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How did the multi-fiber agreement affect the level of specialization in the textile sector of the countries?

Çok elyaflılar anlaşması ülkelerin tekstil sektöründeki uzmanlaşma düzeyini nasıl etkilemiştir?

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Arastırma Makalesi / Research Article

**HOW DID THE MULTI-FIBER AGREEMENT AFFECT
THE LEVEL OF SPECIALIZATION IN THE TEXTILE
SECTOR OF THE COUNTRIES?**

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ABSTRACT: This paper aims to reveal the effects of the Multi-Fibre Agreement (MFA), which determines the course of the textile trade and the global competition on countries' levels of specialization. In this perspective, we analyze the levels of specialization (competition) of the 10 countries whose exports were the highest in the sector before and after the complete abolition of quotas in a comparatively. In the analyses, we use the Index of Contribution to Trade Balance (ICBT), the Export-Import Ratio Index (EIRI) and the Michaely Index (MI) to measure the progress of countries' level of specialization in the sector by years. All of these indices indicate that the highest levels of specialization in the sector were Pakistan, India and Turkey before the end of the MFA. After 2005, when quotas were completely eliminated, China and Hong Kong increased their level of expertise in the sector and separated positively from other countries. In this context, China achieved a global competitive advantage in the sector, especially with high level of specialization.

Keywords: Multi-Fibre Agreement (MFA), Textile Sector, Competitiveness, Specialization

**ÇOK ELYAFLILAR ANLAŞMASI ÜLKELERİN TEKSTİL SEKTÖRÜNDEKİ
UZMANLAŞMA DÜZEYİNİ NASIL ETKİLEMİŞTİR?**

ÖZET: Bu çalışma, tekstil ticaretinin ve küresel rekabetin seyrini belirleyen Çok Elyafıllar Anlaşması'nın (MFA) ülkelerin uzmanlaşma düzeylerine etkilerini ortaya koymayı amaçlamaktadır. Bu perspektifte, kotaların tamamen kaldırılması öncesinde ve sonrasında sektörde ihracatı en yüksek olan 10 ülkenin uzmanlaşma (rekabet) düzeyleri karşılaştırmalı bir şekilde analiz edilmiştir. Analizlerde ülkelerin sektördeki uzmanlaşma düzeylerinin yıllara göre seyrinin ölçülebilmesi amacıyla Ticaret Dengesine Katkı Endeksi (ICBT), İhracat-İthalat Oranı Endeksi (EIRI) ve Michaely Endeksi (MI) kullanılmıştır. Söz konusu endekslerin tamamı MFA'nın tamamen sona ermesinden önce sektörde uzmanlaşma düzeyi en yüksek ülkelerin Pakistan, Hindistan ve Türkiye olduğunu göstermektedir. Kotaların tamamen ortadan kaldırıldığı 2005 yılı sonrasında ise Çin ve Hong Kong sektördeki uzmanlaşma düzeylerini arttırarak diğer ülkelerden pozitif anlamda ayrılmıştır. Bu bağlamda, özellikle Çin yüksek düzeyde uzmanlaşmayla birlikte sektörde küresel rekabet avantajı sağlamıştır.

Anahtar Kelimeler: MFA, Tekstil Sektörü, Rekabet Gücü, Uzmanlaşma

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1. INTRODUCTION

Today, the global competitive struggles and relative superiority of countries are realized not through macro variables, but through micro variables. Macroeconomic variables such as economic growth, gross domestic product, per capita income, total exports show the economic strengths of countries. However, the competitiveness and comparative advantages of countries in the international arena depend mainly on their competitiveness in the sector and in the product. In other words, countries with high levels of sectoral specialization are taking a step forward in global competition.

Textile is one of the leading sectors when the global competitiveness of countries - especially developing countries - are compared. Because the textile sector is one of the key sectors in terms of being predominantly labor-intensive, having high priori and backward connections, making important contributions to employment, national output and exports.

The production of the textile sector, which has a significant share in the world goods trade, was initially concentrated in developed industrial countries. Later, developing countries gained and specialized competitiveness in the textile sector because they used labor intensive and relatively lower and cheaper technology [9]. In addition, OECD countries have focused on how to combat cheap labour-based imports from developing countries since 1950 [13]. At the same time, the importance of the issue increased further with the marking of Japan's entry into the GATT in 1955. Because Japan was also a developing country and exporter of textile products. Domestic industries in developed countries were negatively affected by cheap imports. As a result of the gradual shift of textile sector production to developing countries, developed countries began to protect their own industries and to take some trade-restricting measures due to social pressures [31].

