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How Do Technical Barriers to Trade Affect Exports? Evidence from Egyptian Firm-Level Data[1]

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Abstract

The paper examines the impact of Technical Barriers to Trade (TBTs) on firm exports in Egypt, over the period (2005-2011). It uses firm-level data for Egypt and combines it with the TBT specific trade concerns database of the WTO. Employing a variant of a gravity model with high-dimensional fixed effects, it estimates the impact of TBTs on firm intensive and extensive margins, exit and entry probabilities, as well as on product and market diversification. Regressions examine the heterogeneous effect of TBTs by firm size. Results indicate an insignificant effect of TBTs on firm intensive margin. On the other hand, the extensive margin and entry probability are negatively affected by TBTs, while exit probability is positively affected. Accordingly, TBTs mainly represent an increase in fixed costs of exporting. Importantly, smaller firms are more adversely affected by TBTs in their export participation and entry and exit decisions. The effect of TBTs on firm product diversification is found to be sector-dependent; positive for agricultural sectors and mixed for non-agricultural ones. Finally, firms generally tend to increase their market diversification in response to TBTs. This is especially true for large firms within their set of African and Asian destination markets. By contrast, there are less prospects of firm diversification into less stringent destinations within the European region.

JEL classification: F10, F12, F15.

Keywords: TBT, Egypt, Trade Margins, Firm-level.

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1. Introduction

Significant trade liberalisation in the form of a substantial reduction in tariff levels has occurred over the last decades[1]. This was the result of different rounds of WTO negotiations, the spread of regional trade agreements[2], as well as unilateral liberalisation. At the same time, countries have resorted to an increasing use of non-tariff measures (NTMs), reflected in a rising share of product lines and trade value affected by NTMs. NTMs aim at achieving social, public health, environmental, or other non-economic policy objectives. They can also be used as an alternative to protect domestic markets (Fernandes et al., 2015). According to UNCTAD (2012), non-tariff measures generally refer to policy measures other than tariffs that can have an economic effect on international trade in goods; changing quantities traded, or prices, or both. They include measures such as technical barriers to trade (TBTs), sanitary and phyto-sanitary measures (SPS), quotas, export restrictions, and protectionist measures such as government procurement or distribution restrictions. Among NTMs, of rising importance are technical barriers to trade (TBTs). TBTs refer to technical regulations, standards and conformity assessment procedures that do not fall into the scope of sanitary and phytosanitary measures (which relate to human/animal and plant protection).

The number of TBT notifications by WTO members has increased from 388 in 1995 to 2326 in 2016. They serve the objectives of protection of health and safety, protection of the environment, avoidance of consumer deception, and ensuring quality. Technical regulations specify product characteristics or their related processes and production methods such as labelling, packaging, and emissions requirements (Wilson, 2012). If implemented in a transparent manner, these regulations can promote trade by addressing information market failures. However, they can also act as a significant trade barrier by increasing the cost of exporting to imposing countries (Bao and Qiu, 2012).

According to recent trade models with heterogeneous firms, such as Melitz (2003), conforming to technical measures imposed by an importing country constitutes a fixed entry cost to this market. Fixed costs due to TBTs result from initial investments

[1] Over the last ten years, tariffs in the 15-25% range have greatly declined while tariffs averaging 25% or more have disappeared. This leaves most tariffs in the 10-15 % range (WTO, 2013).

[2] According to the WTO, the cumulative number of physical RTAs in force recorded 274 by May 2017. Nearly all WTO members participate in one or more RTAs.

required to comply with a certain foreign standard such as product re-designs, investment in inspection equipment, quarantine process, or adaptation of production chain (Bao and Qiu, 2012; Maskus et al, 2005). TBTs can also raise the variable cost of producing the exported product, for example through the need to improve product quality in order to meet new standards. The increased trade costs due to TBTs are expected to negatively affect both the intensive and extensive margin of firm exports. Specifically, if TBTs raise firm variable costs of exporting, there would be a decline in their export sales (a negative effect on the intensive export margin). On the other hand, if TBTs mainly reflect an increase in fixed trade costs, they would drive upwards the productivity threshold for exporting, which causes the exit of less productive firms from TBT imposing countries (a negative effect on the extensive export margin) (Fontagné et al., 2013).

Generally, the empirical literature investigating the effect of TBTs can be divided into 3 main groups (Fernandes et al., 2015; Fontagné and Orefice, 2018) as follows: first, studies examining the effects of harmonisation and mutual recognition of standards and procedures on the exports of members and third parties in the context of deep integration agreements; second, studies examining the effects of TBTs on aggregate trade flows of countries and finally, studies examining the effects of TBTs on trade patterns at firm-level. The last group of studies conducted at firm-level is relatively few, given the constraint of data availability.

This study contributes to the limited empirical literature examining the impact of TBTs for developing countries and the MENA region. It is the first to use firm-level data of Egypt (2005-2011) to explore the effect of TBTs on export decisions of heterogeneous firms. It is not confined to the examination of selected technical regulations or sectors; rather it investigates the impact of all TBT specific trade concerns related to HS 4-digit products that belong to different sectors. By combining firm-level data with TBT specific trade concerns database of the WTO, this paper estimates the effects of TBT on firm intensive and extensive margins, exit and entry probabilities, and product and market diversification. The impact on different firm sizes is also investigated. The importance of this study arises from the scarce empirical evidence on the impact of technical measures on firm exports in the MENA region[3]. Egypt particularly aims to achieve a high growth rate of non-petroleum exports, targeted in the Ministerial strategy at 10% annually over

[3] By contrast, some studies have examined the effect of TBT/SPS measures on firm exports for non-MENA developing countries. Examples include Wong (2007) for Ecuador, Chakraborty (2014) for India, and Fugazza, Olarreaga, and Ugarte (2018) for Peru.

the period (2016-2020). Therefore, it is necessary to examine the effect of TBTs (as a potential trade obstacle) on exports of Egyptian firms operating in both agricultural and manufacturing sectors, and the heterogeneity of this effect for differently sized firms. Additionally, the study explores the impact of TBTs on diversification motives of firms with respect to their product and market portfolios.

