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Dutch agricultural trade flows: An analysis using Porter's Diamond model

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Dutch agricultural trade flows: An analysis using Porter's Diamond model *A literature study on the Dutch agricultural trade using Porter's Diamond model to explain the current trends observed.*

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Abstract

Background: The Netherlands is a trade nation. With a high population density and limited land available it is not considered optimal for agriculture. Nonetheless, with an export value of 92 billion Euros in 2017, it is the second largest exporter of agricultural products. With 21 percent of the total export being agricultural products, it is vital for the Dutch economy.

Objective: To maintain the competitive position of the Dutch agricultural sector, research is needed. By comparing the Dutch agricultural sector to international trade literature, a better understanding of the sector can be composed. Using Porter's Diamond model, the competitive advantages of the Dutch agricultural sector will be identified and explained.

Method: A literature study on assessing the current Dutch agricultural sector and the international trade literature has been chosen to gain insights in the recent trade flows of the Dutch agricultural sector. Next, the application of one model should provide additional insights.

Results: Six international trade theories have been compared to get the best results. Porter's Diamond theory has been chosen to gain insight in where the competitive advantages lie in the current Dutch agricultural sector. Application of the diamond model showed that competitive advantages of the Dutch agricultural sector can be found each of the four dimensions of Porter's model.

Conclusions: Using the diamond model, competitive advantages were found in hard to duplicate specialized resources. Examples of this are a high educated population, highly quality infrastructure, sophisticated businesses and a more demanding the home-market.

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1. Problem Description and Research Proposal

Problem description

On the 31st of October 2012 a Dutch newspaper headed: “Voedselexport begint te haperen”, which translates roughly to, ‘food export is not doing so well anymore’. The article stated that the Dutch export of agricultural products was not doing as well as predicted. Despite the fact that the Netherlands is the second biggest exporter of agricultural products and the export grew year by year, it was not enough to maintain the market share in agricultural imports in key foreign markets. This was caused by the loss of market share in their largest export markets. Moreover, the export was increasingly controlled by re-export, which brought little added value to the products. In 1995, only 20 percent of the export of agricultural products comprise of re-export, in 2012 this was 35 percent.

One possible reason for the loss in market share in these important export markets might be the growing trend of preferring locally produced food on the table in western European countries. Another reason for the loss in market share is the image Dutch products have. A research in Bayern based on surveys, literature studies and interviews, has shown that despite German consumers seeing Dutch products as decent and valuing the constant quality, they will not choose a Dutch product if they want something really ‘good’. This news article was published by the Volkskrant and is based on a research done by the Wageningen University, commissioned by the FNLI and the ABN Amro.

As described above, the Dutch agricultural sector is changing. Times are changing, consumption is changing and markets are changing. Nevertheless, agriculture and the trade of agricultural products is of utmost importance for the Netherlands as being the second biggest agricultural products exporter in the world. This makes the Dutch agricultural sector an interesting sector for scientific research. However, the amount of research done on this sector is limited.

Research Proposal

The stated rapport from the Wageningen University used references from 2012 and before. In a fast changing world where Russian boycotts and economic crises are daily news, results from six years ago may be outdated. Therefore, the first step of this literature study aims to create an up to date overview of the international trade theories. This data will then be analysed and projected on the current situation of the Dutch agricultural trade sector. In this way, the current position of the Dutch agricultural sector including its pitfalls and potentials will become clear and existing competitive advantages for Dutch farmers and traders will become clear.

Research questions

The main objective of this study is to analyse the performance of the Dutch agricultural sector with the main focus on export. The analysis is based on the statistics on agricultural export, for the period from 2000 till 2015, from the Netherlands obtained from CBS. Results from this analysis will be related on the most relevant international trade theory, obtained from multiple peer reviewed papers. Comparing the Dutch situation to the existing trade theories will bring to light if the Dutch agricultural sector is still competitive. Whenever this is the case, an overview of this performance will be examined. The main research question is:

TO WHAT EXTENT CAN THE CURRENT TRENDS IN DUTCH AGRICULTURAL TRADE BE EXPLAINED BY PREVALENT INTERNATIONAL TRADE THEORIES?

The following sub-research questions will help to answer the main question.

1. What is the state of the art in peer reviewed literature on international trade theories?

2. What are the recent trends in the macro-economic situation of the Dutch agricultural sector focussing on international trade?

3. Which competitive advantages can be found in the Dutch agricultural sector, using the discussed international trade theories?

The first sub-question aimed to gain knowledge and understanding of the international trade theories that already exist. This question will be answered in section 3.1. The second questions aimed to explain the current situation of the Dutch agricultural sector. Import and export trends are discussed in section 3.2 to get a clear picture of what the current trends are in the Dutch agricultural sector. The third sub-question integrates the information on literature and practise. This question aimed to expose the competitive advantages that shaped the Dutch agricultural sector and is answered in chapter 3.3. Finally, the main question was answered by integrating the results obtained by the sub questions in the conclusion.

2. Method

To obtain better insights in recent developments in the Dutch agricultural sector, a literature study has been performed. Previous research covers only parts of the research questions. Therefore, this literature study will close the gap between both existing theories and empirical research and will create a better view on the current situation. This study has been divided in three different phases. The first phase consists of data collection, then this data will be analysed in the second phase to conclude with answering the research questions in the third and last phase (see Figure 1)

Phase one: Finding the data

Before searching for the data, it was important to know what data was necessary. Research questions were described to be able to perform a more precise data collection. Multiple information sources were used to find all the necessary information.

To find information about international trade theories in peer reviewed articles, Global Search and Scopus were used. These websites provide information sources that have been peer reviewed. The literature that has been collected, can be divided into two types of research. The first part consists of reviews that explain and discuss national and international trade theories. The second part consists of empirical research. Research that tested theories on real situations was used to gain more information and understanding in how the theories could be applied and what results could be found.

The main data sources for finding data about the current situation of the Dutch agricultural sector was the CBS, known in English as Netherlands Statistics, which keeps record of almost everything that happens in the Netherlands. Within CBS, Statline was used, a software application that helps when data needs to be found on a specific subject, agriculture in this case. Periods of time and product groups can be compared, giving the possibility to create specified tables and figures. Other information sources like WecR/LEI and LTO were used to gain additional information about the Dutch agricultural sector.

Phase two: Analysing the data

After the data collecting of phase one the data was analysed. It is important that the collected data is not only correct but also shows what has been measured. Articles that lacked clarity on their methods were excluded from this study. It is important that the numbers presented are based on comparable variables, because agricultural products can be described in various ways. Collected articles were always checked whether they were peer reviewed and verified before being used in this study.

Phase three: Answering the research questions

When the correct data was found and analysed, the results were used to answer the research questions. The found data was not always sufficient enough to answer all aspects of the research questions. While some questions could be answered, possible contradictions arose. The three step process (see figure 1) was repeated multiple times. This repetition of data collecting, analysing and answering ensured that new information could be used in this research and possible new questions could be answered, until saturation was evident. In this way important information that was missing in the beginning could eventually be used later in this process.

Figure 1: The three-step process of Finding, Analysing and Answering the research questions was repeated multiple times.

3. Background information on the Dutch agricultural sector

Dutch Agriculture

To examine the current Dutch economic situation, it is important to know how the Dutch agriculture sector became so successful. Before knowing how the Dutch agricultural sector became what it is today, certain related aspects will be discussed. This will be done by briefly reviewing the history and the role of agriculture in the Netherlands. These aspects will partly explain the relevance and the impact of agriculture in the Netherlands.

The Netherlands as a trade nation.

The Netherlands is a trade nation and always has been a trade nation. One of the world's first multinational companies was the Dutch trading company VOC and the Netherlands has continued this trading mentality until this day forward. Even though the Netherlands is a relatively small country, there are 63 countries with a larger population, it has the 17th largest economy of the world according to the Dutch ministry of Economic Affairs in 2012.[i] The international trade plays a big role in the Dutch economy, in 2012 the Dutch export contributed for 29 percent to the Dutch GDP.[ii]

The Dutch are the 7th largest importer and the 5th largest exporter in the world, with respectively 378 and 426 Billion Euro in 2015. This is visible in the Netherlands by the sizes of the main ports. Schiphol, the biggest airport of the Netherlands, shipped in 2017 more than 68 million passengers, making it the third biggest airport of Europe. The harbour of Rotterdam is the biggest sea harbour of Europe and in the top ten harbours worldwide.[iii] Only China, United States, Germany and Japan export more than the Netherlands.[iv] These number show that the Netherlands is still a significant player in the world economy and is a real trade nation since the 18th century.

