THESIS WORK

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2017
Comparative advantage of GCC countries in oil trade

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BA in Business and Management
2017

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INTRODUCTION

Since the earliest phases of human history, commodity exchange and trading have played a central and increasingly important role. Although successful merchants have always instinctively felt and complied with the unwritten rules of trading in the old times, too, the observation of dynamics and rules of economics and commerce from a scientific perspective did not take place until the 18th century. The foundation of comparative advantage theory by David Ricardo in 1817 paved the way to the invention of Balassa-index by Béla Balassa in 1965, a robust tool of quantifying revealed comparative advantage. The Balassa-index (and several more advanced measures) are capable of depicting the competitiveness of a certain market player in trade of a specific kind of product or a group of products, as compared to another market player or group of market players.

This paper utilizes the Balassa-index, the RTA (revealed trade advantage) and RC (relative competitiveness) indices to shed light on the general tendencies and specific shifts in revealed comparative trade advantage of the GCC member states (which are: The Kingdom of Saudi Arabia, Kuwait, Bahrain, Oman, Qatar and the United Arab Emirates) in oil products within a study period ranging from 2000 to 2015 (reference countries: world). In addition to the fact that international trade is of utmost importance for both developed and developing countries (making competitiveness, the key factor of success in this field worth examining), there are several personal motives behind the choice of topic, such as my interest in international trade, my academic background of studying Arabic language and culture, as well as my prospects of working in the Arab world.

The first part of the paper comprises a short introduction to David Ricardo’s theory of comparative advantage is followed by the discussion of measures of revealed comparative advantage (namely RCA, RTA and RC indices, which all originate from the revolutionary Balassa (1965) index), along with the examination of the oil trade structure of the GCC member states.
The second part of the paper is devoted to the discussion and evaluation of results obtained from an empirical analysis conducted about revealed comparative advantage in oil trade for the GCC member states between years 2000 and 2015. Data utilized to perform calculations were retrieved from the publicly available World Integrated Trade Solutions (WITS) database of the World Bank (2017). My thesis aims at finding grounds to prove or refute the following two hypotheses:

**Hypothesis I** – *All GCC member states enjoyed revealed comparative advantage in oil trade within the study period in World market.*

**Hypothesis II** – *The level of revealed comparative advantage of GCC member states in oil trade has significantly diminished over the study period due to political and economic reasons (for example the financial crisis in 2008 and its aftermaths, the Syrian conflict and the emergence of renewable energy use).*

Apart from the interpretation of obtained results, a special emphasis is placed on highlighting the probable influential factors behind major shifts, should they be of economic, political or other sorts of cause.
1. THEORETICAL SECTION

1.1 Evolution of international trade theory (theoretical background of comparative advantage)

1.1.1 Two fundamental factors leading to the emergence of mercantilism

International trade has been around for thousands of years, however, the immaturity of transportation and the lack of coherent economic doctrines prevented it from evolving from its rudimentary and highly unstructured shape until the end of the Middle Ages. The approach of European society towards economy harmonized with the approach of the Catholic Church, the greatest cultural influence of the Middle Ages, which looked upon the economy as “a sheer means of taking care of the physical necessities of the human body” (Heller, 1943, p. 3). There were two fundamental motives which played a decisive role in shifting this general view towards the approach of studying and thinking about economy for itself, for the sake of understanding the underlying natural correlations. These two motives were the occurrence of the geographical discoveries and the emergence and development of monetary economy. (Heller, 1943)

The great geographical discoveries in the 15th and 16th century turned existing trade network upside down, as new continents and products appeared on the horizon of international trade. There are two main reasons which jointly led to the launch of exploration trips supported by European royal families. First, the pace of demand growth for luxury goods in Europe exceeded the growth of domestic production, which caused an increase in trade deficit. Without sufficient ready-made goods, Europeans were forced to provide merchants with precious metals in exchange for Far-Eastern luxury goods, which have progressively become scarce parallel to the depletion of European ore mines. Second, the Ottoman Empire acquired excessive control over the Silk Road and Middle Eastern maritime commerce through its successful expansion in the 15th century, which created a highly uncomfortable dependence for Christian Europe on the benevolence of Muslim governance. The joint effect of these two reasons forced European rulers to invest in searching for new trade routes towards India (Krämer, 1979).
The development of monetary economy and the spread of money use emerged simultaneously with the aforementioned tendencies. Parallel to human development, the pattern of trade has been altered – barter exchange gradually lost its viability for it stipulates two parties in need exactly for each other’s products. Precious metals have turned step by step from being an average group of products into being independent tools, suitable for performing multiple consecutive transactions (Keszi, 2005). The spreading of money use enabled the emergence of a wealthy layer of citizenry, which was progressively relied on by authorities in funding of frequent wars through taxation. As the new social layer became stronger, the development of economy has become a central political issue, and a public debate was unleashed about the tools which would best increase general welfare. It eventually translated into the increase in the efficiency of industry and trade (Heller, 1943).

1.1.2 The emergence and discussion of mercantilism

The aforementioned two factors led to an intensive search throughout Europe for tools that vitalize and develop commercial spirit and trade, which resulted in the appearance of the dominant economic philosophy of the time, referred to as mercantilism. Slightly different aspects of mercantilism have been developed in each European area, however, the key idea of setting positive trade balance and possessing as much of precious metals as possible to be the ultimate goal for domestic economy (even with the assistance of government intervention if necessary) remained the same everywhere (Mercantilism, 2017).

A rich literature of mercantilism was handed down by a multitude of authors of different nationalities. Among others, Thomas Mun (1571-1641) and Antonio Serra (16th century) contributed to this literature in representation of this economic trend in England and Italy, respectively (Mercantilism, 2017). In France, the development of industry was of utmost importance, which was fostered by Jean-Baptiste Colbert, the French minister of economic affairs of his time in the 17th century. According to Colbert’s views, the exclusive means of increasing France’s economic strength was the maximization of export volume in parallel with the minimization of import volume, as it is easy to see that trading activity between domestic parties does not increase national economic power (since it stands only for the exchange of products and precious metals, which served as
money at the time, within the borders of the country). As a consequence, he did not only support national efforts for colonization but also imposed tariffs on imports and attempted to facilitate the success of domestic industry by providing loans to them (Szentes, 1999).

In relation to mercantilist economic policy, several rightful critics can be mentioned. On one hand, if every trade partner adopts mercantilism, i.e. all trade partners strive for the maximization of exports and minimization of imports, the aggregate volume of trade is bound to start shrinking, if not cease to be existing, which triggers negative consequences to all players in the long run (ECONOM, 2010). On the other hand, accumulation of wealth can never be considered as a meaningful goal, since it is always meant to be utilized for the accumulator’s own purposes. Additional wealth generated from mercantilist economic policy therefore increases demand for products, which leads to the increase of imports - as the article concludes, “the balance of export and import volume is then necessarily restored at the end of the day” (ECONOM, 2010, p. 1).