Results indicate an insignificant effect of TBTs on firm intensive margin, a negatively significant effect on extensive margin and entry probability, and a positively significant one on exit probability. Smaller firms are more adversely affected by TBTs in their export participation and entry and exit decisions. The effect of TBTs on firm product diversification is sector-dependent; positive for agricultural sectors and mixed for non-agricultural ones. Finally, firms generally tend to increase their market diversification in response to TBTs. This is especially true for large firms within their set of African and Asian destinations, as opposed to European ones.

The remainder of the paper is organised as follows. Section 2 reviews the literature on the effect of TBTs. Section 3 describes the data sources and presents some stylised facts on trade and TBTs. Section 4 discusses the methodology. Section 5 is dedicated to empirical findings and Section 6 is the conclusion.

2. Literature Review

2.1. Theoretical Background

Trade theory has witnessed remarkable developments over time. While new trade theories considered factors such as economies of scale and consumer tastes, they assumed firms within an industry to have the same technology, similar productivity levels and similar tendency to participate in trade. Accordingly, each industry was represented by a single 'representative' firm (Balavac, 2012; Ciuriak, 2013). New trade theories contradicted empirical observations and micro data on the heterogeneity of firms, which led to the emergence of the 'new new' trade theory or the 'heterogeneous-firm trade models' (HT models), first developed by Melitz (2003). Heterogeneous-firm models allow each firm in an industry to have a different level of productivity and postulates that only the more productive and larger firms self-select into exporters,

because they can overcome the cost of entry into a foreign market. HT models, such as those of Melitz (2003), Lawless (2008) and Chaney (2008), provide the theoretical framework for examining the effect of trade costs (including costs associated with technical barriers) on firm intensive and extensive export margins.

Technical regulations can be viewed as either trade inhibitors or trade promoters. On one side, complying with regulatory standards of an importing country constitutes a fixed market entry cost and can be a part of the variable costs that need to be incurred every time the firm exports to the TBT imposing market (for example if higher quality inputs should be used). A study by Maskus et al. (2005) used firm-level data from the World Bank Technical Barriers to Trade Survey to quantify the costs incurred by firms in developing countries when meeting technical regulations in major export markets. It showed that fixed costs of compliance arising from additional plant and equipment and product redesigns represent an average of 425,000 U.S. dollars per firm (or 4.7 % of value added). It also found that a 1% increase in initial compliance costs due to more stringent foreign standards leads to a rise in firm variable costs of between 0.06 and 0.33%, due to increases in labour and capital demand.

On the other side, adoption of technical standards may catalyse production upgrading by firms or give a signal to consumers that their product is of higher quality, thus increasing the its demand. (Chakraborty, 2014; Rollo, 2016). Moenius (2004) has explained the role of importer country-specific standards in promoting trade, especially in manufacturing - as opposed to the agricultural sector through 'information costs'. Country-specific standards have the benefit of providing valuable, though costly to gather, information that helps firms to adapt the product to the importing country. Therefore, the net impact of TBTs on firm exports is ambiguous, as it depends on the relative strength of their cost-raising and demand-enhancing effects.

2.2. Empirical Literature

Empirical studies dealing with the effect of TBTs have mostly examined the effect of harmonisation of standards or the effect of TBTs on aggregate trade flows. A few of them have tackled the effect of TBTs on firm export decisions or trade margins. Examples of firm-level studies are presented. This is followed by a review of several studies dealing with the effect of NTMs in the MENA region and Egypt.

Firm-Level Studies

A few numbers of studies - which were mainly constrained by data availability - examined the effect of TBTs and product standards on export performance at firm-level. They can be classified according to the way of constructing their measure for TBTs and their scope, as follows: survey studies, studies using Specific Trade Concerns, studies on specific regulations, and comprehensive studies.

Survey Studies

These studies relied on *survey data* for firms and the technical measures they face on exporting. A recent study by Rollo (2016) used the ITC NTM Business Surveys, which collected data from firms in different exporter countries about technical regulations that they perceive to be burdensome when exporting their products to a destination market. This data is merged with the World Bank Exporters Dynamic Dataset to investigate the effect of TBTs on firms in 18 developing countries. It found that the frequency ratio of technical regulations, within an exporter country-sector-importer country, has a negative effect on the average export value of firms (intensive margin), with a stronger effect for small firms. Also, the frequency ratio has a positive effect on the exit rate of firms, and a negative effect on both the number of products per firm and the number of firms per product (extensive margin).

STCs Studies

These studies focused on examining the effect of technical measures that particularly constitute potential obstacles to trade. This is done through using the database on specific trade concerns (STCs), raised at the WTO in the TBT or the SPS committee, as an indication of stringent measures, e.g. Fontagné and Orefice (2018) which investigated the effect of TBT measures raised as Specific Trade Concerns at the WTO on export dynamics of French firms. It found that the presence of TBT concerns reduces the probability of exporting into the destination imposing the measure on the considered HS4 product category, with the negative effect magnified for multi-destination firms which can divert their exports towards TBT-free destinations. The effect of TBT concerns on firm export values is insignificant, except for multi-

destination firms which export more when complying with TBTs; thus, benefiting from reduced competition.

Specific Regulation Studies

These studies investigated the effect of a *certain technical regulation*. For example, Fernandes et al. (2015) estimated the effect of pesticide standards for agricultural and food products in 63 importing countries, on the performance of exporting firms in 42 developing countries, over the period 2006–2012. More restrictive standards in the importing country, relative to the exporting country, are found to lower firm probability of exporting as well as their export values and increase exit rates from those markets. The effect of relative stringency of standards varies with firm characteristics; where smaller exporters are more negatively affected in their market entry and exit decisions than larger exporters.

