of two often different environments. Differences can often be found in cultures, languages, economies, and markets. This kind of location can offer the cities unique competitive advantages, but if the potential is not found and marketed to the right companies and clusters, the border might just hinder the development of the cities at both sides of the border, like is often considered to happen according to the traditional location theories (Muir 1975; Rumley & Minghi 1991; Kosonen 1996).

Regional development of border cities is closely related to their interactions (Kosonen et al. 2008) including the interaction of companies operating in them. Clusters are an especially good example of integration in the border regions, as they can be a major driving force for economic development and growth (Karlsson et al. 2005). Even so, cluster research has been explored in a variety of contexts but not really in the case of paired border cities. Therefore, I will take into account clusters in paired border cities as important factors influencing the competitive advantage of the region as well as potential beneficiaries of the cross-border location.

In this study I concentrate on paired border cities and their competitive advantage. The potential for competitive advantage will be monitored through two paired border cities; Nogales-Nogales on the U.S.-Mexico border and Imatra-Svetogorsk on the Finnish-Russian border. The main reasons to choose these borders were the potential they both have as well as my personal interest towards them.

1.2. Research gap

Although research on border regions has been done in different academic fields, especially during the past ten years, the researches have concentrated mainly on the issue's political or social aspects. Most of the studies concentrate on challenges and threats, and a border has been argued to mainly hinder the development on both sides of the border. The strengths and opportunities have received much less attention. In this

research I will concentrate more on the strengths and opportunities that border regions have or could have.

Current research has not comprehensively covered the competitive advantage of paired border cities. Even if many theories for competitive advantage exist, they mainly concentrate on firms, industries, clusters, or nations. Especially Porter has studied competitive advantage from all these points of views. Still, the competitiveness of border regions and cities has remained under-researched. Therefore, I will modify Porter's model to be more applied to paired border regions. Different levels of competitiveness are presented in figure 1 with the under researched area in grey.

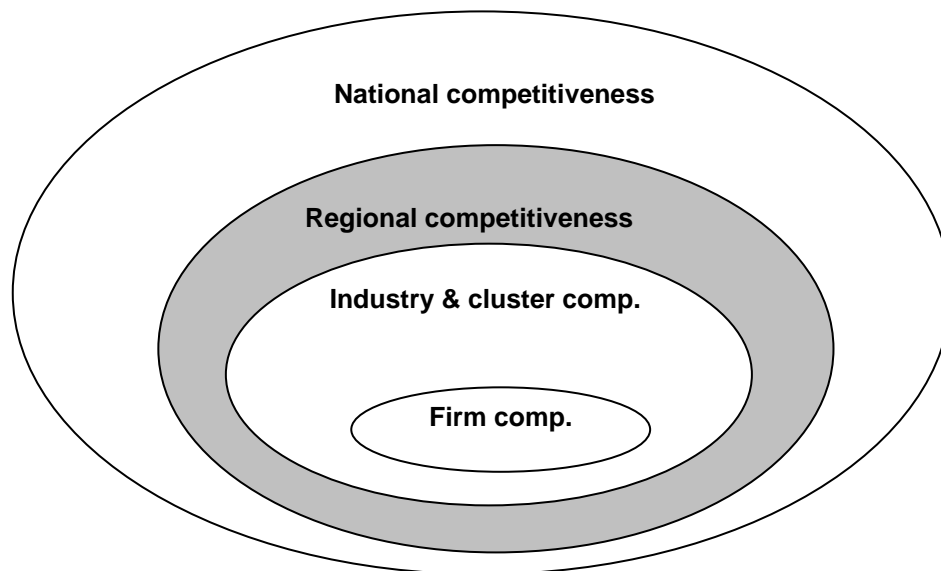


Figure 1. Levels of competitiveness

In order to contribute to filling the research gap, I aim to find out what competitive advantage paired border cities can potentially have and how the case cities could utilize that competitiveness. I will especially concentrate on how paired border cities could increase their competitiveness with the attributes they already have by providing a way to utilize the existing positive factors efficiently and concentrate on the most important ones. The two case city pairs will be used to demonstrate the utilization of special competitive advantage in paired border cities. Also, how those factors are connected to

industries operating in them will be discussed in order to find out how to attract more industries and clusters to the region.

1.3. Research objectives and questions

In this study I first of all aim to identify the competitive advantages of paired border cities. The purpose is to find out if paired border cities can have competitive advantage that only they can have or they can have it easier because of the location. The purpose is also to help to measure and manage the competitive advantage. In other words, I will study the factors influencing the development of companies and clusters in paired border cities and how that knowledge can help the cities to utilize and increase the competitiveness they have so that they would know which industries they should market themselves to. The research also works for companies to find out what kind of paired border cities would suit their purposes the best.

The competitive advantages of the two case studies have been approached through the following sub questions:

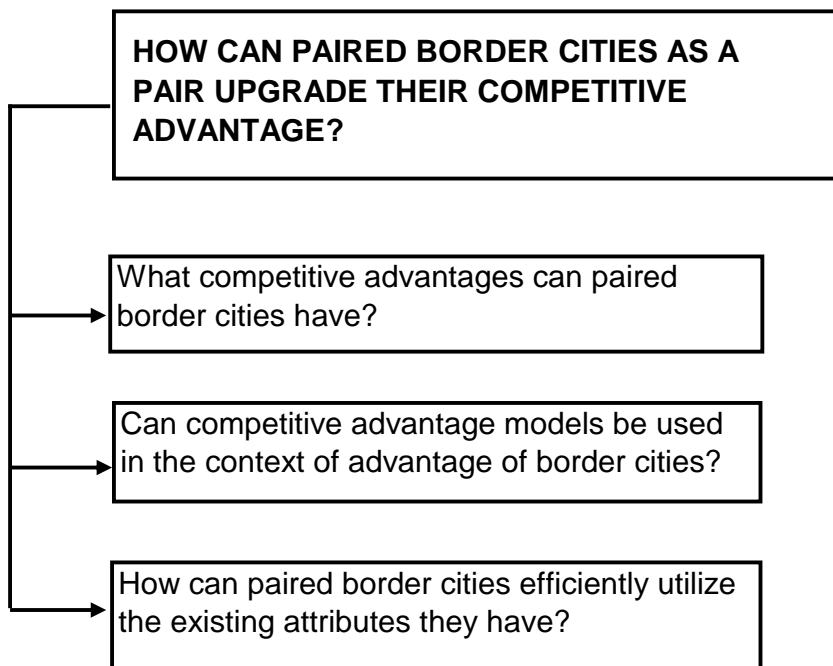


Figure 2. Research question diagram

1.4. Structure of the study

In the first chapter I presented the background of the study, the research gap as well as the resulting research questions and objectives.

In the second chapter I concentrate on theories and literature of border regions, paired border cities, and clusters operating in them. I will build the theoretical framework of the study from previous literature within economic geography, business, and studies of competitive advantage. I will also present the theoretical framework for empirical investigation. A modified version of Porter's diamond model will be utilized as a foundation for theoretical framework.

In the third chapter I will describe the research methods and the data used in the study. I will justify the use of comparative case method and present motives for the research and the selection of the cities. I will also present the data sources, collection, and compilation as well as an evaluation of the quality of the data. The data used consists of semi-structured interviews, personal perceptions, seminars, and literature. At the end of the chapter, I will assess the limitations of the chosen methodology and data.

In the fourth chapter I will concentrate on the empirical findings of the study. I will analyze both case city pairs through the theoretical framework (Porter's diamond model) presented in the third chapter. The main determinants analysed are 1) factor conditions, 2) demand conditions, 3) related and supporting industries, and 4) business strategy, structure, and competition. Also additional, more external factors; history, chance, government, culture, and international business, will be used in the analysis. At the end of the chapter the revised theoretical framework will be introduced.

In the fifth chapter I will continue with the analysis of the cities and include clusters in the discussion. I will also go through the main competitive advantages paired border cities can potentially have, which is part of the identification of the competitive factors. After that I will explain how cities should analyse and utilize those competitive factors.

In the sixth chapter I will summarize the empirical findings and present the recommendations. I will also propose some suggestions for both, policy-makers and companies. They should help in taking more advantage of the location and that way increasing the competitiveness of the paired border cities. At the end of the research I will presents the conclusions of the study putting together the theory and empirical outcomes. Finally, I will suggest ideas for further research.

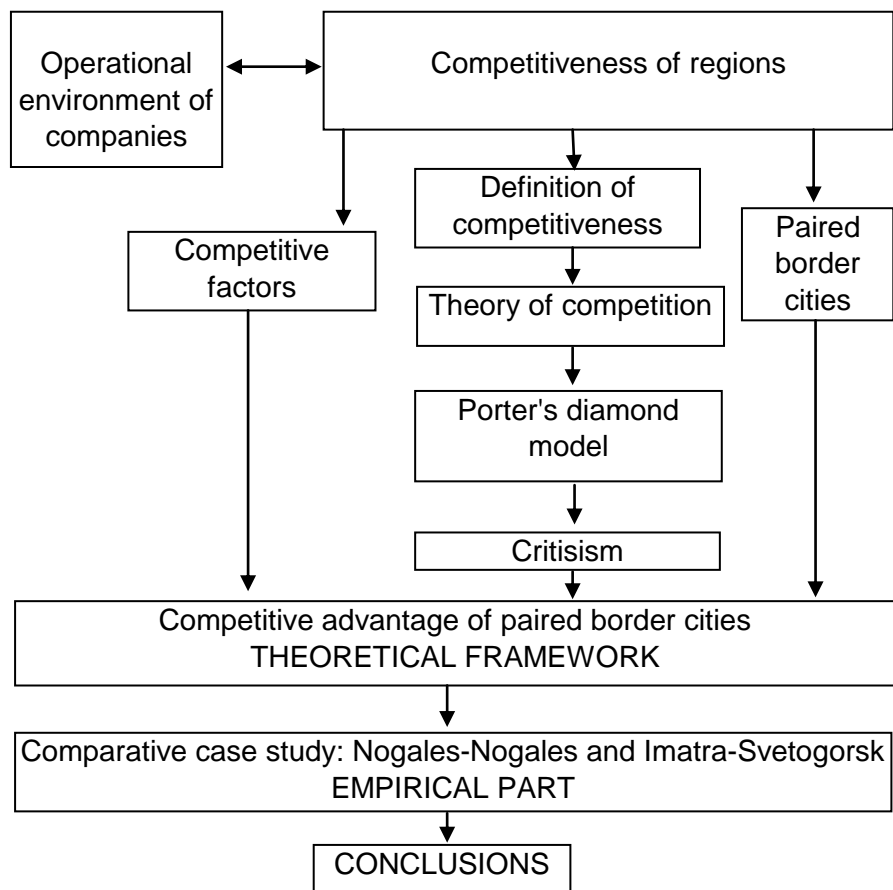


Figure 3: Structure of the study

2. PAIRED BORDER CITIES, CLUSTERS, AND COMPETITION

2.1. Cross-border regions

Border regions as well as border effects have been attracting quite a lot of attention during the last decades. Most of the research has concentrated on cooperation and on the challenges that the border regions face. The interest towards borders is not surprising as many important economic, political, social, and cultural issues are connected with borders or border regions. Globalization has had a significant impact on this, as it makes borders more permeable, leading to new economic and political arrangements.

According to The Council of Europe (2010) cross-border regions are inherent in geography, history, and economic possibilities, but have different governments ruling on both sides of the border. A cross-border region should also have, at least tentatively, its anonymous institutions and own regional identity, which often also leads to unique interests and needs (Perkmann & Sum 2002)

Even if all border regions are different, they often share many common characteristics and challenges created by the border. Most border cities are less prosperous and less developed than the core regions of those countries. Border regions and cities are assumed to experience mainly negative effects because of their location (Hansen, 1983). The national border has often been considered as an institutional barrier which leads to additional transaction costs because of tariffs and legislative differences. The institutional barrier is linked with other factors as well, like lingual and cultural differences, and insufficient infrastructure networks, which often have a major influence on cross-border economic exchanges. (Eskelinen & Niiranen, 2002)

One way to divide the different kinds of border regions is to consider the openness of the border referring to economic factors, such as goods and labour crossing the border. Another way could be the intensity of cooperation between the cities. In an open-border scenario, border barriers are constantly erased, an example of this are the borders

between EU member states. The US-Mexican border on the other hand is more like a persisting border where border is opened only selectively. In this kind of scenario, the cooperation is based on the location as well as on the differences between the territories, such as factor price differentials, which are also the base for the border cooperation initiatives. (Perkmann & Sum, 2002) Reasons for border cooperation, however, can be more complex. Even if economic factors are important, they are not the only reasons influencing for cooperation even in the case of a persisting border. The factors can, for example, be historical, cultural, or both.

Muller and Nauwelaers (2005) have made distinction between different border regions based on their innovation capacity including knowledge creating, absorptive capacity, diffusion capacity, demand, and governance capacity. The five types of border regions identified are capital regions, regions with growth potential, skilled manufacturing regions, industrially challenging regions, and agricultural regions that are lagging behind. Yet, the distinction is often hard to make, as some regions, for example, can be both; industrially challenging but still with great growth potential. The openness of the border can also be hard to measure as, for example, in the U.S. Mexico border there are clear signs that the border is not open, but still in some situations or for some people it can be considered to be open, at least when compared to other persisting borders. For example, when crossing the border, by paying some extra people can have a card (senti pass) to cross the border fast. For products the border can be quite open as well but it depends, among other things, on the type of products and on the amount transported. The openness also varies depending on if you are going to Mexico or to the U.S. When going to Mexico, for example, normally there is no queue whereas when going to the U.S. the queue can be long. Accordingly, the border is very asymmetrical leading to economic, social and environmental problems. Economic problems by complicating the working on the other side of the border, social because the asymmetry is often considered to be unfair by the Mexicans, and environmental, as the queues on the Mexican side pollute the air.

The main challenges of border regions:

- unique interests and needs

- less prosperous and developed than the core regions of the countries
- border an institutional barrier
- lingual differences
- cultural differences
- insufficient infrastructure

2.1.1. Examples of border cities

In addition to paired border cities, there are different types of border cities that are more or less connected. No clear definitions for different kind of border cities exist, but some rough definitions have been made.

Buursink (2001) has presented a term “twin city” for border city pairs that are located near each other, are about the same size, and share the same kind of culture, language, and history. Twin city is probably the most commonly used term for a city pairs even if the lack of similarity in most border cities makes it an inappropriate term for many situations. One good example of a twin city, where the term is appropriate, is Tornio-Haaparanta located in a peripheral region of Finland and Sweden. The cities are tightly integrated and socio-economically and politically homogenous, which are prerequisites for the label twin city. In addition both cities really seem to benefit from each other's presence (Jukarainen, 2000) which is not one of the prerequisites but probably common for cities cooperating as much as Tornio-Haaparanta. Therefore it is a good example of a paired border city where the location near the border has significantly increased the regional development.

Another example of a twin city is Heine-Blogoveshchensk at the Chinese-Russian border. The cities are located at national peripheries and have informal cultural and formal institutional characteristics supporting the cooperation between the cities. Heine-Blogoveshchensk is not as developed as Tornio-Haaparanta, probably mainly because the border separating China from Russia is more closed than that of Finland and

Sweden. However, the cities already have a common local market providing benefits for local businesses. (Kosonen et al. 2008)

Sometimes border cities like Tornio-Haaparanta, are also called “sister cities” or “binational cities”, which both emphasize close physical distance and cooperation between the cities. The difference is that as twin cities should be about the same size, sister cities do not necessarily have to be. The term "binational cities" on the other hand emphasizes institutional cooperation. Compared to twin city, sister cities and binational cities are quite randomly used terms. (Eskelinen & Kotilainen, 2004)

Cities that are physically connected together with, for example, a bridge, tunnel or a ferry, can be called “connected cities”. (Buursink, 2001) One example of these kinds of cities is Malmö-Copenhagen on Swedish-Danish border. They are connected together with a bridge that has decreased the distance between citizens at least when measuring in time. At the same time it has probably increased the mental adjacency between the people.