1.1.3 Adam Smith and the theory of absolute trade advantage

Although the establishment of economics - a new science - is agreed to be the merit of Francois Quesnay (1689-1774) by proposing productivity to be the central element of the economy instead of trade, it is Adam Smith (1723-1790) who is celebrated by the public as the true founder of the science of economics. In his widely recognized work, ‘The Wealth of Nations’ (1776), he identified human labor as the most important factor of production, while he extended the notion of productivity and introduced the notable role of exchange as well. In his famous work, Adam Smith touched on the topic of international trade of commodities as well, claiming specialization – originating from the social distribution of labor – to be the basis for cross-border commodity exchange (Acin, 1974). According to his theory of absolute advantage, countries will specialize in the production of such goods which they can produce at lower absolute cost levels compared to competitors. As the imaginary example suggests, country ’A’ has an advantage over competitors in exports in terms of competitiveness if it is capable to produce certain commodity more efficiently than any other players, or in other words, if it has absolute advantage in its production. Parallel, it is only worthwhile for country ’A’ to engage in import transaction with country ’B’ if country B has the ability to produce the desired
product cheaper than country ’A’. In this case, it is wise from country ’A’ to engage in such a transaction (Krugman-Obstfeld, 2000).

1.1.4 David Ricardo and the theory of comparative advantage

It did not take much time after the publication of ’The Wealth of Nations’, until another economist, David Ricardo (1772-1823) appeared on the horizon of modern classical economics, making an impact on the classical economic theory of international trade by further developing Smith’s ideas and bringing existing theories closer to depicting reality. He refused Adam Smith’s statement about absolute advantage being the exclusive condition under which trading is beneficial for countries, demonstrating his point through an example: „To produce the wine in Portugal, might require only the labour of eighty men for one year, and to produce the cloth in the same country, might require the labour of ninety men for the same time. It would therefore be advantageous for her to export wine in exchange for cloth. This exchange might even take place, notwithstanding that the commodity imported by Portugal could be produced there with less labour than in England.” (Ricardo, 1819, p. 116) According to Ricardo’s theory of comparative advantage, trading can take place even if one country has absolute advantage over the other in the production of both of two selected goods, because these advantages are not equal, therefore, the country with worse production conditions will still have a comparative advantage in one of the goods and the level of general well-being will rise (Acin, 1974).

Exhibit #1 demonstrates the truth of the above statement, showing that trade enables both the United States and the Rest of the World to reach an indifference curve which is beyond their own production possibility frontier (PPF), which means a higher level of living standard is realized with the presence of trade than the one without trade.
Exhibit #1 – Gaining from specializing according to comparative advantages (Vigvári, 2014)

As a result, a country will export products that it can produce at a low opportunity cost (in terms of other goods that could be produced within the country), while it will import those goods which it can produce only at a comparative disadvantage or slight comparative advantage (Vigvári, 2014). Ricardo’s theory indicates that countries without any absolute advantage may possibly gain on trading as well, and as a result, it allows trading activity to happen in many cases which would not take place under Smith’s conditions (Acin, 1974).

1.2 The measurement of competitiveness

The foundations of competitiveness, which were laid down by Adam Smith and David Ricardo two centuries ago, are widely recognized and accepted in economist circles. However, in the 20th century, rapid technological development and high speed of information flow triggered the emergence of progressively fierce international competition, which challenged countries as well as businesses. Many found themselves in need of getting clear on how they rank compared to others in terms of competitiveness, as well as what factors are liable for yielding a competitive status at all in reality. Such a demand encouraged economists to identify the true roots of competitiveness and to
elaborate methods which give a hand to market players in quantifying their comparative advantage or disadvantage.

1.2.1 Michael Porter’s diamond model of competitiveness

In response to the arising interest around the search for finding the roots of national competitiveness, numerous theories have been published - with a varying degree of truth content – about what factors are responsible for competitiveness in reality. Some were arguing that economic variables (budget deficit, exchange rates, etc.), availability of natural resources or different sorts of government policies are influential with regards to national competitiveness, while others promoted the idea that competitiveness is the fruit of more effective management policies (Porter, 1990). Although each of the aforementioned approaches carry some fractions of the truth, Michael E. Porter (1943- ), the famous American academic found that in itself, none of them is fully satisfactory, and in order to fill this research gap, he created his so called ‘Diamond model’ of national advantage. His model was published in his article ‘The competitive advantage of nations’ in 1990, where he names (1) ‘factor conditions’, (2) ‘demand conditions’, the presence or absence of (3) ‘related and supporting industries’ and (4) ‘strategy/structure and rivalry’ as the four cornerstones of competitiveness, as shown in Exhibit #2 (Porter, 1990, p. 78).

Exhibit #2 – Determinants of National Competitive Advantage (Michael E. Porter, 1990, p. 78)
Through these four key elements, he explains national advantages so successfully that since then, his ‘Diamond model’ did not cease to be an essential element of theoretical knowledge for the majority of students in the fields of economics and business.

1.2.2 Quantification of competitive advantage – the B index

The modern basis of calculating comparative advantages, the so-called 'B' index was invented by Béla Balassa and published in his fundamental and famous study (‘Trade liberalization and revealed comparative advantage’) in 1965. Since then, it has been surrounded by vivid interest, and for a handful of limitations have been revealed in relation to it, several economists felt inspired to extend and improve it further in the following decades, too. Vollrath’s (1991) RTA (Revealed Trade Advantage) index or Hoen–Oosterhaven’s (2006) ARCA (Additive index of Revealed Comparative Advantage) index which strive for an even closer approximation of the true values of comparative advantage, are excellent examples of these attempts (Balogh, 2016).

1.3 The measurement of comparative trade advantage

1.3.1 The B index

Besides the concept of absolute trade advantage, the evolution of classical trade theory laid the foundations of comparative advantages, too, however, until the second half of the 20th century, there was neither a demand for elaborating a mathematical formula for the sake of its proper quantification, nor any volunteering economists to do so. It was Béla Balassa, the Hungarian economist who took the pioneer role by the invention and publication of the so called B index in 1965 (which is used and calculated by World Bank, WITS database since then). Thanks to the efforts and contributions of numerous authors, the birth of this measure unleashed a process which led to the rise of additional, more accurate formulae for quantifying competitiveness by computing comparative advantages in different ways.

The B index – the invention of which was inspired by the article of Liesner (published in 1958) – gives researchers a hand to compute the relative comparative advantage or
disadvantage in case of a product or a basket of products, compared to an industry or the export market. It proposes to compute revealed comparative advantage as follows:

\[ RCA_{ij} = B_{ij} = \frac{\left( \frac{X_{ij}}{X_{it}} \right)}{\frac{X_{nj}}{X_{nt}}} \]

where \( X \) stands for export volume, \( i \) and \( j \) represent a selected country and product respectively, while \( t \) and \( n \) stand for a certain product group and a group of countries, respectively (Balassa, 1965).

In theory, the index can take values from 0 to positive infinity. According to Balassa, an end result above 1 suggests that the selected country enjoys comparative advantage with respect to the selected product over fellow suppliers, therefore it is bound to be manifested in high export market share. In turn, an end result between 0 and 1 implies comparative disadvantage for the selected country in contrast to fellow suppliers, which translates into low export market share.

