SPECIALIZATION ANALYSIS OF MENA COUNTRIES ACCORDING TO FACTOR DENSITIES[*]

♦♦♦

MENA ÜLKELERİNİN FAKTÖR YOĞUNLUKLARINA GÖRE UZMANLAŞMA ANALİZİ

Birol ERKAN[**]
Abdualaziz Aclan Ahmed SAEED[***]
Elif Tuğçe BOZDUMAN[****]

Abstract

The aim of this study is to demonstrate the level of specialization of MENA countries in foreign trade using the Lafay index (LFI) between 2000 and 2016. In this context, the levels of specialization in the foreign trade of the countries mentioned were examined by using SITC Rev. 3, 2-digit product groups. According to the values obtained from the analyses, countries provided specialization in the foreign trade of products with low added value factor equipment. In other words, countries did not gain a competitive advantage in the foreign trade of high value-added products during the specified period. However, Jordan, Morocco, Israel and Tunisia from the MENA countries provided specialization in the foreign trade of some innovative product groups. The fact that other countries are net external buyers in the production and export of high value-added products negatively affects global competitiveness.

Keywords: Lafay Index, Foreign Trade, Specialization, MENA Countries.

Öz

Çalışmanın amacı 2000 ile 2016 yılları arasında Lafay İndeksi kullanılarak MENA Ülkeleri'nin dış ticarette uzmanlaşma düzeyinin ortaya koyulmasıdır. Bu bağlamda, SITC Rev. 3, 2 haneli ürün grubu kullanılarak sözü edilen ülkelerin dış ticaretindeki uzmanlaşma düzeyleri incelenmiştir. Yapılan analizler sonucunda elde edilen skorlara göre, ülkeler katma değeri düşük faktör donanımına sahip ürünlerin dış ticaretinde uzmanlaşma sağlamıştır. Diğer ifadeyle, ülkeler sözü edilen dönemde yüksek katma değerli ürünlerin dış ticaretinde rekabet avantajı elde edememiştir. Bununla birlikte, MENA ülkelerinden Ürdün, Fas, İsrail, Tunus bazı inovatif ürün gruplarının dış ticaretinde uzmanlaşma sağlamıştır. Diğer ülkelerin yüksek katma değerli ürünlerin üretim ve ihracatında net dış alıcı olması küresel rekabet güçlerine olumsuz bir şekilde tesir etmektedir.

Anahtar Kelimeler: Lafay Endeksi, Dış Ticaret, Uzmanlaşma, MENA Ülkeleri.

[**] Assoc. Prof. Dr., Uşak University, Department of Economics, birol.erkan@usak.edu.tr
ORCID ID: 0000-0001-8363-5543
[***] Science Specialist, Uşak University, Department of Economics, abdullaziz184@gmail.com
ORCID ID: 0000-0001-5987-6347
[****] PhD Student, Manisa Celal Bayar University, Department of Economics, tugcebozduman@gmail.com
ORCID ID: 0000-0002-6145-8571

1. INTRODUCTION

International trade is very important for developed and developing countries to achieve global competitiveness both economically and politically. Countries apply to foreign markets for the disposal of their local products and purchase of inputs of their primary products, investment goods and intermediate goods which can only be obtained through import. However, exports from most developing countries do not increase in proportion to the increase in imports. Often the increase in imports is more than the increase in exports, and this is the main cause of balance of payments imbalance in many developing countries. In short, the increase in exports of any country depends on its ability in the field of international competition. This study was prepared for a comparative analysis of the global competitiveness of MENA countries on the basis of specialization. The main reason for the selection of the MENA region is that the region is an important global actor in terms of income level and natural resources. The MENA region has about 4.5% of world GDP, more than half of the world's oil reserves, and 45% of natural gas reserves. In the study, specialization and competition scores for countries were obtained using the LFI.

2. FOREIGN TRADE PROFILE OF MENA COUNTRIES

The MENA region covers the geographical area extending from the Atlantic Ocean to the Arabian Sea and the Arabian Peninsula from there to Iran. There are 22 countries in the MENA region. These countries may be listed as: Egypt, Jordan, Lebanon, Morocco, Tunisia, Algeria, Iran, Yemen, Syrian Arab Republic, Iraq, Saudi Arabia, Qatar, Oman, United Arab Emirates, Kuwait, Bahrain, Libya, Djibouti, Palestine and Israel. The MENA countries are Muslim except Israel (Sözen, 2011).