Comprehensive Studies

These studies adopted a more comprehensive approach by investigating the effect of virtually *all technical regulations* faced by firms on exporting to a destination market. Fugazza, Olarreaga and Ugarte (2018) used a comprehensive dataset for NTMs applied by Latin American countries to examine their effects on Peruvian firms' exports. Different types of market-access barriers are interacted with firm size to examine the heterogeneity of their effects. They found that TBTs have a negative effect on firm export value and their export participation. However, these negative effects of TBTs on both export margins fade away as firm size becomes larger. Also, TBTs have a positive effect on firm exit probability which is weakened for large firms. Indeed, very large firms tend to benefit - rather than lose - from the imposition of TBTs in destination markets, where they enjoy higher export values, higher export participation, and lower exit probability.

Studies on the MENA Region

Studies that have examined the effect of NTMs in the MENA region are particularly scarce. For example, Ghali et al (2013) estimated the impact of NTMs (measured by frequency index or dummy) on Egyptian and Tunisian imports. The study differentiated between categories of NTMs and investigated their impact on the

extensive (number of imported varieties) and intensive margins (import value by variety). It found that NTMs have a significant negative effect on both the intensive and extensive margins in Egypt, while they have insignificant effect (except for TBT) in Tunisia. This suggests the greater use of NTMs as a trade restriction measure in Egypt, as compared to Tunisia. Another study by Péridy and Ghoneim (2013) calculated the average tariff equivalents (AVEs) of NTMs in selected MENA countries, including Egypt. The estimated AVEs for NTMs were 34% in Tunisia, 37% in Morocco, 39% in Egypt, and 47% in Lebanon. A bilateral trade model was then used to estimate the impact of NTMs on trade in MENA countries. NTMs (and especially SPS measures, quantitative restrictions, pre-shipment inspection, and export-related measures) are found to be significantly trade-reducing in MENA countries. Both studies have investigated the effects of NTMs imposed by MENA countries on their imports using aggregate (country-level) data.

Turning to firm-level studies in Egypt, a few can be referenced. A study by El-Enaby, Hendy and Zaki (2016) analysed the effect of SPS measures on Egyptian firm export margins. It found that SPS measures imposed on Egyptian exporters negatively affect the extensive margin (probability of exporting a new product to a new destination) while they have no significant effect on the intensive margin. Another study by Halem (2013) investigated the effect of compliance with environmental standards on exports of 54 surveyed Egyptian firms operating in textiles and food industries. It showed a positive significant relation between compliance with environmental standards and firm exports due to improved competitiveness in external markets. This result can be attributed to the dominance of large-sized firms in the sample, which are better suited to deal with the cost-raising effect of compliance with NTMs.

It is worthwhile noting that this study contributes to the scarce literature on MENA region and firm-level studies dealing with NTMs. It aims at investigating the effect of one type of NTMs (Technical Barriers) on exports in Egypt, using micro (firm-level) data.

3. Data and Stylised Facts

3.1. Data Sources

The study relies on two main data sources which are: first, the General Organisation for Export and Import Control (GOEIC), the Ministry of Foreign Trade and Industry in Egypt for firms export data[4]; second, Technical Barriers to Trade Specific Trade Concerns (STCs) database, made available by the WTO.

Other data sources are as follows. Bilateral applied tariff data at the HS 4-digit product level ($Tar_{i,s,j,t}$) is obtained from the ITC Market Access Map. Data for GDP of importer country j (constant 2010 US$) is obtained from World Development Indicators, the World Bank[5]. The dummy on membership in a regional trade agreement with importer country j ($FTA_{i,j,t}$) is obtained from the CEPII gravity dataset, based on data made available by the WTO.

3.2. Egypt's Export Dynamics

The mean export value by firm initially increased until 2011 (except for 2009) and declined afterwards (see Figure 1). It started with a minimum of 1.8 million USD in 2005 and reached a maximum of 4 million USD in 2011. It increased from 3 million USD in 2015 to 3.3 million USD in 2016, despite a decline in the total export value, owing to the decline in the number of exporting firms in 2016.

[Figure 1 about here]

The number of destination countries has steadily increased since 2005 (see Table 1). The highest growth rate was achieved in 2007 (9%). Firms directed their exports to a maximum of 177 destinations in 2011 and 2012. The number declined by 1% in 2013 and by 2% in 2016. Looking at the mean number of destination countries by firm, it is found

[4] The dataset originally provides firm export data at the HS 6-digit level. It is aggregated at the HS 4-digit level to match the STCs database.

[5] GDP for Taiwan is obtained from a national data source: The Directorate-General of Budget, Accounting and Statistics.

that firms on average exported to 4 destinations over 2005-2016. The number increased from a minimum of 3.77 destinations in 2005, to reach its maximum of 4.28 destinations in 2010.

[Table 1 about here]

As Table 2 indicates, there is a decline in the number of exported HS 4-digit products, especially since 2010. The average number of products declined from 799 (2005-2008), to 795.5 (2009-2012), and to 741.5 (2013-2016). The highest number of products was exported in 2009 (824), while the lowest number was exported in 2016 (701). Looking at the mean number of HS 4-digit products by firm, it is found that firms, on average, exported 3 products over 2005-2016. The number reached its maximum of 3.24 products in 2009. It dropped to a minimum of 2.73 products in 2016.