1.3.2 Steps for further improving the B index – RMA, RTA and RC indices

The Balassa index was found to have some limitations (discussed later), which encouraged economists to elaborate tools which depict reality about comparative advantages in a more accurate way. Without any changes in the B index formula, Hinloopen- van Marrewijk (2001) proposed a classification system, which helps in properly evaluating the end results. The authors labeled their established categories as follows:

- **Category A**: \( 0 < B \leq 1 \),
- **Category B**: \( 1 < B \leq 2 \),
- **Category C**: \( 2 < B \leq 4 \),
- **Category D**: \( 4 < B \),

where products with no comparative advantage belong to category A, while products with weak, moderate and strong comparative advantage are assigned to category B, C and D, respectively. This classification contributes to the proper interpretation of B index values, however it does not solve the problem of the lack of proportionality mentioned above.
The manifested imperfections of the B index inspired Vollrath (1991) to propose a new approach to the measurement of revealed comparative advantages, which in essence takes demand side into consideration in addition to supply side. By looking at national trade as a whole instead of examining export only, this enhancement brings about obtaining a more realistic image about trade advantages. Vollrath’s (1991) new index is computed in the following way:

\[ RTA_{ij} = RXA_{ij} - RMA_{ij} \]

where RTA stands for revealed trade advantage, RXA represents revealed export advantage (which is identical to the B index) and RMA is an abbreviation for revealed import advantage. Provided RTA > 0, the selected country possesses relative trade advantage as compared to reference countries, while if RTA < 0, it has relative trade disadvantage. The higher value RTA index takes, the higher the relative trade advantage of the country.

In order to further approximate reality, another index, RC (relative competitiveness) was introduced by Vollrath (1991). RC value is obtained by a simple subtraction of the natural logarithms of RXA and RTA discussed above:

\[ RC_{ij} = \ln RXA_{ij} - \ln RTA_{ij} \]

According to Jámbor (2009), one of the most important benefits of RC in comparison with previous indices lies in the fact that its curve is symmetric to the origin. Furthermore, export-import trade distortions are found to be mirrored by this index, as well as it is capable of handling intra-sector trading (which, as he points out, is a drawback for it at the same time).

Most of the related literature agrees that RTA and RC indices are more appropriate tools for expressing comparative advantages than the Balassa index. Although opinions differ about which of them should be favorized, several attempts have been made through consistency analyses (for example Ballance et al., 1987) to prove the superiority of one over the other (Jámbor, 2009). The empirical part of this thesis will examine oil trade tendencies and revealed comparative advantages for the selected six GCC member states with the help of all the discussed measurement tools, i.e. the B, RTA and RC indices, for
by looking at the subject from multiple angles and by applying different methodologies, it is easier to draw valid conclusions.

1.3.3 Limitations to the B index

The B index has quickly gained popularity and it has been widely used by many to evaluate trade advantage positions and prospects. Nevertheless, throughout the decade long use of B index, it became evident that besides its positive features of simplicity and ease of use, there are some limitations to it, too.

First, foreign trade is known for being a highly significant area of national economic policies, therefore attempts from governments to achieve certain changes in national foreign trade structure in shape of direct interventions (subsidization of certain industries) or restrictions are likely to be influential factors in every national economy (Jámbor, 2009). The B index is rightfully criticized for disregarding the impacts of these different economic policies driven by specific national drives, thus Siggel (2006) came to the conclusion that the index is more of a useful tool to capture competitiveness in general than to measure comparative advantages.

Second, the process of classifying countries and products or groups of products as having comparative advantage and disadvantage, and further breaking down this result to see the relative weight of these two potential outcomes for the selected products, requires the ability to quantify these weights with the help of a proportionate scale. However, the asymmetry of potential end values highlights the fact that B index is bound to yield biased results in this respect, since if a country has comparative advantage in one product, the index values might be dispersed from 1 to positive infinity, while in case of observed comparative disadvantage, index values are confined to take values between 0 and 1. The disparity described above might then lead to the mistaken relative overestimation of the weight of the selected industry within a country (Fertő, 2003).
1.4 Previous studies on competitiveness and comparative advantages in oil trade in the Middle East

A number of studies have been conducted about competitiveness in general with a focus placed on the Middle East, however there are relatively few to concentrate specifically on the combination of competitiveness and comparative advantages in oil trade. In the following section, four related studies and their findings are introduced and summarized briefly.

The Middle East Competitiveness Report (Huggins et al., 2016) embraces a general approach to regional competitiveness, using World Competitiveness Index of Regions (WCIR) as analysis framework. WCIR employs a wide range of indicators, including "R&D expenditures performed by public and private sector; patents granted; private equity investment capital; internet hosts; secure servers; broadband access; public expenditures on education, etc." (Huggins et al., 2016, p. 31). The report found that the competitiveness of some Middle Eastern regions undoubtedly stems from the presence of valuable natural resources, however, some others achieved it through other means. According to Huggins et al. (2016, p. 5), "the average level of regional competitiveness in the Middle East is relatively low, with a WCIR score of 39.1" (in contrast to a global mean average of 100). Although, seven out of ten most competitive regions are found within the six GCC member states examined in this paper, Qatar, Kuwait and Abu Dhabi (UAE) being the top three of them, occupying the 2nd, 3rd and 4th position on the list.

With full dedication to the oil sector, AlQudah et al. (2016) focused on the evaluation of the impact of oil on global competitiveness of the GCC (Gulf Cooperation Council) states by using panel data techniques. Four non-traditional factors have been used to approximate this impact, namely: oil prices, oil rents, fuel exports as percentage of merchandise exports and mining sector production. An eight-year study period between 2006 and 2014 has been selected to conduct the research on. AlQudah et al. (2016) observed that competitiveness grows parallel with the increase in oil prices and share of mining sector in GDP, for the examined countries are heavily reliant on oil sector to achieve and sustain competitiveness. As a result, diversification efforts are bound to lead
to a decrease in comparative advantage and trigger a tendency of diminishing competitiveness.

In his article, Zafar Ahmad Sultan (2014) aimed at shedding light on products in which the Kingdom of Saudi Arabia has comparative advantage, based on all the HS-2 digit products for the selected study period of 1991-2011. Data used for the empirical part was retrieved from the UN Database and International Trade Centre (ITC). Besides the basic RCA index, Sultan conducted an ADF and further PP tests, as well as he computed long- and short run income and price elasticities, too. He found that the Kingdom of Saudi Arabia has had significant comparative advantage in oil production over the course of the examined years.

Finally, Almas and Hajiyev (2013) prepared an analysis on the existing and potential comparative advantages of the Azerbaijani trade, looking at a variety of goods from different sectors. The authors took a close look at the study period between 2007 and 2009 and two RCA indicators, the Balassa and NER (Net Export Ratio) indices were used to identify comparative advantages on a wide range of goods including agricultural products, oil products, chemical- and petrochemical products, as well as machineries. The outstandingly high numbers for the two indices both suggest that Azerbaijan had a robust comparative advantage in crude oil within the study period.