The role of Agriculture in the Netherlands

Agriculture plays a big role in the Netherlands, even though it is a relatively small country. With 16.8 million people living there, it has an average population density of 504 people per square kilometre.[v] Despite the high population density, the Netherlands produces more agricultural products than it needs. As a trade nation, significant amounts of agricultural produce are being exported: in 2017 the Netherlands exported almost 92 billion euro of agricultural products which made it the second largest exporter of agricultural products in the world[vi]. Only the United States exported more. The agricultural sector has a big influence on the Netherlands; 21 percent of the total export of products is agricultural. This is also visible in the

share of jobs and companies linked to the agricultural sector, around 1 on 10 employees and 1 on 12 companies is active in the agriculture.

To summarise, the Netherlands is a trade nation, with agriculture as one of the driving sectors. The Dutch are the fifth largest exporter, but with 92 billion Euros worth of agricultural products exported, for some years hence the second largest exporter of agricultural products in the world. This is 21 percent of the total export, making agriculture vital for the Dutch economy.

4. Theories of International Trade

Many questions about trade between people, countries and continents, can be understood better by deploying theories about international trade. Why does a country sell a specific product, why is a country more successful in producing a product than other countries? A lot has been written about international trade and even though some theories contradict each other it is important to know the basic theories to understand the domestic and world market better. The following sections briefly specify six basic theories, selected on providing the most applicable concepts.

The Theory of Absolute Advantage

It was Adam Smith who wrote; 'The tailor does not attempt to make his own shoes, but buys them from the shoemaker. What is prudence in the conduct of every private family can scarce be folly in that of a great kingdom' in his book The Wealth of Nations (1776)[vii]. In this book he explained, as one of the first, a theory about international trade, the theory of Absolute Advantage. This theory says that if individual countries focus on what they are best at or what they have an abundance of compared to other countries, this would lead to the best situation for all countries as is valid for individuals within each country.

The Theory of Comparative Advantage

Building on the theory of Adam Smith, David Ricardo came up with another theory. This theory agrees with Adam Smith's theory on the aspect that you should do what you are best in. Ricardo only found that in some cases there are exceptions. For example: if country A excels in everything over country B, country A should only focus on what they are most competitive in, because labour and time is a limiting factor. Country B should do a similar specialisation in what it is most competitive. In this way country A will create the best product and international trade is boosted, because this forces both countries in trading their best products. This theory is called: The Theory of Comparative Advantage.[viii]

The Heckscher-Ohlin Model

The Heckscher-Ohlin Model, abbreviated as the H-O model, is built on David Ricardo's theory. The model is based on the assumption that countries have three input factors: labour, land and capital. These three input factors are not evenly distributed between countries, which makes it tradeable. For example, when a country has a lot of labour like Bangladesh, it could best export products that are labour intensive like clothing. Likewise, when a country has a shortage of a certain factor, it could better import products that contain a production factor this country is short of. In Bangladesh's case, it would be capital. [ix] Later this model is called HOS-model.

Linder Hypothesis

The Heckscher-Ohlin model implies that rich countries who are capital intensive, would in principle only trade with poor countries who are labour intensive. The Linder Hypothesis contradicts that; it proposes that trade happens between countries that have similar specifics like GDP per person. If people earn the same, they may also have a similar demand for products that they can afford. Nevertheless, a lot of empirical research supporting Linder Hypothesis is also available. Examples of supporting research for Linder are Ellis (1983)[x], Thursby and Thursby (1987)[xi] and Chow *et all. (1999)* [xii]

New Trade Theory

None of the theories mentioned above explain why some industries are almost completely based in a single country, for example the movie industry in Hollywood. Many countries in Europe have had the same specifics as the US, yet there is no movie industry in Europe. This can be explained by the New Trade Theory, shorty called the NTT. This theory claims that economies of scale and networking effects have great impact on industries. When an industry is the first to specialise, it gains the advantages of economies of scale and networking effects. Other countries that haven't started these industries won't have these advantages. [xiii]

Porter's National Competitive Advantage Theory

Porter's National Competitive Advantage Theory was invented by Michael Porter in 1990 to get a better view on why some countries have more international success in particular industries than other countries. According to this theory, there are four factors which determine the competitive advantages of that country. These are 'factor conditions', 'demand conditions', 'firm strategy, structure and rivalry' and 'related and support industries'. Countries that score best on these four factors would have a better competitive position compared to countries who would score less. Porter's trade theory differs from the other explained theories, because it is also seen as an assessment tool to learn where the competitive advantages are. Nevertheless, Porter's Diamond theory is an import theory to explain why some countries are more competitive in certain industries. [xiv]

Conclusion

Adam Smith's theory of the Absolute Advantage was one of the first theories about international trade. Other scientist used this to create different and more specific theories like the theory of comparative advantage and the Heckscher-Ohlin model. These theories contradicting each other and have different views on international trade. For example, the Linder Hypotheses contradicts the HO-model and states that countries trade best with countries of purchasing power. Focussing on more specific industries, the Net Trade Theory can partly explain why some industries are located on specific locations, like the movie industry in Hollywood. Porter's national competitive advantage theory looks at a country in four different ways. From these four factors it tries to explain why some countries have more competitive advantages than other countries.

5. Recent trends in the macro-economic situation of the Dutch agricultural sector focussing on international trade

Dutch Agriculture

To examine what the recent trends are in the Dutch agricultural sector, it is important to know how the Dutch agriculture sector is performing. In order to examine this, multiple factors have to be discussed. In this chapter the following aspects will be reviewed: import, export, trends and exceptions like re-export and quasi-transit. Info on these factors combined will give an overview of the current situation in the Dutch agricultural sector is.

All of the information in this chapter comes from the CBS 'Internationaliseringsmonitor, 2016 tweede kwartaal' unless another source is given. CBS, the Central Bureau of Statistics, releases this rapport every 3 months to '…help the public debate about internationalisation with facts and insights'"[xv]

To be able to research the Dutch agricultural sector is, it is important to define the term "agricultural sector". This is important when comparing results: they should have the same definition otherwise it is comparing apples with oranges. In this paper we use the following CBS-definition of agriculture:

"The Agricultural sector consists of companies that are active in agriculture, fishery and hunting as well as related branches like drink- and foodstuffs industry. Also businesses that research or offer services for the Agricultural sector and all retailers and wholesale businesses that are focussed on drink and foodstuffs"

Import & Trends

As the Dutch climate is not suitable to produce all agricultural products, some of the resources are imported. Examples of this are pineapples from Costa Rica or grapes from South-Africa. Because many fruits cannot be efficiently grown in the Netherlands, the country imported 4.9 billion Euros of fruit in 2015. This makes fruit the most imported agricultural product in the Netherlands.

In the last 15 years, the value of imported agricultural products to the Netherlands has more than doubled. In 2000, the Netherlands imported 25 billion Euros of agricultural products, whereas in 2015 that was 55 billion, an increase of 117 percent. This increase is for one third explained by price increase and two thirds by volume increase. The three agricultural product groups with the largest absolute growth are fats and oils, fruit and cacao. The corresponding changes in import value can be found in table 1.

Table 1: Import Value of Agricultural Products in the Netherlands

	2000	**2005**	**2010**	**2015**	**Change**	**2000-2015**
	Billion €					% change
Fats and Oils	1,0	1,8	2,8	4,2	3,2	325
Fruit	1,9	2,6	3,6	4,9	3,0	162
Cacao	1,0	1,5	2,5	3,6	2,6	261
Total agriculture	25,4	28,6	42,0	55,2	29,7	117

Export & Trends

Around the world the Dutch are famous for many reasons, Dutch DJ's travel across the world, Dutch painters are known everywhere, Dutch flowers can be seen all over the world and Dutch cheese is shipped to every corner of the globe. This trade can also be seen in the Netherlands, for example, the world's largest flower market is in Aalsmeer, the Netherlands. In 2015 the Netherlands exported 8.3 billion Euros of flowers and plants alone, which makes it their largest export product.