[Table 2 about here]

Egypt's top 10 export destinations accounted for an average of 53.5% of its total exports throughout the period 2005-2016. Saudi Arabia, Italy, the United States, and the United Kingdom remained among the top 10 importers over 2005-2016, with Turkey joining them since 2006. Most of other top 10 importers belonged to either the European Union or Arab countries. The exceptions were Switzerland in 2009, South Africa in 2011 and Canada in 2015. Saudi Arabia was consistently Egypt's top importer over 2009-2015[6]. As shown in Figure 2, it accounted for an average share of 8.3% of Egypt's total exports over 2005-2016. Figure 3 shows the evolution of the number of firms exporting to each of Egypt's four major destinations; Saudi Arabia, Italy, the United States, and the United Kingdom. It shows that the largest number of firms exports to Saudi Arabia, recording 1297 firms in 2005. This number increased by 46% between 2005 and 2016. On the other hand, the number of exporting firms to Italy, the United States and the United Kingdom followed a general declining trend since 2008. Between 2005 and 2016, exporting firms increased by 1% for Italy and by 3% for the United Kingdom, whereas they decreased by 8.3% for the United States.

[Figures 2 and 3 about here]

[6] The United Arab Emirates replaced Saudi Arabia as Egypt's top importer in 2016.

Based on the mean number of HS products exported to each destination country, rather than export value, Figure 4 shows the top 10 destinations over 2005-2016. As the figure indicates, destination countries receiving the greatest number of Egypt's products were mostly Arab countries. Saudi Arabia was the largest recipient, with an average of 442 products. It was followed by Sudan, Libya, United Arab Emirates and Jordan. Italy was the sole non-Arab country that remained among the top 10 importers of Egypt's products over 2005-2016.

[Figure 4 about here]

As per top products exported by Egypt, the top 10 exported products at the HS 4-digit level accounted for an average of one third of its total exports throughout the period 2005-2016 (see Figure 5). The HS products 2710 (Petroleum oils and oils obtained from bituminous minerals, other than crude) & 8544 (Insulated wire, cable & other insulated electric conductors) remained among the top 10 products over 2005-2016. Products most frequently listed among the top exported included Gold, unwrought or in semi-manufactured forms or in powder form; Mineral or chemical fertilizers, nitrogenous; Citrus fruit, fresh or dried; Flat-rolled products of iron or non-alloy steel; and Carpets and other textile floor coverings, knotted.

[Figure 5 about here]

3.3. TBT STCs (2004-2010)

A subset of notifications of TBT measures, viewed as most restrictive to trade, are raised as specific trade concerns in the WTO TBT committee. Figure 6 shows that the number of new concerns has increased since 2005. It reached a peak of 46 concerns in 2009, which can be attributed to increased trade protectionism following the 2008 financial crisis. It then decreased to 29 concerns in 2010. Concerns can be classified according to the affected sector; whether it is agricultural or not[7]. For a total of 163 concerns, for which an HS2 sector could be specified over 2004-2010, most of the

[7] HS chapters 1-24 are considered as agricultural; while the remaining chapters are non-agricultural (WTO report, 2012).

concerns were related to the non-agricultural sector[8]. More specifically, 105 concerns (64.42 % of total concerns) were in the non-agricultural sector; while 49 concerns (30%) were in the agricultural sector. 9 concerns (5.5%) were in both the agricultural and non-agricultural sectors[9] (see Figure 7).

[Figure 6 and 7 about here]

Maintaining countries usually specify objectives for their notified measures. Table 3 shows the objectives of measures that were subject to STCS over 2004-2010. Indeed, protection of human health or safety was the most specified objective of measures, subject to STCs over 2004-2010. It was mentioned in 88 concerns, which constituted about 35% of total STC-objective combinations[10]. It was followed by protection of environment, prevention of deceptive practices and consumer protection. Quality requirements and labelling were also among the top 5 objectives of notified measures, subject to STCs.

[Table 3 about here]

On the other hand, concerned countries raise different issues about notified measures of maintaining countries[11]. Unnecessary barriers to trade and the need for further information/ clarification were the top issues raised in STCs over 2004-2010. Each of them captured about 18% of total STC-issue combinations. Transparency of measures, their compliance with international standards and their rationale/legitimacy were also among the most frequently raised issues (See Table 4).

[Table 4 about here]

Considering the number of concerns raised against each maintaining country, Figure 8 shows that The European Union was the top maintaining country over 2004-

[8] However, there is some econometric evidence that the frequency index and coverage ratio of TBT concerns are higher in agricultural sectors than non-agricultural ones (WTO report, 2012).

[9] An example of these dual-sector concerns is concern N. 247 raised against the United States' Food and Drugs Cosmetic Act in 2009.

[10] More than one objective is usually specified for a notified measure. Total STC-objective combinations over 2004-2010 were 249.

[11] More than one issue is usually raised in a STC. Total STC- issue combinations (2004-2010) were 641.

2010, with 34 concerns raised against it. It was followed by China and then the United States. Concerns against these three countries constituted 46.2% of the total raised concerns over the period. Other top maintaining countries were developing ones, except for Canada. They included the Republic of Korea, India, Brazil, Indonesia, Taiwan (Chinese Taipei), and Colombia.

[Figure 8 about here]

On the product front, Figure 9 shows the number of HS 4-digit products subject to STC for each year[12]. The number of HS4 products subject to STC greatly increased from 27 products in 2004 to 458 in 2006. It decreased to 329 in 2007 and 2008, then resumed its upward trend in 2009, with a 9.4% rate of increase. It increased by a much higher rate of 87.5% in 2010, reaching 677 products. Moreover, Figure 10 shows that the top maintaining countries, in terms of the number of HS4 products subject to STCs, were again the European Union, China and the United States. India came next followed by South Africa[13].

[Figures 9 and 10 about here]

Table A.2 in the Appendix presents the HS2 sectors which were most subject to STCs over 2004-2010. They include nuclear reactors, boilers, machinery and mechanical appliances (HS 84); Inorganic chemicals (HS 28); Electrical machinery and equipment and parts thereof (HS 85); Organic chemicals (HS 29); Iron and steel (HS 72); Miscellaneous chemical products (HS 38); Animal or vegetable fats and oils (HS 15); Glass and glassware (HS 70); Natural or cultured pearls, precious stones & metals (HS 71); Articles of apparel and clothing accessories, knitted or crocheted (HS 61); and Articles of apparel and clothing accessories, not knitted or crocheted (HS 62). Therefore, mechanical and electrical equipment, chemicals, metals, and textiles were among the top industries, subject to STCs.