Throughout my research it became clear that there are no previous studies with an analysis arrangement identical or even similar to the one selected for this paper, therefore it is reasonable to conduct my thesis on this topic, along the lines and with the help of the tools discussed earlier.
2. EMPIRICAL SECTION

2.1 COUNTRY PROFILES AND APPLIED METHODOLOGY

The second part of this thesis comprises a revealed comparative advantage analysis based on real world data - about a selected group of countries -, which is conducted with the application of indices introduced in the theoretical part. The following section is dedicated to the discussion of three basic points, as follows:

1. Introduction to crude oil, the commodity of interest. An overview of international oil trade and the top ten oil exporter countries.
2. Introduction to the countries of interest. An overview of the GCC member states, the degree of cooperation among them and description of factors which influenced their oil policy and comparative advantage in oil trade.
3. Description of applied methodology.

2.1.1 Overview of international oil trade

Petroleum is a fossil fuel, which is burned to produce energy. Its extraction in industrial volumes dates back to the 19th century, and since then, continuous technological improvements made oil industry reach mature industry status. Petroleum consumption heavily damages the environment, while it is not true for the more and more affordable renewal energy, which makes some argue that the end of oil era is near. However, petroleum did not cease to be the world’s leading source of energy, accounting for 32.9% of global energy consumption in 2015 (BP, 2016). For its utmost importance, I found petroleum suitable to be the commodity of interest for my empirical analysis.

Petroleum is necessary for the functioning of every healthy economy, however, reserves are oddly distributed among countries. In order to let trade happen between those willing to sell and buy, an active international market was established, which is accessible to any interested party. The unit measure of crude oil is barrel, and although it is a relatively homogenous commodity, certain oil markers are in use for price benchmarking worldwide, the most acknowledged of which are the WTI (West Texas Intermediate – high quality, light petroleum with low sulphur content), Brent (a combination of crude oil
extracted from fifteen different North Sea oil fields, almost as light as WTI crude) and Dubai-Fateh (medium sour Dubai crude oil) oil types (Mikesy, 2009). NYMEX (New York Mercantile Exchange) and OPEC (Organization of the Petroleum Exporting Countries) Basket of Crudes also serve as oil price benchmarking tools (Lövész, 2006).

International oil price changes are consistently surrounded by vivid interest, and as shown in Exhibit #3, the last sixteen years brought about intensive price fluctuations. Two steep price drops occurred since 2000 in years 2008 and 2014. The global financial crisis triggered the sharpest decline seen in the new millennium so far, with a 66% price drop within one year. The period of recovery and stabilization of crude oil prices around 100$/barrel after 2008 was ended by an approximately 50% decline in 2014. Lately, oil prices have showed a high level of instability, sinking below 30$/barrel and climbing up to 50$/barrel since then.

Exhibit #3 – Crude oil prices after 2000 (Crude Oil Prices - 70 Year Historical Chart, 2017)

Such fluctuations may be driven by a multitude of causes, including political events, economic and monetary shocks, natural disasters and as Mikesy (2009) notes, speculation activity which was proved to be one of the most important causes behind the robust price increase between 2000 and 2008.
2.1.2 The top ten oil exporter countries

Some countries are luckier than others in terms of proved oil reserves and extraction capacity. Exhibit #4 is meant to highlight the ten most influential petroleum producer and exporter countries, whose joint export volume accounts for more than 50% of total world exports. (For the first glance, the presence of Singapore in top ten oil exporters may seem to be mistaken. Although the country has no remarkable hydrocarbon reserves, it has huge capacities in oil refining, thus with an extremely high value of oil preparations exports (product code 2710), Singapore makes it into the top ten). The exhibit is based on historical figures from 2000 to 2015.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Reporter</th>
<th>Sum</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Saudi Arabia</td>
<td>2 906 033 386,74</td>
<td>13,23%</td>
</tr>
<tr>
<td>2</td>
<td>Russian Federation</td>
<td>2 476 805 072,25</td>
<td>11,27%</td>
</tr>
<tr>
<td>3</td>
<td>UAE</td>
<td>1 027 853 652,53</td>
<td>4,68%</td>
</tr>
<tr>
<td>4</td>
<td>Canada</td>
<td>858 693 453,46</td>
<td>3,91%</td>
</tr>
<tr>
<td>5</td>
<td>Norway</td>
<td>775 016 574,02</td>
<td>3,53%</td>
</tr>
<tr>
<td>6</td>
<td>United States</td>
<td>762 907 172,11</td>
<td>3,47%</td>
</tr>
<tr>
<td>7</td>
<td>Nigeria</td>
<td>755 919 616,81</td>
<td>3,44%</td>
</tr>
<tr>
<td>8</td>
<td>Kuwait</td>
<td>715 128 128,26</td>
<td>3,25%</td>
</tr>
<tr>
<td>9</td>
<td>Venezuela</td>
<td>658 566 703,72</td>
<td>3,00%</td>
</tr>
<tr>
<td>10</td>
<td>Singapore</td>
<td>644 901 777,48</td>
<td>2,93%</td>
</tr>
<tr>
<td></td>
<td>World Total</td>
<td>21 973 071 779,06</td>
<td>100,00%</td>
</tr>
<tr>
<td></td>
<td>Top 10 Total</td>
<td>11 581 825 537,38</td>
<td>52,71%</td>
</tr>
</tbody>
</table>

Exhibit #4 – Top 10 oil exporters (in 1000$) between 2000 and 2015. Source: Own calculations based on World Integrated Trade Solution database (HS-4 level, product code: 2709-2710)

Exporter nr. 1: The Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia is the world’s most important oil exporter, solely accounting for more than 13% of total world exports. Around 87%\(^1\) of Saudi government revenues origins from petroleum sector, which points at a high degree of demand risk exposure on national levels (Saudi Arabian Monetary Authority, 2016). Saudi

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\(^1\) Own calculation for the years 2000-2015, based on official data released by Saudi Arabian Monetary Authority (2016).
policymakers have strived lately for mitigating this exposure, by opening towards renewal energy in the spirit of diversification.

**Exporter nr. 2: Russian Federation**

The richest country in hydrocarbons worldwide, Russian Federation occupies the second place in leading oil exporters’ list by realizing more than 10% of world total oil exports alone. Extraction and export of crude oil and natural gas constitutes an element of utmost importance for Russia, as it adds up to more than half of the country’s federal budget revenue (EIA, 2015). Russia does not only excel in hydrocarbon extraction, but is a flagship of nuclear power generation technology, as well as being famous for using its energy source capacities as basis for negotiations to obtain more favorable positions in the field of international politics.

**Exporter nr. 3: United Arab Emirates**

Occupying the third place in total export volume list, the United Arab Emirates maintains a wise approach towards hydrocarbon reserves. While it has continuously supplied crude oil, money inflow has been utilized for decades to successfully transform this federal state into a touristic and acknowledged financial hub (BBC, 2016). Its architectural and touristic hallmarks, the widespread image of luxury, in addition to expertise in financial and other sorts of services ensure that the Emirates’ position as one of the most attractive welfare states is secured even after the end of oil era.