Global trade in the textile sector has long been governed by the MFA, which sets national quotas for textile exports [23]. The most important factor that laid the groundwork for the emergence of the MFA was a series of voluntary export restrictions imposed by the US on Japanese textile exports in 1955 [5]. In this period, the concept of "market disruption" was discussed intensely for the first time in the GATT and in order to reduce market deterioration, an international agreement for joint regulation of trade in textiles was proposed to the Permanent Textile Committee in the GATT [29]. As a result of these efforts, the "short term Cotton Convention" was signed by 19 countries in 1961. In 1962, a "long term cotton contract" was made, which would be valid for 5 years. The contract was extended until 1970 when the term expired. With the entry into force of the MFA on 1 January 1974, a period of limiting trade in the sector and maximising the level of protection began [27]. This agreement superseded all previous agreements regulating global trade in the sector since 1961 [15].

The MFA covered a significant portion of the world textile trade. The agreement allowed developed industrial countries to impose

quotas on textile products imported mostly from developing countries. The countries limited textile trade through unilateral restrictions and bilateral agreements under the agreement [11]. The MFA has also partly led to the spread of textile industries to many countries around the world. Over time, as quotas became more restrictive in a country, investments shifted to countries where there were no limitations. For example, limitations on South Korean exports led to the shift of investments to the ASEAN countries (Thailand, Philippines, Malaysia and Indonesia) [32].

International trade in the textile industry had been driven by quantity restrictions under the MFA and earlier agreements for more than 30 years. One of the most important results of the Uruguay Round is the signing of the Agreement on Textiles and Clothing (ATC). This agreement ended the MFA restrictions in the sector [22].

With the ATC, it was decided that the lifting of the existing trade restrictions on the MFA would take place in 4 stages [14].

- The abolition of 16% of the quantity restrictions in the sector in 1.1.1995.
- The abolition of 17% of the restrictions in 1.1.1998.
- The abolition of 18% of the restrictions in 1.1.2002.
- The abolition of the remaining 49% of the restrictions in 1.1.2005.

After the agreement, competitiveness in the textile sector began to fall into the hands of developing countries such as China, India and Pakistan, which produce low-cost production. In the US, EU and other developed countries, prices in the sector fell and competitiveness decreased [21].

In this study, we aim to analyze and compare the levels of specialization (competition) in the sector of the 10 countries (China, India, Germany, Italy, USA, Turkey, Korea, Vietnam, Pakistan and Hong Kong, respectively) that export the most in the textile sector in the world before and after the MFA. In this context, the study is first informed about the MFA. Later, a literature review is carried out and it is discussed how this study can contribute to literature. Then, we give information about the indices and data used in the analysis in the method and data section. Finally, we calculate and interpret the levels of specialization in the textile sector of the countries with the specified indices in the analysis part of the study.

2. LITERATURE REVIEW

As a result of the literature review, we discover that there are many studies on the phasing out of the MFA and textile quotas. The majority of these studies has analyzed the extent to which countries such as China, India and Pakistan have been affected by the MFA. Many of these studies have focused on the development of textile export performance and competitiveness of these countries in the US and EU market.

Some of the work on the MFA phased out prior to 2005, when the agreement ended and the period of liberalisation of textile exports began. These studies mainly dealt with the phases of the MFA from the beginning to the end of the period and the effects of this on the export performance of textile exporting countries. For example, Xu (1997) analyzed the impact of the MFA on domestic firm behavior and market power in the US textile sector. He used the demand function of domestic textile firms, demand flexibility, cost function and the Lerner index in his analyses. Empirical results showed that trade restrictions led domestic producers to behave less competitively and increased profit margins. He stated that this could increase market inflows and reduce the profit margins of its domestic producers in the long term [37]. Austria also (1996) analyzed the state of the textile sector of the Philippines during the 10-year quota period of the MFA. In the analysis, he used the textile sector investments in total manufacturing industry investments and the contribution of the sector to manufacturing industry value added and employment. He stated that the quota period would be in favor of the textile sector of the Philippines in the study. However, he stressed that the country's textile sector was not as competitive as other major Asian exporters. According to him, the country's competitive position was always under threat, even during the MFA [3].

Brambilla et al. (2007) revealed the performance of trade partners of the US under the quota regimes established by the MFA (1974-1995) and the ATC (1995-2005). The study looked at China's share of textile export amounts during the MFA phase period. It was emphasized that China's share of textile exports had been increased during all phases of the MFA in the study [6]. Verma (2002) examined the competitive performance of India's textile product categories in the US and EU markets during the stages of the MFA (1995-2000). As a measure of competitiveness, India's share of textile exports in the US and EU markets was taken in this period. The results showed that India's export competitiveness in the EU and US market was generally high during the MFA process [33].