If the import and export of the Netherlands are compared over the last 15 years, it can be concluded that the export is not growing as fast as the import. While the import increased by 117 percent the last 15 years, the export only increased by 86 percent. The balance in growth is about the same as for import, two third growth can be explained by volume and one third by price increase.

Of all Dutch export 77 percent is destined for EU-countries, of which 71 percent for countries that were already part of the EU by 2004, the other 6 percent goes to the 'new' EU-countries. Just like in 2000 Germany is the largest importer of agricultural products from the Netherlands. On the second and third place are Belgium and the UK respectively (see figure 2).

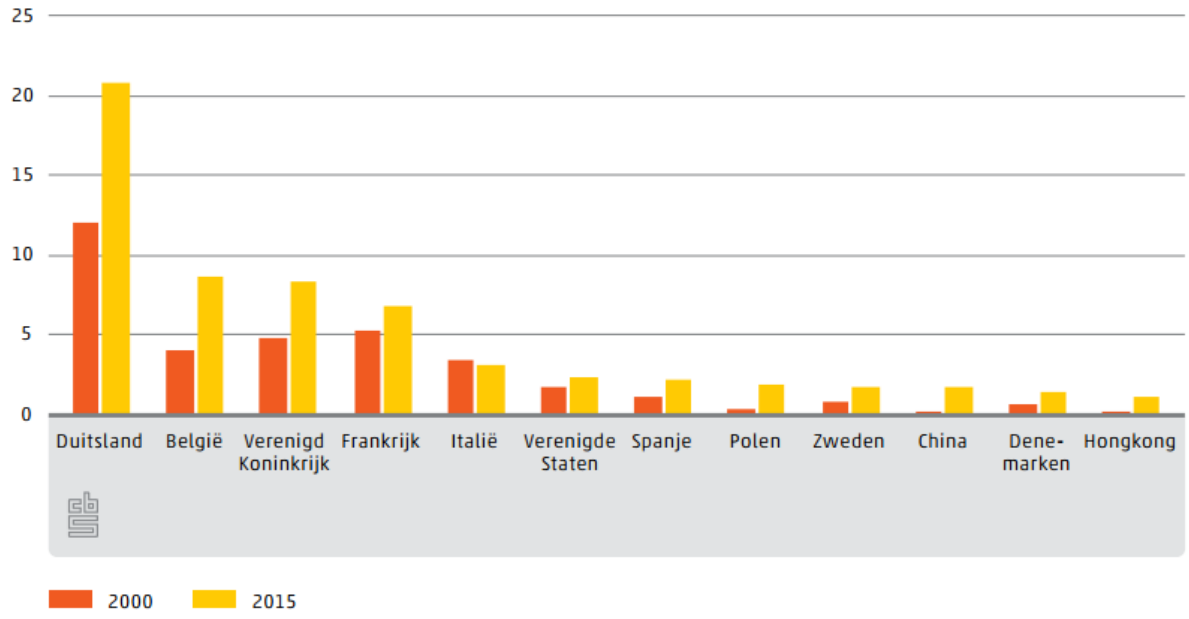

Figure 2: Export Value of Agricultural Products in Billion Euro

Agricultural products by SITC

During the search, using Statline[xvi], for data about Dutch import and export over time, multiple variables had to be taken into account. SITC, which is short for Standard International Trade Classification, was one of these variables. To determine which SITC would be used for this paper, the aforementioned definition of the agricultural sector by the CBS was used. 17 SITC codes were selected and used for this paper to define 'Agricultural Products'. The used codes and explanation of SITC codes can be found in the Appendix.

Tobacco

As is visible in Figure 4, all agricultural products have increased their sales in the last 15 years, except for tobacco. The tobacco industry in the Netherlands did not grow much since 2000, until 2011 it only grew 11 percent (see figure 4). In practice this meant that the export stayed around the same amount, 3 billion Euros per year. The sudden drop in 2014 can be explained by the fact that one of the biggest tobacco factory of the Netherlands was shut down that year.[xvii] The production plant of Phillip Morris in Bergen op Zoom was shut down and in 2015 the tobacco export was only 2 billion visible in Figure 3.

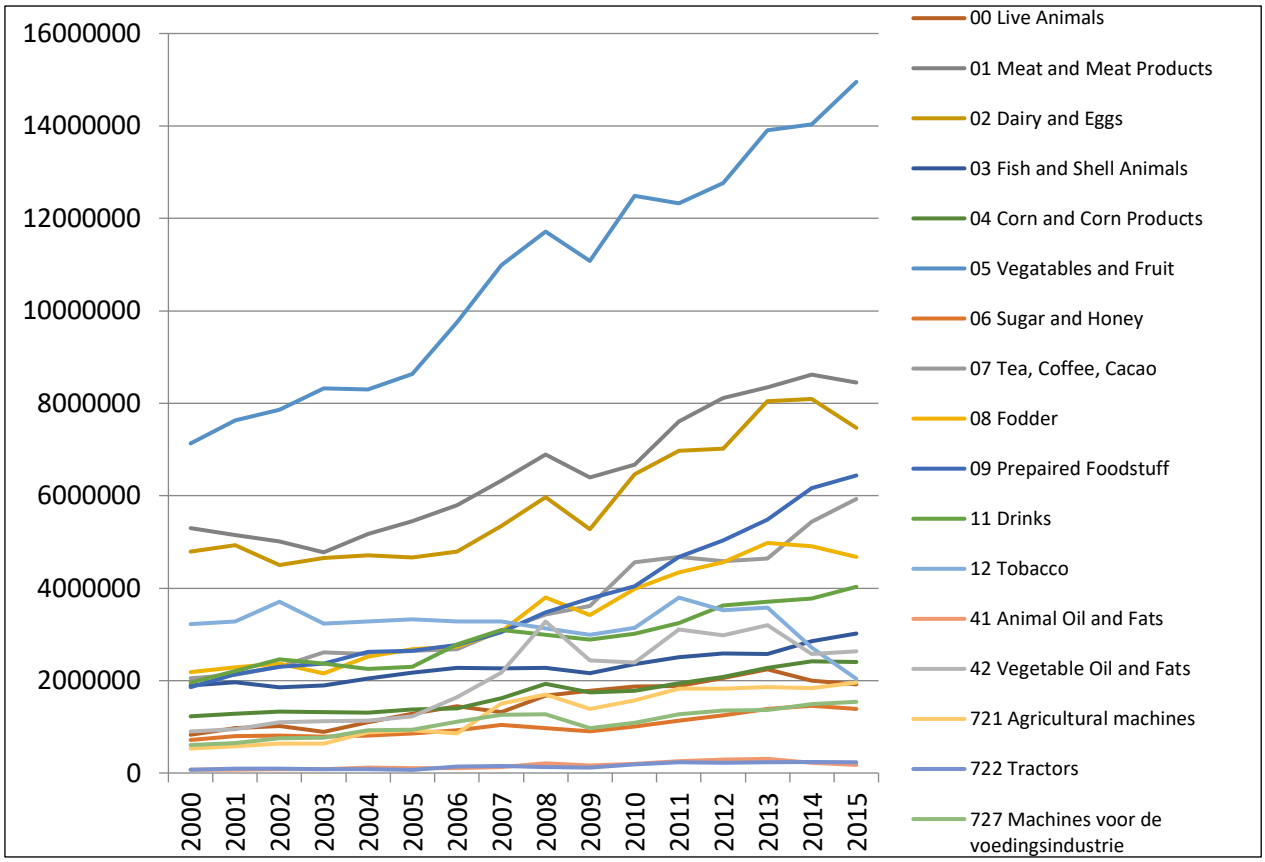

Figure 3: Total Export Value of Agricultural Products by SITC

Financial Crisis

Visible in figure 4 is that, not only the growth in percentage per product category is visible, also the total growth in percentage of all the product groups combined is visible. A small dip in the line in 2009 can be seen, while in 2008 total growth was 155 percent, in 2009 this was only 145 percent compared to 2000. In exact numbers, the sales dropped with 4 billion from 55 billion in 2008 to 51 billion in 2009.