As per Egypt's raised concerns, both new and previously raised ones, over the period 2004-2010, are presented in Table 5. There were 5 new and previously raised

[12] When only the HS 2 -digit sector is indicated in the STCs database, it is assumed that all the HS 4- digit products which belong to this sector were concerned.

[13] Although only 2 concerns were raised against South Africa (2004-2010), the number of products covered by these concerns was relatively high. This also applies to Tunisia (1 concern), Mexico (3 concerns), Bahrain (2 concerns), Kuwait (1 concern) and Saudi Arabia (2 concerns).

STCs by Egypt over 2004-2010. All of them were jointly raised by other (developing and developed) countries. The European Union was the top member subject to STCs, capturing 80% of Egypt's total raised concerns over 2004-2010. The remaining concern was related to a measure maintained by Canada.

[Table 5 about here]

HS2 sectors covered by Egypt's concerns against the European Union included the following:

- Nuclear reactors, boilers, machinery and mechanical appliances (HS 84)
- Electrical machinery and equipment and parts thereof (HS 85)
- Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus (HS 90)
- Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified (HS 94)
- Toys, games and sports requisites; parts and accessories thereof (HS 95)

In addition, all sectors that belong to the chemical industry (HS 28 - HS 38) were covered by the concern N. 88. These included the following:

- Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes.
- Organic chemicals.
- Pharmaceutical Products
- Fertilisers
- Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks
- Essential oils and resinoids; perfumery, cosmetic or toilet preparations
- Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations with a basis of plaster
- Albuminoidal substances; modified starches; glues; enzymes
- Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations
- Photographic or cinematographic goods
- Miscellaneous chemical products

As for the concern against Canada, the covered sector was tobacco and manufactured tobacco substitutes (HS 24).

To assess the relative importance of each concern, an index can be constructed accounting for both the number of HS4 products under the STC, and the number of years during which the STC was considered unresolved[14] (Fontagné et al., 2013). The index, shown in Table 5, indicates that the concern N. 88 was the most important one. It covers all products of the chemical industry (178) and has been an ongoing (unresolved) concern since 2003. Concern N. 35 comes next in importance, with its wide coverage of products that belong to the electrical and mechanical equipment industry, and its long duration. If the number of countries raising the concern was also taken into consideration (34 countries for concern N. 88 and 13 for concern N. 35), the importance of these two concerns would further increase.

4. Methodology

The study employs a gravity-type approach to estimate the effects of technical barriers to trade on Egyptian firms' export behaviour. It investigates the TBT effects on firm intensive margin, extensive margin, exit and entry probabilities, product diversification, and market diversification. The model used is a variant of a gravity model that considers the effect of TBTs[15].

The intensive margin of firm exports is estimated using following equation:

$$ln(X_{i,s,j,t}) = \beta_0 + \beta_1\, ln(Tar+1)_{s,j,t} + \beta_2\, ln(Size)_{i,t-1} + \beta_3\, TBT_{s,j,t-1} + \beta_4\, (TBT_{s,j,t-1} * ln(Size)_{i,t-1}) + I_{i,s,j} + I_{hs2,j,t} + \varepsilon_{i,s,j,t} \quad (1)$$

where subscripts i, s, j and t refer respectively to firm, HS 4-digit product, destination country, and year. Subscript $hs2$ refers to the HS 2-digit sector.

The dependent variable in equation (1) is the firm's export value (in logs). It includes non-zero export values only.

[14] The STC database does not provide information on the date of resolution of TBT concerns. Therefore, following the WTO report (2012), a concern is assumed to be resolved in year (t) if it is not re-raised for two or more years after year (t). For example, Concern N. 35 is assumed to be resolved in 2012.

[15] This is largely based on the works of Fontagné and Orefice (2018), Fernandes et al. (2015) and Fontagné et al. (2013).

$Tar_{s,j,t}$ is the bilateral applied tariff data at the HS 4-digit product level and year t. Missing observations in tariff data are handled through replacing them by the previous year (s) non-missing value. The Tar variable enters the model as $ln(Tar + 1)$.

The explanatory variable of interest is $TBT_{s,j,t-1}$ which is a dummy variable equal to 1 when there is at time (t-1) an ongoing TBT Specific Trade Concern in product s raised by any country against an importer country j. In constructing the TBT dummy, the following two assumptions are made:

- If the HS 4-digit product code is not available, but instead the HS 2-digit sector is indicated in the concern, it is assumed that all the HS 4-digit products under the HS 2-digit sector are affected.
- Since no information is provided for the date of resolution of TBT concerns, a concern is assumed to be resolved in year (t) if it is not re-raised for two or more years after year (t). This follows the methodology applied in the WTO report (2012).

The TBT dummy is interacted with lagged firm size ($ln(Size)_{i,t-1}$) to examine the heterogeneous effect of TBTs on firms. Given the available data, the size of the firm is measured in terms of its total exports across all products and destinations. It is one-year lagged to mitigate endogeneity concerns.

Two sets of fixed effects are included. $I_{i,s,j}$ indicates firm-product-destination fixed effects which allow for firm-product-destination specific unobserved characteristics. $I_{hs2,j,t}$ indicates sector-destination-year fixed effects which allow for factors such as business cycles, sector-specific demand shocks at destination and multilateral trade resistance. The use of such high-dimensional fixed effects addresses the omitted variable problem. As a robustness check, alternative fixed effects are also applied.