Some of the studies on the MFA also analyzed the export competitiveness and performance of textile exporting countries after the lifting of restrictions in the sector in 2005. For example, Marouani (2005) estimated the impact of the MFA on the unemployment rate in Tunisia. He used the dynamic general equilibrium model in the study. The main findings were that unemployment and wage inequality would rise because of the MFA, and that a deeper integration with the EU could soften the negative effects of the shock [25]. The United States Department of Agriculture (USDA) (2005) estimated India's textile export performance after the MFA. The USDA emphasized that India's textile exports would increase and could threaten industry-strong countries such as the US with the MFA [21]. Kundu et al. (2004) estimated competitiveness in India's textile sector after the MFA. They applied the questionnaire to 228 managers working in the sector. According to the results obtained, the sector is not sufficient for post-MFA in terms of product quality level, time management and strategic planning [20]. Xia (2005) estimated the impact of the MFA on the textile sector of the US, EU and China and other Asian countries by calculating textile supply and demand flexibilities and using the equilibrium displacement

model. The results are that domestic textile demand in the US and EU tends to decrease after the elimination of the MFA in both the short and long term [36].

Yang and Mlachila (2007) predicted the effects of phasing out textile quotas on the Bangladesh economy. They emphasized that Bangladesh's exports would fall and the balance of foreign trade would deteriorate after the quota period [38]. Ananthakrishnan and Jain-Chandra also (2005) estimated the impact of the elimination of textile and clothing quotas on Indian textile exports using the general equality model. They revealed that India would significantly increase its textile exports in the process [2].

When we examine the literature, we observe that the export performance of textile exporting countries during and/or after the MFA process has been evaluated using different criteria. The criteria in question can be listed as follows: Market share [15], labor costs [8], the annual export growth rate of textile [24], the sector's share in total exports [6,24], unit price and quality changes [12], demand function of textile companies, demand flexibility, cost function [37], contribution of the sector to the manufacturing industry added value and employment [3], textile export amounts to the US and/or EU [38], textile import growth rates of the USA and EU from Asian countries after the MFA [34], textile export share in the USA and EU market [33], increase in textile exports and market shares [28], global market share [7].

We observe that there are not many studies on the measurement of export competitiveness and degree of specialization in the sector before and after the MFA in the literature. We observe that the export competitiveness of countries in the sector has been measured using the revealed comparative advantage coefficients (usually with the help of the Balassa Index) in the related studies. For example, Kim (2019) analyzed India's textile export competitiveness in the US market. He used the Balassa's revealed comparative advantage index in the study covering 1991-2017 period. The results of the analysis stated that despite the intense competition in the global market, India had a competitive advantage in the textile products exported to the US from 1991 to 2017 [18]. Karaalp and Yılmaz (2012) analyzed Turkey's textile competitiveness in the EU market during 1988-2008. They used the Balassa's and Vollrath's revealed comparative advantage indices as an indicator of competitiveness in the study. The results showed that Turkey's textile export competitiveness in the EU market increased after the complete termination of the MFA [17]. Ahmad (2014) analyzed the export competitiveness of Pakistan's textile sector before and after the MFA. He used the Balassa Index as a measure of competitiveness in the study. He stated that the textile sector did not benefit from the elimination of quotas as expected [1].

We analyze the course of specialization of the top 10 countries in textile exports before and after the MFA comparatively in this study. The study differs with the literature in this aspect. Furthermore, we measure the specialization levels of countries in the textile sector before and after the MFA using different indices (Index of Contribution to Trade Balance (ICTB), Export-Import Ratio Index (EIRI), Michaely Index (MI)). In addition,

we calculate the export specialization level of the textile sector separately according to sub-product groups. We think that the study is original with these aspects and may contribute to the literature.

3. DATA AND METHOD

The main objective of the study is to determine the course of specialization levels of the countries before and after the lifting of quotas (before and after the MFA) in the textile sector. In this perspective, we use the ICTB, EIRI and MI to analyze the textile industry specialization and competition levels before and after the MFA in the 10 countries with the highest textile exports in 2018.

The ICTB measures the contribution of a particular product group to total trade and shows the country's main trade balance. The index is shown as follows [19]:

If the index value is greater than zero, the country has specialization in the sector (competitive advantage). If the index value is less than zero, the country is not specialized in the sector (competitive disadvantage) [30].

The MI indicates whether a country is specialized in a product group [16]. The index is formulated as follows:

The index takes value between -1 and +1. If the index value is between 0 and 1, the level of specialization in the sector is sufficient. If the index is between -1 and 0, the level of specialization in the sector is inadequate [26].

The EIRI shows the country's economic performance, competitiveness and especially the level of specialization in the foreign trade of a particular product group. The index shows the ratio of the country's export share to the import share of any product [4]. The index is formulated as follows:

If the EIRI value is greater than 1, the country specializes in this product, vice versa. While the logarithmic form of the index is concerned; if the EIRI is greater than 0.50, the country has a high

level of specialization. If the EIRI is less than -0.50, it means that the country has not been able to specialize in the foreign trade of the product in question. If the EIRI is between -0.50 and 0.50, the country's level of specialization is marginal limit [10].