Not only the financial crisis caused this drop in sales, also the drop in value of different foreign currency caused this drop in growth. Mainly the export to the United Kingdom and eastern European countries noticed this. [xviii]

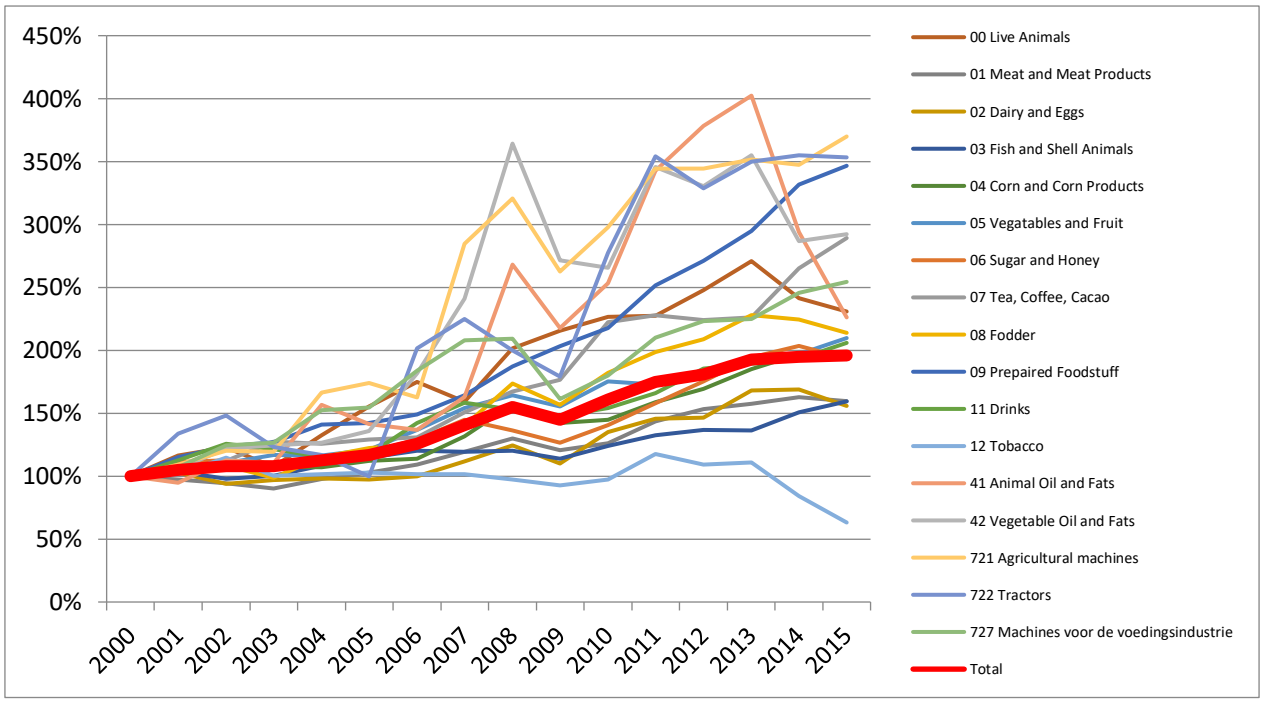

Figure 4: Total Growth in Percentage of Agricultural Products by SITC (2000 is 100 percent)

Import and Export

In 2017 the Netherlands exported 91.7 billion Euros worth of agricultural products.[xix] This makes it the second biggest exporter of agricultural products after the USA. According to the Wageningen University this can partly be explained by the central location of the Netherlands and the good infrastructure to surrounding countries.[xx] Not only agricultural products profit from these advantages. In 2015 the Netherlands exported a total of 426 billion Euros worth of products to other countries, of which 81 billion were agricultural products. When these numbers are compared to previous years, it is visible that the Dutch agricultural sector grew with almost the same ratio as the total export (see Table 2). This chapter will focus on the question if this growth was big enough to maintain the market share in the biggest importing countries of Dutch agricultural products. [xxi]

Table 2: Dutch Agricultural Export Compared to All Export in Billions

	2000	**2005**	**2010**	**2015**
Export				
All Products	232	281	372	462
Agricultural Products	44	50	68	81
Percentage Agriculture	19%	18%	18%	19%

To get to know more about the market share of the Netherlands in the countries where the Dutch export the most agricultural products to, it is important to know which countries import the most Dutch agricultural products. Germany has been the biggest importer of Dutch agricultural products for years and still is today. The total top 5 of countries that import the most Dutch agricultural products can be seen in Figure 5. Combined, these five countries are responsible for 47.9 billion Euros of export, this is almost 60 percent of the total agricultural export of the Netherlands.

The information necessary to analyse the change in market share in these countries is not available, except for Germany. The CBS published a report about Germany specific in 2016. According to the CBS, this information is only available for Germany and not for the other countries.

Figure 5: Countries that Import the Most Dutch Agricultural Products in 2015 in Billions

Germany

The information on Germany is based on "Internationaliseringsmonitor 2016 III Duitsland", this information is only available about the German market. CBS obtained this information from: "Statistische Ämter des Bundes und der Länder, Deutschland" and their own calculations.

Germany is not only the largest importer of agricultural products, it also imports twice as much as the second largest importer and is responsible for more than 25 percent of the total export of Dutch agricultural products. Between 2010 and 2015 the total import of Dutch agricultural products by Germany grew with 28 percent. In 2010 the agricultural export was 11.8 billion Euros, in 2015 this increased to 14.7 billion Euros. This growth is caused mainly by the growth in export of the products that are mentioned in table 3.

Table 3: Top 5 Growth in Millions of Dutch Agricultural Products exported to Germany between 2010 and 2015

Product Groups	**2000-'15 Growth in Miln €**
Flowers and Plants	265
Vegetables	258
Fruit	214
Foodstuff	137
Cheese	135

Between 2000 and 2015 the export of Dutch agricultural products grew with 2.9 billion Euros, however, the total market share of the Dutch agricultural companies in Germany dropped. In 2010 the market share of the Dutch agricultural companies was 19 percent, this is one percentage point higher than it was in 2015. This loss of market share is explained by the fact that Germany is importing more products from other countries.[xxii]

The countries that are selling more agricultural products to Germany are meanly large EU-countries and Poland. Spain and Italy both experienced a growth in export of fruit and nuts, Poland exported mainly more prepared foodstuff and because of the growing export of non-alcoholic liquors and grain products from Austria to Germany, the market share of the Dutch was reduced. The correlating growth numbers were not available at the time of this research.

The main products that caused this drop in market share are plants and flowers, cheese and fodder. The market share of these products dropped respectively with 1.4, 3.1 and 3.6 percent (see Table 4). The drop in market share does not mean that Dutch companies are selling less. In contrast, even though the market shares went down, most product sales went up. For example, between 2010 and 2015, the export of Plants and Flowers increased by 265 million and the export of cheese increased with 135 million.

Table 4: Change in Percentages of Dutch Share of Agricultural Products in imports of Germany

	2010	**2015**	**Difference**
Agricultural Products	19%	18%	1%
Plants and Flowers	61.8%	60.4%	1.4%
Cheese	31.3%	28.2%	3.1%
Fodder	30.0%	26.4%	3.6%
Livestock	59.6%	58.3%	1.3%
Cacao(butter)	32.1%	29.8%	2.3%

Chances for Dutch companies in Germany.

Possible chances for Dutch agricultural companies are not in the products that are produced domestically, but that are imported into the Netherlands. Between 2010 and 2015 the biggest increase in agricultural products that Germany imported were in Fruit and Seeds for Fine Oils. Respectively 2.5 billion and 1.5 billion. The increase in the demand of seeds for fine oils is not visible in Figure 6, because this specific group of products was not included in the found data of CBS.