The extensive margin of firm exports, firm exit probability, and firm entry probability are estimated, using the following equation:

$$Pr(X_{i,s,j,t})^{16} = \beta_0 + \beta_1\, ln(Tar + 1)_{s,j,t} + \beta_2\, ln(Size)_{i,t-1} + \beta_3\, TBT_{s,j,t-1} + \beta_4\, (TBT_{s,j,t-1} * ln(Size)_{i,t-1}) + I_{i,s,j} + I_{hs2,j,t} + \varepsilon_{i,s,j,t} \quad (2)$$

[16] The dependent variables in these regressions are obtained by expanding the dataset, so that each firm-product-destination has an observation in all years, with zero export value in a year when exports by the firm-product-destination are not occurring.

The dependent variable in equation (2) is run in three different ways.
First, it is a dummy variable that is equal to 1 in year t if firm i exports a positive value of product s to destination j and equal to 0 otherwise, to capture the extensive margin of trade, as indicated by firm export participation probability.

Second, it is a dummy variable that is equal to 1 in year t if firm i does not export product s to destination j in year t but exported it in year t-1 and equal to 0 if the firm exports it in both years, to capture firm export exit probability. Alternatively, a more robust definition for firm exit is applied, where the dummy variable equals 1 if the firm does not export in years t and t+1 but exported in years t-1 and t-2. This alternative exit definition would reduce bias due to the churning behaviour of firms.

Third, it is a dummy variable that is equal to 1 in year t if firm i exports product s to destination j in year t but did not export it in year t-1 and equal to 0 if the firm does not export it in both years, to capture firm export entry probability. Alternatively, a more robust definition for firm entry is applied, where the dummy variable equals 1 if the firm exports in years t and t+1 but did not export in years t-1 and t-2. This alternative entry definition would reduce bias due to the churning behaviour of firms.

Given the large set of fixed effects included in estimations, a linear probability model (LPM) is used in probability regressions of equation (2).

Firm's product diversification is estimated using the following equation:

$$ln(NP_{i,hs2,j,t}) = \beta_0 + \beta_1\, ln(Tar+1)_{hs2,j,t} + \beta_2\, ln(Size)_{i,t-1} + \beta_3\, TBT_{hs2,j,t-1} + \beta_4\, (TBT_{hs2,j,t-1} * ln(Size)_{i,t-1}) + I_{i,hs2,j} + I_{j,t} + \varepsilon_{i,hs2,j,t} \quad (3)$$

where subscript *hs2* refers to the HS 2-digit sector.

The dependent variable in equation (3) is the firm's number of exported HS 4-digit products per sector-destination (in logs).

$Tar_{hs2,j,t}$ is the bilateral applied tariff data at the HS 2-digit sector and year t. $TBT_{hs2,j,t-1}$ is a dummy variable that is equal to 1 if there is at time (t-1) an ongoing TBT Specific Trade Concern in at least one HS 4-digit product within the HS 2-digit sector, raised by any country against an importer country j.

Two sets of fixed effects are included. $I_{i,hs2,j}$ indicates firm-sector-destination fixed effects and $I_{j,t}$ indicates destination-year fixed effects. As a robustness check, alternative fixed effects are also applied.

Firm's market diversification is estimated using following equation:

$$NM(new\ TBTfree)_{i,s,t} = \beta_0 + \beta_1\ TBT_{i,s,t-1} + I_{i,hs2} + I_{hs2,t} + \varepsilon_{i,s,t} \qquad (4)$$

The dependent variable in equation (4) is the number of new TBT-free destination markets per firm-product at year t. A new TBT-free destination market is defined as a market without TBT concerns raised against it, and to which a firm-product did not export in year t-1 but does so in year t. The number of added TBT-free markets is regressed on $TBT_{i,s,t-1}$ which is a dummy variable equal to 1 when the firm exports product s to at least one destination with TBT Specific Trade Concern at year t-l. Two sets of fixed effects are included. $I_{i,hs2}$ indicates firm-sector fixed effects and $I_{hs2,t}$ indicates sector-year fixed effects. As a robustness check, an alternative dependent variable measuring the probability of adding a new TBT-free destination market (a dummy variable that equals 1 if a firm-product adds at least one TBT-free destination) is applied.

Two important extensions are applied to equation (4). First, the effect of TBTs on diversification into TBT-free markets is investigated for small firms (defined as those with lagged firm size below the median value of the distribution) as well as for large ones (those with lagged firm size above the median). Second, separate regressions are conducted for different geographical regions (namely Africa and Middle East, East and South Asia, Europe, and Latin America). This is because firms will most likely diversify away from TBT-affected and towards TBT-free markets that have similar trading costs (i.e. located within the same region).

Some remarks are worth being mentioned. First, a firm-product-destination combination that appeared once over the period 2005-2012 is dropped, to focus on persistent export flows. Second, the European Union, treated as a single unit in the STCs database, is decomposed in regressions into its member countries, according to their respective year of entry. Third, to mitigate potential endogeneity, TBT variable covers specific trade concerns that are raised by any country and is one-year lagged. Finally, as a robustness check, instrumental variable regressions (2SLS) are conducted as a further

way to reduce possible endogeneity of TBT concerns at destination, with respect to Egyptian firm exports (reverse causality). The used instrument is a dummy variable for TBTs raised by extra-African countries on a certain product s against country j.

In addition to firm-level estimations, aggregated regressions at product-destination-year level are conducted to estimate the aggregate effect of TBTs on the intensive and extensive export margins, as follows:

$$y_{s,j,t} = \beta_0 + \beta_1 \, ln(Tar + 1)_{s,j,t} + \beta_2 \, TBT_{s,j,t-1} + I_{hs2,t} + I_{j,t} + \varepsilon_{s,j,t} \qquad (5)$$

The dependent variable in equation (5) is the average exports per firm in a product-destination combination (in logs, the intensive margin) or the number of exporting firms in a product-destination (in logs, the extensive margin).