**Exporter nr. 4: Canada**

Canada is a relative newcomer to the list of highest ranked oil exporters. The North American country is very rich in oil sand reserves, which have gradually become profitable to recover since the 1980’s. Although oil sand recovery raises concern for it heavily damages the environment, Canada is committed to increase its production volume and expects to become the world’s leading oil provider till 2020 (Canadian Association of Petroleum Producers, 2017).
Exporter nr. 5: Norway

One of the wealthiest states worldwide, Norway occupies the fifth place in total export volume rank list. Oil reserves discovered at the continental shelf under the North Sea and Norwegian Sea in the 1960’s stabilized Norway’s positions as a leading oil producer and exporter. Hydrocarbon exports provide a reliable source of budget income, contributing to achieving and maintaining outstandingly high living standards and national prosperity (Norwegian Petroleum, 2017).

2.1.3 An overview of the six examined countries

In case the study scope is restricted to one country, it is a frequently arising problem that numerous country specific factors appear which are bound to bias end results and mislead researchers when it comes to drawing conclusions. In order to mitigate the impact of such potential factors, it was of utmost importance for me not to narrow my scope to one country but to select a relatively homogenous group of countries for conducting the empirical study. Taking into consideration the above rationale and my personal interest in the Middle East in general, I selected a group of six countries which share many things in common. They are: Bahrain, Kuwait, Oman, Qatar, the Kingdom of Saudi Arabia and the United Arab Emirates.

On one hand, these states are located very close to each other geographically, thus their geological features are very similar. Beginning from the Proterozoic (800-640 million years ago), a sequence of tectonic movements started, paving the way for the generation of the largest part of Middle Eastern hydrocarbon reserves throughout the Mesozoic Era, 252-66 million years ago (Szűcs, 2007). As a consequence of these tectonic movements, approximately 30% of today’s proved oil reserves are located beneath the Gulf States (BP, 2016), which makes them rightfully regarded as candidates for having absolute or at least high comparative advantage in oil production, as well as being treated as key players from geopolitical perspective.
On the other hand, as a consequence of geographical proximity, these countries have highly similar historical and cultural background. Beginning from the spread of Islam - the most influential, cross border cultural shaping power of the region -, and the political expansion and conquests under its flag in the 7th century A.D., the territory of today’s Gulf States has always belonged to the nearest located superpower of the era, should it be the Abbaside Caliphate or the Ottoman Empire in the Middle Ages, or the British Empire in the modern times (Weiss-Green, 1995). In terms of cultural similarity, Islam left its mark on nearly every aspect of the way nations of the Arab Peninsula live, including architecture, clothing, regional traditions and social standards.

During the 20th century, the six selected Arab states realized that uniting their political will and performing joint actions will result in better assertion of their interest by international superpowers, therefore they developed a high level of cooperation in many fields. They are member states of several international organizations, including: the United Nations, the Organization of Islamic Cooperation (which strives for fostering cooperation and solidarity among Islamic states), the Arab League (which constitutes a politics driven regional bloc of Arab states), and the Gulf Cooperation Council, which is the exclusive political and economic alliance of Bahrain, Kuwait, Oman, Qatar, the Kingdom of Saudi Arabia and the United Arab Emirates. Besides deepening the relations between member states, the Gulf Cooperation Council aims at fostering common legislation in numerous fields, unification of corporate culture and synchronizing the efforts put in innovation and technological advancement (GCC Objectives, 2017). Furthermore, four states out of six – namely, Kuwait, Qatar, the Kingdom of Saudi Arabia and the United Arab Emirates – are members of the Organization of the Petroleum Exporting Countries (OPEC) since the 1960’s, which is definitely the most significant influencer of oil prices in the world market (Lövész, 2006).

2.1.4 Important influencing factors between 2000 and 2015

Changes in commodity trade advantages are influenced by a handful of political, economic, historic and other type of factors, the number of which is constantly increasing with globalization. It is no longer enough to look at regional changes and events when
examining a group of countries, but it is required to take into consideration every factors which might play a role in the change of tendencies, should they happen in the close neighborhood or in a geographically remote area.

Decisive political influencing factors

The Arab Peninsula can be characterized by tranquility and prosperity within the study period. There were no armed conflicts in the region, except from the Yemeni Civil War which began in 2015 (and since it is at the very end of the examined timeframe, it does not have relevant impact on the results). However, the Middle East as wider environment witnessed a stormy fifteen years since 2000. There have been several bloody conflicts, the most significant of which are the following:

1. The Iraqi War, which was launched by the United States of America in 2003, driven by the US’s eagerness for fighting against terrorism and spreading of democratic values (at least according to the official reasoning). The war lasted for eight years until 2011, and resulted in political chaos after toppling the government of Saddam Hussein ( Jáni, 2011).
2. The Second Intifada, which is concentrated around the Palestinian-Israeli conflict beginning from 2000. It is an ongoing conflict which is characterized by suicide- and missile attacks (Ajluni, 2003).
3. The Second Lebanon War, which was a 34 day long armed conflict in the summer of 2006, between the forces of Israel and Hezbollah on the territory of South Lebanon. The war caused the death of thousands of soldiers as well as civilians (Tomolya, 2007).
4. The Arab Spring, which comprises the anti-government protests in many Arab countries in 2011, resulting in the toppling of reigning governments in Tunisia, Lybia and Egypt, among others (Jones, 2012).
5. The Syrian Civil War, which is an ongoing bloody conflict since 2011. In the beginning, there were only a few parties involved including government forces, the extremist rebels supported from outside the country, and the Kurdish minority forces. From 2014 onwards, additional parties got involved, for example the Islamic State of Iraq and Levant (IS), and many other small militias (BBC, 2016).
6. The appearance of IS terrorist organization in Iraq in 2014, which is a focal point and key cause of bloody battles to this day (BBC, 2015).

Although the above list is far from being complete, it is evident that neighboring Middle-Eastern societies were suffering from severe armed conflicts within the study period, which definitely had an indirect impact on the price of oil, and through this on the oil exporter states and their competitiveness, too.

**Decisive economic influential factors**

The countries of the Arab Peninsula were gifted with prosperity in economic terms between 2000 and 2015, as huge amounts of money flew into the Gulf States because of high oil prices in the 2000’s. As a consequence to the rapid increase in national wealth, spectacular investments took place in these countries outside of raw material extraction, and in the spirit of diversification, other industries have also developed, for instance tourism and banking. Nevertheless, it would be mistaken not to take international economic tendencies into consideration, which had their indirect impact on Gulf economies, too. Some of these decisive economic happenings are as follows:

1. The rapid growth of Chinese and Indian economies. The outstanding GDP growth necessary to realize such development implies large energy needs which has a positive effect on oil industry.
2. The monetary crisis in 2008, which had a worldwide impact on monetary affairs. Nonetheless, as the Gulf States have already been on their way to become more reliant on Islamic banking, the unique features of this alternative monetary approach significantly mitigated the effects of the crisis (Adám et al., 2015).
3. The nuclear catastrophe of Fukushima in 2011, which made national leaders rethink their energy policy worldwide (Vivoda, 2012).
4. The oil price depression in 2014-2015, which brought about a large-scale decrease in crude oil prices, by more than 70% (Crude Oil Prices - 70 Year Historical Chart, 2017). It is easy to see that oil exporter countries were heavily hit by this change and had to face drastic losses of income.
It is worth mentioning that none of the listed economy related items have direct links to the Middle East, but still they have their influencing power on the conditions of oil extraction and indirectly, on oil trade advantages of exporter countries.