Helsinki and Tallinn on Finish-Estonian border can also be considered as connected cities because there are numerous ferries operating between them. Although Helsinki-Tallinn might have good chances to develop into a twin city because of the support from informal socio-economic and formal institutions, that development has not happened. The reason is probably the peripherality factor; both cities have a central location in their respective countries, which does not really encourage close cooperation. In addition, the competition between the two cities undermines their cooperation. (Eskelinen et al. 2008)

Table 1. Definitions of border cities

Definitions	Characteristics needed	Examples
<i>Twin city</i>	Close location, border, about the same size, culture, language, history	Tornio-Haaparanta
<i>Sister cities</i>	Same as twin city except no constrain with the size	Heine-Blogoveshchensk
<i>Binational cities</i>	Same as twin city, formal institution's support emphasized	Tornio-Haaparanta
<i>Connected cities</i>	Cities connected with a bridge, ferry, tunnel for example	Malmö-Copenhagen
<i>Paired border city</i>	Close location, cities devided by a national border	Imatra-Svetogorsk

Krätke (1995, 1998) has studied cities on Polish-German border. Paired border cities there seem to be a lot like the paired border cities at the U.S.-Mexican border; there is a lot of cooperation between companies on both sides of the border, but the cooperation is mainly based on low factor costs. Krätke (1998) emphasizes that this kind of low road model will not increase the competitiveness in the future in neither of the cities. Still, in my opinion, in most of the cases cooperation affects positively to the competitiveness of paired border cities no matter on what it is based. I believe that the cooperation based on low factor costs is better than no cooperation at all, even if it is not the most sustainable or efficient way. After all, the cooperation is the bases for the competitive advantage of paired border cities and even cooperation based on low factor costs is a start. Better and more advanced example of cooperation is a cluster where interconnected companies cooperate in order to increase their competitiveness and survive in the environment characterised by intense competition.

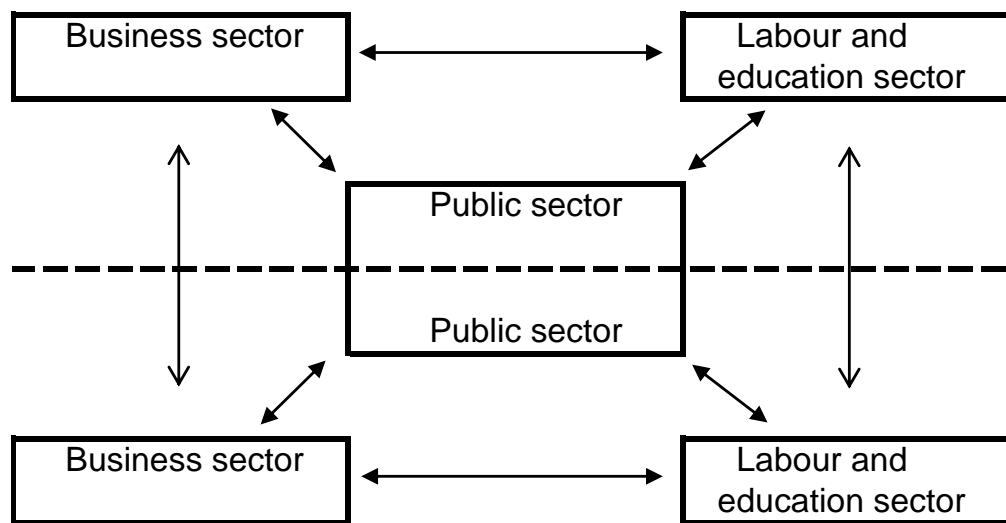


Figure 4. Ideal model for cooperation

Source: Kosonen and Loikkanen (2005)

2.1.2. Paired border cities

Paired border cities have received much less attention in academic research than border regions (Ehlers et al. 2001). Still, some research on the subject has been done in Europe

(Krätke, 1998; Kotilainen, 2004; Kosonen & Loikkanen, 2005) and in US-Mexico border (Sparrow, 2001; Arreola, 1996). In Europe the research has often concentrated on cooperation and in the U.S.-Mexico border on maquiladoras. Also political relationships have received attention on border city studies.

The studies concentrating on border regions are often applicable also to paired border cities as the problems and opportunities that paired border cities have are in many ways similar to cross-border regions. Still, the characteristics are often emphasized in paired border cities because of their close proximity and the concentration of people, companies, and clusters.

There are different kinds of definitions for border cities depending on their characteristics. The term paired border city is a quite neutral one, emphasizing the fact that the cities are not in a close cooperation, at least not yet, and the relationship between the two cities is rather neutral or competitive, than close (Buursink, 2001). This situation does not erase the potential that these kinds of cities have. On the contrary, they often have great hidden potential that has to be identified, evaluated, and exploited.

Border cities are often characterized as places where large numbers of persons and goods enter and leave the country, so the economy of border cities is often dominated by the traffic and customs regulations. As a consequence, the most developed border cities are usually located where traffic routes cross the border. (ibid. 2001) Still, even in those locations the border is usually considered to separate people (Paasi, 1988; Jukarainen, 2000). How significant this separation is, has often to do with the history and how the cities were formed. Often paired border cities can be divided to duplicated and partitioned cities. Duplicated cities are formed from a situation where a city near the border causes the establishment of another city on the other side of a border. Partitioned cities on the other hand are cities that have once been one city but have been divided into two after drawing a new line, usually because of a war. (Buursink, 2001) This has often increased the problem of periphery by cutting already existing networks (Vuoristo, 1997). However, if those networks have once existed, it may be easier to build them again than to start from the beginning.

Table 2. Formation of a paired border city

	Definition	Example
<i>Duplicated cities</i>	A city is established on the border because of a city on the other side	Nogales- Nogales
<i>Partitioned cities</i>	One city is divided into two after drawing a new line	Imatra- Svetogorsk

Sometimes a border can also increase cooperation (Kosonen et al. 2008) and that way help to overcome problems and boost economic development at the regional level (Krätke, 1999). Sometimes this engendered cooperation can even take place between former enemies (Minghi, 2002). Competition and cooperation are often closely related to each other. For example, now that competition has increased and spread geographically, locations like cities are forced to compete in order to maintain or increase their existing prosperity (Porter, 2008, 6). This is often done by delivering higher value to their customers, which are companies, and by exceeding their needs. This is often easier to accomplish through cooperation.

2.2. Competition and clusters

Competition is often understood as environment where companies are trying to get more customers, fighting against each other. Companies compete with products, price, distribution, and in marketing (Kotler 2000, 15). Competition and strategy has often been considered to be something that happens inside the companies. However, the external factors have been noticed to affect remarkably to the competitiveness of a company. Competition has often been seen as a positive thing as it increases the efficiency, organizations vitality, and innovation. On the other hand competition has also its negative side as it can create excess price competition and decrease profits (Linnamaa 1999, 19).

Success in global competition is often based on strong cooperation between different stakeholders that are part of the competitive environment. Companies need those cooperative networks, and cities are often able to help to provide them by creating a

place where companies can make contacts, increase their competitiveness, and where local companies can link to global markets (Kanter 1995, 325-326).

Competition is often presented as static concentration on cost minimization. However, competition is dynamic, searching for innovation and new strategies. In this environment, competition affects competitive advantage through influencing productivity and productivity growth. The productivity of a location rests on how the companies in it compete. Important is to use sophisticated methods, use advances technology and offer unique products and services. (Porter, 1990)

Clusters are often proven to increase competitiveness of companies and that way also competitiveness of regions. Clusters are geographically concentrated interconnected companies that compete but also cooperate. Geographically clusters can be located in a single city, region, country, or even neighbouring countries (Porter, 1985). The development and sophistication of a cluster affects the forms the cluster has, but usually clusters include end product or service companies' components, suppliers, machinery, services, firms in related industries and financial institutions. Clusters can also include channels, customers, infrastructure providers, government, and other institutions like universities. Usually the clusters involve both traditional and high-tech industries. (Porter, 2008)

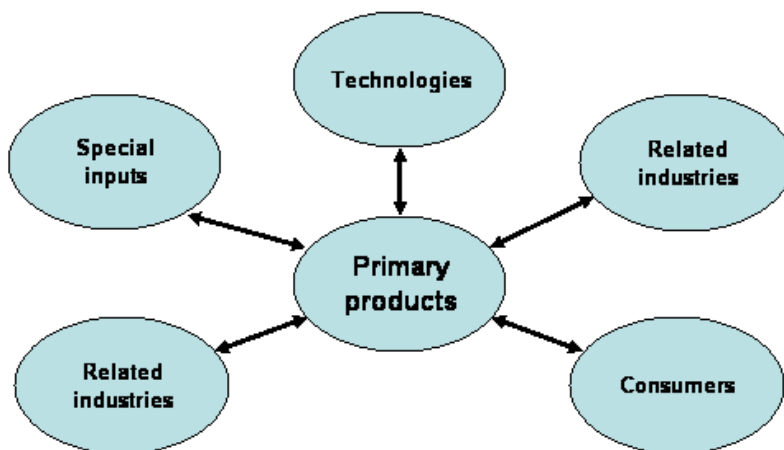


Figure 5. Determinants of a cluster

According to Porter (1998, 213) clusters affect competition in three ways: increasing the productivity of companies and industries, increasing innovation, and by creating new companies that support the innovation and broaden the cluster. For small, growing, and new companies, clusters often provide the biggest benefits. Companies, who do not intend to grow, are not interested in cooperation. For new companies clusters provide useful formal and informal ways to exchange ideas. It also helps to share scarce resources which can be especially useful for small companies. (Kanter 1995, 111-112) Clusters can also benefit regions by engaging companies to the region (Porter 1998, 198-199)

In this research clusters in paired border cities will be discussed with traditional groupings like companies or industries. In addition, the connections clusters have, are essential for competition, productivity, as well as business creation, and innovation. The connections also improve the business conditions benefiting the companies. (Porter, 2008, 221) All these factors are closely related to the competitive advantage.

2.3. Competitive advantage

Porter has studied competition and competitiveness for decades on different levels and in different settings. The researches done by Porter have concentrated on issues such as companies contesting for markets, countries or regions coping with globalization, or organizations facing social challenges.

First of all, Porter researched competitive strategy for companies, starting from a single company and continuing to multiple companies. The work concentrated on how to be competitive in a certain business. Porter's first book on the topic was *The five competitive forces that shape strategy* (1970). A year after he published a book focusing on the creation of competitiveness in an industry, called *Competitive strategy* (1971).

The term "competitive advantage" comes up when the value chain is presented in Porter's article *Competitive advantage* in 1985. In the article Porter discusses

operational effectiveness and strategic positioning. Later on he adds innovation, technology, and internet into the discussion in articles *How information gives you competitive advantage* (1985) and *Strategy and the Internet* (2001).

2.3.1. The competitive advantage of locations

According to Sotarauta and Linnanmaa (1997, 62) the competitive advantage of locations can be seen in cities' and their actors' abilities to:

- network
- maintain and increase the quality of life of their residents
- attract competitive companies to the regions, and
- provide operative environments contributing to the competitiveness of companies in the locations

The competitive advantage of locations has already been researched centuries ago by Adam Smith, for example, but in the book *Competitive Advantage of Nations* (1990) Porter handled the issue from a more business environmental point of view. Earlier researches concentrated more on inputs like labour and natural resources (Ibid. 2008, 13). However, in addition to Porter, Peura and Kero (1992, 23) argue the development of cost or prices not to be enough to explain the competitiveness of nations or industries.

With national competitiveness Porter discussed clusters. Clusters are an important part of the model presented in the book *Competitive Advantage of Nations*, and according to Porter (1990), the model presented for measuring the competitive advantage of nations could as well be used for clusters. He also connects social problems to the model. For example, in the article *The Competitive Advantage of Inner City* (2008) he shows how the competitive advantage helps to solve societal problems and mentions the model to be suitable also for cities. The model presented in the book will be explained in the next chapter.

2.3.2. Porter's diamond model

One of the goals of this study is to provide understandable and applicable ideas to increase the competitiveness in paired border cities, so it was important to find theoretical framework that would provide applicable approach for this kind of analysis or a theoretical framework that would be suitable after some modification.

After investigating different theories of economic geography, agglomeration effects, clusters, and economic growth, Michael Porter's diamond model from the book *The Competitive Advantage of Nations* (1990) seems to comply the main theories in a comprehensive way. In the book he describes how firms find sources of competitive advantage in specific countries through specific combinations of skills and networks. He also studies the ability of nations to offer companies environment that provides them unique advantages.

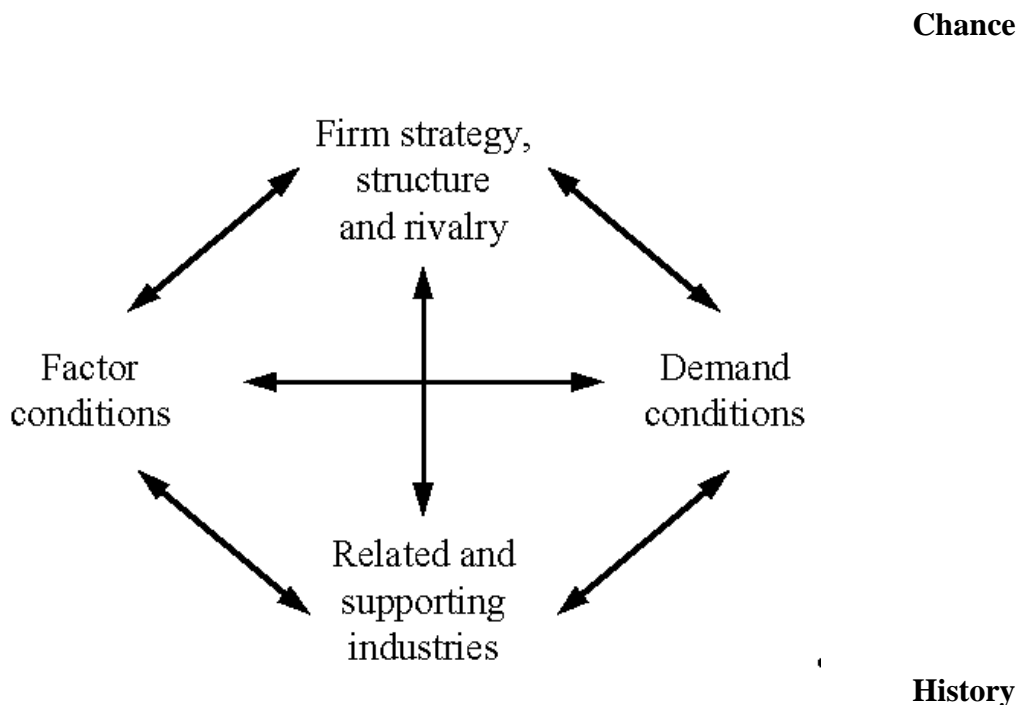


Figure 6. Porter's diamond model

Source: Porter, 1990. *Competitive advantage of nations*

The diamond model comprises four factors of competitive advantage. These are:

Factor conditions

Factor conditions are explain nation's position in factors of production, like labour, land, capital, natural resources, and infrastructure. According to traditional economic theories by Adam Smith and David Ricardo, these factors determine the flow of trade. However, Porter (1990) argues those theories to be incomplete or even incorrect. He emphasizes the country's importance in creating the factors of production. Porter also argues that basic factors like labour or a local raw material source do not constitute an advantage or at least not a sustainable one. He argues factors that are scarce and difficult for foreign competitors to imitate, lead to a competitive advantage. (Ibid 1990, 102-129)

Porter is probably right that sometimes when there is an ample supply of abundant labour or cheap raw materials, companies may rest on these advantages and deploy them inefficiently. However, sometimes raw materials can be scarce and difficult for foreign competitors to imitate, as raw materials can be heavy to transport without processing it and processing can require skills and machinery that can be found more easily in that specific area.

Demand conditions

The second broad determinant of nation's advantage is the nature of home-market demand, which in Porter's model mean the demand in the home country. Nation gains competitive advantage in industries where the companies have clear picture of buyer needs. Demanding buyers pressure companies to innovate faster, meet higher standards, and to upgrade into more advanced segments. Therefore, the character of the home demand is very important, much more important than the size of the home market. (Ibid 1990, 115-129)

Related and supporting industries

The third determinant is the presence of supplier industries and other related industries. Even more significant advantage, however, is the advantage based on close working relationships making the innovation and upgrading easier as the lines of communication

are shorter, the flow of information is quicker and more constant, and the exchange of innovations and ideas is easier accelerating the pace of innovation. (Ibid 1990, 130-137)

Firm strategy, structure and rivalry

The fourth, and the last main determinant, is about how companies are created, organized and managed, and about the nature of rivalry. The presence of local rivals is important in the creation of competitive advantage. Porter (1990, 195) even argues this to be the most important point in the diamond as it effects on all the other factors. Sometimes competition is also argued to prevent companies from having economies of scale. However, Porter emphasizes the importance of dynamic improvement instead of static efficiency, which can be created by innovation. Local rivalry can also create lower costs, improve quality of products and services, and create new products and processes. It can also attract more companies to the area proving to others that advancement and success is possible. Competing companies also keep each other honest when it comes to obtaining government support. (Ibid 1990, 138-155)

Porter also presents two additional factors that affect the competitive advantage:

Chance

The first additional factor, from which companies might be able to draw competitive advantage, is chance. With this factors Porter means sudden and unexpected events, like currency quotations, a war, or changes on financial market. (Ibid 1990, 156)

Government

The government is especially important factor in the model, as it determines the performance of all factors in the national and regional economy. In the model it serves as a challenger and catalyst for companies to increase the competitiveness of their performance for example by increasing the demand for advanced products, stimulating local rivalry and providing overall investor confidence. (Ibid 1990, 158-160)

2.3.3. Applicability of the diamond model

In the diamond model Porter has been able to suggest important determinants creating competitive advantage of nations or smaller regions such as cities. In the book *The competitive advantage of nations* (1990), Porter only discusses about nations but, later on he mentions the model to be suitable also for smaller regions such as cities (Porter, 1995). However, since the publication of the book, some unexpected performance of nations he researched has occurred. For example, Singapore has performed much better than what Porter expected, which is probably mostly because of the nonadequate consideration of multinational activities in the model. In some industries, like New Zealand, Porter has also been unable to explain the success of resource based industries. These unexpected performances have raised questions about the validity of the diamond model in certain cases. (Moon et al. 1998)

Therefore, Porter's diamond model has been subject to some criticism after its publication, which will be discussed briefly. Grant (1991), claimed that the model lack theoretical specification, like precision and predictive ability. The model is concentrated on the present and it does not take well into account the future. In the same year, Dalum et al. (1991) criticized the importance of geographic proximity in the model. According to them, the industrial sectors should be taken into consideration when talking about the importance of proximity as it often industry specific.