Two of the most striking features of the MENA are the availability of size of oil reserves and relative height of population. Based on these factors, MENA countries can be divided into three main groups:

- Resource-rich and labor-intensive countries with oil and natural gas producers and exporters: This group includes Algeria, Iraq, Syria and Yemen

- Countries that produce and export oil and natural gas are resource-rich and import labor: These countries represent a large portion of the total population. This group includes the Gulf states (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) and Libya.

- Resource-poor countries: these countries are oil and small natural gas producers and importers: Djibouti, Egypt, Jordan, Lebanon, Mauritania, Morocco, Tunisia and Palestine (OECD, 2011).

Countries in the MENA region differ significantly in terms of economic activities. Production differences between countries also reveal significant differences in revenue. Given these differences in the income levels of the countries in the region, their structures do not appear monotype either (Çeştepe, 2012).

There have been fluctuations in parts of the MENA since 1960. Countries in the region face significant economic challenges such as low employment level, relative low number of women employed, inequality and income distribution, low private sector participation, weak public and private sector management policies, corruption, lack of transparency, and fluctuations in overall price levels.

When the exports of MENA countries are examined, it is seen that the United Arab Emirates ranks first (Chart 1) followed by Saudi Arabia, Israel, Iran, Qatar, Iraq, Kuwait, Morocco, Algeria, Egypt, Iraq, Oman, Bahrain, Tunisia, Jordan and Lebanon respectively. Palestine, Yemen and Djibouti are among the lowest exporting countries of the MENA region.

Chart 1: Export of MENA Countries ($ billion)
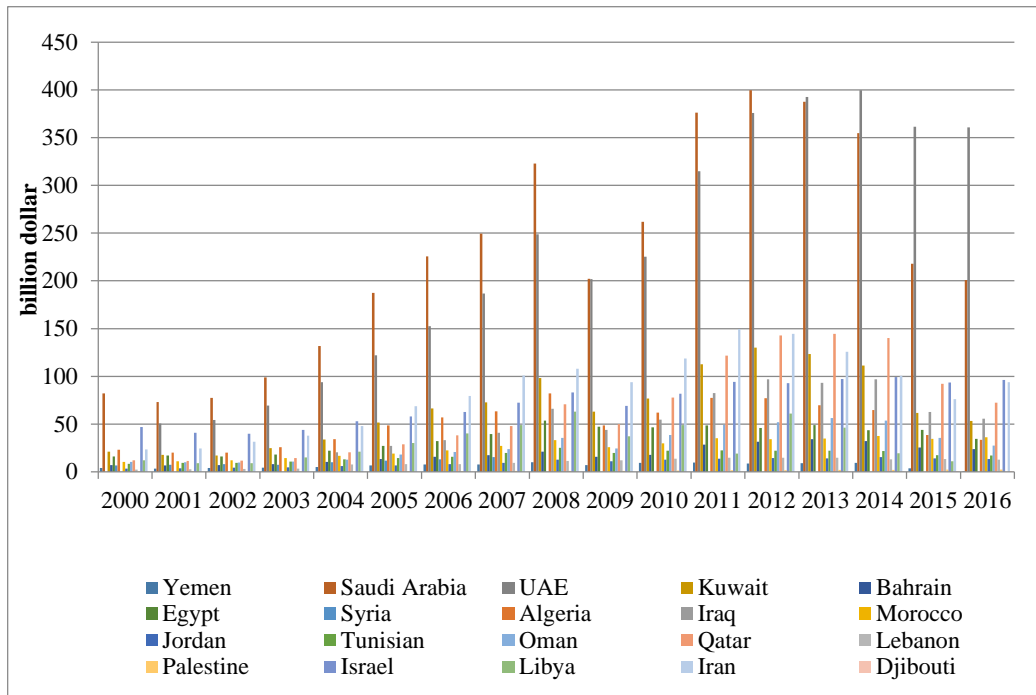
Among the MENA countries, the country which has the highest import rate is the United Arab Emirates with $ 270 billion. The United Arab Emirates is followed by Saudi Arabia with $ 198 billion and Israel with $ 89 billion (Chart 2).