We use the Standard International Trade Classification (SITC) Revision 3, 3 digit product code data in the analyses. In this context, we analyze the levels of specialization of 9 sub-product groups belonging to the textile sector (SITC Rev 3, 651, 652, 653, 654, 655, 656, 657, 658, 659). We obtain the data with the help of the United Nations Comtrade database (UN Comtrade) [35]. Since we are able to obtain pre-MFA textile data for all 10 countries by 1997, we make the analyses for the periods 1997-2004 and 2005-2018 and interpreted them in a comparative way.

4. THE FINDINGS OF THE RESEARCH

We analyze the pre-and post-MFA (1997-2004 (shown as I in tables), 2005-2018 (shown as II in tables)) levels of textile sector (SITC Rev. 3, 65 code) exports of the top 10 countries in 2018 in this study. We use the ICTB, MI and EIRI in the analyses. The analyses concerning the specialization levels of the textile sector of the countries are related to the 9 sub-product groups of the sector (SITC Rev3, 3 digit product classification with reference to textile sector is as follows:651: Textile yarn 652: Cotton fabrics, woven 653: Fabrics, woven of man-made fabrics 654: Other textile fabrics, woven 655: Knitted or crocheted fabrics, n.e.s. 656: Tullies, trimmings, lace, ribbons & other small wares 657: Special yarn, special textile fabrics & related 658: Made-up articles, of textile materials, n.e.s. 659: Floor coverings, etc.).

4.1. The Index of Contribution to Trade Balance (ICTB) Analysis

According to the ICTB scores, we can say that the countries with the highest textile exports are mainly specialized in the sector. In other words, the index results of the countries are positive across the sub-product groups of the sector (Table 1).

$$ICTB = \left[\frac{X_{kt}^j - M_{kt}^j}{X_{kt}^j + M_{kt}^j} \right] - \left[\frac{X_t^j - M_t^j}{X_t^j + M_t^j} \right] \times \left[\frac{X_{kt}^j - M_{kt}^j}{X_t^j + M_t^j} \right] \times 10000 \quad (1)$$

Where; X: Export, M: Import, t: Term (year), k: Textile product, j: Country

$$MI = X_{kt}^j / \frac{\sum X_{kt}^j - M_{kt}^j}{\sum M_{kt}^j} \quad (2)$$

$$EIRI = \frac{X_{kt}^j}{X_t^j} / \frac{M_{kt}^j}{M_t^j} \quad (3)$$

Table 1. The ICTB Scores of the Countries (1997-2018) (We calculate and arrange the table using the UN Comtrade database)

Product Code	Turkey		Germany		USA		Italy		China		India		Pakistan		Hong Kong		S. Korea		Vietnam	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
651	3,19	-0,91	-0,23	-0,39	0,44	0,61	-0,04	-0,05	-0,78	0,87	17,98	7,96	56,36	28,64	-2,16	0,31	-0,08	-0,70	-3,71	2,52
652	3,06	2,04	0,20	0,03	0,22	0,08	2,22	1,01	2,82	2,84	10,60	2,57	64,86	48,51	3,25	0,87	0,79	0,05	-4,37	-5,39
653	4,80	3,72	0,36	0,04	0,41	0,12	2,50	1,05	-1,80	3,26	5,48	3,43	25,55	6,58	-1,67	0,16	10,45	2,04	-14,76	-10,66
654	-0,08	-0,13	-0,05	-0,06	-0,16	-0,04	3,99	1,79	0,10	0,40	2,99	0,67	0,03	-0,04	-0,37	0,08	-0,17	-0,18	-0,79	-0,80
655	2,59	3,84	0,37	0,14	0,25	0,27	1,14	0,61	-0,20	2,17	0,08	-0,04	3,44	0,49	-0,36	0,12	6,99	3,59	-1,95	-7,24
656	2,33	0,98	0,11	0,04	0,21	0,06	0,19	0,17	-0,37	0,63	0,64	0,33	0,33	-0,06	0,43	0,25	1,76	0,44	-2,72	-2,33
657	0,34	0,79	1,31	0,59	0,96	0,65	1,79	1,56	-1,95	1,27	-0,52	-0,25	1,05	0,04	-0,51	0,00	4,56	1,19	-7,16	-3,27
658	15,55	7,40	-1,11	-0,88	-1,57	-2,29	0,04	-0,45	6,87	5,80	11,95	7,29	78,28	74,60	-0,10	0,02	0,85	-0,22	3,55	4,00
659	4,14	5,28	-0,88	-0,36	-0,04	-0,11	-0,18	-0,05	0,88	0,54	7,21	3,06	12,14	3,33	-0,07	-0,01	-0,01	-0,06	0,33	-0,01

When we analyze the ICTB scores before the end of the MFA and the emergence of foreign trade freedom in the sector (Table 1), we can see that Pakistan was the country with the highest level of specialization in the textile industry. Pakistan specialized in all 9 sub-product groups. In addition, the level of specialization in five of Pakistan's product groups (651, 652, 653, 658, 659) was quite high. India, which follows Pakistan, specialized in 8 of 9 product groups. India achieved a high level of specialization in the foreign trade of 3 product groups (651, 652, 658). Turkey was the country with the highest level of specialization after Pakistan and India. Turkey specialized in 8 out of 9 product groups. However, the degree of specialization of the country was very high in 1 (658) of these product groups. Italy, South Korea, US, Germany, China, Hong Kong and Vietnam follow these three countries, respectively (Table 1).