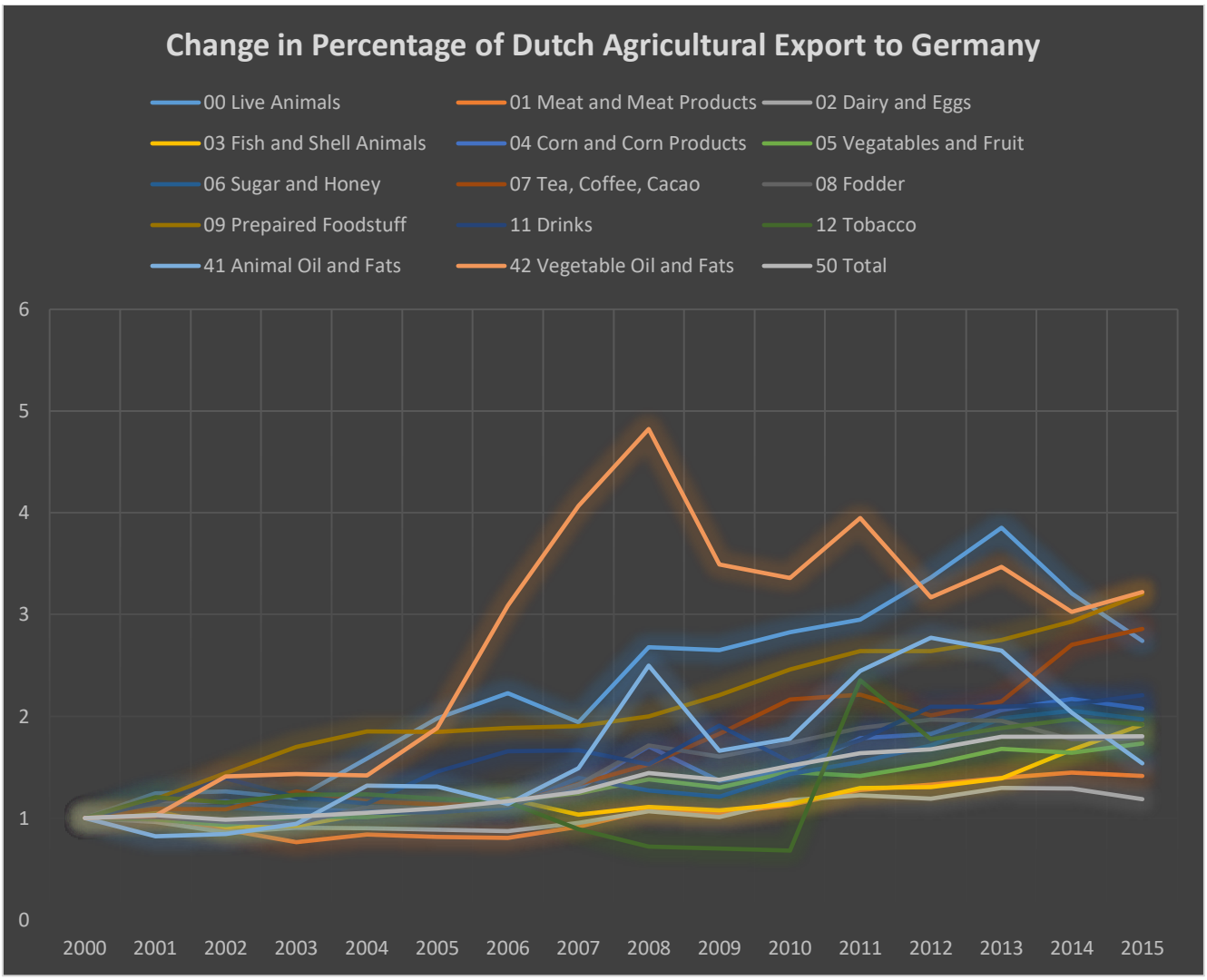

Figure 6: Change in Percentage of Dutch Agricultural Export to Germany between 2000 and 2015 (2000 = 100%)

Summarizing, the Dutch agricultural sector is selling more produce to the largest importer of Dutch agricultural products, Germany. However, the market share of the Dutch is declining. Other countries are selling relatively more to Germany than the Netherlands. To keep their market share in the German market, the Dutch have to sell more products.

Russia

Yearly the Netherlands exports around 1.5 billion Euros worth of products to Russia, only 2 percent of this is agricultural. Nevertheless, Russia is an important export country for the Netherlands because it is the second largest non-European importer of Dutch agricultural products, after the United States. With recent boycotts of different agricultural products, it is an interesting market to research.

Fluctuations

Every year the Netherlands exports millions of products around the world, and every year that amount changes, often it is very hard to tell why a product was sold more or sold less because most of the times there is not one, but multiple reasons for it. A factory can be build outside of the Netherlands, which means it is not export anymore even though it is still sold. Other reasons are the changes of policy and rules, which influence the production. Prices can change, exchange rates can change and in most cases it is a combination of these factors which makes it very difficult to say what really caused the increase or decrease in product sales.

One of fluctuations that can be seen in figure 7 and that can be explained is the sudden drop between 2008 and 2009. In 2008 the agricultural export to Russia was 1.1 billion Euros, in 2009 this dropped with 0.3 billion to 800 million. Reasons for this sudden drop in export value of Dutch agricultural produce are the earlier explained financial crisis in combination with the dropping value of the Rouble.

Russian boycott

Another fluctuation that is clearly visible in figure 7, is the drop in export value in 2014. In 2014 Russia boycotted, in reaction of sanctions of the EU, most agricultural products of the EU. These products include but are not limited to, meat, fish and shell animals, vegetables, fruit, dairy and some nuts. In figure 7 this is especially visible in meat (01) and fish (03), both dropping to almost zero.

Outside of the EU is Russia the second largest importer of Dutch agricultural produce. With Russian boycotts and a changing value of the Rouble it is a difficult and fluctuating export market for the Netherlands. With over 140 million citizens it has great potential but only two percent of the Dutch agricultural export goes to Russia.

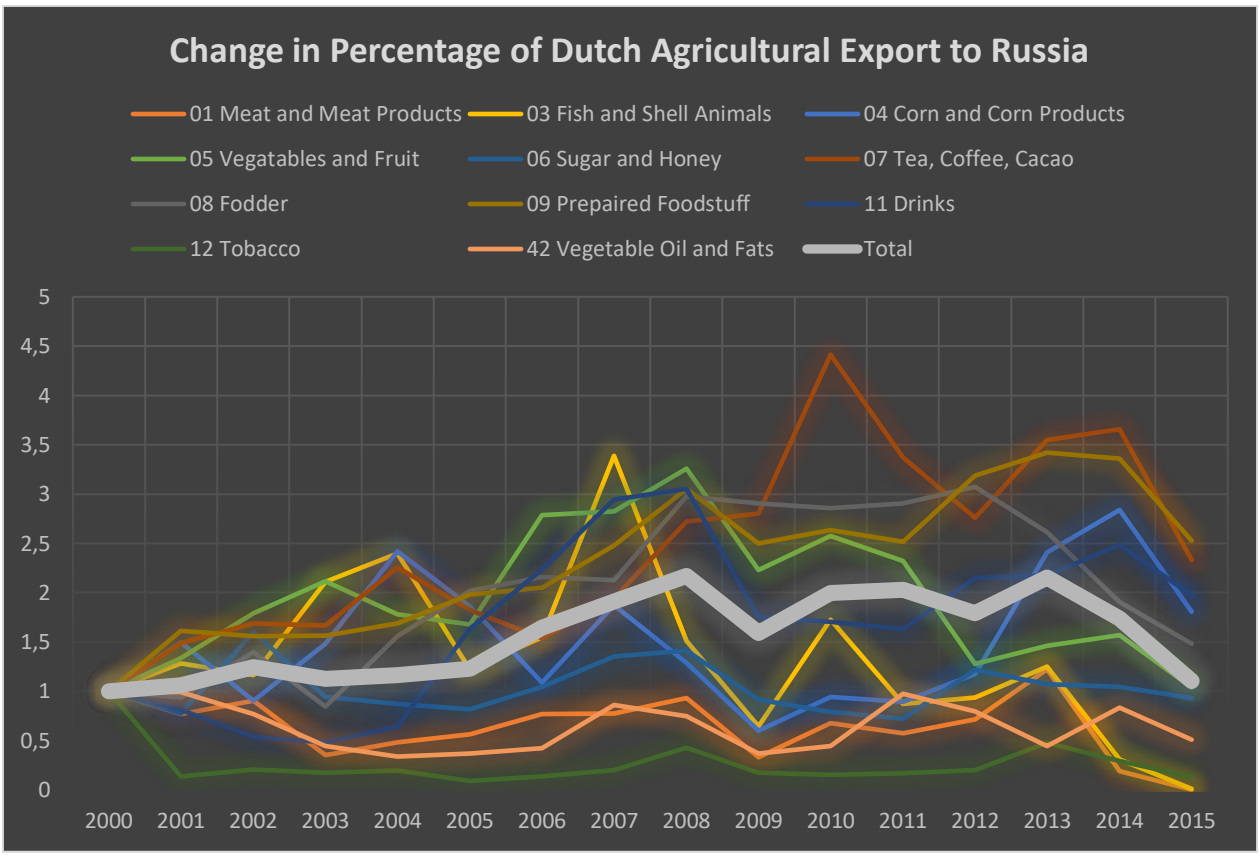

Figure 7: Change in Percentage of Dutch Agricultural Export to Russia between 2000 and 2015 (2000 = 100%)[1]

[1] In figure 7 multiple product groups like '00 Live Animals' were not included because the increase in percentage was enormous, (23x) but in absolute numbers this was only a couple of millions and not significant.