Chart 2: Import of MENA Countries ($ billion)
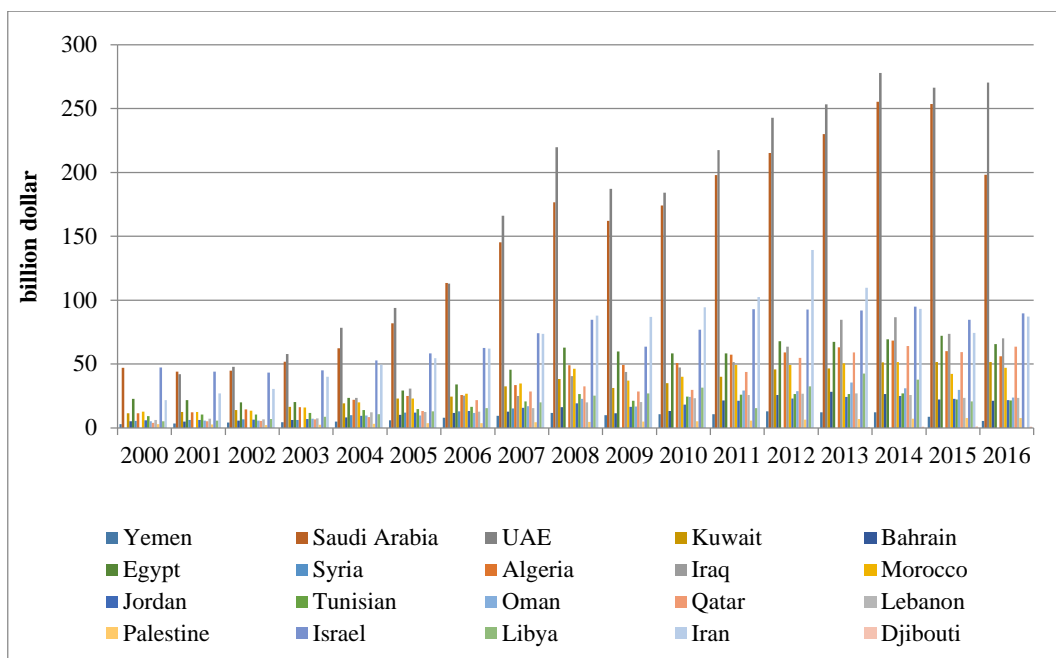
Compared to other MENA countries, the amount of import is relatively low comparing with the amount of exports, especially in Yemen. In other words, Yemen has lagged far behind other MENA countries in terms of foreign trade volume and has only been ranked ahead of Palestine and Djibouti in the amount of exports within the MENA countries.

3. LITERATURE REVIEW

Alessandrini and Batuo (2010) analyzed the Industrial competitiveness of South Africa, Algeria, Nigeria and Egypt benefiting from export and import data of the mid-1970s. They used the LFI and the results show that specialization of the countries are based on low-technology products such as labour-intensive and raw material-intensive. Ishchukova and Smutka (2013) conducted a study using the Balassa index, the Vollrath index and the LFI to demonstrate Russia's export competitiveness of agricultural sector for the period 1998-2010. According to the study, Balassa index identifies a number of products that Russia has export competitiveness over the entire period. Among these products are cereals (wheat, barley, etc.), by-products (e.g. wheat bran), processed products (grain preparations, etc.) and also include oilseeds, vegetable oils and chocolate.

Reyes (2014) investigated the revealed comparative advantage of the first six ASEAN member nations for the period 2007-2011 by using the LFI in her paper. She concluded that Brunei had the greatest comparative advantage in oil. In addition, Indonesia and Malaysia had an advantage in animal, vegetable fats and oils, cleavage products and similar products. The Philippines had competitiveness in the export of electrical and electronic equipment. Singapore had a competitiveness in the foreign trade of organic chemicals. On the other hand, Thailand had comparative advantage in the export of vehicles other than railway, tramway.

Becuwe and Blancheton (2016) intended to find out the specialization of French textile sector between 1836 and 1938 using LFI in his study. The study demonstrated the major influence of trade policy on French international trade in textiles during the first globalisation. Falkowski (2018) studied the international specialization of Azerbaijani economy during 2000-2015 using the LFI. The results show that Azerbaijan's overall international trade competitiveness is low. Also, Azerbaijan's specialization depends on energy sources.

When the literature was examined, it was observed that there was a limited number of studies on the trade specialization of MENA countries. In this context, it is thought that this work may contribute to the literature.

4. FOREIGN TRADE SPECIALIZATION ANALYSIS USING THE LAFAY INDEX

The revealed comparative advantage approach is the most widely used method in the research of export competitiveness of many countries. With this method, export competitiveness can be calculated using different indexes. When the literature is examined, it is seen that the Balassa index on the subject is often used. However, other indices are also used in order to determine the state of specialization in foreign trade of countries. The LFI is one of them which is a method that covers imports and expresses a real level of competitiveness and expertise in foreign trade. In this study, covering the years 2000-2016, the LFI was calculated and the scores obtained were interpreted to determine the foreign trade specialization levels of MENA countries (19 countries).