When we analyze the level of specialization in the sub-product groups of the countries before and after the end of quotas in the textile sector, we can express the results as follows:

- After the complete abolition of quotas in the textile sector, the level of specialization in all 9 product groups of Pakistan decreased. However, Pakistan's ICTB scores in 2 product groups (654, 656) was negative after the MFA. As a result, Pakistan's level of specialization and competitiveness in the sector decreased in relative terms.
- After the full liberalisation of foreign trade in the sector, India's level of specialization decreased in 8 of the 9 product groups. Even in 1 product group (655), the country's ICTB score was negative after the complete expiration of quotas. This shows that India was severely adversely affected by the MFA.
- The total abolition of quotas in the sector also negatively affected Turkey's specialization. Although not as much as India and Pakistan, the country was negatively affected by this process. Because after the complete elimination of the MFA, Turkey's level of specialization decreased in 6 products and increased in 3 products. Turkey's ICTB score in 1 product group was negative after the complete elimination of the MFA.
- Italy's textile sector was severely affected by the complete termination of the MFA. Because the ICTB scores of the country decreased in 8 of the 9 products. In other words, the

level of specialization in the sub-sectors of the country decreased relatively. Furthermore, the specialization score of the country in 1 product group (658) was negative after the elimination of quotas.

- South Korea was also among the countries most adversely affected by the lifting of quotas in the sector. Also, the level of specialization of the country decreased in all sub-product groups of the sector. The country's specialization score in 1 product group was negative after the complete termination of the MFA.
- The total lifting of quotas in the sector affected the USA negatively as well. Because the country's ICTB scores decreased in 6 out of 9 products.
- Like other developed countries, Germany was negatively affected by the process. Because the level of specialization of the country decreased in 7 of the 9 products following the complete termination of the MFA.
- After the end of the MFA, China's level of specialization increased in 7 of the 9 product groups. In addition, the ICTB scores in China's 5 product groups (651, 653, 655, 656, 657) were negative (non-specialized) before the end of the MFA. With the complete end of the MFA, the country's ICTB scores were positive (specialized). It seems that the removal of textile quotas on a global scale helped China in the first place. The country also significantly increased its global competitiveness after the MFA.
- After the end of the MFA, Hong Kong's level of specialization increased in 7 of the 9 sub-product groups. In addition, Hong Kong's ICTB scores were positive in 6 product groups (651, 653, 654, 655, 657, 658) following the complete end of the MFA. The course of the ICTB scores shows that Hong Kong's textile sector, just like China, was positively affected by the complete end of quotas.
- Following the end of the MFA, Vietnam's specialization in 5 of 9 product groups increased. The ICTB score in 1 product group (651) was positive after the MFA (specialized). In 1 product group (659), the ICTB score became negative after the MFA (non-specialized). Vietnam's level of specialization was already low compared to 9 other countries before the MFA. This situation continued in a similar way after the MFA.

When we evaluate the ICTB scores in general, we can see that the 10 countries with the highest export in the textile sector were negatively affected by the complete end of the MFA. The scores of specialization in the textile sector of Pakistan, India, Turkey, Italy, US, South Korea and Germany decreased as a result of full liberalization of the sector. In this case, it is obvious that the global competitiveness of these countries in the sector decreased. According to the ICTB scores, China significantly increased the level of specialization in the textile sector as a result of the complete termination of the MFA. In other words, China significantly increased its global competitiveness in the post-MFA sector. Although not as much as China, Hong Kong's level of specialization in the sector increased as well. In this context, China and Hong Kong positively dissociated with other countries. It can be said that Vietnam's level of specialization was not as affected by the MFA as other countries.

4.2. The Export-Import Ratio Index (EIRI) Analysis

When we examine the EIRI scores in the sub-product groups of the world's most textile exporting countries, we realize that there are predominantly positive values. This indicates that the said countries specialized in the foreign trade of these product groups (Table 2).