Two sets of fixed effects are included. $I_{hs2,t}$ indicates sector-year fixed effects and $I_{j,t}$ indicates destination-year fixed effects.

5. Empirical Findings

5.1. Firm-Level Regressions

We first examine the effect of TBT on the value of exports. Table 6 shows that the lagged TBT variable (as well as its interaction with lagged firm size) has *no significant impact* on a firm's intensive margin. This result is robust when using alternative fixed effects, as in columns (2) and (3). It is consistent with Fontagné and Orefice (2018) findings for the insignificant TBTs mean effect on the intensive margin, except for firms with a multi-destination status, which can increase their exports by benefiting from reduced competition. By contrast, tariffs have a negative and significant impact on firm's export value, indicating its variable cost-raising role. Also, larger sized firms are found to export by greater values.

[Table 6 about here]

When the extensive margin to trade is examined, we find that the coefficient on TBT is *negative and significant* in all specifications (Table 7). This indicates that TBTs raise firm fixed costs of exporting to imposing countries, which negatively affect their export participation. However, there is evidence that this effect is lessened for larger-sized firms, as suggested by the positive interaction between TBT and firm size in columns (2) and (3). Finally, while firm size has a positively significant impact on export participation, tariffs have no significant effect.

[Table 7 about here]

Table 8 presents the results for exit probability, using the two definitions for firm exit. As shown in column (1) which applies the 1-year exit definition, the TBT coefficient is insignificant, while its interaction with firm size is negatively significant. This means that TBTs can lessen the probability of exit for larger-sized firms. The rest of the specifications apply the more robust 2-year exit definition. They all indicate a *positive and significant* impact of TBTs on firm exit probability, which gets weaker as firms become larger in size, as suggested by the negative interaction between TBT and firm size. Finally, while firm size has a negatively significant impact on exit probability, tariffs have no significant effect in most specifications.

[Table 8 about here]

Turning to entry probability, Table 9 presents the results using the two definitions for firm entry. Specifications applying either entry definition indicate a *negative and significant* impact of TBTs on firm entry probability, which gets weaker as firms become larger in size, as suggested by the positive interaction between TBT and firm size. Finally, while firm size has a positively significant impact on entry probability, tariffs have no significant effect.

[Table 9 about here]

It is, thus, evident from estimated probability regressions that the presence of TBTs in a product-destination reduces, on average, firm probability of exporting and their probability of entry into the TBT-imposing destination. It also induces firms, on average, to exit from TBT-imposing destinations. These adverse effects of TBT are weaker for larger-sized firms, owing to their greater ability to cope with technical regulations. The heterogenous effect found for differently-sized firms is consistent with

the empirical literature on technical regulations and standards. Examples include studies of Fernandes et al. (2015) and Chakraborty (2014). Both found a greater adverse effect of stringent standards/technical regulations on market entry and exit of smaller exporters in developing countries. Small firms are less able to adapt their product/process to new regulations by using advanced technologies or higher quality inputs. They suffer from problems related to poor understanding of technical requirements, asymmetric information on international regulations, insufficient access to imported raw materials, and limited technical know-how. Accordingly, they are more likely to discontinue exporting. This is known as the "sorting effect" of TBTs on exporting firms. Similarly, Fugazza, Olarreaga and Ugarte (2018) examined the effect of different types of NTMs, including TBTs, applied by Latin American countries on Peruvian firm exports. Indeed, very large firms are found to benefit- rather than lose - from the imposition of TBTs in destination markets, where they enjoy higher export values, higher export participation, and lower exit probability.

While the endogeneity problem was mitigated in previous regressions through both lagging the TBT variable by 1-year and using concerns raised by any country in the world, it can be further reduced by applying IV/ 2SLS regressions. Table 10 shows the results for the second-stage of IV regressions, where the used instrument is a lagged TBT dummy variable for concerns raised by *extra-African* countries[17]. As shown in column 1, tariffs are also found to negatively affect firm export values, while the TBT coefficient is insignificant. However, its interaction with firm size is negative, indicating a potential role for TBTs in raising large firm variable costs. As suggested by Maskus, Otsuki and Wilson (2013), firms - especially in developing countries - that seek to comply with stringent technical regulations abroad, increase their demand for labour and capital inputs. This can negatively affect their export values, especially in the short term. Unlike baseline regressions, IV estimations fail to find a significant effect for TBTs on export participation (column 2) or entry probability (column 4). Nonetheless, they indicate, in line with baseline regressions, a *positive and significant* effect of TBTs on firm exit probability, which is weakened for larger-sized firms (column 3).

[17] First-stage regressions indicate that the used instrument is a good predictor for the TBT variable. The null hypothesis of weak identification is rejected, as the reported Kleibergen-Paap Wald rk F statistic exceeds the Stock-Yogo critical values of the weak identification test.

[Table 10 about here]

As per product diversification, Table 11 shows that in all specifications, TBTs have a *positive and significant* impact on firm product diversification, which is lessened as the firm size increases (negative interaction between TBT and firm size). This means that the presence of TBTs in a sector-destination induces firms, on average, to diversify away from affected products when exporting to the TBT-imposing destination. Additionally, larger-sized firms are found to export a larger number of products. As shown in column (3), the GDP of destination country positively affects a firm's number of exported products, and so does the membership in a regional trade agreement with destination country, though at a lower significance level.

[Table 11 about here]

Most empirical literature, however, indicated a negative effect of TBTs on product diversification. For example, Rollo (2016) found a negative effect of TBTs, based on business perceptions on the average number of exported products per firm. Also, Shepherd's (2007) aggregate study found that an increase in the total number of EU standards in textiles, clothing, and footwear sectors is associated with a decline in partner country export product variety. Therefore, to better capture the effect of TBTs on firm product diversification, sectoral regressions are presented in Table 12. Across all specifications, a *significantly positive effect* on firm product diversification is found for *agricultural* sectors, namely vegetables and food sectors. As for product diversification in manufacturing sectors, results indicate that TBTs have an insignificant effect for most of them. However, there is evidence of a positive effect of TBTs on firm product diversification in the chemicals sector (columns 1 and 2) and a negative effect in the base metals sectors (columns 1 and 3).

