

UNCHANGING PROTECTIONISM IN THE POST-ATC ERA: NON-TARIFF MEASURES

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Permanent link to this document: <http://doi.org/10.17261/Pressacademia.2022.1640>**Copyright:** Published by PressAcademia and limited licensed re-use rights only.**ABSTRACT****Purpose-** This study explores the importance of non-tariff measures (NTMs) in the global textile and clothing trade. For this purpose, we consider the trade effects of other NTMs implemented instead of the quotas that expired in 2005 with the WTO Textile and Clothing Agreement (ATC). These results indicate that the textile and clothing trade continues to be protected by other non-tariff measures during the quota-free period.**Methodology-** Based on the example of Turkey, the study examines the effects of anti-dumping measures (ADP) on imports in the quota-free period compared to customs duties by using OLS and PPML methods for the period 2000-2020.**Findings-** The estimations indicate that the ADP measure of NTMs is much more effective than the tariff rates. The import value of textile and clothing might decline by 2,7%-4,1% due to a percentage point increase in the tariff rates compared to a decrease of 22,6%-78,6% following an ADP measure. This effect would be 5,2%-5,8% with one percentage point increase of tariffs, whereas 29,2%-78,2% after an ADP for the import volume.**Conclusion-** The results reveal that the anti-dumping measures, which replace quotas, could restrict imports more than customs duties. Thus, the protectionism in the global trade of textile and clothing industry continues with other NTMs instead of quotas.**Keywords:** WTO Textile and Clothing Agreement (ATC), non-tariff measures, quotas, anti-dumping, protectionism**JEL Codes:** F13, F14, F53**1. INTRODUCTION**

The importance of textile and clothing sector in the industrialization of countries is indisputable. Today, the sector continues to be the main source of foreign exchange income and employment in most countries, especially those on the development path. For this reason, decision-makers were deeply worried about the adverse economic effects of opening the sector to global competition starting from 2005. Accordingly, they had to maintain protectionism by using other non-tariff measures (NTMs) after the elimination of import quotas. Therefore, it is essential to understand the function of NTMs that support countries to cope with the transition to free trade.

1.1. Pre-ATC Period

Exposed to protectionism for many years, the sector was able to achieve international trade liberalization only ten years after the establishment of the World Trade Organization (WTO). From 1974 to the end of the Uruguay Round negotiations, the quotas imposed on the amount of clothing and textile were determined through bilateral negotiations within the framework of the Multifiber Agreement (MFA). The agreement was transformed into the Textile and Clothing Agreement (ATC) of the WTO from the beginning of 1995, which envisaged abolishing quotas within ten years and to bring the industry fully in line with the basic principles of the GATT. Considering that the textile and clothing industry accounted for some 7% of the global goods trade, the GATT Secretariat estimated before the ATC period that the international trade would increase by 18% for textiles and 69% for clothing (WTO, 2017). Such an increase was to be believed the driving force behind the expected 14%-37% growth in the exports of developing countries as a result of the Uruguay Round negotiations.

On the other hand, the WTO estimations pointed to just the tip of the iceberg, as countries were to be affected not in the same ways by a quota-free trade environment. For this reason, they were generally considered into three groups. The first group was developed countries such as the United States of America (USA), the European Union (EU), and Canada, which

constituted the main export markets in terms of the sector. As a result of the liberalization of trade, the consumers would benefit from low prices of the products (Appelbaum, 2004), while domestic producers and employment would suffer due to the increase in imports and competition (Martin, 2007).

Unlike the developed countries, the developing nations that made up the second group were not homogeneous. Because these countries had quite different advantages and disadvantages in the competitive environment after the ATC. For example, China with cheap labor, infrastructure, and product diversity could ensure efficiency and effectiveness in production, while not benefiting from the privileges such as the Generalized Preferences System (GSP) (Shah, Syed, & Shaikh, 2013). The other major player of India stood out with its availability of inputs such as cotton, design skills, cheap labor, large and expanding domestic market, and ethnic products, but the high cost of doing business and unsuitable conditions for foreign direct investment were the shortcomings of the country.

The factors such as low-cost labor and working conditions, the scale of firms, product quality, the existence of foreign ownership, availability of inputs, ability to develop new products, and access to preferential markets would obviously determine the export performance of developing countries in the post-ATC period (Alam, Selvanathan, Selvanathan, & Hossain, 2019). However, many developing countries had to consider domestic producers as well as their export performance. For example, a middle-income country of South Africa with a larger local market had to take measures to protect the domestic industry besides its share in the global market (Morris & Barnes, 2008).