Rugman and D'Cruz (1993) and other researchers have noticed that the model does not work very well for small and open economies. Porter claims domestic demand to be a source of competition advantage, and often it is, but in some cases companies have to export a substantial proportion of their output already in the early stages of the development. Similarly, companies may encounter sufficiently intense competition from foreign companies in foreign markets and that is why they do not need so much domestic rivalry. In addition, foreign owned firms are criticized not to be taken into consideration well enough in the model (Ibid, 1993). The implication of these two critics is that the sources of competitive advantage are not necessarily within national

boundaries, which is also the case in paired border cities. Dunning (1992) has therefore modified the diamond to include a fifth element "international business activity".

Even if the diamond model was initially used to measure national competitiveness or the competitiveness of clusters, the model has been used also for different kind of regions. In the article *Competitive advantage of the Inner City* (1995), Porter also states the model to be as relevant to smaller areas such as cities. However, reviewing competition and cluster theories in the context of paired border cities raises some problems. When the cities, or companies in the case of clusters, are in close proximity, the border may constrain interaction on both sides of the border. These effects vary, but are usually present in all paired border cities.

Still the model can be used also for paired border cities, that can be seen as a somewhat common region. How much the cities can be seen to create a common region depends among other things on the openness of the border and the cooperation between the cities. Important is to take the barrier effects into consideration when analyzing the factors affecting the competitive advantage. The model also seems to be especially applicable for this research, as it takes into account the both, competitiveness of a location as well as clusters. However, the modified diamond model by Rugman and D'Cruz (1993) seems to be even more applicable as it better takes into account competitiveness that is spread across two countries.

Therefore, in this study the same model by Porter used for nations, regions and cities will be used as a tool for analyzing the competitiveness of the paired border cities, but somewhat modified to better match with the unique environment of paired border cities.

2.3.4. Double diamond model

Like discussed in the previous chapter, Porter's home-based diamond does not take enough into account companies capabilities to use the advantages of other cities. This can be seen as a significant weakness in the case of paired border cities, as international activities are especially important. The double diamond model originally created by

Rugman and D'Cruz (1993) that was originally used to measure competitiveness of two nations, offers some important extensions to the original model useful in this research. The double diamond model is not viewed as a substitute for Porter's model but more like an important supplement.

Porter (1990) argues that in order to have an efficient global strategy, as many activities as possible should be concentrated in one country. The double diamond model on the other hand suggests that a nation's (or city's, like is the case in this research) competitiveness depends not only on the home diamond, but also on international diamonds, which in this case would be the diamond of the city on the other side of the border. Double diamond therefore better takes into account the possibilities of companies to tap into the location advantages of other nations and cities.

As a consequence, I have modified the double diamond model by Rugman and D'Cruz (1993, 34) to include international business activity from Dunning's model (1991, 8). I will also explain history and culture of the cities.

International business activity

According to Dunning (1991, 12) there is evidence that that diamonds of foreign countries affect the competitiveness of the resources and capabilities of home industries. Therefore Dunning added international business activity to Porter's diamond model as an exogenous factor with chance and the role of government. By having it as an exogenous factor means that it affect the diamond indirectly just like the role of government and chance. Dunning emphasizes the possibility of companies to acquire resources from other diamonds including capital, technology, and management skills. The companies can also have access to the economic systems, business relations, markets, infrastructure and competition present in other diamond. Therefore the company can use sources of competitive advantage from other diamonds and have a broader base for competitive advantage. (ibid. 1993, 11)

History

The low predictive ability has to do with the fact that the model does not take well into account the question of time. The model neither takes into consideration the history, which often has a great influence on cities, maybe even more so for those located at the border. The history would not have to be seen as one of the determinants but it could help to understand the present situation (and maybe even the future). Also Arreola (1996), Ehlers (2001) and Buursink (2001) emphasize the importance of the history in border cities, as it has an effect on the attitudes of the people living on different sides of the border, the importance of the border, and the development possibilities of cooperation.

National culture

All human activity that is socially transmitted has to do with a culture. Therefore basically all areas of business life interact with culture. In business life culture can often be seen for example in the individual's orientation to work and in the corporate culture. Border cities that often are in the interface of two different cultures, the culture affects to the competitive advantage and should be also taken into consideration in the model.

Also Van den Bosch and Van Prooijen (1992, 175) criticise the lack of culture in Porter's model, as according to them, the national culture is an important part of the environment and therefore attention should be paid on it. In addition to the fact that culture is often national, in many cases it can also be regional or local. For example I believe the culture can in some cases be more similar in paired border cities than in the cities inside the country.

The influence on culture on competitive advantage is indirect, acting through the four determinants, just like history or international business activity. History, however, differs from the other additional determinants in the way that it does not change and it cannot be changed. Therefore, history can be used to understand the present situation and even somewhat to predict the future, but not to increase the competitive advantage, not like the international business activity and somewhat the culture. Therefore the

history will be presented in the next chapter when the case cities will be discussed but it will not be included in the modified model.

2.3.5. The diamond as a system

Each factor in Porter's diamond model alone or together contributes to or detracts from competitive advantage, forming an interlinking system. Some interactions are stronger and more important than others, but all factors should be present in order for the location to have competitive advantage (Porter, 1990, 161).

The arrows in the model present the interaction of the determinants. These interactions are especially important for clusters.

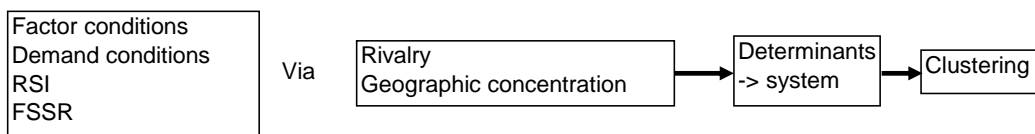


Figure 7. The determinants as a system and clustering

Source: O'Donnell, 1994

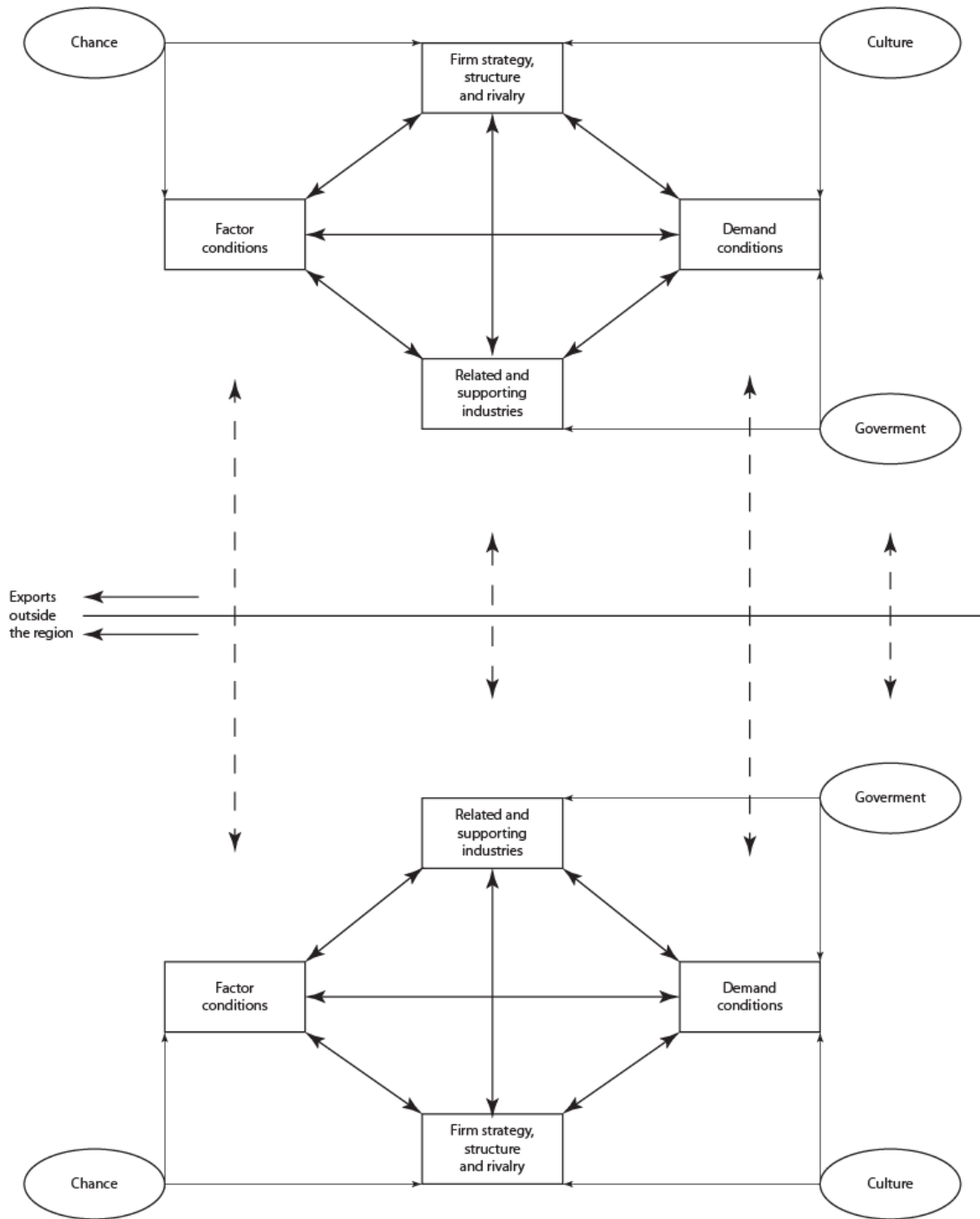


Figure 8. Competitive advantage of paired border cities. Modified from Porter, 1990

3. METHODOLOGY

Before the actual analysis of the empirical data of the case cities, I will present the methodology that I have used in this research. The study is a comparative case study where I use qualitative research method. First of all I will discuss about the research motives. After that I will introduce the method of research and justify its suitability. Then I will go through the data collection of both primary and secondary data, and describe the analysis methods. At the end of the chapter validity and reliability of data will also be discussed in order to give a critical perspective.

3.1. Research motives

The idea for this research topic comes from 2002 when I was having my first stay in Mexico as an exchange student. I lived only one kilometre away from the U.S. border and in one year I got quite familiar with the border region and the ways that it operates. At that time I did not know that much about the borders in Finland, but I had read that most of the border regions suffered from peripheral location and partly that is why they were less developed than the rest of Finland. However, that was not the case in Mexico, even though I could find many similarities in the U.S.-Mexico and Finnish-Russian border regions.

I got interested in the border regions and started to read more about them a couple of years after my exchange year. At that time there was some information about border regions, but not that much about paired border cities. In addition to that, none of the cities used the advantages that the location as a marketing tool to attract companies. Today, many paired border cities engage in marketing themselves, but definitely not as much as they could and not the most efficient ways.

After deciding to make a research on paired border cities and their competitive advantage, I had to choose the case cities. I found out that two borders with the largest wealth differences in the world were Finnish-Russian and U.S.-Mexican borders. Those borders have also many other similarities, like cultural differences and a considerably

closed border. In addition to similarities there are also differences, like the attractiveness of the location for people and companies. These similarities and differences make the comparison especially interesting.

After choosing the borders for the research, I selected the case cities. Imatra-Svetogorsk was quite an easy choice, as it is the most vibrant paired border city at the Finnish-Russian border. In addition, from a Finnish point of view Russia is a partner with huge potential. In the U.S.-Mexican border I first chose El Paso-Ciudad Juárez because it is the largest paired border city on the U.S-Mexico border. However, the border cities at the U.S.-Mexico border have suffered a lot from drugs and violence and El Paso-Cd. Juárez probably the most. Tourists are not even recommended to go to Cd. Juárez. Therefore I choose Nogales-Nogales the other paired border city and conduct the interviews there. Even if the population of that city pair is smaller, it is the largest international border town in Arizona or in Sonora and one of the most important ports of entry at the U.S.-Mexico border. Nogales-Nogales is also home to one of the largest maquiladora clusters, which makes the cities especially interesting.

3.2. Research Design

Qualitative research is useful in finding profound and deep knowledge on the research matter (Alasuutari 1994, 203). Therefore, I chose to use a qualitative research method in order to understand the meanings and patterns of relationships of my observations. Qualitative research encompasses many methods that can be used in a flexible way and aims to encapsulate the experiences, behaviours, and feelings of respondents in their own context (Koski 2003, 46). I aimed to take advantage of this by being ready to recognize issues that are related to this research when visiting the researched areas. I for example talked to people on the U.S.-Mexico border on a queue when crossing the border.

Comparative case study

Yin (1994, 13) defines a case study as “an empirical query that investigates a contemporary phenomenon within its real-life context” which will be the case of my

investigation as well. The case study is also often considered appropriate when only little is known about the subject as a case study method often provides in-depth insight into the phenomena. According to Dubois and Araujo (2004), case study investigates a contemporary phenomenon, often with problematic relationship between phenomenon and its real life context. The context of my research is a complex because there are multiple actors involved.

The aim of this study is to understand the competitiveness of paired border cities instead of providing generation on the subject. I'll analyse and compare the two paired border cities so I'll have a multiple case study and the purpose is to do a cross-unit comparison. Therefore, the case study method I use is a comparative case study.

The research questions, as stated in the introduction, are: *what special competitive advantage can pair border cities have and how can paired border cities efficiently utilize the qualities they have?* "How" and "what" questions can be described descriptive and exploratory and preferring the use of case studies as research strategy (Yin, 2002, 6-7)

3.3. Data collection

Data for this research was collected through internal interviews and seminars. Additional data was gathered from secondary data.

Interviews

The interviews were conducted in April 2010 in Nogales by conducting five semistructured interviews. Four of the interviewees were entrepreneurs and one was a manager working in a maquiladora factory. I found the interviewees by the help of Rotary organization in Nogales and contacted the persons by phone. I conducted the interviews in the reference to the framework presented in the theoretical part of this research in order to find out how the interviewees see the competitive advantage of the city pair. As this is a qualitative study, each interview represented a picture of the phenomena and that is why were important.

All interviews were carried out as face-to-face discussions that lasted approximately one hour plus about one extra hour free discussion. I conducted the interviews in Spanish even though half of the interviewees also spoke fluent English. Spanish is the main language of the interviewees and as my Spanish is fluent, we decided to conduct the interviews in Spanish. I also felt that the interviewees felt more comfortable that way as they were not in a hurry to stop the interview and two of the interviewees even invited me to their homes to conduct the interviews there instead of their offices. All the interviewees were agreeable to have an interview. I only had some problems interviewing the middle manager of the maquiladora as the security controls were so strict. Finally I could enter into the plant after leaving my ID, phone, and camera with the guard.

The interview structures and themes somewhat varied so that the interviewees were free to discuss the topics in a way that felt the most natural. After that I had a native making notes of the interviews so that I could fully concentrate on listening to the interviewees and pose additional question. All the discussions were saved on a computer to avoid data loss.

Table 3. Interviewees, Nogales-Nogales

Interviewee:	Occupation:	Nationality:
José Pedro Acuña	Entrepreneur, national products	Mexican
Rene Santos	Entrepreneur, customs broker	Mexican/US citizen
Llemy Cabrera	Entrepreneur, psychiatry	Mexican
Lilia Valencia	Middle manager, maquiladora	Mexican
George Hardesty	Entrepreneur, IT	US citizen

Paired-border city seminars

Another primary qualitative data acquiring method was a paired border city seminar that took place in May 22, 2008 in Imatra, so two years before the interviews in Mexico, and was indicated to policymakers and entrepreneurs. The seminar lasted four hours and was followed by free discussion. While the presentations I made notes, but no recorder was used.