First of all, when we take into account the quotas in the textile sector before the end of the MFA, we notice that Pakistan had the highest level of specialization (Table 2). Pakistan also specialized in all sub-product groups in the sector. In addition, the level of specialization of the country was quite high in 6 product groups (651, 652, 653, 655, 658, 659). According to the EIRI scores, India had the highest level of specialization in the sector after Pakistan. Likewise, India specialized in 8 of 9 sub-product groups. In addition, the level of specialization in the country's 3 product lines (652, 658, 659) was quite high. According to the EIRI scores, Turkey followed Pakistan and India. Turkey specialized in 8 of 9 sub-product groups in the sector. In addition, the country achieved significant specialization in 1 product group (658). Following the 3 countries with the highest level of specialization were, respectively: Italy, South Korea, US, China, Germany, Hong Kong and Vietnam (Table 2).

Before and after the complete end of the MFA, the levels of specialization in the sub-product groups of the textile sector of the countries are as follows:

Table 2. The EIRI Scores of the Countries (1997-2018) (We calculate and arrange the table using the UN Comtrade database)

Product Code	Turkey		Germany		USA		Italy		China		India		Pakistan		Hong Kong		S. Korea		Vietnam	
	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II	I	II
651	0,36	-0,15	-0,11	-0,43	0,43	0,76	0,00	-0,02	-0,04	0,41	2,44	2,01	3,05	2,04	-1,46	-1,21	-0,01	-0,36	-0,83	0,48
652	0,64	0,72	0,20	0,09	0,32	0,20	0,81	0,64	0,69	2,19	3,36	2,29	6,51	5,10	0,93	0,28	0,56	0,06	-1,95	-3,17
653	0,75	1,06	0,24	0,08	0,61	0,32	0,98	0,79	-0,04	1,65	2,19	2,52	3,77	2,20	-1,96	-1,39	1,89	1,67	-2,20	-2,17
654	-0,04	-0,24	-0,07	-0,21	-0,68	-0,34	1,83	1,41	0,12	0,86	2,54	1,05	0,34	0,81	-1,22	-0,05	-0,19	-0,58	-1,06	-2,20
655	1,35	1,75	0,62	0,44	0,53	0,79	0,97	0,68	0,08	1,65	0,53	-0,04	4,39	1,76	-0,36	-1,26	3,32	3,35	-2,08	-2,03
656	1,90	1,30	0,44	0,31	0,69	0,32	0,36	0,46	-0,34	1,63	1,42	1,05	1,22	0,15	0,81	0,87	2,52	1,94	-2,66	-2,49
657	0,13	0,42	0,66	0,41	0,89	0,60	0,83	0,87	-0,72	0,89	-0,41	-0,25	0,59	0,25	-1,44	-1,08	1,70	0,85	-2,16	-0,90
658	4,16	3,14	-1,05	-0,79	-1,44	-2,02	0,05	-0,49	4,55	4,24	4,63	3,53	6,08	5,26	-0,47	-0,45	1,56	-0,32	3,34	3,34
659	2,16	3,07	-1,14	-0,85	-0,08	-0,25	-0,50	-0,18	2,60	2,53	4,74	3,44	4,12	2,90	-3,54	-2,00	-0,05	-0,91	1,23	-0,06

- After the complete abolition of quotas, Pakistan's level of specialization decreased in 8 of the 9 product groups (the EIRI scores decreased). In addition, the level of specialization of the country fell to the marginal limit in 2 product groups (656, 657). These results show that Pakistan was severely negatively affected by the MFA and that the levels of specialization in the sector decreased relatively.
- The complete termination of the MFA also affected India seriously. The country's EIRI scores decreased in 7 of the 9 sub-products. However, the level of specialization of the country fell to the marginal limit in 2 product groups (655, 657).
- After the MFA, Turkey's EIRI scores increased in 5 product groups and decreased in 4 product groups. However, increases and decreases in the EIRI scores was not significant. This shows that Turkey was not significantly affected by the total abolition of quotas in the textile sector.
- Italy was also among the countries negatively affected by the total abolition of quotas in the sector. As a result of the complete termination of the MFA, the level of specialization decreased in 7 of the 9 product groups in the country.
- The total abolition of quotas in the textile sector severely affected South Korea. The country's EIRI scores declined in 8 of the 9 product groups. The specialization status of the country ended in 2 product groups (654, 659). The specialization status of the country fell to the marginal limit in 1 product group (658).
- The US was also adversely affected by the complete termination of the MFA. That is, the country's EIRI score decreased in 6 of the 9 product groups.
- It would not be wrong to say that the state of complete termination of the MFA was in China's favour. Because after the quotas were lifted, the country's EIRI scores increased in 7 of the 9 product groups. The specialization of the country ceased in 4 product groups (653, 654, 655, 656). In addition, the country specialized after the abolition of quotas in 1 product group (657). These results reveal that the process increased the level of specialization in China's textile sector.
- Achieving liberalisation in the sector had a negative impact on Germany. The level of specialization of the country decreased in 7 of the 9 product groups.