1.2. Transition to the Quota-Free Trade Environment

The concerns of both developed and developing countries revealed that the transition to a quota-free environment would not be an easy matter. First of all, new restrictions were imposed on imports of the sector by the USA until 2008 and by the EU until 2007, as a result of lobbying efforts of local producers and other developing countries following the dramatic increase in China's exports to the USA in the 2001-2005 period (Brambilla, Khandelwal, & Schott, 2010). Besides, countries such as Republic of Korea, Brazil, South Africa, and Mexico initiated efforts to protect domestic producers from importers and to cope with the other difficulties brought by the liberalization process (Francois, 2010).

In this context, policy options that could be put into practice by the industry and the governments to improve competitiveness came to the fore. For instance, the sector could enhance the production of efficiency via skill training and additional technology investments that would provide product diversity (Appelbaum, 2004). It was also recommended the states build an effective logistics infrastructure with suitable ports, create export processing zones, provide financial aid (e.g. grants, loans, and tax reliefs), implement legislative reforms increasing their labor standards, and establish preferential trade arrangements such as GSP and regional trade agreements for market access. Importance was given to the efforts to support these national initiatives with international policy instruments such as "Aid-for-Trade" (Adhikari & Yamamoto, 2007). Moreover, the value of government initiatives was emphasized to implement innovations including production process, marketing, and organization that facilitate foreign direct investments and technology transfer in Sri Lanka after ATC (Wijayasiri & Dissanayake, 2009).

1.3. Post-ATC Era

WTO data indicate that the liberalization of the textile and clothing trade have affected the exports and imports of countries differently. The shares of developed countries in the global imports of some 788 billion dollars have decreased since 2005 (Table 1). In the 2005-2020 period, the shares decreased from 33,8% to 30,0% for the EU, from 20,8% to 15,0% for the USA, from 5,7% to 4,5% for Japan, and from 2,1% to 2,0% for Canada.

Table 1: Shares of Textile and Clothing in Global Trade (%)

Countries	Exports					Imports				
	2000	2005	2010	2015	2020	2000	2005	2010	2015	2020
China	14,7	23,9	34,0	38,2	38,1	3,8	3,5	3,2	3,2	2,8
EU	29,5	30,6	26,2	22,3	24,4	31,3	33,8	31,8	26,8	30,0
Viet Nam	0,6	1,1	2,2	3,7	4,9	0,5	0,8	1,2	1,7	1,9
Bangladesh	1,5	1,6	2,7	3,8	3,8	0,4	0,5	0,7	1,2	1,1
India	3,3	3,5	4,0	4,8	3,6	0,2	0,4	0,5	0,6	0,5
Turkey	2,9	3,9	3,6	3,6	3,5	0,6	1,1	1,5	1,1	0,8
USA	5,5	3,6	2,8	2,7	2,1	22,6	20,8	16,5	16,0	15,0
Pakistan	1,9	2,2	1,9	1,8	1,7	0,0	0,1	0,2	0,2	0,1
Mexico	3,2	2,0	1,0	0,9	0,8	2,6	1,7	1,2	1,3	1,0
Japan	2,1	1,5	1,3	0,9	0,8	6,7	5,7	5,3	4,7	4,5
Canada	1,2	0,9	0,5	0,4	0,4	2,1	2,1	2,0	1,8	2,0
Brazil	0,3	0,4	0,2	0,1	0,1	0,3	0,3	0,8	0,8	0,6

South Africa	0,1	0,1	0,1	0,1	0,1	0,2	0,3	0,4	0,4	0,4
Others	33,1	24,6	19,5	16,6	15,8	28,6	28,9	34,8	40,2	39,3

Source: <https://stats.wto.org>

Major producers have showed quite dissimilar performances in terms of exports. In line with the expectations, China alone made 38,1% of the global sector exports or nearly 777 billion dollars of trade in 2020. On the other hand, China's share in total exports, which was 23,9% in 2005, stabilized after reaching 38,2% in 2015. In the relevant period, the shares increased from 1,1% to 4,9% for Viet Nam, from 1,6% to 3,8% for Bangladesh, from 0,8% to 1,5% for Malaysia, and from 0,5% to 1,0% for Cambodia. On the other hand, the countries whose market shares decreased during the quota-free period were Pakistan (from 2,2% to 1,7%), Mexico (from 2,0% to % 0,8), and Brazil (from 0,4% to 0,1%). The shares of countries such as Turkey, India, Indonesia, Sri Lanka, and South Africa either remained the same or changed little.