Re-export and Quasi export

Re-exportation

Not all products that the Netherlands imports are meant for the Dutch. If a company imports products just for the purpose of exporting them without significantly changing the product, it is called re-exportation. According to CBS estimations, one third of the agricultural products that the Netherlands import are meant for re-exportation. The other two third are meant for local Dutch markets or as an intermediary product. Of course these numbers differ per product, for example 90 percent of the grain that is imported to the Netherlands is meant for domestic use. Whilst, from all the fruit that the Netherlands import, only 46 percent is domestically used.

The re-exportation numbers by SITC from CBS are not available till the 3rd digit. Therefore it is hard to say how much the total re-exportation has grown and if its share in total exportation has grown. To still get an overview, the re-exportation numbers by SITC (1digit) were researched. These numbers cannot be used as exact but give a sufficient image of the agricultural market and how the share of re-exportation changed in the last 13 years.

As is visible in Figure 8, the total export of agricultural products almost doubled between 2002 and 2014 (178%), but the amount of re-exported agricultural products more than doubled (235%) in the same period. This means that the total share of re-exported agricultural products has grown in that period. In 2002, 20 percent of the agricultural products was re-exported, while in 2014 this was 26 percent (see Figure 9). From 20 till 26 percent means roughly a quarter increase in re-export. On a total agricultural export of 80.7 billion Euros this means 21 billion Euros worth of re-export. [xxiii]

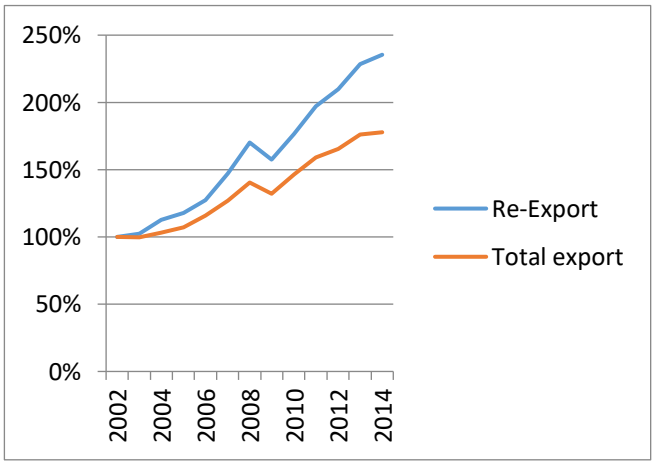

Figure 8: Growth in Percentage of Export and Re-Export of Agricultural Products by SITC (1Digit) from 2002 till 2014

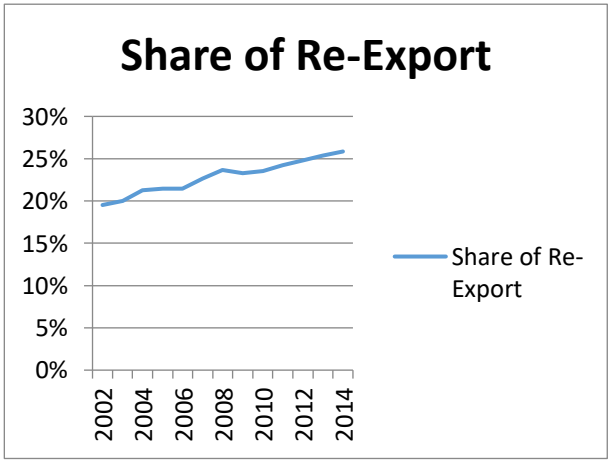

Figure 9: Change in Share of Re-Export compared to Total Export of Agricultural Products by SITC (1Digit) from 2002 till 2014

It is important to know how much of the total export is re-export because products that are re-exported do not contribute as much to the economy as exportation of domestically produced products. According to research of the CBS (2014): “One Euro of re-exportation ads on average 10.6 Eurocent to the economy. This is five times less than one Euro exported of domestic products, which adds on average 56.6 Eurocent to the economy.”

Quasi-transit

Another term strongly related to re-export is quasi-transit. With quasi-transit one refers to products that are imported into the Netherlands, which receive little to no treatment, and are exported to other countries. The only difference with re-export is that with quasi-transit the produce remains property of a foreign legal entity while present in the Netherlands. In the Dutch statistics this is not calculated as imports or exports, as it is not re-export. However, from a European perspective this is earmarked as Dutch trade, to be labelled as quasi-transit.

When the European numbers and the Dutch numbers are compared, the amount of quasi-transit can easily be identified. The amount of quasi-transit in 2015 in the Netherlands was 4.2 billion on a total of 85.5 billion. This is a little less than five percent of the total export. When researching the amount of quasi-transit products at product group level, big differences are found. For example, from all the fruit that the Netherlands exports, 1.1 billion Euros is quasi-transit. On a total of 5.3 billion this means 20 percent.

Not only fruit but also fish and seafood have a high percentage of quasi-transit. From the 3.1 billion that the Netherlands export every year, 0.7 billion (23 percent) is quasi-transit. When comparing this to the average amount of quasi-transit, which is 5 percent, this is a lot. A clear reason for the differences between products is not found in this research.

Summarizing, the import of agricultural product more than doubled in the last 15 years, with an import value of 55 billion euro in 2015. It is estimated that one third of the imported agricultural products is meant for re-export. Re-export does not contribute as much to the Dutch economy as domestically produced products. The amount of quasi-transit in the Netherlands is knows big differences between product groups. The average amount of quasi-transit is 5 percent of the total export.

6. Using Trade Theories to find Competitive Advantages in the Dutch agricultural sector

Comparing theory with reality

The research goal of this paper is to find out which competitive advantages can be found on the Dutch agricultural sector, using the discussed international trade theories. In answering the first research question the relevant international trade theories were discussed and explained. The second research question inquires what the recent trends in the Dutch agricultural sector are, how it has changed and where the possible opportunities are. The last part of this second research question invites for explanation by theory of where to find the competitive advantages of the Dutch agricultural sector.

Not all of the discussed trade theories will be compared and discussed. Only the most relevant theory has be chosen and will be elaborated on because of time limitations and relevance. In order to clarify potential advantages for the Dutch agricultural sector, an analysis of different trade theories was performed, using the information from chapter 3.1 Theories of International Trade. Since Porter's National Competitive Advantage Theory is better able to explain why some countries are more competitive in certain industries, the main focus will be in this theory.

Porter's combined insights have been visualized as the Diamond-model (see figure 10). This is especially interesting for the Dutch agricultural sector because of its surprising success considering its size. Using four dimensions, Porter's diamond model tries to explain why the Netherlands is still so competitive in the agricultural sector. When one uses Porter's diamond model it is crucial to know that: "International competitiveness of a country is related to international competitiveness of firms but not in an exclusive way because the macroeconomic environment and stability plays an important role at national level." Herciu, M. (2013)[xxiv]. These two factors are depicted under the headings *government* and *chance* (see figure 10).