There were ten speakers from both Finland and Russia, and the seminar was conducted in Finnish, Russian, and English. For the Russian speakers there was an translator. These Russian presentations gave very valuable information as it is quite hard to find information about border regions written by Russians in English. Half of the presenters were Russian and half of them in Finnish.

Table 4: Border semina, Imatra 22.5.2008

Participants:	Occupation:	Nationality:
Pertti Lintunen	Mayor of Imatra	Finnish
Oksana Pikuleva	Mayor of Svetogors	Russian
Kari Liuhto	Professor	Finnish
Mihail Plukhin	Minister of regional development	Russian
Malla Neuvonen	Development manager of Lappeenranta	Finnish
Olga Kareva	International relations manager of Vyborg	Russian
Heikki Laine	Development manager of Imatra	Finnish
Vladimir Mihailovits Vasiliev	Vice mayor of Svetogorsk	Russian
Jenni Jaakkola	Assistant, Pan-Europe institute	Finnish
Peter Zashev	Researcher from Pan-Europe institute	Russian
Sergei Prihodko	Researcher, Pan-Europe Institute	Russian

In addition to participating in the border seminar in Imatra, I used an audio seminar held in Paris called “Overcoming border crossing obstacles”, which I could not participate in, but I could follow the seminar on the Internet. The seminar was good for the preparation for my trip to the U.S.-Mexico border.

Secondary data

In addition to the primary qualitative data gathered by seminars and interviews, the official documents, articles, books, web presources, and statistics were used as secondary data for the research to gain additional information on the studied issues.

3.4. Data analysis

In qualitative studies, data analysis is usually conducted from a certain theoretical point of view. In this study I will use the theoretical framework for that purpose and therefore the empirical data was analyzed based on the framework.

I aimed to test the theoretical framework in practice. Even if the research concentrates on cities, or more precisely paired border cities, the main focus is still on border regions, as the competitive advantage does not come from the cities itself, but from the region. I will just use the paired border cities as they present the advantages and disadvantages related to border in its purest sense because of the agglomeration effect.

The Porter's diamond model was originally meant to be used for nations, but it has also been widely used for regions. In addition Porter (1995) mentioned it to be applicable for cities as well. I have not found research where it would have been used for paired border cities, and actually there are some challenges when it comes to them. Those challenges are created by the border effects and the disparities on different parts of the region. Therefore, I decided to use a modified diamond model which should better take into account the unique characteristics of the paired border cities.

The framework provided logical bases on which to organize the data. I used the primary data to give more in-dept knowledge on the phenomenon and especially quotation from interviews to highlight opinions and point of views.

3.5. Validity and reliability of data

Although the case method has many advantages as mentioned earlier, it has faced some criticism as well. In order to fight the criticism, it is important to take the questions of credibility seriously (Silverman, 2006). According to Yin (2003, 34) the main weaknesses of a qualitative study are construct validity, internal validity, external validity, and reliability.

Construct validity can be increased by using several sources of evidence, establishing the chain of evidence and having interviewees review the draft research (Yin 2003, 36). In this research, I used several sources of evidence and aimed to choose as reliable ones as possible. It was sometimes problematic to find much information on both sides of the border as there seems to be more research done on the Finnish and U.S. sides compared

to the Russian and Mexican sides. I also do not speak Russian, which forces me to use only translated texts or an interpreter. In addition, the interviewees have not reviewed the report. I made this decision due to the length of the text and the language, which would be a problem for some of the interviewees.

Internal validity is about relationship where certain conditions are linked (Yin, 2003, 36). So in a way it is about theoretical and conceptual coherence. In internal validity theory and research design go hand in hand so that the observations are logical. According to Yin (2003, 36), internal validity increases, when observed phenomena are linked to the theory and they are examined in time series. In this research I have used theoretical framework as a basis for empirical part.

External validity means, that if the same research would be repeated, the result would be the same (Yin, 2003). This criterion of quality is hard to evaluate, as the research is executed only once. In this research, I have increased the external validity by having as consistent research as possible by using a theoretical base and extent analysis. Problematic in a qualitative research can also be that when measuring the validity, each individual sees the phenomena somewhat differently. Also, the interviews depend on the cooperation of the interviewer and interviewee. Therefore, the research would probably be somewhat different if made by someone else.

4. ANALYSIS OF COMPETITIVENESS

4.1. Locations of the City Pairs



Figure 9: Nogales-Nogales

Source: Maps of, 2010



Figure 10: Imatra-Svetogorsk

Source: The Baltic Institute of Finland, 2008

Imatra-Svetogorsk and Nogales-Nogales are facing different challenges than the rest of the respective nations. Many of those challenges are the same for the both city pairs, even if they are located almost on the other sides of the world. The challenges are often results of characteristics such as large income disparities, cultural differences, and the peripheral location.

Table 5: Comparison of Nogales-Nogales and Imatra-Svetogorsk

	Imatra	Svetogors	Nogales, Az	Nogales, Son
Population (est.)	29 000	16 000	20 000	190 000
National average GDP/capita, Euros	35 200	6 900	7 400	34 600
Distance to the capital, km (est.)	260	160	4 000	1 500
Language	Finnish	Russian	English/Spanish	Spanish

Source (GDP): The world bank group, 2010

There are also some differences between the case paired border cities. One is the frequency of crossings; the U.S.-Mexico border is the busiest international border in the world (Romero, 2008, 15) There are also differences in the population, as in Nogales-Nogales the population is about 205 000 even if no one knows the exact population as the amount is growing all the time (Azprofile, 2010 & Geonames, 2010) and many people just live and work temporarily in Nogales, Son. In Imatra-Svetogorsk the population is about 45 500 (Kaisto & Nartova, 2007).

Table 6: Main industries of the case cities

City	Status	Main industries
<i>Nogales (Az)</i>	Service town	Services, transport
<i>Nogales (Son)</i>	Industrial town	Electronics, metal textile
<i>Imatra</i>	Industrial town	Paper and board, steel, iron
<i>Svetogorsk</i>	Industrial town	Board and paper, forestry

The U.S. border cities differ from the other cities in the U.S. by their deep economic ties with Mexico. Some border cities can even be considered to be more connected with the Mexican economy than with their own. The stakeholders on both sides of the border understand the importance of each other and they make an effort to maintain the close

trade relationship (Romero 2008, 200-202). The situation is not the same in Imatra-Svetogorsk, where many do not even consider this kind of relationship very important (Kaisto & Nartova, 2007).

Even if there is cheap and accessible labour available elsewhere in the world as well, Mexico has still remained as the number one place for U.S. assembly activities abroad (Romero 2008, 15). The main industries in Nogales-Nogales are especially electronics, transport, textile, and furniture industries (Azprofile, 2010) whereas in Imatra-Svetogorsk the main industries are forest, food, and ferrous metal. (Imatra, 2008) The clusters that have been able to develop are mainly the forest cluster in Imatra-Svetogorsk and the maquiladora clusters in Nogales-Nogales.

4.2. Nogales-Nogales

At the moment Nogales, Arizona-Nogales, Sonora is a fast growing region with a complex blend of U.S. and Mexican cultures, languages, and customs. It is a dynamic region that has benefited from a large and growing population and the rapid growth in U.S.-Mexico trade. Nogales-Nogales is located at the Arizona-Sonora border about 90km south of Tucson, Arizona and about 200km north of Hermosillo which is the capital of Sonora. About 21 000 people live in Nogales, Arizona and about 190 000 in Nogales, Sonora. (Az department of commerce, 2010) The population of Nogales, Son is only an estimate and is often believed to be much higher.

4.2.1. Historical Background

The history of U.S. Mexico relations can be divided to five epochs: the changing border, migration and the world wars, political control of immigration, and the age of North American Free Trade Agreement, NAFTA (Romero, 2008). Next I will present all the four epochs shortly to make it easier to understand the present situation at the border when it comes to relations between the two cities.

The Changing Border, years 1700-1900

In 1819 the U.S.-Mexico boundary was established between the U.S. and Spain. Two years later Mexico gained independence from Spain, but 25 years later most of the Mexican state was ceded to the U.S. in the Mexican War. (Romero, 2008) Nogales was officially founded in 1882 by the rail line to promote trade between the U.S. and Mexico (U.S. consulate Nogales, 2010).

In 1883 the Chinese Exclusion Act was implemented in the U.S. which led to the railroad companies searching for the cheaper labour force that could be found in Mexico. More and more Mexican Americans were working for the railroads. Also copper mining was attracting people to Arizona which led to immigration to the U.S. from Mexico. (Anderson, 2003).

The World Wars and Migration, 1900-1945

In 1930's there was an economic crisis in the U.S. and 400 000 Mexicans were deported back to Mexico. The first observation towers were built about the same time, in 1930s, but they were removed 20 years later because the U.S. ambassador declared they were an insult to Mexico. In 1938 Mexican president Lázaro Cárdenas nationalized Mexico's oil reserves and expropriated 16 foreign-owned oil companies. A bit after, in 1942, Mexicans were allowed to work temporarily in the U.S. The same year Mexico entered the World War II as a U.S. associate after a German submarine sink a Mexican petroleum ship. (Romero 2008)

Political Control of Immigration, years 1945-1964

After the war, as soldiers returned back to their homes, there was less demand for Mexican workers. This resulted in a deportation of 3.8 million Mexicans around 1964. Many of them stayed at the border area which increased the need for new jobs. Due to this, the border industrialization program was introduced in 1965 which brought many U.S. companies to the Mexican border. Most of the companies were attracted by cheap Mexican labour and the maquiladora concept was created, which will be discussed more in detail later on. (Romero, 2008)

The whole decade 1970-1980 was productive for Mexico; the Mexican economy grew on average 6.7% in real terms. This, however, harmed the nature as the industries were growing so fast and no environmental treaties were established before 1983. (Ibid, 2008)

Two years later also agreements on bilateral subsidies and countervailing duties were signed. In 1986 Mexico joins the General Agreement on Tariffs and Trade (GATT). At the same time the U.S. starts to use more restricted immigration policy. However, the rules were not that strict for undocumented immigrants who had entered to the U.S. before 1982. A year after, in 1987, the U.S. and Mexican governments signed a bilateral framework for trade and investment. (Ibid. 2008)

The Age of Agreements, 1989-

Before Mexico joined NAFTA, there was a free trade agreement between U.S. and Canada (CUSFTA) which was established in 1980. Soon after, in 1992, border commissions were established to manage daily relations in the border. The U.S. hoped to decrease migration and the best way was considered to be the economic growth in Mexico. In 1994 NAFTA goes into effect, which was expected to do both; increase the economic growth and decrease migration. (Ibid, 2008)

The NAFTA did not really work out how expected and many Mexicans, especially farmers who were left without work after the cheaper US products came to the market, choose to migrate and search work in the border. Soon there was a massive increase in population in the border region. In 1996 more migration-related initiatives were introduced, for example a triple fence was built to some parts of the border. (Ibid, 2008)

In 2000 George Bush was elected as the president of the U.S. Bush stated the U.S.-Mexico relations to be the priority issue during his administration, however, the terrorist attacks in 2001 changed the priority. Then, in addition to the terrorism, illegal immigration, crime, drug traffic and other issues became more important. The border then became a significant element of the U.S. battle on terrorism. The drug violence had a great impact on the border and the immigrants living in the U.S. I was living in

Mexico at that time and experienced how the queues at the border suddenly increased from about 15 minutes of waiting to even more than an hour. The problem was noticed and a "Smart Border" initiative was introduced in 2002 to speed up the crossings as well as to improve border security. The next year a new NAFTA visa for professionals was introduced. (Ibid, 2008)

Years of emergency

In 2006 U.S. ambassador Tony Garza, declared the border zone of Mexico being in "a state of emergency" and warned Americans to stay in well known tourist areas because of drug related violence. However, especially people living on the frontier have not avoided daytrips to Mexico.

The narcotraffic and corruption are closely related as corruption which makes it easy for drug cartels to operate and grow. Even if corruption is often connected to Mexico, it is present at the U.S. agencies as well. For example, there have been cases where border patrol agents have allowed illegal drugs to enter the U.S. Because of the drug related violence, some residents have even moved to other cities. None of the interviewees, however were willing to consider that option, mainly because they had a work in Nogales and their children went to schools there.

4.2.2. Factor conditions

Labour force

The border has attracted Mexican workers as long as the maquiladora industry has been offering thousands of jobs. Those jobs have been mainly low-skill jobs so the economic opportunity that it has offered to the workers has not been that remarkable.

“The maquiladoras are the basis for the economy here at the border and they wouldn’t be here without the low wage labour. Even if the salaries are higher on the border (than elsewhere in Mexico)”

-entrepreneur, Nogales, Son

New technologies and more efficient business practices are helping to revitalize the regional economy of Nogales-Nogales. There is a great need for improved workforce

quality because it is believed to increase labor productivity and attract new business investments. During the recent years, Nogales-Nogales has made effort in changing the images from cheap-labor to high-skill communities. Nogales, Az has, for example, provided incentives to companies that bring high-skill jobs to the city. (Meritz, 2005)

In the past Nogales-Nogales has had some problems in providing quality education, training, and facilities that would attract higher value-added jobs. The major reason for this is that the tax base is not large enough because the strong population growth has increased basic schooling needs and left less money for investments in greater competitiveness.

“I came here to study from Hermosillo and later on got the chance to start a business here. Now there are more universities (in Nogales, Son) than before. In addition, most of the students stay in Nogales after the graduation because of the maquiladoras.”

-entrepreneur, Nogales, Son

Even though the increase in the amount and size of companies and the consequential increase in tax revenue help the situation, the problems still exist. This might be because in order to maintain their price competitiveness, the cities keep their local tax rates relatively low. As the cities are large in population, it is challenging to cover all social costs and development investments with rather limited incomes. In addition to these, there are also matters of corruption and inefficient use of capital which affect the cities' resources negatively.

According to statistics from U.S. Census Bureau and Synergos Technologies (2000), the skill level - which is a combination of education, professional training, apprenticeship, and real-work experience - is fairly high in Nogales, Az. However, there are still many citizens in Nogales, Az who have not completed their elementary school and who do not speak English. (Occupation stats, 2000)

In Nogales, Son the amount of skilled labor has always been smaller than in Nogales, Az, though a lot of advancement has happened in Nogales, Son during recent years according to the citizens. In addition, according to the maquiladora manager in Nogales,

Son the maquiladora workers are actually quite skilled, and therefore the city has many high technology operations. Even so, the wage is the main reason for many companies.

“One of the main reasons I started a company on the border was the lower cost of personnel. It’s wonderful to have all the help that is needed in the company at a very reasonable cost. In the business of selling technical goods, there is a lot of pre-sale and post-sale interaction with customers who need assistance in purchasing, installation, returns and so on. This would erode profit margins if the customer-support were handled at American pay-rates”

-entrepreneur, Nogales, Az

According to the interviews, recently the educational system in Nogales, Sonora has improved, and less and less students are going to Hermosillo or Tucson to study. In addition, many of those who leave come back after graduation which has increased the availability of educated workforce in Nogales, Son. In Nogales, Az most people wanting to continue studying after high-school still go to Tucson.

The amount of skilled labour force is increasing in Nogales, Son and the salaries of educated workforce are higher than before. The official minimum daily wage in Mexico is 3,30 - 3,50 euros depending on which of the three geographical areas Nogales is located at area A where the minimum salary is 3,50 euros. (Mexperience, 2010) The lack of unionization makes it difficult to change the situation in Nogales. Nevertheless, some tendency toward economic convergence can be seen as the average wages on the Mexico side of the border are higher than the national average, while on the U.S. side they are lower. (Anderson, 2003)

“The main reason to start a business here are the low wage labour. One person earns 100 pesos (about 6 euros) per day and in the U.S. it would be per hour. The downside is that the personnel is often not that committed; sometimes the employees change the employer if they get 5 pesos (about 30cents) more (in a day). (...) That’s why we have human resource managers finding ways to commit the employees more by creating a better atmosphere at workplace.”

-maquiladora middlemanager, Nogales, Son

Natural resources

Although Nogales-Nogales is a major industrial region, as natural resources it has basically only a lot of sunshine and resulting agriculture. In addition, there is some copper mining in the region (Az info, 2010).