Like the exports, the developments in the imports of countries differ from each other. For instance, the shares of Viet Nam, Bangladesh, Indonesia, Egypt, Cambodia, and Brazil in total world imports enlarged between 2005 and 2020. However, the share of few countries such as Turkey and Mexico declined. India, Pakistan, Malaysia, Sri Lanka, and South Africa were among the countries whose shares remained almost unchanged.

1.4. Alternative Measures to the Quotas

Based on WTO figures, some countries gained in exports, while others lost in the post-ATC period, though not at the level of expectations. A similar outcome was realized for imports as a result of better managing the transition period of liberalization by some countries that were able to limit the adverse effects of global competition. This may be an apparent consequence of implementation of different policies discussed in the previous section. Another view is that customs duties have become the most important foreign trade policy to provide protectionism after the quotas (Öngüt, 2007).

On the other hand, WTO data reveal that trade-weighted average customs duties, calculated as MFN (the Most Favored Nation), for the sector did not increase significantly after 2005 and even declined in many export markets (Table 2). For example, significant reductions happened in MFN customs duties imposed by Australia, Japan, Mexico, Pakistan, Tunisia, and Viet Nam in the 2005-2020 period. Countries that increased customs duties the most were limited to Thailand, Indonesia, and India. The changes in the MFN rates applied by other countries are negligible.

Table 2: Trade Weighted Average Duties (MFN, %)

Countries	2005	2010	2015	2020
Australia	6,5	5,2	4,0	2,6
Brazil	8,2	10,2	10,4	10
Cambodia		9,5	9,2	9,1
Canada	3,6	3,1	3,1	3,3
China	4,7	4,6	4,4	3,2
EU	3,4	2,8	3,0	3,2
India		7,2	7,6	12,6
Indonesia	4,0	4,1	6,8	5,6
Japan	4,5	2,1	2,1	2,4
Mexico	11,9	5,8	4,5	4,1
Pakistan	13,1	10,1	10,7	9,6
South Africa	6,1	5,9	6,3	6,3
Sri Lanka	8,0	9,3	7,0	6,4
Turkey	3,8	4,9	5,9	4,6
USA	2,5	2,1	2,4	2,3
Viet Nam	12,7	5,9	5,6	5,3

Source: <https://stats.wto.org>

The most prominent development was the boost in the number of NTMs implemented after 2005 for textile and apparel products. While their total number increased by 13,1% in 2000-2004 compared to 1995-1999, this growth rate was 48,8% for the industry. In the 2005-2009 period, the said increase rates were 33,0% and 44,6%, respectively, compared to the previous 5-year period. Although interrupted from 2010-2014, this trend continued from 2015-2019.

Table 3: Number of NTMs notified by WTO members

NTMs (HS 50-63)	1995-1999		2000-2004		2005-2009		2010-2014		2015-2019	
	Total	Sector								
Sanitary and Phytosanitary (SPS)	1.406	3	2.937	21	4.118	21	5.056	21	5.951	53
Technical Barriers to Trade (TBT)	2.940	20	3.162	30	5.440	146	7.563	119	9.335	254
Anti-dumping (ADP)	683	92	1.448	202	1.164	216	1.277	107	1.438	143
Quantitative Restrictions (QR)	695	68	592	57	540	56	788	77	458	18
Tariff-rate quotas (TRQ)	1.263	14	2		3		6			
Others	781	14	648	4	428	15	453	25	347	15

Source: <https://i-tip.wto.org>

The sector is distinguished from the others in terms of the types of NTMs applied. While Technical Barriers in Trade (TBT) and Sanitary and Phytosanitary (SPS) are the leading NTMs in general, Anti-Dumping (ADP) measure in the textile and apparel sector has always been in the first two places. It is safe to say that protectionism in the textile and clothing sector was replaced by another non-tariff measure (i.e. ADP) after the quotas.