2.1.5 Description of applied methodology

The primary aim of this thesis work is to shed light on the general tendencies and specific shifts in revealed comparative trade advantage of the Gulf States (which are: The Kingdom of Saudi Arabia, Kuwait, Bahrain, Oman, Qatar and the United Arab Emirates) in oil products within the last fifteen years (i.e. between the years 2000 and 2015).

Presentation and evaluation of Gulf States’ oil trade structure is followed by the discussion of Balassa, RTA and RC indices calculated for every country one by one, in addition to the explanation of observed tendencies.

The study period embraces years between 2000 and 2015, which was partly selected due to the lack of accurate data prior to 2000, and partly to make our future predictions based on as up to date numerical footing as possible.

All data used for the empirical study are drawn from the World Integrated Trade Solutions database of the World Bank (2017). Although the entire 27th chapter of Harmonized Systems deals with petroleum and its derivatives, over 90% of Gulf States’ export volume is captured by three of its subcategories, therefore – for practical and rational reasons - the scope of this paper is confined to the following three, HS-4 digit product codes: 2709 (Petroleum oils and oils obtained from bituminous minerals; crude), 2710 (Petroleum oils and oils from bituminous minerals, not crude; preparations n.e.c, containing by weight 70% or more of petroleum oils or oils from bituminous minerals; these being the basic constituents of the preparations; waste oils) and 2711 (Petroleum gases and other gaseous hydrocarbons). Missing values are in all cases substituted by zero.

The results of examinations are presented through self-made exhibits, while the attempt of providing explanation for the suspected reasons behind observed tendencies is based on extensive literature research which comprises doctoral dissertations, professional publications, peer reviewed journals and thematic informational webpages.
2.2 ANALYSIS

The second part of the empirical section is dedicated to the interpretation and evaluation of obtained study outcomes. First, the presentation of Gulf States’ oil trade and proportion of oil trade to total trade takes place with the help of exhibits, followed by the discussion of Balassa-index diagrams of the six states, description of observed tendencies and their explanation. The compilation of RCA, RTA and RC diagrams for all six countries constituted a significant part of the study as well, thus these results are also shown and discussed. Finally, the evaluation of study outcomes is concluded by the discussion of exhibits describing Balassa-index categories related to Gulf oil trade patterns.

2.2.1 Oil trade patterns for GCC countries

Oil trade volume

Oil trade is an element of utmost importance in GCC foreign trade, which significantly influences member states’ budget. It is a generally known fact that Middle-Eastern Arab states possess huge oil reserves, therefore it is no surprise that in Exhibit #5 (depicting oil trade volume), the volume of oil import is insignificant, while the volume of oil export is nearly equivalent to the respective values of oil trade balance curve.

Exhibit #5. Source: Own calculations based on data retrieved from World Bank (2017) WITS database

![Oil trade volume for GCC countries between 2000-2015 (in thousand dollars)]
Starting with year 2000, the favorable international market environment and a steadily increasing oil price resulted in a tendency of rising oil export volumes year by year, which was spectacularly broken by the financial crisis in 2008, pushing oil export volume to radically decrease till 2009. The years of recovery brought about a tendency of increase until arriving at the highest observed value of the study period in 2013, followed by a drastic decrease in crude oil prices in 2014-2015. It is important to note that oil export volume fluctuations do not mirror sharp shifts in oil production volumes – instead, at a relatively stable (slightly increasing) production volume, they are found to be heavily reliant on oil price fluctuations.

**Proportion of oil trade to total trade**

It is worthwhile to take a look at the proportion of oil trade to total trade for GCC countries, too. In Exhibit #6, oil trade volume (left side) is plotted against total trade volume (right side) for the study period.

![Proportion of oil trade to total trade for GCC countries between 2000-2015 (in thousand dollars)](image)

Exhibit #6. Source: Own calculations based on data retrieved from World Bank (2017) WITS database

The fact that the level of total imports is significantly lower than total exports suggests that GCC countries realized a trade sufficit in every year since 2000. After discussing the
previous exhibit, it does not require further explanation why total exports curve is tightly tied to oil exports line. In turn, oil imports seem to have no weight in influencing total imports volume.

The observed tendencies in Exhibit #6 are fairly similar to what was observed in Exhibit #5. Although it would be reasonable to assume that the Kyoto Protocol - that came into force in 2005 (Sólyom, 2009) - triggered a sharp decline in the respective part of Exhibit #6 curve, there is no sign of such change. In spite the fact that the emergence of biofuels and expansion of electric cars are also known for being around and continuously developing, yet they are not manifested on this curve by a sharp break. The only sharp decline in exports and a less sharp decline in imports in 2008 can obviously be traced back to the effects of global financial crisis, while the same size of decline is witnessed as oil price halved between 2013 and 2015. Imports curve tends to react to market environment changes to a lesser extent than exports curve does, which is due to the dominance of oil exports in total exports and as a consequence, a high degree of exposure to international oil price fluctuations.

2.2.2 Balassa-index results for GCC countries

As mentioned in “The measurement of comparative trade advantage” section, Balassa-index is meant to depict the competitiveness and comparative advantage of a certain market player based on historical trade data. The study period is divided into three roughly equal parts (5 years), so that in every chart, one value is assigned to every product code (2709-2711) between years 2000-2004, 2005-2009 and 2010-2015, which gives us a hand to perceive important tendencies. For the sake of simplicity, products under product codes 2709-2711 will be referred to as 'crude oil’, 'oil preparations’ and ‘petroleum gases’ respectively.

**Bahrain**

In case of Bahrain, researchers have to settle for insufficient export data retrieved from World Bank (2017) WITS database. Annual values of product code 2710 (oil
preparations) are available for the entire the study period, however, most values for 2709 and 2711 are missing (and were therefore substituted by zero values).

Exhibit #7. Source: Own calculations based on data retrieved from World Bank (2017) WITS database

Exhibit #8. Source: Own calculations based on data retrieved from World Bank (2017) WITS database
According to Balassa-index figures, the competitiveness of Bahrain has significantly decreased since 2000. Not even in the first subperiod (2000-2004) did the measure reach 1 (it was 0.8), which is known as the lower limit of international competitiveness, and the situation has just got worse with time, arriving at a roughly halved B value after ten years.

RTA values underline the same tendency of diminishing competitive advantage in oil preparations and a slightly decreasing competitive disadvantage in crude oil, in harmony with RC results which imply the same direction of change (there is a surprisingly high initial competitive advantage in natural gas trade, however, traded quantities were so little that this figure is best be ignored).