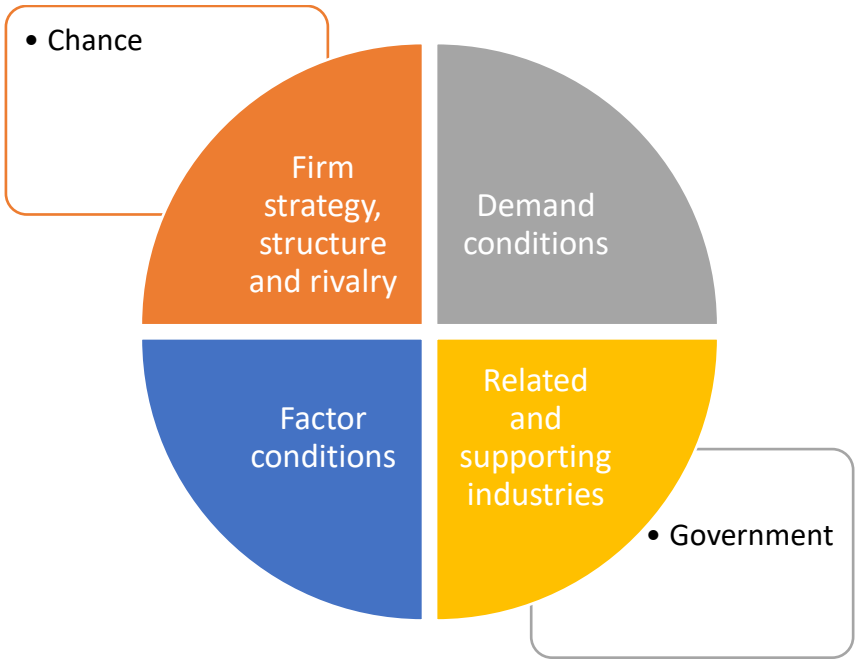

Figure 10: The Porter Diamond Model includes four dimensions and two external factors

Porter's Theory of National Competitive Advantage

According to Porter's model, nations have the best possible competitiveness in sectors where the diamond model shows the most favourable results. [xxv] When the four factors of Porters Diamond model are applied to the Dutch agricultural sector the following results are found.

Factor conditions

To determine how the factor conditions in the Dutch agriculture are, it is first of all important to know which factors are included. According to Porter (1990)[xxvi], the following factor conditions have to be considered: raw materials, human resources, knowledge resources, physical resources, technological recourses, capital resources, infrastructure, innovation power and managers capabilities. In this research only the most essential factors, namely labour and land, will be discussed.

Porter splits the factor conditions into two groups, the first group, home-grown recourses like basic labour and raw materials are easy to create, this in contradiction to the second group. The second group comprises of specialized resources, which include knowledge and technology. According to Porter (1990) this second group is more important compared to the first group to create a sustainable competitive advantage. This has to do with the easiness of creating these resources. Raw materials and basic labour can relatively easy be found or imported to a country, while gaining a highly educated population or advanced technology takes a lot of time and money.

In the Netherlands the home-grown resources are limited. The amount of land is limited and the available land is densely populated, as described before in the role of Agriculture in the Netherlands (page 10). In the Netherlands there is a relatively low number of citizens who will perform basic labour. The reason for this is that the Dutch population is relatively highly educated. According to the OECD; "32% of Dutch 25-64 year-olds hold a university degree, which is significantly above the OECD average of 24%".[xxvii] This could be considered a disadvantage for the labour intensive agricultural business because the price of labour is high. It could also work out as a great advantage for the sector, the highly educated workforce can innovate and make the sector more efficient. This way, a highly educated workforce can give a sustainable competitive advantage.

Regarding the specialized resources, the high population density in combination with the highly educated workforce created a country with a high knowledge business and advanced technologies like ports and airports. A survey from the World Economic Forum has marked the roads, ports and airports of the Netherlands as one of the best across the European Union.[xxviii] This is one of the reasons for the relatively high percentages of imports and exports. The highly educated population of the Netherlands, supplies the industry with new knowledge and technologies. The world competiveness report 2017-2018 stated that the Netherlands is the 6th most innovative economy, mainly because the high-quality research institutions.[xxix] Thus, the lack of home-grown resources is compensated by the presence of the more specialized resources, relatively giving the Netherlands a sustainable competitive advantage in the agricultural business. The competitive advantage gained is visible in the collected data. The most export of the Netherlands goes to Germany. Part of this export can be explained by the big population and the position of the Netherlands compared to Germany, but other important points to take into consideration are the high quality technology and knowledge of the Dutch (e.g. the ports, airports, infrastructure). These competitive advantages are seen as the main reason the Netherlands exports significantly more than similar countries.

Demand Conditions

The demand conditions refer to the nature of home-market demand for agricultural products. The Dutch consumption is important to know and understand according to Porter's model. According to Jin, B.[xxx], & Moon, H. C. (2006); "Countries where the domestic buyers are the world's most sophisticated and demanding, companies are forced to meet high standards, to upgrade, and to respond to tough challenges." Dutch consumption demand has been described as moderate in quality, but socially advanced. These characteristics then caused late reaction by firms, compared to other nations.[xxxi] Circumstantial evidence shows that this could be an outdated opinion, as Dutch consumers are in recent years demanding more specialized products. Michelin stars, indicating high quality restaurants, have risen in popularity and number. In 2008 there were 85 Michelin star restaurants, while in 2018 the magazine 108 restaurants were awarded with one or more stars. Another indicator of higher demanding citizens in the Netherlands is the demand for organic and locally produced products with a high quality. In 2015 alone, the amount spent on organic products grew with 11.5 percent. [xxxii]

Related and Supporting Industries

The presence of related and supporting industries is beneficial for the competitiveness of the sector according to Porter (1998). The usage of innovation, shared technology and shared information can create advantages for the whole industry. As discussed before in the factor conditions, the infrastructure and ports quality boosts the agricultural sector by providing efficient and fast transportation methods. The presence of food- and agricultural processing industries, like Unilever, Heineken and FrieslandCampina, in the Netherlands bring the possibility to produce and export processed products. Well implanted payment systems like Ideal and the presence of big financial corporations like ING and Rabobank, provide the industry with the possibility to focus on their own core competences. The high quality of ICT infrastructure is crucial for the communication within the sector and centres of expertise like The Hague Security Delta are providing cyber security. [xxxiii]

Firm Strategy, Structure and Rivalry

The fourth dimension of Porter's Diamond model is the firm strategy, structure, and rivalry. 'National context and national circumstances strongly influence how companies are created, organised and managed and the nature of domestic rivalry.' (Porter 1990) The Netherlands is a small country that has a history of trade. Because of this, Dutch firms are relatively outward- and export orientated. According to the World Economic Forum Dutch companies score as one of the highest nations on Business sophistication. With the 5th rank out of the 138 countries compared, it can be seen as a competitive advantage.[xxxiv] Recent research of the ABN AMRO shows that the productivity of the Netherlands is 18 percent higher than the EU average. Especially the productivity in the Agriculture (+102%) and Food (72%) are above EU average. The increase in productivity is connected to decreasing amounts of people working in these sectors[xxxv]. High productivity is essential for being competitive and can therefore be seen as a competitive advantage.

Chance and Government

In addition to these four dimensions, Porter's diamond model includes two external factors: chance and government. Chance events just happen; however, the nation with the most favourable "diamond" will most likely convert chance events into competitive advantage (Porter, 1998). The discovery in 1959 of natural gas in the boosted the economy and increased the GDP giving the Dutch more capital to invest. The geographical position of the Netherlands also provided the Dutch with the chance to become a trade nations with the easy accessibility of the hinterland (e.g. Germany) and position to the sea. Government and institutions are the first pillar in the World Competiveness Index. The Dutch institutions scored in 2017 a 5.8 (out of 7), making them the 7th best according to the World Economic Forum. [xxxvi]

7. Conclusion and Discussion

Conclusion

This thesis started with three sub-research questions. In the end the answers of these three questions will be combined in order to answer the main research questions. The main research question is: "To what extent can the current trends in Dutch agricultural trade be explained by prevalent international trade theories?"

In the first research question, the state of the art in peer reviewed literature on international trade theories has been explained. Six theories have been briefly handled to get an insight in international trade. The theories explained reasons why specific countries trade, for example because of absolute ore comparative advantages. Other theories stated that countries prefer trading with countries of similar purchasing power. The collected learning on the theories showed that there is no encompassing trade theory and every theory has its own weaknesses and strengths. The found results are discussed in chapter 4, page 12-14.

In chapter 5, page 15-27, the second research question was designed to explain the recent trends in the Dutch agricultural sector with the main focus on trade. Import and export trends in the agricultural sector have been elaborated on. The Netherlands is the second largest exporter of agricultural products with an export of 92 billion Euros in 2017. It can be concluded that between 2000 and 2015 import more than doubled with 117 percent and export grew with 86 percent. Both were caused for two-thirds by volume increase and for one-third by price increase. The difference in growth between import and export can partly be explained by loss of market share in the biggest export market Germany. Other countries sold relatively more, causing the Dutch market share to drop. The increased demand of high quality products in Germany is found as one of the reasons for this loss in market share. The increasing amount of re-export is negative for the economy, as re-exported products contribute five times less value to the economy as domestically produced products. 77 Percent of the exported products went to countries that were already part of the EU, with Germany as biggest importer.