1.5. Tariffs and NTMs in Turkey After the ATC

Turkey followed a similar path with other developing countries against the ATC process, except for China which could benefit from quota-free trade. For example, Turkey applied temporary protection measures against its rivals to prevent market losses caused by global competition and to limit its negative effects on the current account deficit (Atilgan & Şen, 2006). Still, in line with the general trend in the world, Turkey preferred most ADP measures to shelter its textile and apparel industry. The number of ADP measures applied by Turkish authorities was 39 in 2005-2009, 20 in 2010-2014, and 23 in 2015-2019. Their product coverage by years are available at the Ministry of Trade website (Ministry of Trade, 2022).

However, customs duties were used by Turkey only to a limited extent in this regard, considering the limitations arising from being a part of several regional trade agreements and its WTO membership. The applied MFN average increased from 3,8% in 2005 to 4,9% in 2010, then decreased from 5,9% in 2015 to 4,6% in 2020.

Despite tariffs and ADP measures applied by Turkey, its imports jumped from \$5,2 billion dollars to \$9,4 billion dollars in the 5-year period after ATC, which means an increase of over 70%. However, this rate of increase returned to a reasonable level of 32,1% in the 2005-2020 period. The expansion of world trade makes this import increase more insignificant, as Turkey's share in global imports decreased from 1,1% in 2005 to 0,8% in 2020. Therefore, we may conclude that Turkey has achieved a smooth adaptation to the quota-free competitive environment.

2. LITERATURE REVIEW

Empirical studies on how the applied tariffs and NTMs affect the trade and production of the textile and clothing industry are very inadequate in the literature. Further, the research carried out after ATC is limited to how the general trend of world trade has changed relating to the main actors. One study suggests that the sector trade expanded from 2005 to 2006, but contrary to expectations, the production did not shift sharply from other countries to China (Martin, 2007). The study also reveals that the imports into the USA continued to grow, though no evidence confirms the adverse effect of the ATC process on imports or employment. Similarly, another research points out that rising wages reduced China's advantage compared to the countries such as Viet Nam, Cambodia, and Bangladesh (Brambilla, Khandelwal, & Schott, 2010). It provides examples of Viet Nam's exports to the USA increasing by 240% in 2001 and the share of textiles and clothing in the US imports decreasing from 26% to 11% as China started to export more capital-intensive products.

Previous studies point out various consequences for countries after the termination of the import quotas. Fugazza & Conway (2010) mention that the shares of countries that do not have a comparative advantage in the textile and clothing sector diminished in the US and the EU markets, while they increased and diversified their exports to smaller markets in the post-quota period. Abraham & Sasikumar (2011) give the example of India which performed better in the international market due to its lower labor cost. Van Biesebroeck & Zaurino (2019) show that the exports of countries in the sub-Saharan African region increased as a result of the reduction of tariffs by high-income countries after the ATC period, and more importantly, this increase of the sector was 2-3 times higher than the other products. Datta & Kouliavtsev (2020) reveals that countries with low labor force significantly increased their exports to large markets during the quota-free period based on the example of the USA.

On the other hand, Lu (2013) states that the performance of exporters after the abolition of the quotas was not the same and depended on the levels of their economic development. Natsuda, Goto & Thoburn (2010) determine that the Cambodian

sector became fragile and lost interest from international buyers due to national socio-economic issues in the face of strong Chinese competition after ATC. Frederick & Staritz (2012) argue that the production infrastructure of countries reacted differently to the quota-free period and the countries with proactive policies by their governments successfully adapted themselves to the new conditions of international competition. Gebreeyesus (2013) find that the countries exposed to the quota in the post-ATC period showed different performances and only half of them were able to increase their exports to the EU and USA markets. Joarder, Hossain & Hakim (2010) consider that there are winners and losers among the main exporters of the sector in the post-ATC period and provide examples of Mexico and Turkey which suffered losses in their major destination markets. Farag, Moustafa & Mandour (2012) also give the example of Egypt which lost shares in its quasi-guaranteed markets namely, the EU and the USA.

Research on Turkey is not much either regarding the effects of tariffs and NTMs (i.e. ADP and safety controls for human health) on imports and production. The previous studies elaborate on Turkey's competitiveness in comparison with the major players (especially China and India) by using the techniques of field research, competitive indexes, and product mapping (Şencan, 2006; Yücel, 2010; Atış, 2014; Özözen, 2021; Elitaş & Şeker, 2017). One study follows a different method by examining the restrictive effect of NTMs on Turkey's imports (Elitaş & Şeker, 2017). Using the gravity model with a panel data set that includes 20 trading partners, the study concludes that Turkey's imports would decrease in case of a quota application.