Infrastructure

The growth of trade between the U.S. and Mexico means that the transportation infrastructure has become increasingly important in the movement of goods between the countries. Nevertheless, the development of infrastructure has not been able to grow at the same rate as the maquiladora industry and trade are growing. This causes bottlenecks in infrastructure like roads, water, and electricity. The most common reasons for difficulties result from lack of land to expand port of entry operations, inadequate roads leading to ports of entry, and multiple checks at the border. (Romero, 2008)

“Every time its more difficult to cross the border, that in some cases affects the business. However, there is the “sentry line” with what the U.S. makes money with. (...) It affects the business in Mexico because the Americans consider more if they should cross the border”

-entrepreneur, Nogales, Son

The sentry line is a line at the crossing point where you can cross the line faster. In order to have a sentry pass you have to have different kinds of documents, including a passport, and you have to pay about 120 euros and about 40 euros for a car every six months. Even though 120 euros is a lot of money for many Mexicans, for those who cross the border often, time savings can be remarkable. For now, in order to use the sentry line, it has been necessary to cross the border by car. Lately the U.S. government has been planning to install a sentry line for pedestrians as well. When I was crossing the border and the queue was not moving for half an hour, I was thinking if that was planned in order to increase the sales of the sentry pass for pedestrians. The reason could have also been the Eastern holidays.

The transportation networks are usually good at the main regions of countries but the infrastructure at the border creates problems. Both sides of the border face the same

kinds of infrastructure needs but the financing is not similar; In Nogales, Az most of the projects are funded by the state and in Nogales, Son the funding comes from multinational companies and federal government grants. (Report, 2000)

In 2003 there were 10.5 million Mexicans visiting the U.S. out of which 6,2 million visited the border areas. The same year the same amount from the U.S. was 8.3 out of 18.6 million. Most of the visits are day trips to the border region via transportation. These trips bring about 2 million dollars per year to Mexico and double to the U.S. (Romero 2008, 114).

In Nogales-Nogales more pedestrians cross the border every day than in any other border crossing at the U.S.-Mexico border (ibid, 35) The amount of pedestrians has probably increased the need for business space in a walking distance of the crossing point. One of the interviewees mentioned the lack of office space in the centre as one of the main problems when doing business at the border.

Capital resources

There are six banks in Nogales, Az and also several at the Mexican side of the border. It is common for Mexicans to use the banking services in the U.S. side as the banks are believed to be more reliable there and the charges are lower. When in need of financing for businesses, Mexicans still have to turn to banks in Mexico, as for them it is probably even more difficult to get a loan in the U.S. The case can be different for those having two nationalities, which is quite common in Nogales-Nogales.

“I go to the other side about two times a week to visit clients and banks. In Mexico banks charge 3% tax if you deposit more than 15 000 pesos (about 920 euros) a month and in the U.S. you don’t have to pay anything.”

-entrepreneur, Nogales, Son

4.2.3. Demand conditions

Industry structure

The main industry in Nogales-Nogales is manufacturing, especially electronics, small automotive parts, and medical and consumer appliances (CBRE, 2010). The industries

related to manufacturing are also important, for example in Nogales, Az transportation industry is very important. The border also generates jobs, for example in customs, immigration and security. Most of the employees in Nogales, Az are private wage and salary workers but there is also a large amount of government workers. (Nogales info, 2010)

Population and market size

In addition to the fact that the two cities have larger populations than if there was just one city, companies also benefit from two nations that are both big even when compared globally. Also the citizens have benefited from the large and growing population. Nogales (Son.) has more paved streets and the competition has lowered the prices of different products and offered more variety. On the other hand problems that the population growth creates include increasing traffic, noise, and congestion (Anderson, 2003). The presence of two markets was mentioned as an advantage in the interviews, even though exchange rate changes were seen as a threat. Another challenge was seen in the dependency.

“What happens is that the U.S. affects a lot to the Mexican economy and even much more here at the border. There was a big crises in the U.S. and you could see it here, as many people live here and work in Arizona. Their work was reduced by 20% during the crises, which of course affected their purchase power.”

-entrepreneur, Nogales, Son

The two major population growth sources are natural increase and migration. In Nogales-Nogales the natural increase has declined, but it is still faster at the Mexican side of the border. However, the population growth in Nogales, Son is lower than the national rate due to strong national growth, while in Nogales, Az it is higher than the national rate. Also Mexicans who move to the U.S. are often young which changes the age distribution so that it falls below the national average in Nogales, Az. (NogalesAz info, 2010)

Local Purchasers

The citizens of both cities take advantage of the price differences and better quality products and services at the other side of the border. This also increases purchaser sophistication, although the reason for shuttle trade is often price; the citizens of Nogales buy cheaper electronics, clothes, and gasoline from Nogales, Az. and people from Nogales, Az use medical services and dentists at the Mexican side of the border because of the price differentials (Vila, 2003).

Sonora is a relatively prosperous state and unlike many other states in Mexico, there is a well-defined middle class (U.S. consulate Nogales, 2010). The residents in Nogales-Nogales are also quite young; the median age in Nogales, Son is about 26 years and in Nogales, Az about 34, which means that there is a lot of economically active and dependent population which also increases the demand sophistication. (NogalesAz info, 2010) In addition, I have noticed that Mexicans are often enthusiastic consumers who want to try new products and prefer spending the extra money that they have instead of saving it.

4.2.4. Related and Supporting Industries

The Presence of Suppliers

The maquiladora industry in Nogales has given significant economic benefit for Nogales, Az because the production sharing sector of the border economy has attracted related industries to the area. Most of the jobs generated in Nogales, Az are indirect support industries like retail sales, transportation, banking and manufacturing, and professional support services. (CBRE, 2010)

Support services that supply both local and regional industries have been growing in both Nogales, Az and Nogales, Son. The main reason for this is the increasing trade. The demand and supply for financial services, environmental consulting, translation, and language training have also been increasing. At the moment most of the transportation companies have operations in Nogales, Az but the number of transportation companies is increasing in Nogales, Son also. (Ibid, 2010)

Not only maquiladoras benefit from the supporting industries, but also small and medium sized enterprises that are not part of a cluster. An entrepreneur living on the Mexican side told that in addition to the supporting industries in the Mexican side he uses some services on the other side, for example, in addition to the bank services, he buys gas and office equipment from the U.S. side. An American entrepreneur had a long list of services he buys from the Mexican side:

“I concluded that the best path would be to have a Mexican subsidiary to handle assembly of antenna cables, plus all sorts of back office tasks for the company – customer service, data entry, basic-bookkeeping, inventory management, product photography, web-page editing and even inside sales.”

-entrepreneur, Nogales, Az.

4.2.5. Business Strategy, Structure and Competition

In Nogales there are both knowledge based and labour intensive companies. For knowledge based companies skilled labour force is important, and they also accept higher wage costs. However, the same knowledge-based companies usually pay less to educated people in Nogales than in the U.S.

Nogales-Nogales has been able to attract many foreign investments. According to the interviews, the government has incentives like lower taxes to attract companies. Near the border the VAT is 11% and after 21km from the border the VAT increases to 16%.

In Nogales-Nogales there are many companies that compete of the same customers. For example, there are many car and textile manufacturers in Nogales-Nogales. The competition is one reason why these companies and industries have started to increase their differentiation and competitiveness through innovation and investments. (Carrillo, 2004)

4.2.6. The Role of Government

The U.S.-Mexico border is located far away from the capitals of both nations. Often also the problems and needs of the border region have been overtaken by needs of other regions. The former mayor of El Paso, Gustavo Elizondo, says about the subject: "*Our governments treat us like a third country, so we might as well act like one.*" (Romero 2008)

However, the governments have had a huge effect on the border development through different programs, like the Maquiladora program. Also the border has an important effect on the Mexican government through the income coming from the Maquiladoras as well as from the employment. The Mexican government has noticed the importance of foreign enterprises at the border and they are trying to keep the expenses of manufacturing at minimum to make them stay there and to attract new enterprises. This is done by deregulation of labour and environmental laws, which increases the social problems and problems of pollution

"Labour unions are not allowed at the border. The companies may benefit from it but I believe this is not the best way."

Maquiladora manager, Nogales, Son

Even though the Mexican government has been able to attract foreign companies, it has not been able to meet the labour needs of citizens. Because of this, hundreds of thousands of Mexicans are leaving the country every year to the U.S., and Mexico's economy has become dependent of it through remittances, which are according to one of the interviewees the second biggest revenue for Mexico after oil. At the same time the U.S. economy has become dependent on the Mexican labour, even if the unauthorized Mexicans are often considered as a negative issue. Mexican workers also create great economic benefits for the U.S. and in many part of the country Mexican workers create an essential part of the workforce. In the future the U.S. will probably be even more dependent on the undocumented labour as the worker-to-retiree ratio is increasing in the U.S. (Romero, 2008, 101) However, in recent years the immigration has decreased at the same time as more Mexicans are moving back to Mexico. The main

reasons for this are the recession and a stricter immigrant policy. Earlier it used to be quite easy to work in the U.S. without proper papers, but now it has become more and more difficult. (ESS, 2010)

At the moment, everything and everyone entering the U.S. is subject to interrogation, inspection and regulation. The Department of Homeland Security was established 2001, and it is supposed to respond to issues like migration, terrorism, environment, and trade. (Romero 2008, 118). The domestic security is a big concern for Mexico, and especially at the border regions it is also U.S.'s problem,

In Mexico and in the U.S. governments give subsidies to companies, in Mexico especially to knowledge-based companies. Both governments also give subsidies indirectly through infrastructure and education, but less in Mexico. The governments are also trying to keep the taxes low in border regions to attract more companies. The governments' macroeconomic policies and the strong competition have had an influence on competitiveness of the manufacturing industry in Nogales- Nogales. (King, 2006)

The government is also an important employer. At the U.S. side of the border there were about 2,550 government employees in 2004, which was the highest employment of the 20 sectors. Most of the workers are working at the port of Nogales for the U.S. Border Patrol. (NogalesAz info, 2010)

The maquiladora industry in Nogales-Nogales

A maquiladora is a Mexican corporation and production system operating under a maquila program (Baz, 2004). The program started officially in the 1960's. It is operated by a single management even though it has one plant on each side of the border. It is based on price differentials and location near to the U.S. market. First the products are manufactured or assembled at the Mexican side of the border using inexpensive Mexican labour and afterwards finished in the United States. So the U.S. side produces technology-intensive parts and the plant in Mexico produces labour-intensive parts. At the end the final products are exported duty-free into the U.S. (Hart, 2004)

Since World War II, the so-called Bracero Agreement allowed Mexican farm workers to work temporarily at U.S. farms. When they had to return to Mexico, part of them stayed at the Mexican border waiting to renew their contract. Especially in Nogales, Sonora there were many unemployed workers, because at that time there was not much industry. The city was trying to find strategies to industrialize under the Border Development Program. After that the manufacturing process in maquiladoras was realized. (Ibid. 2004)

The first twin-plant and industrial park were created in Nogales by a private enterprise, which was probably the most important event in this type of production sharing. By now the maquiladora assembly has made the border region industrialized and it has had a substantial role in economic development with respect to production, trade, foreign investments, and economic liberalization. (Sander 1997)

There are three main driving forces for development of maquiladora industry: the price differentials between the U.S. and Mexico – especially in labour, the competitive pressure that U.S. manufacturers face, and the technical reparability in stages of the manufacturing processes. Mexican border cities offer attractive locations for U.S. companies because of low wages and proximity. This, however, creates some problems, for example bottlenecks in infrastructure like roads, water, and electricity. Other obstacles are shortage in houses, healthcare, and schools. (Sander 1997)

According to Sander (1997), both countries benefit from international production sharing; U.S. investors benefit from the returns on their investments and the Mexican economy benefits from foreign exchange as well as from technology and managerial know-how. It is argued that the growth that maquiladoras have created would not be an appropriate strategy for overcoming problems of poverty at the border. He criticizes that it can even be said that the maquiladora industry only looks for macroeconomic growth without improving the quality of life for the residents. However, the main function of companies is to create value for their owners, not to improve the quality of life for residents. Still, maquiladoras have created extensive possibilities for macroeconomic growth, which also increases the opportunities for improvements in the quality of life.

(Ibid.) According to the interviewees, the maquiladoras benefit the both nations and both cities, even if the U.S. companies probably get the most benefit.

According to a survey made by Soden et al. (2002), the political trust in both cities is not the strongest possible, yet the citizens of both cities seem to be more trusting that the U.S. government can deal with border issues than the Mexican government. Especially U.S. respondents seem to think that the Mexican government serves the few big interests. The citizens in Nogales even seem to follow more the elections in the U.S. than in their own country. (King, 2006)

4.3. Imatra-Svetogorsk

4.3.1. Historical Background

The Imatra–Svetogorsk is located in southeast Finland. The border line was drawn in 1951, and before that in the place there was only one city called Enso. In the early 1900s, Enso was an important wood-processing area, and in the 1920s Europe's biggest timber factory was located there. Imatra and Svetogorsk are partitioned border cities because as a consequence of the Second World War the area of Svetogorsk was ceded to the Soviet Union and the area of Imatra stayed as part of Finland. After that most of the Soviet Union side of the city was populated by Russians and the relationships between the cities and their citizens disappeared. (Kotilainen, 2001)

During the Soviet Era Svetogorsk was practically closed to regional integration: there was no development of bilateral relations and direct cross-border links were not allowed. After the collapse of the Soviet Union the border was finally opened for tourism and business. Soon after that, in 1992, the first agreement of cooperation, called the neighbouring region cooperation agreement, was signed. (Eskelinen & Niiranen, 2002)

Also some positive aspects for business can be found from the Soviet Era. Even if the border was almost closed, Finland paid its war compensation by delivering products to

Russia, which probably familiarized Finland a bit to doing business with the Russians. Another thing is the regional industrial complexes that were common in Soviet Union already in the 1970s. Those industrial complexes emphasized many similar things as the cluster approach, like the importance of inherited skills and industrial capital, as well as education, research, and the cooperation between manufacturers and suppliers. Still, the markets and customer needs were neglected and the competitiveness was not considered that important. (Duradev et al. 2004)

The development can be divided roughly to three different stages. The first one, the transit stage, lasted about until the end of 1990's. At that time the region was mainly a transit area between Finland and Russia meaning that the region mainly a transmitter of raw materials from the east to the west. At that time the main concentration was on solving the infrastructure obstacles. The second stage, the interaction stage, is still continuing but it was considered more important some years ago. At that stage the main concentration has been on interaction as the region has been working as a kind of substation for distribution. Especially flexibility and customer satisfaction have been considered important. The third stage, which still is continuing and getting more important, is the integration stage. The role of the region in that stage is to be a centre for international products where services, production chain, and technology are especially important. The main focus is on integrating the systems and making business cooperation easier. (Välinoro, 2008)

4.3.2. Factor Conditions

Labour Force

During the Soviet Era the system of education and professional training in Russia, especially in St. Petersburg, was good and the level of education was high. The education was generally established to meet the demand for labor at that time. In the early 2000s the government financing of the educational system has been cut down which has influenced the teachers' salaries and thereby diminished their motivation, decreasing the quality of teaching and workforce. (Dudarev et al. 2004)

The lack of schools in Svetogorsk makes it difficult for companies to find educated workers (Kosonen et al. 2004) and that way probably decreases their willingness to start a business there. The situation is better in Imatra, where the education level is good even though many young people move to bigger cities to study. Educated workforce can be found from bigger cities nearby; for example from Lappeenranta in Finland and from St. Petersburg in Russia. Especially in St. Petersburg the schools have developed a lot and it is easy to find high skilled labour force. Malla Neuvonen also emphasized in the border seminar (2008) the strategic cooperation with Russia and the good educational level as well as the knowledge of Russian business culture in the city. According to her, there are 1500 Russians living in the city which is more than in any other city in Finland. There are also 100 companies cooperating with Russian companies.

"In the future we are about to cooperate more so that when special kind of labour force is needed on one side of the border, we will provide information about the availability. This is hoped to increase the movement of workforce and skills across the border."

-vice mayor, paired border seminar

Compared to Finland, the minimum salaries in Svetogorsk are very low. According to Dudarev et al. (2004) this difference at the Finnish-Russian border is the biggest in the world. Still there are many other borders that are better known as places with large economic disparities, such as the U.S.-Mexico and the German-Poland border.

Natural Resources

The Imatra–Svetogorsk region is rich in natural resources. The most important resources are forests and metal. According to Dudarev (2004) the timber resources in Russian's northwest province South Karelia are bigger than in any country in Europe. Even if Finland has the largest concentration of forest industry in the world, in the Northwest Russia the resources are four times the amount of those in Finland. Therefore, in Svetogorsk the forest resources of the region are not fully utilized. (Ibid, 2004)

The most competitive industries in Russia are those that relate to raw materials and semi-finished goods which get the advantage from the large quantity of natural resources. The low environmental protection in Russia has also affected the advantage by creating a cost advantage. Still, like mentioned by Porter (1990), these factors create advantage only temporarily, so the natural resources will not be enough to make Imatra-Svetogorsk competitive. Still, even though Porter (1990) argued that this kind of advantage is not enough to make a nation or region competitive, his argumentation probably undervalues the importance of natural resources in some cases. For example the forest industry requires much more than just trees in order to be competitive. The efficiency can be increased by using developed technologies like harvesting, drying, and paper processing. Also a lot depends on associated services which cannot be found everywhere. In addition, wood is expensive to transport without processing, so the location makes a difference.