- Hong Kong was not already a specialist in most product groups in the industry. However, the end of the MFA resulted in a relative rise in the country's level of specialization in the sector. After the MFA, the EIRI scores were up in many sub-product groups of the country (651, 653, 654, 655, 658, 659). However, the country was not able to specialize in these product groups. In short, the complete termination of the MFA had a partly positive impact on Hong Kong's textile sector.
- Ending quotas in the sector also affected Vietnam negatively (although not as much as other countries). The level of specialization of the country decreased in 5 of the 9 product groups. However, it can be stated that Vietnam was lagging behind other countries with its level of expertise in the sector.

When we evaluate the EIRI scores in general, we can see that the countries with the highest exports in the textile sector were mainly affected negatively by the total abolition of quotas in the sector. The EIRI scores show that China significantly increased the level of specialization in the textile sector as a result of the complete termination of the MFA. In addition, Hong Kong's level of specialization in the sector also increased after the MFA.

The EIRI scores appear to be paralleled by the ICBT scores. Because both index results show that only China and Hong Kong among 10 countries were positively affected by the complete end of the MFA and increased their competitiveness.

4.3. Michaely Index (MI) Analysis

According to the MI scores, we observe that the countries with the highest textile export in the world mainly specialized in the

sector. In other words, the MI index scores of many of these countries were between 0 and 1 (positive) (Table 3).

When we examine the MI scores for the period before the full start of liberalisation in the textile sector foreign trade (Table 3), we can realize that Pakistan was the country with the highest level of expertise in the sector. Pakistan's MI scores were positive in all 9 sub-product groups. Pakistan specialized in all products. India and Turkey followed Pakistan. Both countries specialized in 8 out of 9 product lines. Following the three countries respectively were as follows: Italy, South Korea, US, Germany, China, Hong Kong, Vietnam (Table 3).

When we analyze the MI scores (specialization levels) of these countries before and after the complete end of the MFA in the sector, the results are as follows:

- After full liberalisation in the sector, Pakistan's MI scores decreased in 8 out of 9 product groups. However, the country's MI scores in 2 product groups (654, 656) were negative. This indicates that the country was severely affected after the total elimination of quotas in the sector.
- India was also significantly negatively affected by trade freedom in the sector. Because after the complete end of the MFA, the country's MI scores decreased in 8 of the 9 product groups. In addition, the country lost its global superiority in 1 product group (655).
- Turkey was negatively affected by the end of the MFA. The country's MI scores decreased in 6 of the 9 product groups. Even in 1 product group (651) the competitive advantage of the country disappeared.

Table 3. The MI Scores of the Countries (1997-2018) (We calculate and arrange the table using the UN Comtrade database)

Product Code	Turkey		Germany		USA		Italy		China	
	I	II	I	II	I	II	I	II	I	II
651	0,0066	-0,0020	-0,0004	-0,0008	0,0010	0,0013	-0,0001	-0,0001	-0,0016	0,0018
652	0,0063	0,0040	0,0004	0,0001	0,0004	0,0001	0,0045	0,0020	0,0057	0,0059
653	0,0100	0,0077	0,0007	0,0001	0,0009	0,0002	0,0050	0,0021	-0,0036	0,0067
654	-0,0002	-0,0003	-0,0001	-0,0001	-0,0003	-0,0001	0,0080	0,0036	0,0002	0,0009
655	0,0055	0,0081	0,0008	0,0003	0,0006	0,0006	0,0023	0,0012	-0,0004	0,0044
656	0,0049	0,0020	0,0002	0,0001	0,0004	0,0001	0,0004	0,0003	-0,0007	0,0013
657	0,0007	0,0016	0,0027	0,0012	0,0021	0,0014	0,0036	0,0031	-0,0039	0,0026
658	0,0328	0,0153	-0,0022	-0,0018	-0,0034	-0,0050	0,0001	-0,0009	0,0138	0,0118
659	0,0088	0,0111	-0,0018	-0,0007	-0,0001	-0,0002	-0,0004	-0,0001	0,0018	0,0011
Product Code	India		Pakistan		Hong Kong		S. Korea		Vietnam	
	I	II	I	II	I	II	I	II	I	II
651	0,0363	0,0165	0,1137	0,0624	-0,0132	-0,0052	-0,0001	-0,0014	-0,0075	0,0051
652	0,0213	0,0053	0,1309	0,1066	0,0176	0,0025	0,0016	0,0001	-0,0088	-0,0108
653	0,0111	0,0070	0,0514	0,0140	-0,0102	-0,0020	0,0211	0,0041	-0,0298	-0,0215
654	0,0061	0,0013	0,0001	-0,0001	-0,0022	-0,0004	-0,0003	-0,0004	-0,0016	-0,0016
655	0,0002	-0,0001	0,0069	0,0010	-0,0033	-0,0038	0,0141	0,0072	-0,0039	-0,0145
656	0,0013	0,0007	0,0007	-0,0001	0,0025	0,0017	0,0036	0,0009	-0,0055	-0,0047
657	-0,0011	-0,0005	0,0021	0,0002	-0,0035	-0,0013	0,0092	0,0024	-0,0144	-0,0066
658	0,0242	0,0151	0,1576	0,1656	-0,0009	-0,0003	0,0017	-0,0004	0,0072	0,0080
659	0,0146	0,0063	0,0244	0,0070	-0,0004	-0,0001	0,0000	-0,0001	0,0007	0,0000