In this context, the study aims to investigate the influence of the ADP measures applied by Turkey during the quota-free period (i.e. safety controls for human health) on textile and clothing imports *vis-a-vis* the effects of customs duties. The results will certainly help understand whether NTMs implemented by other countries have affected the sector.

3. DATA AND METHODOLOGY

3.1. Data

The study compiles trade data from the Turkish Statistical Institute (TUIK). The trade data sample is established for ATC products at the 6-digit level of the Harmonized System (HS6) and the period of 2000-2020. The countries in the dataset are grouped based on Turkey's preferential trade agreements since customs duties are applied separately. Accordingly, there are 21 countries (the EU countries, the EFTA countries, Albania, Bosnia and Herzegovina, Chile, Faroe Islands, Georgia, Palestine, Iran, Israel, the Republic of Korea, Malaysia, Mauritius, the Republic of Moldova, Montenegro, Morocco, Serbia, Singapore, Tunisia, Macedonia, Egypt and Kosovo) in the dataset, whereas others are considered MFN countries. The applied ad valorem equivalent duty rates are collected from WTO for 2000-2006 and from TradeMap for 2007-2020. For the coverage of the ADP measures, we extract the list of products from the Ministry of Trade website (Ministry of Trade, 2022).

Table 4 presents the descriptive statistics of the variables included in the sample. Accordingly, the average import value increased from 136 to 285 thousand dollars while its amount increased from 37 to 88 thousand kg. In addition, their standard deviations are high and enlarged over the years. In other words, the imports differ considerably in terms of value and quantity by countries and HS6 product groups.

Table 4: Descriptive Statistics

Countries	Import Value (US dollars)		Import Volume (kg)		Ad Valorem Duties		No of Observations
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	
2000	136.303	1.646.818	37.369	706.268	7,9	4,2	17.503
2005	288.910	3.717.596	66.235	1.216.058	6,1	4,0	17.503
2010	463.914	6.232.836	81.579	1.912.744	3,2	4,2	17.503
2015	460.040	7.025.693	95.243	2.926.744	2,6	4,3	17.503
2020	285.187	4.337.792	88.390	2.736.567	1,1	3,0	17.503
Sample	358.545	5.466.378	76.829	2.164.099	3,8	4,5	367.563

Source: Author's calculations from the sample.

The average ad valorem duties decreased significantly from 7,9% to 1.1% between 2000 and 2020. Their standard deviations also dropped from 4,2% to only 3,0%, which means that the differences in customs duties by countries and HS6 sectors have gradually narrowed over the years.

The MFN countries account for 62,1% of Turkey's ATC imports Table 5. The EU has a share of 23,7% in their imports, which is followed by Egypt with a share of 5.5%. The share of other countries (8,7%) is quite low. However, the changes in imports performed differently according to the trading partners from 2000 through 2020. While the imports from MFN countries increased by 107%, the rates of changes in imports depend on various preferential trade agreements. Imports of textile and clothing products from Egypt, Malaysia, Morocco, Georgia, Macedonia, Bosnia, and Tunisia improved by more than 100%. In

contrast, their imports decreased by 5% from the Republic of Korea and 142% from EFTA countries. Imports from other FTA countries increased by 76%. These findings are similar to the figures for import volume in kg.

Table 5: ATC Trade by Importing Countries (2000 and 2020)

Countries	Import Value (thousands of US dollars)				Import Volume (thousands of kg)			
	2000	2020	Share (%)	Log Change (%)	2000	2020	Share (%)	Log Change (%)
MFN	1.068.479	3.101.722	62,1	1,07	378.909	1.119.245	72,3	1,08
EU	1.084.619	1.183.936	23,7	0,09	204.255	215.334	13,9	0,05
Egypt	8.028	273.754	5,5	3,53	1.779	59.652	3,9	3,51
R. of Korea	141.296	134.381	2,7	-0,05	41.651	58.512	3,8	0,34
Malaysia	13.272	111.686	2,2	2,13	5.405	74.451	4,8	2,62
Morocco	426	44.380	0,9	4,65	15	2.235	0,1	5,01
Georgia	129	42.560	0,9	5,80	4	2.341	0,2	6,27
Macedonia	579	19.131	0,4	3,50	234	3.888	0,3	2,81
Bosnia	46	17.718	0,4	5,95	1	1.423	0,1	7,60
Tunisia	4.848	13.981	0,3	1,06	502	1.265	0,1	0,92
EFTA	46.675	11.228	0,2	-1,42	16.130	744	0,0	-3,08
Others	17.321	37.144	0,7	0,76	5.184	8.009	0,5	0,44
Sample	2.385.718	4.991.622	100,0	0,74	654.070	1.547.099	100,0	0,86

Source: Author's calculations from the sample.