Infrastructure

The development of modern border infrastructure is vital for trade and investments. The infrastructure is especially important because the Imatra–Svetogorsk border is a key point between the European Union and Russia. The border for example has an important role in transportation of timber from Russia to Finland and to elsewhere in Europe.

Finland has lost some of its market share in the transit traffic because of the competing routes in the Baltic States where nominal grossing wages are several times lower than in Finland. Despite the fact that Finland's position in price competition is not good, it has a good reputation as a safe storage and commercial transition point, which is especially important when delivering high price products. (Kilpeläinen & Lintukangas, 2005)

Therefore, the Finnish-Russian border is still important as a transit place; 75-80% of the products exported to Russia come from rest of the Europe. In value this is about 30% of all imports. For example, 65-70% of all imported cars to Russia come through Finland. Partly because of this Finnish-Russian traffic has been increasing annually by 12-15%. (Ministry of transport, 2009) Also the same railway width between Finland and Russia

(Railroad Gauge Width, 2005) facilitates the situation and increases the competitiveness of Finland as a transport route between the EU and Russia.

The increase in traffic, inadequate facilities and long customs checks have caused bottlenecks at the Imatra–Svetogorsk border. According to Kauppakamarilehti (2002) a lot has happened since 1997 when the Russia-Finland agreement was made to allow the development of border crossing. The first project started in 1999 and was funded by European Union TACIT. As a consequence the new international frontier was opened in 2002 to allow more traffic to cross the border. After that also some other improvements have been made. For example, the border was decided to keep open 24 hours a day. Still, the improvements done are not enough. From a six day transportation time about 2 days are spent on waiting at the border. This increases the transportation costs by roughly 300 euros per transport. In all Finland-Russia border crossings this sums up to 6 million euros a year. (Ministry of transport, 2009) These problems also lead to difficulties in predicting shipping periods which complicates cooperation and customer service.

Capital Resources

In Imatra the availability of capital resources is about the same as elsewhere in Finland. However, when getting financing for a business purposes in Russia, the loan will probably include a risk premium. This is largely due to the political and economic risks that are related to investing in Russia. This can cause industries that need more financing than others, such as technology and machinery, to fall behind in efficiency and competitiveness. As a consequence, this can harm the economy of the border region. (Stanislav & Ovtcharova, 2001)

“It’s hard to expect that you get support for your business from Russian authorities, that there would be good environment for Finnish companies to operate. The truth is that there aren’t resources for the Russian companies either.”

-development manager, Border seminar

Nevertheless, a bank loan is not the only way to find financing and sometimes it is also easier to get financing in a peripheric location such as Imatra. There is, for example, Northwest Russia fund for regional venture funding for business operations in Russia. The fund started to operate in 2006 and is financed by public and private sources. (Venäjärahassto, 2010)

4.3.3. Demand Conditions

Industry Structure

The key industries in Imatra-Svetogorsk are forest, food, and ferrous metal industry. Forest industry is the most important industry in Imatra and Svetogorsk, but food, ferrous metal, services and energy industries are significant as well. The construction sector and transport industry are also growing as a result of growth of other industries and increased standard of living. (Dudarev et al. 2004)

Population and market size

Currently Imatra–Svetogorsk is the only urbanized area at the Finnish-Russian border where two cities share a border. The population of Imatra is 30 000 and the population of Svetogorsk 15 500 (Kaisto & Nartova, 2007). Population of both cities have has been slowly decreasing since 1990´s.

Although the populations of both Imatra and Svetogorsk are quite small (about 45 000 both cities together), the population of the region is much bigger. In 2005 the population of Northwest Russia was 14.3 million (Imatra, 2010)) and the population of the province in Finland about 134 000. The nearest bigger towns are Lappeenranta in Finland and Vyborg in Russia. Lappeenranta is about 37km and Vyborg 55km from Imatra-Svetogorsk.

Local purchasers

There is a lot of shuttle trade at the Finnish-Russian border, mainly because of differences in product prices. There are three main reasons for differences in product prices: tax differentials in alcohol and tobacco products, lower production costs, and

illegal production in Russia. There is two-way shuttle trade as Russians travel to Finland to sell goods like alcohol, cigarettes, and music records and Finns come to Russia to buy cheaper goods. Russians also buy used domestic appliances which they then sell at a profit in Russia. Some services, like wholesalers, tourist firms, specialist shops, and transportation companies also benefit from this kind of trade (Zimin, 2003). Most of it is not registered in official statistics, yet it forms the main income source to many people (Eskelinen & Niiranen, 2002).

The sophistication of demand in both, Finland and Russia, seems to have increased. The products sold in Russia have to be good quality, not any somewhat decently packaged good sells, which seemed to be the case after the collapse of the Soviet Union. The sophistication of demand benefits the companies, as they get quicker respond how the products or services should be developed in the future in order to better match with customer tastes and expectations (Porter 1990, 118).

4.3.4. Related and supporting industries

The presence of suppliers

The amount of related industries is quite scarce in Svetogorsk and could be also better in Imatra. Especially consulting would be needed to advice the starting companies. However the development in banking and information services can be notices. The innovation system of Imatra–Svetogorsk suffers from underdeveloped supporting organizations. However, there are some supporting industries like logistics, energy and chemical service companies that create a potentially competitive cluster. The chemical industry is Finland's third largest industrial sector. It produces products for industrial use, especially for the forest industry. For example, Finnish Chemicals Oy's main customers are within the forest sector. (Finnfacts, 2010) In addition, both Imatra and Svetogorsk can benefit from the related industries in Finland. (Ekliitto, 2003)

4.3.5. Business strategy, structure and competition

In Imatra–Svetogorsk the amount of primary production and industrial business is large. Still, when considering Porter’s model of development stages of competitive industries presented in chapter 2.2.3, Imatra-Svetogorsk is probably already more in an investment driven stage than in a factor driven one, as companies are able and willing to invest and trying to find best technologies for their business purposes.

Surprisingly, most Finnish people living near the border do not speak Russian at all. Still, more Finns speak Russian in Imarta than in Finland on average, and more Russians speak Finnish in Svetogorsk than in Russia on average. The same probably applies to cultural knowledge as well, which can be very useful when doing business between neighbouring countries. (Kaisto & Nartova 2007).

The foreign investment

The inadequacy of domestic investments in Svetogorsk has increased the importance of foreign investments. These investments could, for example, make it easier for Russian companies to join international trade networks and so fill the inadequacy of suppliers and technology. The main reasons why Imatra-Svetogorsk has not been able to attract enough investments are the political risk and institutional and socio-cultural differences. (Eskelinen & Niiranen, 2002) Foreign investments could also have a big role in the reformation of Svetogorsk.

Competition

In Imatra–Svetogorsk the level of competition is quite low. Food and forest industries are basically the only industries where competition exists. (Ekliitto, 2004) Still, the competition is probably much more intense compared to what it would be if the cities would not be located so close.

4.3.6 The Role of Government

The government has a legitimate role in shaping the institutional structure surrounding companies. The purpose of the government is more in creating an environment that

stimulates the competitive advantages, than being a helper or supporter of industries, thus making the industries dependent on that help. (Porter 1990, 160)

The government can be a promoter or a barrier to a border region's development. In Imatra-Svetogorsk the government is probably both. On one hand the government is providing factors necessary for entrepreneurs, like financing. In the Imatra's side there also seems to be quite clear policy for industry and infrastructure. That, however, is not the case in Svetogorsk where a lot still has to be done in that area. It is important for the cities is to work together in order to improve the policies. However there has been some problems in communication.

“It has been difficult to consolidate the administrative structures as no one seemed to really know with who they were supposed to discuss on the other side of the border. In addition in Russia the decisions are often not made on the spot.”

-development manager, Border seminar

It has been more difficult to create informal socio-economic and cultural institutions than formal institutions supporting cooperation, which hinders cooperation between the cities. (Kosonen et al. 2008) The problem is often the lack of common interest. Even when the need exists, it is not understood. In the border seminar it came out that no cooperation will exist if there is no common interest towards it. There has also been lack of interaction between the two parties.

“The Russian participants have been complaining that they are often approached with an already planned project and they are only asked if they are interested in participating.”

-researcher, Border seminar

In Russia the Government has also failed to create a competitive environment for companies. One big problem is corruption, which is barrier of trade that may even hinder economic development. There is also lack of resources even when there is will. And the continuity of government support can be uncertain.

The European Union

In Imatra–Svetogorsk most of the funding for cross-border projects comes from European sources. Regional councils in eastern Finland and the government of the Republic of Karelia have proceeded in their contacts which has led to the establishment of more institutionalized frameworks for their interactions. However, even if most of the entrepreneurs are aware of the business opportunities that the projects, such as the Tacit project, can offer, the almost unbearable conditions for doing business created by public authorities in the Republic of Karelia make it sometimes difficult to develop the projects. For example, because the taxes are high and legal requirements confusing, it would be almost impossible to conduct a business without any resort to dubious tax-avoidance practices and bribes. (Eskelinen & Zimine, 2001)

The EU is interested in Russia mainly because it can help solving some demographic and economical problems. The EU also wants to increase Russian export of natural resources, especially the export of oil and gas. Russia is also a big potential market for European goods (Zimine, 2003).

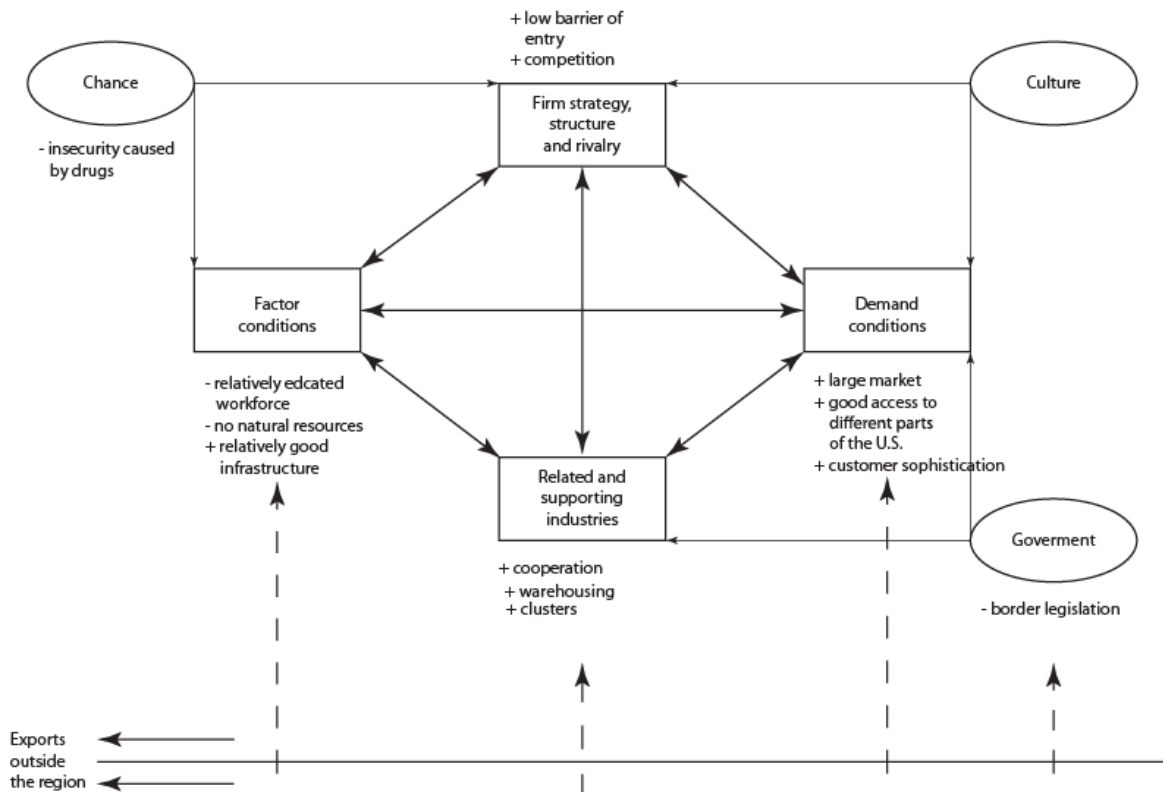
EU enlargement has changed the status of both external and internal borders of the EU. Internal borders are borders between two EU member state and external ones are borders between EU member state and external country. The distinction is important as it explains the system of controls and regulating behaviour at the borders and it determines conditions for crossing the border. For example, it defines the degree of freedom for the movement of economic factors such as goods and labour. Internal border regions are expected to benefit from enlargement more than external ones in economic terms because of the lack of active policy intervention. However, also regional characteristics, like economic development has an effect on this.

The effects for border regions can be direct or indirect. Direct effects are caused by the change in the status of border and common direct effects come from trade flows, cross-border purchase flows, FDI, and migration flows. Indirect effects on the other hand can come, for example, from situations where enlargement impacts different companies on different ways like it may challenge weak and small companies and on the other hand favour strong firms. Especially enlargement may challenge border regions outside the

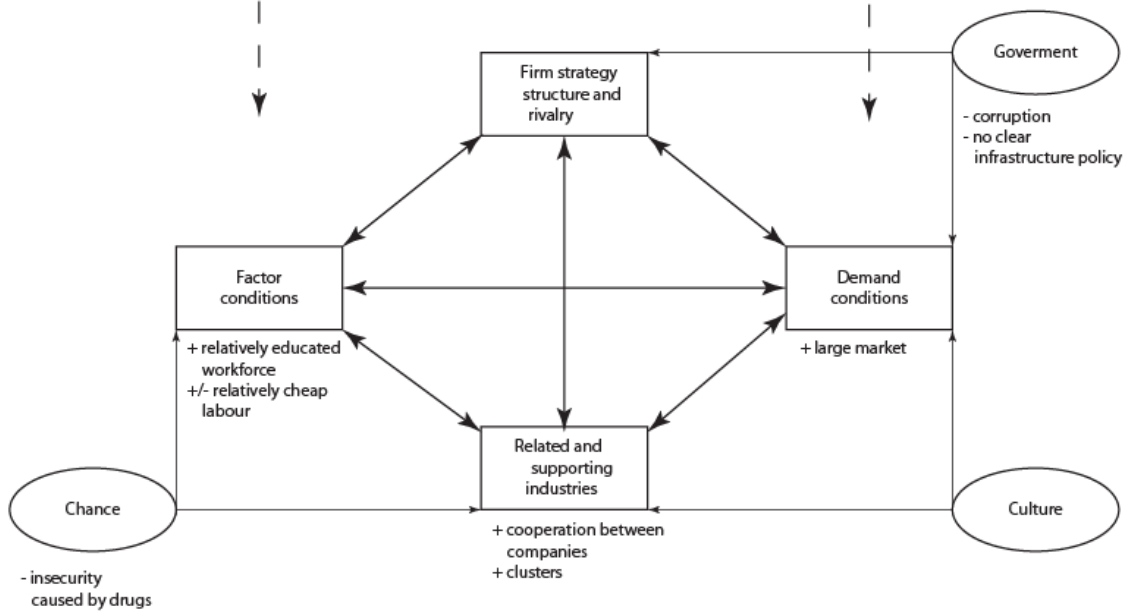
EU, because their peripheral location with respective countries as well as respect to the EU. However, relatively low wages, FDI, and infrastructure connections with the capital can compensate the challenges. (Perkmann & Sum, 2002)

4.4. Revised Theoretical Framework

NOGALES, AZ.



NOGALES, SON.