There are multiple reasons behind the observed pattern of fading competitiveness, including the impacts of financial crisis in 2008 (which resulted in halving of B-index within one year), international oil price fluctuations, the finiteness of national petroleum reserves as well as the lack of putting big enough emphasis on technological developments, letting competitors take over. The loss of revealed competitive advantage in oil trade is only one of the problems Bahrain needs to face currently – increasing public debt levels and constant social unrest (originating from religious stems) constitute major challenges to the country. Nevertheless, the Bahraini economy is not likely to collapse soon, since the country boasts with the Gulf region’s most diversified economy. Bahrain’s governance puts special emphasis on financial sector, letting hydrocarbon sector to contribute only 20% to the GDP (Talal-Azimi, 2016). As a result, any shocks hitting the sector are less harmful for the national economy.
Kuwait

In case of Kuwait, there is sufficient available trade data about all three product codes, nevertheless, a one-year information gap in years 2005 and 2012 significantly biases the averaged period values in the diagram.

Exhibit #10. Source: Own calculations based on data retrieved from World Bank (2017) WITS database

Exhibit #11. Source: Own calculations based on data retrieved from World Bank (2017) WITS database
Looking at trade data and B index, it can be concluded that around the beginning of the new millennium, the country was firmly competitive in crude oil and oil preparations trade. Although the B index value for crude oil trade has dropped by nearly 33% throughout fifteen years, Kuwait managed to stay near to 1 in terms of competitiveness measure, which means the country is still an important supplier. However, in terms of oil preparations, figures testify a significant decrease within the study period, meaning B-index nearly shrank to one third of initial value and Kuwait lost its international competitiveness. In the field of petroleum gases, Kuwait was not regarded as competitive exporter even around 2000, while its positions only worsened since then.

Almost identical to B index patterns, RTA results convey the same message about Kuwait’s competitiveness in terms of oil trade. The proportionate distribution of competitive strength is somewhat different in RC measures, showing spectacular growth in crude oil and natural gas values, while oil preparations are nearly unchanged after fifteen years.

The negative tendencies of competitiveness are a little bit surprising in the light of Project Kuwait (a long-term vision of Kuwaiti oil policy, first announced in 1997), Clean Fuels Project (aiming at upgrading national refineries, approved in June, 2011) and other projects launched between 2000-2015, which testify national commitment towards further increasing oil and oil derivatives production to reach 4 million barrels/day until 2020 (sustaining this volume until 2030) as well as increasing natural gas production to reach 4 billion cubic feet per day until 2030 - which equals a 300% increase compared to
the production volume achieved in 2013 (EIA, 2013). Nevertheless, observed downward sloping competitiveness patterns are explainable by the fact that this study concentrates on a timeframe which is regarded as short term in case of such commitments, while they are expected to yield growth in the long-term only.

**Oman**

Possessing small hydrocarbon deposits compared to neighboring GCC countries, yet the Sultanate of Oman maintains an active hydrocarbon production and trade. The national authorities have reported trade data accurately between 2000 and 2015, facilitating the work of analysts in depicting tendencies in a realistic way.

Exhibit #13. Source: Own calculations based on data retrieved from World Bank (2017) WITS database
The B-index for crude oil trade exceeded the lower boundary of competitiveness in 2000 by taking a value of 1.17, however, its competitiveness melt away until 2007, only to report a B-index value of 0.4. As a joint consequence of new discoveries and the use of enhanced oil recovery (EOR) techniques (EIA, 2016), a tendency of slow recovery has been witnessed, reaching 0.65 by 2015, in spite the fact that low level of oil price continuously challenges oil industry and has a negative impact on oil extraction. RTA and RC exhibits on the contrary, report a competitive advantage for Omani crude oil and natural gas trade.

There is no revealed competitive advantage in Omani oil preparations trade (product code 2710), and RTA and RC values stress a competitive disadvantage for the country.
Although Oman seems to have competitive disadvantage in petroleum gas trade either, the opening of two liquefied natural gas facilities in 2000 and 2005 placed the country on the natural gas map of the world (EIA, 2016). Nevertheless, natural gas sector was the one worst hit by the financial crisis in 2008, as well as a significant drop took place between 2014 and 2015 B-values, too (the drastic drop from 0,26 to 0,01 may have been caused by data inaccuracy).

Qatar

Although Qatar is an important player in the field of crude oil extraction and trade, it is without doubt the most prominent player in the field of natural gas production and export.
According to the estimate of *BP* (2015), 13.1% of known natural gas reserves are located under Qatari soil in 2015, which is mirrored in Balassa-index results, too. Qatar has been holding its competitive status, managing a duplication in its B-index value since 2000. The key to its success lies in globally increasing demand for natural gas, regional stability, magnitude and ease of accessibility of reserves, as well as prudent investments in extraction technology.

Based on B-index results, Qatar has not been internationally competitive in the fields of crude oil and oil preparations within the last fifteen years, moreover, it shifted towards
competitive disadvantage for reasons similar to those seen at other oil exporter GCC member states.

The Kingdom of Saudi Arabia

The Kingdom of Saudi Arabia is worldwide known for its huge petroleum reserves. Although the country did not cease to be a player of utmost importance in the field of oil trade, historical data from the last fifteen years suggest that the Saudi comparative advantage in oil trade is diminishing.

Exhibit #19. Source: Own calculations based on data retrieved from World Bank (2017) WITS database
Throughout the study period, Saudi crude oil trade has witnessed a little less than fifty percent loss in terms of Balassa-index measure, which was distributed more or less evenly among the fifteen years of interest. Yet, the country exhibits a B value of 4 between 2010 and 2015 and is found to be highly competitive according to RTA and RC values, too. A little bit surprising is the fact that the negative impacts of global financial crisis in 2008 were not promptly mirrored in Saudi B values, a more significant decrease in comparative trade advantage is only captured in the B values of years 2010 and 2011. The delayed and gradual decrease highlights a positive feature of Saudi oil exports, namely the fact that
events and developments outside the industry do not have direct influential power on export levels.

As for oil preparations and petroleum gases, changes in trade volume follow a relatively similar trajectory, starting from above 1.5 in the first third of the study period, arriving at around 0.5 in 2015. This pattern suggests that over fifteen years, Saudi Arabia lost its comparative advantage in exporting these types of goods, although RTA and especially RC values carry different message about Saudi hydrocarbon trade.

The Saudi economy relies heavily on crude oil exports, which definitely ensure the stability of national economy in the short term. However, a question mark remains at the long term economic vision of the country, as both industry related and non-industry related factors imply that no economy is viable with an exclusive reliance on oil. On one hand, the exploration of shale oil and advancement of traditional oil extraction technology brings about a larger scale supply and thus a fiercer competition in the market. On the other hand, the generally known worldwide tendencies of shifting towards renewable energy sources and green technologies under the flag of environmental awareness are not working in favor of continuous oil dominance either.

**The United Arab Emirates**

Finally, let us take a look at the developments of oil trade advantages for the United Arab Emirates for the study period.