Table 6 shows the changes in the simple average of customs duties for ATC products according to the trading partners before and after the ATC Agreement. The exemption of customs duties continued within the framework of the agreements signed with the EU, EFTA, and Israel before the ATC agreement. Considering that approximately 68% of imports are from MFN, the Republic of Korea, and Albania, Turkey hasn't substantially lowered the customs duties for ATC products between 2000 and 2020.

Table 6: Average Ad Valorem Duties (simple average, %)

Countries	2000	2020
MFN, the Republic of Korea and Albania	9,1	8,1
Malaysia	9,1	1,1
Singapore	9,1	0,3
Faroe, Chile, Iran and Mauritius	9,1	0,1
Moldova, Bosnia, Egypt, Georgia, Kosovo, Macedonia, Montenegro, Morocco, Palestine, Serbia and Tunisia	9,1	0,0
EU, EFTA and Israel	0,0	0,0
Sample	7,9	1,1

Source: Author's calculations from the sample.

In the post-ATC period, the number of ADP measures increased rapidly and targeted specific importing countries (Table 7). For example, 117 measures were applied to MFN countries, 48 to Malaysia, and 29 to the Republic of Korea. In the pre-ATC period, for example, in 2000, the total of ADP measures applied to all countries was only 11. In other words, the ADP measures are applied to major importing countries after the end of import quotas.

Table 7: No of ADP Measures

Countries	2000	2020
MFN	6	117
Malaysia	0	48
the Republic of Korea	5	29
Sample	11	194

Source: Author's calculations from the sample.

3.2. Method

In order to explore the effects of tariff and non-tariff measures (ADP) applied in the textile and clothing industry on Turkish imports, we estimate the following specification;

$$imp_{hct} = \beta_0 + \beta_1 ave_{hct} + \beta_2 adp_{hct} + \rho_{ct} + \mu_{ch} + \epsilon_{hct} \quad (1)$$

where imp_{hct} is the value (US dollars) or volume (kg) of sector imports into Turkey in HS6-sector h from country c in year t , ave_{hct} is the ad valorem equivalent custom duties in percentages applied for country c in year t by HS6-sector h , and adp_{hct} is the dummy variable taking the value "1" if ADP is implemented for country c in year t by HS6-sector h or "0" otherwise. The model contains country-year fixed effects (ρ_{hct}) that absorbs all external shocks such as gross domestic product and exchange rate as well as country-sector (i.e. country-HS6) fixed effects (μ_{hc}) that control for supply and demand shocks in general. The error term ϵ_{hct} is also added to the specification.

However, we need to diagnose the existence of endogeneity before estimating of the specification (1). For this purpose, the following linear model is used;

$$adp_h = \beta_0 + \beta_1 \Delta imp_h + \epsilon_h \quad (2)$$

where Δimp_h is the difference between the log of the value (US dollars) or the volume (kg) of textile and clothing imports in 2005 and 2009 in HS6-sector h , adp_h is the dummy variable taking the value "1" if ADP measure is implemented by HS6-sector h or "0" otherwise, and ϵ_h is the error term.

OLS and PPML estimation methods are preferred to explain zero-values and to manage the probable deviation as a result of heteroskedasticity in the error terms (Silva & Tenreyro, 2006). Based on estimates carried out for more than 5.000 products at the HS6-digit level using a panel for 2001-2015 with NTM data notified by more than 150 members of the WTO, empirical findings show a large dispersion of volume effects across both the positive and the negative range, depending on the types of NTMs and income level of exporters (Dolabella, 2020). Therefore, the coefficients of the independent variables are estimated as either positive or negative, even if it is expected that they are smaller than zero.