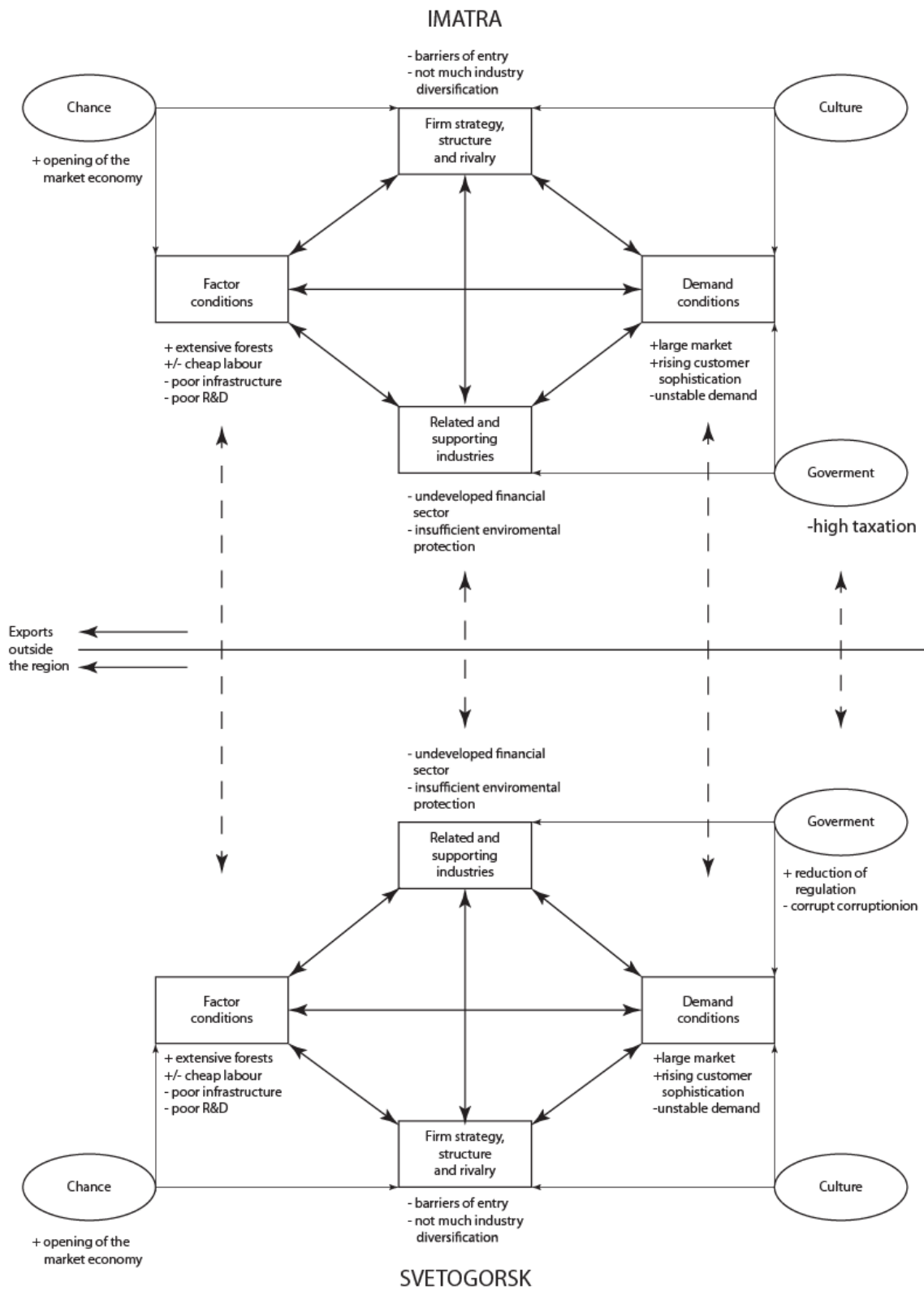


Figure 10. Imatra-Svetogorsk

5 DISCUSSION AND CONCLUSION

5.1. Competitive advantage of paired border cities

History is an important part of competitive advantage of paired border cities, even if it is not really one of the factors actually creating the advantage. History has a lot to do with how people consider the neighbour city and its residents and how easy and natural the cooperation is. History also often affects the demography of the cities, for example in the U.S.-Mexico border history can partly explain why so many people with Mexican origins live there. History also has to do with the culture helping to understand the local purchasers and labour force for example. The past cooperation and common history between the cities can also ease the cooperation, making it more fluent compared to other cities of the countries in question. The location also creates advantages of easier access to foreign markets because of cultural similarities and adjacency at the border.

Companies that function at the border can be divided in to knowledge-based and labour intensive ones. Knowledge-based companies prefer skilled labour and they also accept higher labour costs. The most desired situation is when skilled yet relatively low wage labour is available. Labour-intensive companies on the other hand tend to be located in cities where unemployment rates are high and labour costs low. Labour related benefits are the most commonly mentioned when talking about the competitive advantage of paired border cities. Traditionally, the main advantage has been expected to come from the low labour costs on one side of the border. The benefits related to labour and paired border cities, however, are much more varied than that.

The most important factor is often not the availability of low-wage labour but the combination of that and educated labour. Companies can benefit for example by having operations on both sides of the border if on the other side there is educated labour available and on the other side the wages are lower. In addition, low wages are often connected to low skilled and non educated workers, which is not always true. For

example in Mexican side of the U.S.-Mexico border, the wages are low, but the workers are often educated and skilled.

On one side of the border, special kind of knowledge and know-how can also often be found, which may attract the companies. For example when companies are planning to internalize to neighbouring country, it can be beneficial to use the knowledge of the market that exists on the other side of the border. In this case the knowledge is mainly cultural. For a less developed country the benefit can be for example more advanced technologies and strategies. In paired border cities it is also easier to find persons who speak the languages of both nations and who are familiar with the both business cultures.

Even if the average wages usually are lower on other side of the border, the wages can still surpass the average wage in rest of the country. This is the case for example in Mexico. Higher wages in addition to good availability of jobs attract workers from the whole Mexico and rest of the Latin America. Attracting workers from the more developed country is often more challenging. However, compared to other locations in the respective country, the paired border cities can have an advantage of attracting workers as it provides an opportunity for them to work in the less developed country and still live in the more developed country or at least use their services.

For border regions that have natural resources, those resources can be the main factor attracting companies to the region. It depends on the cities how well they are able to use that potential for competitive advantage. If the region only is able to provide resources, but no relative or supporting industries for example, the regions stays in a factor based stage and the potential for competitive advantage the regions has, is not used. A good example of a city pair that has been able to benefit from the natural resources is Imatra-Svetogorsk. Even if there is still long way to go, the region has different industries working together creating a forest cluster, which is a good start for a sustainable competitive advantage to the region.

The infrastructure is often a weak point in paired border cities diamond. Still, although the infrastructure is often insufficient, the transport networks from the border to the main regions of a nation are usually good or at least better than elsewhere in the respective countries. In addition, if the infrastructure is better developed on the other side of the country, both cities can, at least so some extent, use those services.

The most commonly mentioned financial advantage in Nogales-Nogales, was the use of banking services in Nogales, Az. All the entrepreneurs interviewed used bank services in the U.S. even if they had accounts in Mexico as well. This is because of the lower service and interest fees in U.S. banks as well as the low trust toward Mexican banks. Getting financing on the other side seemed to be more uncommon. I was told that it is easier to get a loan on the Mexican side if you are Mexican. For those who have both nationalities, the benefit can be even higher as they can ask for an offer on both sides.

Companies may also benefit from the location at the border because of better availability and lower prices of resources. In some cases this can be possible even if the company is not established in the foreign country. For example Mexican transportation companies can benefit from lower gas prices of the U.S. side of the border.

Even if the wages are low in Nogales, Sonora, the wages are even lower in other parts of the Mexico. In addition there can be special kind of know-how in other regions of the country. By having operation on the Mexican side of the border, it is easier to take advantage of those resources. One of the interviewees for example told that he buys services from other parts of the Mexico because of the price and quality, which would not be as easy if the company would only be on the U.S. side.

One of the main advantages mentioned in the interviews as well as in the seminar, was the market size. For example Nogales-Nogales can advantage of both big markets; those of the U.S. and Mexico. For Imatra-Svetogorsk the Russian market can be a great advantage. Also the population is bigger in paired border cities together than in an individual city.

The population size is not the only thing that matters, but also how the local purchasers are. The sophistication of purchasers is important so that the companies can have a quick response how the products and services are and how they should be developed. It is also an advantage that in paired border cities there are often more different kinds of tastes and that way the new ideas can be richer.

Depending on the paired border city, some special supporting industries may be especially important. For example, warehousing in Russia is often considered to be unreliable, so companies can benefit from secure warehousing services in Imatra. It is also often useful to have suppliers that work in more than one country because they facilitate the exchange of information and know-how.

Recently consumers have been paying more and more attention to the responsibilities of corporations. Border regions often suffer from nature related problems, and for companies this could mean a possibility to better their image with relatively small investments. Some forestry companies operating at the Finnish-Russian border have already realized this and invested in conservation like river and lake system protection.

The agglomeration effect can be regarded as cost savings that result from the concentration of production in close proximity. Agglomeration can also occur among domestic companies but in some paired border cities it creates cost saving especially for foreign companies because it makes it easier for them, especially those that are inexperienced in foreign markets, to establish a business in that specific city. This is because it is easier to enter a city where other companies have succeeded, and from where information is available, and where supporting services like suppliers of intermediary goods for foreign companies are available.

Often in paired border cities there are different kinds of incentives to attract investments. There can for example be government or European Union supported funds like in Imatra-Svetogorsk, or lower taxation policies, like in the U.S.-Mexico border for example. In Nogales Sonora also the unionization is denied, which is supposed to

advantage the companies. This, however, like mentioned by one of the interviewees, is probably not the most competitive way.

5.1.1. Competitiveness of the case cities

In Nogales-Nogales there are both educated workforce and low-wage labour. However, during the last decade wages of many professions have been increasing as a result of education. However, the wages of educated workforce are still smaller in Nogales, Sonora. The same wage differences exist in Imatra-Svetogorsk, except, that if companies are looking for highly educated workforce, they often have to find it from bigger cities, like Lappeenranta in Finland or St. Petersburg in Russia.

The main obstacles for gaining competitive advantage in factor conditions in Nogales are the limitations in infrastructure as well as availability and quality of water. Nevertheless, many improvements in infrastructure have been made to support manufacturing operations. In Imatra-Svetogorsk the infrastructure is even bigger challenge, as the border seems to be more closed than that of Nogales-Nogales.

Unlike Nogales-Nogales, Imatra-Svetogorsk does not have lack of natural resources like water. Actually the most important competitive factor for Imatra-Svetogorsk is natural resources – more specifically the forests. The forest sector has faced some problems in the past, such as insufficient infrastructure, technology and machinery. There has also been difficulties in finding skilled labourforce. One reason for this is the shortage of education opportunities, even though the situation has gotten better in ten years. Despite the problems, the forest sector continues to have great potential in the region.

In Nogales-Nogales the availability of related and supporting industries is rather good; because of the large amount of companies, support services and supply base are good on both sides of the U.S.-Mexico border. Especially production-sharing sector has attracted companion industries like distribution and warehousing. Most of these companion industries are located on the U.S. side. The two cities complement each other: Nogales, Son. is concentrated in manufacturing and Nogales, Az. in logistics and supporting

services. This, however, has been changing and the division is not that clearly cut anymore.

The same change can be seen in Imatra-Svetogorsk but the change is not as fast. For most companies in Svetogorsk, the only differentiation strategy has been price differentiation of semi-finished products. It has probably been understood by the policy makers that this is not a very sustainable way to create competitive advantage, as there have been efforts to facilitate investing and cooperation. This change has been important as special attention to the industrial policy was needed in order to find new strategies. Especially manufacturing plants would need a lot of investments because in order to be competitive they must increase productivity and have up-to-date machines.

Although low wages have created certain kind of competitive advantage for Nogales, Son. in earlier decades, there is evidence that in order to remain competitive, some changes in production have to take place. One important reason for this is that there are locations where the wages are even lower than in Mexico, like in China for example. The maquiladora downturn has also had a positive influence in Nogales' competitiveness as even though certain production, like the production of textiles, has moved to Asia, the production of more differentiated products has increased in Nogales.

In both paired border cities there is cross border cooperation. In Nogales-Nogales, that cooperation is both informal and formal and in Imatra-Svetogorsk the cooperation is mainly formal.

Table 7: Border contacts and paired border cities coherence

	Formal	Informal
Economic	Foreign trade	Migration, tourism, shopping, crime
Political	Official cooperation agreements and projects	informal cross-border networks
Nogales-Nogales	+	+
Imatra-Svetogors	+	-

The both paired border cities face many challenges, but still have a great potential to increase their competitiveness in the future. I'll present the different kinds of border regions discussed in the literature will be present.

Table 8: Types of border regions

Types of border regions	Nogales-Nogales	Imatra-Svetogorsk
<i>Capital regions</i>	x	
<i>Regions with growth potential</i>	X	X
<i>Skilled manufacturing regions</i>	X	
<i>Industrially challenging regions</i>		x
<i>Agricultural regions, lagging behind</i>		x

5.1.2. Competitive Clusters in the Case Cities

Maquiladora industry has been for decades the most important industry at the U.S.-Mexico border. The main reason for this has been low production costs. The maquiladora plants include plant operations in many sectors, although electronics, auto parts, and apparel are the most important ones. These sectors have been growing and will probably grow in the future also because shipping costs of certain products from Asia are high and there is expertise in these sectors available in Nogales-Nogales.

Competitive advantage at the U.S.-Mexico border will in the future come from the clusters. Nogales will no longer be only a place of cheap labour but also a place of innovation and know-how. The main industries will probably stay mainly the same, but the production will move up the production cycle. A good example of an industry that has succeeded, is electronic industry.

Reasons for the success of electronic industry in Nogales- Nogales can be found in all of the factors Porter (1990) has described in his diamond model. From factor conditions especially skilled labour force and investments create competitive advantage. The skills of labour force have been increasing, so as a result there are more and more engineers available in both Nogales, Az. and Nogales, Son. Investments are also important as the electronic industry in Nogales has always been dominated by foreign capital. At the

moment companies are also ready to invest more than before in electronic industry because of Japanese competition.

Probably the most important competitive advantage comes from supporting and relating industries. Many multinational corporation have many activities in Nogales, such as sophisticated product design, assembly, and research and development. This has led to the establishment of well developed intra-firm networks between manufacturing plants and technical centres.

In Imatra–Svetogorsk the most competitive industries are at the moment those that are connected with the production of raw materials and semi-finished goods, mainly with wood. Most of the industries are factor driven, such as forest and metal industries, but there are also some that are investment-driven such as energy, ICT, and food industries. Imatra–Svetogorsk should aim to develop the industries that already are competitive, especially forest and ICT industries so that they would become more innovation-driven, because the industries that already are somewhat competitive in general require fewer investments.

The ICT industry benefits from the shift of manufacturing to low cost locations. However, the ICT industry is not the most competitive industry at the moment and probably will not be in the near future either because of the lack of skilled personnel, innovative environment, and infrastructure in Imatra–Svetogorsk. The forest industry on the other hand has, in my opinion, plenty of developmental potential to gain special competitive advantage even in the near future. The forest cluster is the only existing cluster in Imatra-Svetogorsk at the moment.

In South-Karelia there are better timber resources than in any European country which is the bases of the forest cluster. There are many obstacles that hinder the development, such as undeveloped infrastructure and outdated equipment, which decreases productivity and increases pollution. The level of student training is also quite low in Svetogorsk, which leads to inability to introduce innovations. However, there is educated workforce available in Finland and in bigger cities in Russia.

The location of Imatra–Svetogorsk is better than other locations in Russia that have timber resources because Imatra–Svetogorsk is closer to European markets. The possibilities for crossborder cooperation are also better, which can mean investments in new projects, acquisitions of experience, and technologies.

The forest cluster of Imatra-Svetogorsk can benefit from the knowledge and experience in the industry in Finland. By using Finnish suppliers it may be easier to get products to global markets because Finnish suppliers have experience of international trade in forest sector. The forest industry also benefits from the fact that it is less dependent on suppliers of electric power and fuel than many other industries.

The level of competition in forest industry is low in Imatra–Svetogorsk. However, the situation is same with almost all industries in Imatra–Svetogorsk. The government also creates obstacles like regulations. One obstacle, if only a small one, is the lack and differences of rules in reforestation in Russia. The lack of rules in reforestation may also harm the sustainable competitive advantage.

5.2. Industrial strategy for success for paired border cities

Identifying the competitive advantage

The first step for a city pair is to understand that they have or could have competitive advantage. After that they should identify the advantages for example by using the modified diamond model presented in this study.

The second step includes finding out what industries and clusters, especially regional clusters, could succeed in that region and benefit most from the identified advantages of the city pair. I have done a table as a prototype to identify the industries or clusters that could match with a specific city. The tool would have to be further developed in order to work well, as it would have to include more information. The numbers in the table are directional. The table can be used to identify the industries and clusters. The method can be used also other way around for companies looking for locations.