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**Balassa-index results for oil trade United Arab Emirates**

![Chart showing Balassa-index results for oil trade United Arab Emirates](chart.png)

Exhibit #22. Source: Own calculations based on data retrieved from World Bank (2017) WITS database
Similar to what was observed for other Gulf States, downward sloping B and RTA value lines are obtained after necessary calculations are performed. Crude oil trade account for the highest B value (2.3) in the beginning of the new millennium, followed by oil preparations (1.4) and petroleum gases (0.5). All three product categories showed a decrease throughout fifteen years, the degree of which was in parallel to initial value sizes. Crude oil trade B values dropped the most, although still remaining at the 'competitive league' above 1, whereas oil preparations trade has become comparatively disadvantageous with a final value of slightly more than 0.5 in 2015. For this product
type, the period between 2010 and 2012 was characterized by unprecedented low and disappointing B values, which can neither be explained by political, nor financial reasons. Petroleum gas trade was not the strongest branch of UAE foreign trade even in 2000, and in harmony with generally observed tendencies, B values further decreased with time since then.

2.2.3 Comparative advantage evaluation by Balassa-index categories

Following the instructions of Hinloopen- van Marrewijk (2001), the obtained B values are categorized and shown in details for each years of the study period, as a final step of comparative advantage analysis. The observed distribution of B categories over the years seem to confirm the assumptions drawn from independent country analysis about an overall decreasing tendency (share of A categories was increasing) in GCC competitiveness in oil trade over the course of the study period.

Exhibit #25. Source: Own calculations based on data retrieved from World Bank (2017) WITS database.

Note: A: number of non-competitive B values. B; C; D: number of competitive B values.
Exhibit #26. Source: Own calculations based on data retrieved from World Bank (2017) WITS database

**Note 1:** A refers to non-competitive B values. B; C; D refer to competitive B values.

**Note 2:** Numbers on the X-axis do not indicate the sequence of years in the study period, they simply refer to the amount of certain values falling into different categories.

Exhibit #26 depicts the distribution of competitiveness categories from a slightly different perspective than Exhibit #25, highlighting individual competitiveness levels for certain country-product code pairs within the study period. To put it simple, the proportion of competitive and non-competitive values is mirrored by showing the contrast between blue and orange-grey-yellow colors (representing non-competitive and competitive B index values, respectively). Apart from outstanding competitiveness for certain pairings (for example Saudi Arabia in product code 2709 or Qatar in product code 2711) the dominance of category “A” is unquestionable, thus this visual can serve as additional evidence to refute my first hypothesis set at the beginning of my research.
SUMMARY

Hydrocarbons and specifically crude oil have not only been the engines of human industrial activity throughout the last century, but they played a central and shaping role in international trade, too. In addition to this, my interest in commerce, my academic background of studying Arabic language and culture and my prospects of working in the Arab world jointly explain the background of my motivation of gaining insight into the intensely researched field of international trade by making the Middle-Eastern oil rich GCC alliance the subject of my examinations.

Particularly interested in the competitive status of Middle Eastern Arab states in oil trade, I launched my research by setting two hypotheses, as follows:

**Hypothesis I** – *All GCC member states enjoyed revealed comparative advantage in oil trade within the study period in World market.*

**Hypothesis II** – *The level of revealed comparative advantage of GCC member states in oil trade has significantly diminished over the study period due to political and economic reasons (for example the financial crisis in 2008 and its aftermaths, the Syrian conflict and the emergence of renewable energy use).*

Based on a quantitative analysis conducted with the assistance of widely known and used comparative advantage measures (RCA, RMA, RTA and RC indices), only four out of six GCC member states were found to possess an initial competitive status for at least one oil product, which clarifies the fact that Hypothesis I needs to be rejected.

However, a tendency of generally diminishing comparative advantage in oil trade for the GCC group was revealed as consequence of a handful of economic, financial, political and other sorts of reasons, including the aftermath of the financial crisis in 2008, regional instability, fluctuating international oil price levels, etc. As a result of these factors, the level of competitiveness significantly dropped for all GCC countries, and only three countries remained to boast with comparative advantage in oil trade in the last third of the study period (which was sustained for not more than one product code in case of each country). This tendency persuasively suggests that Hypothesis II is right.
Although the computations were carried out precisely, there are some factors which decrease the validity of the outcomes, which are as follows:

1 – The economies of GCC member states are heavily reliant on hydrocarbon production and trade. In order to decrease economic vulnerability, these states tend to deliberately withhold or alter their reported official trade data accessible for the public. Inaccurate data are bound to bias research outcomes, which might have influenced the results of this paper, too. (Apart from my preference for examining the most up-to-date data series possible, the reason behind my choice of setting study period to be between years 2000-2015, was the significant insufficiency of available trade data from years before 2000.)

2 – Values required to perform computations were missing in some cases (not necessarily because of the lack of commercial activity with regards to the given product code), which had to be handled in a meaningful way. Applying substitution of missing values by 0 is a sound solution, however, it might have contributed to the end results being biased.

3 – Except from the RCA index, all other indices computed in this paper involve the use of import numbers, which can potentially be influenced by trade regulations and policy distortions. Import volume distortions caused by changes of wind in GCC economic policy might have had an impact on the results of this paper, too.

4 – The revealed comparative advantage model introduced and utilized in this thesis stipulates a homogenous product and perfect competition. Although oil products are approximately homogenous, the assumption of perfect competition is not completely true for oil industry and trade. The deviation of market conditions from perfection might provide directions for future research.

To summarize the above, although figures appearing in this study were limited by model assumptions and data availability, they by and large properly shed light on realistic tendencies and are suitable to be relied on for future predictions’ purpose. In light of the study outcome, my suggestions for GCC member states - to keep their current positions in the league of developed countries - would be as follows:

1 – Carry on and broaden the pool of efforts devoted to mitigate their present excessive exposure to oil industry. Since most of these countries have already launched long term
national projects aiming at economic diversification, what they need now is only the enforcement of adherence to the cornerstones already laid down in these visions.

2 – GCC societies should foster tighter cooperation with each other. These countries already realized that they have many things common, which facilitates maintaining a cooperative and mutually assistive approach. For instance, sharing the same culture and language opens the doors of making further steps towards a more centralized law enforcement and bureaucracy, which is bound to be more cost-efficient than what these elements of statehood cost today.

3 – GCC societies would benefit from letting prevailing religious rigor be loosen by the positive impacts of globalization and international trends. For example, the significant decline in state revenues from oil led to the modification of the ratio of active workers by inactive population, meaning the employment ratio of women has increased. Women’s excellent performance at work clearly started to have a positive impact on the way women are treated, and provided this tendency continues, Islamic societies can only gain by utilizing the talents of their feminine members.

4 – Finally, Gulf countries are advised to carry on the process of overseeing and potentially altering the system of social benefits, too. Stagnation of oil prices at low levels have compelled these countries lately to give up their squandering social benefit provision policy, which – if going forth along the same lines – is a measure that undoubtedly contributes to a healthier economic structure.
REFERENCES