4. FINDINGS AND DISCUSSIONS

4.1. Testing Endogeneity

The OLS and PPML estimation results from Equation (2) for checking the existence of endogeneity are given in Table 8. Our aim here is to determine whether the ADP measures applied are specifically for the HS6 product groups whose imports have increased the most during the relevant period. On the left side of Table 8 are the OLS and PPML results estimating the link between the increase in ATC import value and ADP measures over the 2000-2020 period. On the right side, the same estimations are calculated for the volume of imports.

Table 8: Estimation Results for Endogeneity

Dependent Variable	Δimp_h change in import value (US dollar)		Δimp_h change in import volume (kg)	
	OLS	PPML	OLS	PPML
adp_h	-0,0034 (0,0042)	-0,0171 (0,0186)	-0,0060 (0,0050)	-0,0293 (0,0215)
R^2 / pseudo - R^2	0,0008	0,0006	0,0018	0,0013
N	761	761	761	761

Notes: The significance levels are ***%1, **%5 and *%10.

According to Table 8, the OLS and PPML methods produce the same results of estimated coefficients which are statistically insignificant. We can conclude that no relationship is found between the non-tariff measure (ADP) and the rate of change in the sector imports. Therefore, we can proceed with estimating the trade and production specifications of Equation (1), as there is no endogeneity problem for the dataset.

4.2. Effects on the Imports

This section presents the results for the effects of tariffs and ADP measures on the imports of Turkish textile and clothing sector. Table 9 provides the summary results obtained from both OLS and PPML estimations by using "reghdfe" and "ppmlhdfe" packages (Correia, Guimarães, & Zylkin, 2020).

Table 9: Estimation Results for Effects on Imports

	import value (US dollars)		import volume (kg)	
	OLS	PPML	OLS	PPML
ave_{hct}	-0,0411*** (0,0104)	-0,0270** (0,0121)	-0,0583*** (0,0117)	-0,0523** (0,0266)
adp_{hct}	-0,7861*** (0,0901)	-0,2257*** (0,0642)	-0,7817*** (0,1054)	-0,2920*** (0,0704)
Country-Year FE	Yes	Yes	Yes	Yes
Country-HS6 FE	Yes	Yes	Yes	Yes
R ² / pseudo - R ²	0,8124	0,9397	0,8372	0,9559
N	60.756	147.331	60.755	147.331

Notes: The significance levels are ***%1, **%5 and *%10.

They reveal that the estimated coefficients for the tariffs and ADP variables are statistically significant. Their effects on both import value and volume are negative, as expected and in line with the literature. However, their magnitudes are greater in the OLS than in the PPML. In the case of ADP, these estimated differences are much higher. For instance, one percentage point increase in tariffs reduces import value in US dollars by 4,1% and by 2,7% according to OLS and PPML methods, respectively. For the NTM, this trade-shrinking effect of import value is 78,6% for the OLS while 22,6% for the PPLM. Similarly, the import volume in kg would decline by 5,8% in the OLS and 5,2% in the PPML as a result of a one percentage point increase in the tariff rates. The rates of decrease would be 78,2% and 29,2%, respectively, after applying an ADP for the sector.

As mentioned in the previous section, the earlier studies provide findings indicating that ATC exporting countries have been affected in different ways in the quota-free environment. It is also argued that apart from the share of exporting countries in the main destinations, their markets could be adversely affected in the post-ATC period. In this context, the importance of the measures implemented by the governments for a successful transition to the quota-free period was underlined. The above estimation results indicate that Turkey successfully carried out the transition to the post-ATC era through non-tariff measures. It has been also revealed that non-tariff measures implemented in this context affect imports more than customs duties.

5. CONCLUSION AND IMPLICATIONS

This study examines the effects of tariffs and NTMs both on the import value and the import volume by taking the example of Turkey. The research estimates the influence of the measures enforced by Turkey on the sectoral imports for 2000-2020 using OLS and PPML methods. The results confirmed the effects of customs duties and NTMs on reducing imports following the literature. However, we find that the ADP measure of NTMs is much more effective than the tariff rates. The import value would decline by 2,7%-4,1% due to a percentage point increase in the tariff rates compared to a decrease of 22,6%-78,6% following an ADP application. The level of effect on import volume would be 5,2%-5,8% with one percentage point increase of tariffs, whereas 29,2%-78,2% after an ADP. The results show that Turkey tried to rein in expansion of its sectoral imports through ADP measures in the post-quota period. This study of example indicates that protectionism in the global trade of textile and clothing industry continues with other NTMs instead of quotas.

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