Factors (availability of)	Nogales-Nogales	Imatra-Svetogorsk	Forest industry's emphasis
Educated labour force	5	4	4
Cheap non-ed. labourf.	5	5	4
Cheap educated labourf.	4	3	3
Natural resoures			
<i>Water</i>	2	5	4
<i>Wood *</i>	0	5	5
<i>Sun</i>	5	1	1
Infrastructure			
<i>Train</i>	5	5	5
<i>Air</i>	2	0	1
Capital resources	4	4	4
Market size of the region	5	3	3
Local purchasers	5	3	3
Presence of relative ind.			
<i>Transport</i>	5	5	5
<i>Construction</i>	4	3	2
<i>Energy</i>	3	4	4
<i>Chemicals</i>	3	4	5
Associated services			
<i>logistics</i>	5	5	5
<i>distribution</i>	3	5	4
<i>warehousing</i>	4	5	3
<i>banking</i>	5	5	4
<i>education</i>	4	4	4
<i>R&D</i>	4	4	5
<i>Government</i>	3	3	4

Scale: 1-5 (0 is non-existing)

Location suitability of city pair for industry:

* Critical factor

Nogales-Nogales
Imatra-Svetogorsk

0 (3,86) -
unsuitable
4,21 - high

Evaluating the opportunities

After identifying the industries and clusters that could benefit most from the identified advantages, the city has to find out if those industries already are presented in the region. Being a proper location for a certain industry is often not enough, the location also has to be better than other possible locations or at least succeed better in marketing itself. The city pair also has to evaluate if it has sufficient resources to pursue a certain industry or cluster and whether it wants to pursue them.

Utilization of the advantages

Like Porter emphasized, every organization needs a strategy to deliver superior value to its customers (Porter, 2008, 6). The same applies for cities. After recognizing the potential clusters, the city should increase its brand and try to network with the industries being part of the cluster. The city should also aim to enhance the determinants of the model.

5.3. Main findings and conclusions

This study concentrates on the competitive advantages and economic development of paired border cities through two cases: Nogales-Nogales and Imatra–Svetogorsk. The position and competitiveness of Imatra–Svetogorsk in relation to Nogales-Nogales was researched using Porter’s diamond model. This helped to understand the potential that typically exists in many paired border cities and the possibilities to utilize it in order to gain competitive advantage. The study also suggests that different paired border cities have better opportunities to gain competitive advantage in different industries. For example, Imatra–Svetogorsk can gain competitive advantage with relatively small investments in forest industry and Nogales-Nogales already has competitive advantage in manufacturing industry.

Nogales-Nogales is a good example of a city pair that does not have natural resources but has been able to gain competitive advantage through other factors. A strong reason for this may be that none of the determinants of competitive advantage is totally missing in Nogales-Nogales. This is important because each factor alone and together contributes to or detracts from competitive advantage.

Imatra–Svetogorsk has some strong advantages, for example forests, but it has not yet been able to gain sustainable competitive advantage. A strong reason for this is probably that there are more factors that detract from than those that contribute to competitive advantage. However, with substantial investments from companies as well as commitment and investment from the governments in education, infrastructure, and

research can create competitive advantage in the future. Cooperation between the cities is also important because it helps them to gain common benefits.

The main findings of this research suggest that paired border cities do have potential to gain competitive advantage – the kind of advantage that only paired border cities can gain or they can gain it with smaller costs. This is contrary to many previous studies that have suggested that cities located at the border do not have as good opportunities as other cities because of their peripheral location. This research shows that paired border cities do have opportunities; they are just different and require particular understanding and additional research.

Today the global competition is probably more intensive than ever, forcing companies to reconsider their locations and evaluate the strengths of different regions and cities. This creates opportunities for cities to attract new companies and people to the region. However, too often this opportunity is not fully used. Cities do not understand that they should act more like companies; identify, evaluate and utilize their advantages. Cities are more like companies than they often realize, competing for customers that are companies choosing a locations, and trying to keep them satisfied. Still, the competitive position is not totally the same and success cannot be measured by market share, for example.

There are many models to evaluate competitive advantage. One is Porter's diamond model, which gives a good framework for cities to identify their strengths and weaknesses. There are also many researches on how to improve different factors. Still, information about what factors should be improved and how is not enough, as change processes are often expensive, complicated, and slow. In addition, the cities cannot be competitive in all the industries, so they have to know in which ones to concentrate. Therefore, in this research I aimed to show how paired border cities could increase their attractiveness and that way their competitive advantage with the strengths they already have by concentrating on the industries best suited for their existing strengths.

If measured in a global scale, paired border cities are often quite small. This increases the need for cooperating. There can be cooperation between the cities as well as between companies on both sides of the border. Policy makers should provide support for this kind of cooperation as it increases, for example, innovation. Good examples of this kind of cooperation are clusters that work on both sides of the border.

The location can bring potential for competitive advantage, but how it is actually utilized, depends on various factors. One is the capacity of its industries to upgrade. Policy makers can do a lot to provide a favourable environment for different industries. First of all the policy makers have to understand the environment in order to promote those industries that have the most potential to succeed in that specific environment.

Theoretical contribution

This research has contributed to the academically under-researched area of competitive advantage of paired border cities. I have aimed to widen the perspective of theory on paired border cities by exploring the possibilities to increase the competitive advantages of the cities. There have not been many studies concentrating on paired border cities and even less concentrating on their competitive advantages. Even if there are some researches on paired border cities where some advantages have been mentioned, the researchers have mainly concentrated on challenges.

As paired border cities and their competitiveness have not been researched that much, there was no framework that would have totally matched to the subject. However, from Porter's (1990) diamond model and Rugman & D'Cruz' (1993) double diamond model I was able to modify an applicable framework for paired border cities.

Implications of the study and suggestions for further research

In addition to the objective of contributing to theoretical discussion, I have tried to benefit paired border cities and companies by providing a framework on how to evaluate competitive advantage and how to use the framework efficiently.

Cities have to find new ways to increase their competitive advantage and market themselves to companies. By using the framework presented in this study, it is easier for

the policy makers of paired border cities to predict which industries could be interested in operating there. When knowing the industries, cities can concentrate on supporting and related industries and that way support the creation of clusters and increase their own competitiveness. There are often good chances for clusters to operate in paired border cities, as the business environment is different on both sides of the border, which enables companies to benefit from them both. This kind of competitive advantage gained through clusters is often more sustainable, as the companies operating in a cluster are often more engaged in the location.

There is need for more detailed future research arising from this setting. Paired border cities are modestly researched, especially from the competitive point of view. Therefore, more research on competitive advantage of paired border cities is needed. The future research could concentrate on how to increase the competitive advantage by concentrating on different determinants of the diamond model. In addition, it would be interesting to perform similar kind of research on multiple paired border cities located in different parts of the world and compare their available factors to the emphasis of different industries.

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APPENDICES

Appendix I

Data Profile				
	United States	Mexico	Finland	Russia
World view				
Population, total (millions)	301,29	105,28	5,29	142,10
Population growth (annual %)	1,0	1,0	0,4	-0,3
Surface area (sq. km) (thousands)	9 632,0	1 964,4	338,4	17 098,2
GNI, Atlas method (current US\$) (billions)	13 980,34	989,52	232,58	1 072,69
GNI per capita, Atlas method (current US\$)	46 400	9 400	43 980	7 550
GNI, PPP (current international \$) (billions)	13 925,50	1 472,56	186,85	2 044,48
GNI per capita, PPP (current international \$)	46 220	13 990	35 330	14 390
People				
Life expectancy at birth, total (years)	78	75	79	67
Fertility rate, total (births per woman)	2,1	2,1	1,8	1,4
Adolescent fertility rate (births per 1,000 ages 15-19)	37	65	12	25
Mortality rate, under-5 (per 1,000)	8	18	4	15
Immunization, measles (% of children ages 1-2yrs)	92	96	98	99
Primary completion rate (% of relevant age group)	96	104	98	94
Ratio in primary and secondary education (%)	100	101	102	98
Environment				
Forest area (sq. km) (thousands)	3 034,1	637,2	225,1	8 086,0
Agricultural land (% of land area)	44,9	54,9	7,5	13,2
Annual freshwater withdrawals (% of internal resources)	17,1	19,1	2,3	1,8
Energy use (kg of oil equivalent per capita)	7 766	1 750	6 895	4 730
Electric power consumption (kWh per capita)	13 652	2 036	17 162	6 317
Economy				
GDP (current US\$) (billions)	13 741,60	1 022,82	245,89	1 294,93
GDP growth (annual %)	2,0	3,2	4,2	8,1
Inflation, GDP deflator (annual %)	2,7	4,7	3,2	13,9
Agriculture, value added (% of GDP)	1	4	3	5
Industry, value added (% of GDP)	22	36	33	38
Services, etc., value added (% of GDP)	77	60	64	57
Exports of goods and services (% of GDP)	12	28	46	30
Imports of goods and services (% of GDP)	17	30	41	22
Gross capital formation (% of GDP)	18	26	22	24
Revenue, excluding grants (% of GDP)	19,7	14,7	38,7	31,5
Cash surplus/deficit (% of GDP)	-2,2	-1,2	5,5	6,2
States and markets				

Time required to start a business (days)	6	27	14	30
Market capitalization of listed companies (% of GDP)	145,2	38,9	150,1	116,1
Military expenditure (% of GDP)	4,1	0,4	1,2	3,5
Mobile cellular subscriptions (per 100 people)	87	63	115	120
Internet users (per 100 people)	73,6	21,2	79,0	24,6
Roads, paved (% of total roads)	..	38	65	..
High-technology exports (% of manufactured exports)	29	17	21	7
Global links				
Merchandise trade (% of GDP)	23,2	55,4	69,9	44,6
Net barter terms of trade index (2000 = 100)	97	105	83	..
External debt stocks, total (DOD, current US\$) (millions)	..	192 764	..	368 075
Total debt service (%of exports goods, services, income)	..	12,3	..	9,2
Net migration (thousands)	5,676	-2,702	964	33
Workers' remittances, received (current US\$) (millions)	2 970	27 136	772	4 713
Foreign direct investment, net inflows (millions)	275 758	27 528	12 611	55 073

Source: The world bank group, <http://ddp->

[ext.worldbank.org/ext/ddpreports/ViewSharedReport?REPORT_ID=9147&REQUEST_TYPE=VIEWADVANCED&UNIQUE_NAME=&COMBO_SLECTED=&PAGE_AXIS_WDI_Ctry=\[WDI_Ctry\].\[List\].%26\[MEX\]&PAGE_AXIS_NAMES=WDI_Ctry](http://ext.worldbank.org/ext/ddpreports/ViewSharedReport?REPORT_ID=9147&REQUEST_TYPE=VIEWADVANCED&UNIQUE_NAME=&COMBO_SLECTED=&PAGE_AXIS_WDI_Ctry=[WDI_Ctry].[List].%26[MEX]&PAGE_AXIS_NAMES=WDI_Ctry)

Appendix II

TABLE 1
WAGE AND SALARY EMPLOYMENT BY SECTOR
Nogales (Zip Codes 85621, 85628 and 85662), 2004

Sector	Number of Establishments Employment		Relative to Nation		Relative to Arizona	
			Location Quotient	Excess Employment	Location Quotient	Excess Employment
TOTAL	827	10,611	0.93	0	1.04	367
AGRICULTURE	13	40	0.27	0	0.28	0
GOVERNMENT	8	2,552	1.32	621	1.47	820
TOTAL, NONAGRICULTURE PRIVATE SECTOR	806	8,019	0.86	0	0.96	0
Mining	1	2	0.05	0	0.05	0
Utilities	3	67	1.30	15	1.57	24
Construction	39	277	0.51	0	0.37	0
Manufacturing	29	312	0.28	0	0.45	0
Wholesale Trade	131	1,278	2.65	796	3.40	902
Retail Trade	174	2,033	1.62	781	1.68	821
Transportation and Warehousing	119	1,071	3.20	737	3.61	775
Information	8	64	0.22	0	0.30	0
Finance and Insurance	34	216	0.41	0	0.43	0
Real Estate and Rental and Leasing	42	149	0.87	0	0.83	0
Professional, Scientific and Technical Services	37	150	0.24	0	0.31	0
Management of Companies and Enterprises	2	109	0.47	0	0.45	0
Administrative, Support, Waste Management, Remediation Services	30	344	0.48	0	0.43	0
Educational Services	8	131	0.55	0	0.89	0
Health Care and Social Assistance	41	677	0.52	0	0.68	0
Arts, Entertainment and Recreation	6	35	0.23	0	0.20	0
Accommodation and Food Services	56	885	1.01	8	0.97	0
Other Services (except public administration)	41	215	0.49	0	0.64	0
Unclassified Establishments	5	4	0.83	0	1.34	1

Source: Nonagriculture private sector estimated from U.S. Department of Commerce, Census Bureau, *Zip Business Patterns 2004*. Agricultural production employees, most government employees, railroad employees, self-employed individuals and employees of private households are not included in this data source. The agriculture and government sectors are estimated — see Chapter I for details. The concept of establishment for agriculture and government differs from that used for the nonagriculture private sector.

Appendix III: Interview questions

(not in the correct order as the order was somewhat different in all the interviews)

1. What kind of a company you have?
2. How many employees there are?
3. When did you start the company?
4. Is it easy to start a business at the border?
5. What things would have to be changed or increased in order it to be easier to start a business there?
6. Are there office place for companies available?
7. How is the availability of skilled labor force?
8. Financing?
9. Does the infrastructure work at the border?
10. Why did you start the business at the border?
11. What opportunities does it create?
12. What problems?
13. Are the employees committed?
14. How much does the company export?
15. What are the most important related industries?
16. What supporting industries would be needed at the border?
17. How do you see the economic situation at the border?
18. What positive things come to your mind when you think about Nogales-Nogales?
19. What negative?
20. How would you qualify Nogales-Nogales as a place to live and work?
21. What kind of industries could succeed at the border?
22. Do the students stay/come back in the region after graduation?
23. How many times per week you go to the other side as a matters of work/personal matters?
24. Would you have moved if you would not have the company here?

Appendix IV: Paired border city seminar



Yrittäjyys ja rajanylittävä yhteistyö
Seminaari päättäjille ja yrityssektorin toimijoille
Imatra, valtuustosali, 22.05.2008
Virastokatu 2

Ohjelma

- 13.00 – 13.05** Seminaarin avaus, **Pertti Lintunen**, Kaupunginjohtaja, Imatran kaupunki
- 13.05 – 13.10** Seminaarin avaus, **Oksana Pikuleva**, Kaupunginjohtaja, Svetogorsk
- 13.10 – 13.15** Seminaarin kulku ja tavoitteet, Seminaarin puheenjohtaja **Kari Liunto**,
Professori, Pan-Eurooppa Instituutti, Turun kauppakorkeakoulu
- 13.15 – 13.35** Kaliningrad esimerkkinä rajanylittävästä yhteistyöstä: kokemuksia ja hyväksi
todettuja käytäntöjä, **Mikhail Plukhin**, Aluekehitysministeri, Kaliningradin alue
- 13.35 – 13.55** Suomalainen näkökulma rajanylittävään yhteistyöhön Etelä-Karjala – Viipuri -
alueella, **Malla Neuvonen**, Venäjän asioiden yhteyspäällikkö, Lappeenrannan kaupunki
- 13.55 – 14.15** Venäläinen näkökulma rajanylittävään yhteistyöhön Etelä-Karjala – Viipuri -
alueella, **Olga Kareva**, Kansainvälisten asioiden päällikkö, Viipurin kaupunki
- 14.15 – 14.30** Imatra – Svetogorsk rajanylittävä yhteistyö: tämänhetkiset suunnitelmat ja
niiltä odotetut tulokset sekä ajatuksia tulevasta **Heikki Laine**, Kehityspäällikkö, Imatran
kaupunki
- 14.30 – 14.45** Svetogorsk – Imatra rajanylittävä yhteistyö: tämänhetkiset suunnitelmat ja
niiltä odotetut tulokset sekä ajatuksia tulevasta, **Vladimir Mihailovits Vasiliev**,
Apulaiskaupunginjohtaja, Svetogorskin kaupunki
- 14.45 – 15.15** Kahvitauko
- 15.15 – 15.35** Yrittämisen ja taloudellisen kehityksen edistäminen raja-alueilla: yleiskuva
tutkimusprojektin yhteydessä tehdystä työstä, **Jenni Jaakkola**, Assistentti, Pan-Eurooppa
Instituutti, Turun kauppakorkeakoulu
- 15.35 – 15.55** Yrittämisen ja taloudellisen kehityksen edistäminen raja-alueilla:
tutkimustulokset ja suositukset päättäjille, **Peter Zashev**, Vanhempi tutkija, Pan-Eurooppa
Instituutti, Turun kauppakorkeakoulu
- 15.55 – 16.10** Venäjän ulkomaankaupan säännöstely ja sen vaikutukset Suomen ja Venäjän
raja-alueiden väliseen yhteistyöhön, **Sergei Prihodko**, Hallituksen jäsen, The Institute for
the Economy in Transition
- Keskustelua & seminaarin päätös**