This study which covers the period between 2000-2016 aims to measure the level of foreign trade specialization of MENA countries by using the LFI to obtain the competitiveness scores of those countries. Also, according to the SITC Rev. 3, 2 digit product classification, the levels of specialization in foreign trade of 66 product groups were calculated in the study. Product groups specialized by these countries were discussed and interpreted on the basis of factor density.

The LFI addresses the shortcomings of the Balassa index (RCA) by taking into account intra-industry trade and GDP values. Unlike the Balassa index, the LFI has incorporated both export and import values into its competitiveness and specialization analyses (Azgün vd., 2016)

The advantage of the LFI over the RCA index is that it can contain any disruption caused by macroeconomic fluctuations. The LFI can also analyze the weight of the product in question in foreign trade and compare it with a country or group of countries (Marconi & Rolli, 2008).

LFI is used to eliminate the impact of cyclical factors that can affect the volume of short-term trade and focus on bilateral trade relations between countries and regions. The index is formatted as follows:

$$LFI = \left[\frac{x_j^i - m_j^i}{x_j^i + m_j^i} - \frac{\sum_{i=1}^{n}(x_j^i - m_j^i)}{\sum_{i=1}^{n}(x_j^i + m_j^i)}\right] \times \frac{x_j^i + m_j^i}{\sum_{i=1}^{n}(x_j^i + m_j^i)}$$

x_j^i: export of j goods of i country

m_j^i: import of j goods of i country

n: selected goods groups

The positive values of the LFI indicate that the country specialises in foreign trade and has a competitive advantage. However, the higher the index values, the higher the degree of specialization in foreign trade. On the contrary, negative index values indicate that the country has no competitive advantage in the foreign trade of the mentioned product group and the country's dependence on imports (Ishcukova & Smutka, 2013).

The results of the analysis of the Lafay index show that the countries with the highest level of specialization in foreign trade among the MENA countries are Jordan, Lebanon, Morocco, Israel and Tunisia, respectively. These countries are followed by the United Arab Emirates and Algeria (Table 1).

Table 1: Lafay Index Analysis of MENA Countries (by Factor Densities)

Country	COMPETITIVE ADVANTAGE BY FACTOR DENSITY
Jordan	R→4 L→1 RD→1
Lebanon	R →2 L →2 U→1
Morocco	R →2 L →1 C→1 RD→1 U→1
Egypt	-
Qatar	R →2
Oman	R →2
Bahrain	R →1 C→1
Algeria	R →3
Israel	L →1 RD→1 U→2
Tunisia	R →3 L →2 RD→2
United Arab Emirates	R →1 C→1 U→2
Saudi Arabia	R →2
Kuwait	R →2
Yemen	R →2
Iran	R →1

Source: It was created by us using the Comtrade database (https://comtrade.un.org/)

L: Labour-intensive goods   C: Capital-intensive goods   RD: R & D-based goods

R: Raw material-intensive goods   U: Factor Density Unspecified Goods

The results of the LFI show that the foreign trade specialization level of MENA countries is mainly concentrated in raw material intensive products. The most important reason for this situation is that these countries have relatively high levels of oil reserves and natural gas. However, MENA countries have not been able to provide foreign trade expertise with high value added and R&D based

Erkan, Saeed & Bozduman, 2019

products. When the LFI scores are examined, it is observed that there are no competitive advantages in capital intensive and R&D based product group exports except for a few countries.

According to the LFI analysis results, only Jordan, Morocco, Tunisia and Israel among MENA countries specialize in the foreign trade of innovative product groups with high added value. Morocco specializes in "inorganic chemical products and electrical machinery, apparatus and appliances, etc" foreign trade. Israel specializes in "medical and pharmaceutical products, chemicals and products not specified elsewhere, communications, audio recording devices and tools" foreign trade. Tunisia specializes in "inorganic chemical products, electrical machinery, devices and instruments, etc." foreign trade. Jordan has provided specialization in the foreign trade of "inorganic chemical products, medical and pharmaceutical products".

5. CONCLUSION

The aim of this study is to measure and make a comparative analysis of the foreign trade specialization levels of MENA countries. In this study, which covers the period 2000-2016, the LFI is used to analyse the foreign trade specialization levels of the countries in question.