In the third research question, Porter's diamond model was used to find out which competitive advantages can be found in the Dutch agricultural sector (chapter 6, page 28-32). The competitive advantages were found using the four dimensions of Porter's Diamond.

The highly educated population in combination with an innovative economy created high quality specialized technology and infrastructure, which is hard to duplicate. This is giving the Dutch agricultural sector, in the dimension of factor conditions, a competitive advantage.

The increasing demand for high quality products and organic and locally produced food forces the Dutch companies to increase their standards. A more demanding home market, forcing companies to improve can be seen as a competitive advantage.

The presence of related and supporting industries in the Netherlands is beneficial for the competitiveness of Dutch agricultural sector. Examples of these industries are high quality infrastructure, processing industries, financial corporations and a well working ICT network.

In the last dimension of Porter's model, Firm Strategy, Structure and Rivalry, two competitive advantages have been found. According to the World Economic Forum Dutch companies score as one of the highest on Business sophistication. Other researched showed that Dutch agriculture is 102 percent more efficient than EU average. The high sophistication and efficiency create a competitive advantage over other nations.

The geographical position of the Netherlands, the discovery of natural gas and the high quality Dutch institutions provided the agricultural sector with competitive advantages outside of the four dimensions handled.

These three research questions combined give an answer on the main research question: To what extent can the current trends in Dutch agricultural trade be explained by prevalent international trade theories.

Porter's Diamond model can partly explain the current trends in Dutch agriculture. The competitive advantages found in the Dutch agricultural sector, explain the current position of the Netherlands in being one of the biggest importers and exporters of agricultural products. Other trends that have been found like, loss of market share in Germany and the increase of re-export cannot be sufficiently explained by the used model.

Discussion

This paper had as main goal to find a theoretical approach to the Dutch agricultural sector. By means of literature study six relevant international trade theories were found and discussed. Empirically this study focused on the Dutch agricultural sector to gather information on what the recent trends in the sector are and where it is changing. These results were then compared to the international trade theories that were found. One specific model, Porters Diamond, was applied to find which competitive advantages could be found in the Dutch agricultural sector.

The importance of this study is found in the importance of the agricultural sector for the Netherlands. With a significant amount of jobs and value added to the economy, this sector is critical for the Netherlands. Therefore, it is important to know why this sector is doing so well and to be able to use this knowledge for continuing this success. The analysis done is this research could also be applied in a broad diversity of other sectors to gain knowledge about sustainable competitive advantages. Especially industries with higher added value because of less re-exportation, like the hi-tech sector, could boost the economy by being more competitive.

Regardless the significance of the findings, this study had limitations. As mentioned before, this is only a bachelor thesis, which makes time a limiting factor. The limited amount of available days made it difficult to do everything in the best way possible. The chosen theoretical concepts of international trade discussed in the beginning of this research, chapter 4, could be elaborated on further. For every theory discussed, studies could have been compared where the theory was tested or applied. By doing this a better choice could have been made to choose which theory to apply to the sector. Further research into this topic could use more and different theoretical approaches, to find theories that are closer correlated and carry more significance to the practice.

Other possible improvements and chances for further research concern in the results on the Dutch agricultural sector. The results gathered are from 2000 till 2015. Further research could expand the data range, it is important to have up to date data from the market to keep your research relevant. In the data set used in this research, choices were made which product groups fell under the term ‘Agricultural Products’. Not all sources that were used, explained their research till 3-digit-SITC code. This could cause an inconsistency in the found results. Further research has to be done to find out how big this inconsistency is and if it would change the results.

When the theory and practice were combined in the end of the paper, possible factors of success have been discussed using Porter's diamond model. There is a big possibility that one or more essential factors in the analysis of the Dutch agricultural sector has been missed. The amount of possible factors that have to be taken into account is significant. Further research has to been taken into account during the analysis. Other recommendations for further research include the use of more theories. Only using one theory is risky, any fault or flaw in the theory is directly a fault in the results gathered using this theory. This problem can be prevented by applying more theories to the data, which makes the results less sensitive for flaws in the theory. Further researches in this topic are there for advised to use more and different theories.

Appendix

Concepts:
SITC, Standard International Trade Classification. All SITC codes, till 3 Digits, are named in the list. The SITC codes that have been used to define "Agricultural products" are typed in **bold font and are highlighted.** [xxxvii]

All SITC codes (3 Digits).

- 0 - Food and live animals
  - **00 - Live animals other than animals of division 03**
  - **01 - Meat and meat preparations**
  - **02 - Dairy products and birds' eggs**
  - **03 - Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof**
  - **04 - Cereals and cereal preparations**
  - **05 - Vegetables and fruit**
  - **06 - Sugars, sugar preparations and honey**
  - **07 - Coffee, tea, cocoa, spices, and manufactures thereof**
  - **08 - Feeding stuff for animals (not including unmilled cereals)**
  - **09 - Miscellaneous edible products and preparations**
- 1 - Beverages and tobacco
  - **11 - Beverages**
  - **12 - Tobacco and tobacco manufactures**
- 2 - Crude materials, inedible, except fuels
  - 21 - Hides, skins and furskins, raw
  - 22 - Oil-seeds and oleaginous fruits
  - 23 - Crude rubber (including synthetic and reclaimed)
  - 24 - Cork and wood
  - 25 - Pulp and waste paper
  - 26 - Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)
  - 27 - Crude fertilizers, other than those of division 56, and crude minerals (excluding coal, petroleum and precious stones)
  - 28 - Metalliferous ores and metal scrap
  - 29 - Crude animal and vegetable materials, n.e.s.
- 3 - Mineral fuels, lubricants and related materials
  - 32 - Coal, coke and briquettes
  - 33 - Petroleum, petroleum products and related materials
  - 34 - Gas, natural and manufactured
  - 35 - Electric current
- 4 - Animal and vegetable oils, fats and waxes
  - **41 - Animal oils and fats**
  - **42 - Fixed vegetable fats and oils, crude, refined or fractionated**
  - 43 - Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.
- 5 - Chemicals and related products, n.e.s.
  - 51 - Organic chemicals
  - 52 - Inorganic chemicals
  - 53 - Dyeing, tanning and colouring materials
  - 54 - Medicinal and pharmaceutical products

- 55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations
- 56 - Fertilizers (other than those of group 272)
- 57 - Plastics in primary forms
- 58 - Plastics in non-primary forms
- 59 - Chemical materials and products, n.e.s.

- 6 - Manufactured goods classified chiefly by material
  - 61 - Leather, leather manufactures, n.e.s., and dressed furskins
  - 62 - Rubber manufactures, n.e.s.
  - 63 - Cork and wood manufactures (excluding furniture)
  - 64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard
  - 65 - Textile yarn, fabrics, made-up articles, n.e.s., and related products
  - 66 - Non-metallic mineral manufactures, n.e.s.
  - 67 - Iron and steel
  - 68 - Non-ferrous metals
  - 69 - Manufactures of metals, n.e.s.
- 7 - Machinery and transport equipment
  - 71 - Power-generating machinery and equipment
  - **72 - Machinery specialized for particular industries Only 721,722 and 727 are used of this section.**
  - 73 - Metalworking machinery
  - 74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.
  - 75 - Office machines and automatic data-processing machines
  - 76 - Telecommunications and sound-recording and reproducing apparatus and equipment
  - 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment)
  - 78 - Road vehicles (including air-cushion vehicles)
  - 79 - Other transport equipment
- 8 - Miscellaneous manufactured articles
  - 81 - Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.
  - 82 - Furniture, and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
  - 83 - Travel goods, handbags and similar containers
  - 84 - Articles of apparel and clothing accessories
  - 85 - Footwear
  - 87 - Professional, scientific and controlling instruments and apparatus, n.e.s.
  - 88 - Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks
  - 89 - Miscellaneous manufactured articles, n.e.s.
- 9 - Commodities and transactions not classified elsewhere in the SITC
  - 91 - Postal packages not classified according to kind
  - 93 - Special transactions and commodities not classified according to kind
  - 96 - Coin (other than gold coin), not being legal tender
  - 97 - Gold, non-monetary (excluding gold ores and concentrates)
- I - Gold, monetary
- II - Gold coin and current coin

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