- The complete elimination of quotas in the sector had a significant negative impact on Italy's specialization. Because, the country's MI scores decreased in 8 of the 9 product groups. The country became non-specialized in 1 product group (658).
- Perhaps the country most adversely affected by the complete disappearance of the MFA is South Korea. After the liberalisation of the sector, South Korea's competitiveness in all of the sector's sub-product groups decreased relatively. Also, while prior to the complete termination of the MFA, the country specialized in 2 product groups (658, 659), it was no longer a specialist.
- The US was also among the countries negatively affected by the process. Likewise, after the complete elimination of quotas, the country's MI scores decreased in 7 of the 9 product groups.
- Germany's specialization levels also decreased after the free trade in the sector. Because the country's MI scores decreased in 7 of the 9 product groups.
- The complete elimination of the MFA had a serious positive impact on China. In this process, the country's MI scores increased in 8 of the 9 product groups and the country increased the level of specialization in the sector. In addition, while the country could not specialize in 5 product groups (651, 653, 655, 656, 657) before the MFA, it could specialize after the agreement ended.
- Hong Kong was also positively affected by the process, although not as much as China. The country's MI scores increased relatively in 6 of the 9 product groups. Despite this, the country was still not specialized in most of these product groups.
- Vietnam was among the countries negatively affected by the process, though not as much as other countries. The specialization level of the country decreased in 5 of the 9 product groups.

The MI scores are similar to the ICTB and EIRI scores. Because the MI is also concluded that China and Hong Kong were positively affected by the process. If all three indices are evaluated together, it is obvious that China and Hong Kong affected positively as a result of the complete elimination of quotas in the textile sector and the liberalisation of foreign trade. China, in particular, significantly increased the level of specialization in the sector and increased its global competitiveness. Other countries, especially Pakistan, India and Turkey, which had a very high level of specialization, were negatively affected by the complete elimination of the MFA.

5. CONCLUSION

In our age, the fact that the competitive wars of countries are more micro-scale rather than macro indicators has resulted in countries giving more importance to sectoral competitiveness. Textile is one of the most important sectors in terms of the countries considering its priori and backward connections, its contribution to employment, investments and national income. Especially since it is predominantly labor intensive, textile is

emerging as a key sector for developing countries whose comparative advantages are based on labor-intensive products. As a matter of fact, the global competition in the sector is very high.

The emergence of the MFA, its continuation and termination for many years affected the level of specialization and competition of the countries in the textile sector in different ways. With the termination of the agreement and the entry into force of the ATC, relatively low-cost manufacturing countries began to take over the markets of high-cost manufacturing countries. Due to relatively low costs, countries with price advantage in production and exports started to have more say in the world textile market.

In this study, we measure and analyze the specialization levels of the 10 countries with the highest textile export in the world before and after the complete elimination of the MFA (2005) comparatively. In the study, we use 3 different indices (the ICTB, EIRI, MI) to measure the specialization levels of countries in sectoral foreign trade. We observe that the results obtained from the three index analysis are highly parallel to each other. As a result of all three indices, we notice that only China and Hong Kong among the countries increased the level of specialization in the sub-product groups of the textile industry and differed positively from other countries. Especially China was positively affected by the liberalization of foreign trade in the sector, and with its specialization, it increased its global competitiveness.

A statement that the complete elimination of the MFA only affects the developed or developing countries negatively would be false. Because, both developing countries such as Turkey, India and South Korea and developed countries such as the US, Germany and Italy were negatively affected by this process. As a result, it is evident that the level of specialization in the sector and the relative decrease in global competitiveness negatively affected the labor markets in these countries, their effectiveness and employment level.

It is clear that the MFA and similar agreements, quantity restrictions, and trade wars have been on the rise lately. For this reason, product prices and wage levels are among the factors that will most affect the level of specialization and global competition in the sector. In this context, it is getting harder and harder for developed countries to gain competitive advantage over developing countries. For this reason, many developed countries are shifting their investments in the sector to the countries with relatively low unit price and wage levels. In this process, raising the level of quality in the sector is an inevitable option for countries with high unit price and wage levels. In addition, these countries need to produce products with higher added value by reducing contract manufacturing in the sector, increasing the level of R&D and innovation in production and branding. Thus, it will be possible to increase both the specialization and the level of competition.

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