The results of the LFI vary according to the R&D structure of the products produced by countries. In other words, the LFI scores for certain product groups of countries are closely related to the factor equipment of the products they produce and export. Because, if the products exported by the countries are mainly unqualified labour and raw material intensive, the index score will only be high for the export of these product groups. On the contrary, LFI scores on exports of high value added and innovative product groups will be low.

According to the LFI scores, when the level of foreign trade specialization in the MENA region is generally evaluated, it is observed that the type of product that is provided for specialization is limited. In addition, the countries of the region have provided expertise in mainly raw material intensive product groups. The best example of this situation is that most countries in the region have relatively high levels of oil reserves and natural gas. In other words, the added value of the majority of the product groups in related region specialises in foreign trade is low. Therefore, it means that MENA countries are outward dependent on products that involve R&D and innovation.

According to the LFI scores, Jordan, Morocco, Israel and Tunisia are the countries that provide expertise in the foreign trade of innovative product groups with high added value within MENA countries. Other countries have provided expertise in the foreign trade of raw material intensive products, such as oil and natural gas, and have not created enough added value in their production and export.

Given the scarcity of technology intensity in MENA countries' exports and the low value added created, it seems quite difficult for these countries to have a say in global markets. MENA countries need to increase the added value of factor equipment in their production and export in order to reach the global development level. In this context, MENA countries also need to change their factor hardware in the direction of R&D, technology and innovation.

REFERENCES

Alessandrini, M., & Batuo, M. E. (2010). The trade specialization of SANE: Evidence from manufacturing industries. *The European Journal of Comparative Economics, 7*(1): 145-178.

Azgün, S., Yurttançıkmaz, Z. Ç., Gerni, M., & Sarı, S. (2016). Türkiye ve Orta Asya Türk Ülkeleri Arasında Endüstri İçi Ticaretin Düzeyi ve Sektörel Rekabet Gücünün Belirlenmesi. *International Conference on Eurasian Economies* (s. 323-329). Hungary: AVEKON.

Balassa, B. (1965). Trade Liberalisation and "Revealed" Comparative Advantage. *The Manchester School of Economic and Social Studies*, 99-123.

Bécuwe, S., & Blancheton, B. (2016). French textile specialisation in long run perspective (1836–1938): trade policy as industrial policy. *Cahiers du GREThA 2016 – 17*, 1-30.

Çeştepe, H. (2012). Türkiye'nin Seçilmiş Ortadoğu Ülkeleriyle Ticaretinin Analizi. *Ekonomik ve Sosyal Araştırmalar Dergisi*, 23-43.

Erkan, B. (2011). STIC Teknoloji Sınıflandırmasına İlişkin Açıklanmış Karşılaştırmalı Üstünlüklerin Belirlenmesi Türkiye ve Diğer N-11 Ülkelerinin Karşılaştırılması. *Finans Politik ve Ekonomik Yorumlar*, 35-48.

Erkan, B. (2012). BRIC Ülkeleri ve Türkiye'nin İhracat Uzmanlaşma ve Rekabet Düzeylerinin Karşılaştırmalı Analizi. *Ekonomik ve Sosyal Araştırmalar Dergisi*, 101-131.

Falkowski, K. (2018). The importance of energy resources for Azerbaijan's international competitiveness. *Journal of International Studies, 11*(4), 44-56.

Ishcukova, N., & Smutka, L. (2013). Revealed Comparative Advantage of Russian Agriculture Export. *ACTA Universitatis Agriculturae Et Silviculturae Mendelianae Brunensis*, 941-958.

Marconi, D., & Rolli, V. (2008). *Comparative Advantage Patterns and Domestic Determinants in Emerging Countries.* Japonya: World Institue for Development Economics Research .

OECD (2011), Socio-Economic Context And Impact Of The 2011 Events İn The Middle East And North Africa Region MENA- Investment Programme, P9.

Reyes, G. U. (2014). Examining the Revealed Comparative Advantage of the ASEAN 6 Countries Using the Balassa Index and Lafay Index. *Journal of Global Business and Trade, 10*(1), 1-11.

Sözen, İ. (2011). MENA Bölgesi Doğal Kaynakları. H. Genç, & F. Sayım içinde, *Ortadoğu ve Kuzey Afrika Ülkelerinin Ekonomik Yapısı* (s. 120-150). Bursa: MKM Yayıncılık.

Erkan, Saeed & Bozduman, 2019