[Table 12 about here]

The effect of TBTs on firm market diversification is examined in Table 13. It clearly indicates that a firm facing TBTs for its exported product in at least one of its destinations at year (t-1) will respond by increasing the number of new TBT-free destinations at year (t). Thus, TBTs have a *positive and significant* effect on diversification of firms into new TBT-free destinations (column 1). Disaggregating this effect by firm size reveals that it is greater for firms with larger sizes (with export values higher than the median), as shown in column (2). Generally, large firms can more easily

afford the fixed cost of entering a new export market. Similar conclusions are derived from alternatively using the probability of adding a new TBT-free destination as a dependent variable (columns 3 and 4).

[Table 13 about here]

Regressions, presented in Table 13, help in determining the general trend for firm response to TBTs, in terms of their market portfolio. However, the effect of TBTs is more reasonably examined for each geographical region of destination markets, given that firms are likely to diversify within a set of similar destinations. Table 14 shows the effect of TBTs on small and large firm market diversification by region. It indicates that for the regions of Africa and Middle East, and South and East Asia, TBTs induce only large firms to diversify into TBT-free destinations, whereas their effect on small firms is insignificant (columns 1 and 2). Conversely, TBTs reduce both small and large firm market diversification within the European region (column 3). This can be attributed to the fact that most countries in this region, specifically those belonging to the European Union, adopt the same technical regulations. This lessens the chance of firms finding a less stringent destination within Europe. Finally, there is an insignificant effect of TBTs on market diversification within Latin American destinations, which could result from the relatively low number of observations for this region (column 4). Similar findings are reported in columns 5-8, using the probability of adding a new TBT-free destination as a dependent variable. The exceptions are a negative diversification effect for small firms in Africa and Middle East, and a positive one in South and East Asia, though at a low significance level of 10%.

[Table 14 about here]

Results on market diversification are, generally, in line with the study of Fontagné and Orefice (2018) on French firms. It found a positive effect of TBTs on a firm-product's number of new TBT-free destinations that is magnified for multi-destination productive firms. This suggests that firms adopt an *add* strategy to their market portfolio in response to TBTs.

5.2. Aggregate-Level Regressions

After presenting firm-level regressions, it is important to examine the aggregate effect of TBTs on the intensive and extensive export margins. Table 15 shows the results of regressions conducted at the aggregate (product-destination) level for both margins. As shown in column 1, TBTs do not have a significant impact on average exports per firm in a product-destination (intensive margin). By contrast, column 2 indicates a *negative and significant* impact of TBTs on the number of exporting firms in a product-destination (extensive margin). These results are in line with predictions of firm-level estimations. Accordingly, TBTs mainly represent an increase in fixed (more than variable) costs of exporting.

[Table 15 about here]

6. Conclusion

The paper investigates the impact of Technical Barriers to Trade (TBTs) on firm exports in Egypt. It matches Egypt's firm-level data at the HS 4-digit level with the TBT specific trade concerns database of the WTO over the period 2005-2011. It contributes to the limited empirical literature examining the impact of TBTs for developing countries and the MENA region. Effects of TBTs on firms are examined for a set of variables: value exported (intensive margin), probability of exporting (extensive margin), exit probability, entry probability, product diversification, and market diversification. Regressions also examine the heterogeneous effect of TBTs by firm size.

Results show that while TBTs have an insignificant effect on the intensive margin, they reduce an average firm's probability of exporting and probability of entry into TBT-imposing destinations and increase its exit probability. This is consistent with the predictions of the new trade models. These effects are, however, weakened for larger firms which are more suited to cope with fixed costs associated with TBTs. The effect of TBTs on firm product diversification is found to be highly sector-dependent. Firms in agricultural sectors (vegetables and food sectors) diversify their exported products in response to TBTs. On the other hand, the effect on product diversification for manufacturing sectors is mixed. It is insignificant for most sectors, positive for the

chemicals sector, and negative for the base metals one. Results also reveal a positively significant impact of TBTs on market diversification of large firms within the regions of Africa and Middle East, and South and East Asia. This indicates their tendency to diversify to destination markets away from TBT-imposing ones. By contrast, a negatively significant impact of TBTs on market diversification of small and large firms within Europe is found. Aggregate regressions support the findings of firm-level estimations. They indicate an insignificant effect of TBTs on the intensive margin (measured as average exports per firm) and a negatively significant effect on the extensive margin (measured as number of exporting firms).

By increasing firm trade costs, especially in their fixed component, TBTs are thus found to affect firm exports over multiple dimensions. It affects their participation, entry and exit decisions, and the number of their products and markets. An export strategy that aims at increasing the number of exporters should give due attention to the fixed cost-raising role of TBTs. This adversely affects export participation, entry, and exit decisions, and largely hits smaller firms.

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8. Tables

Table 1: Number of Destination Countries (2005-2016)

Year	N. of Destinations
2005	149
2006	157
2007	171
2008	172
2009	175
2010	175
2011	177
2012	177
2013	175
2014	176
2015	176
2016	172

***Source**: Own construction using GOEIC dataset.*

Table 2: Number of HS4 Products (2005-2016)

Year	N. of HS Products
2005	759
2006	820
2007	814
2008	803
2009	824
2010	807
2011	785
2012	766
2013	763
2014	760
2015	742
2016	701

***Source**: Own construction using GOEIC dataset.*

Table 3: Objectives of Measures under STC (2004-2010)

Objective	Share (%)
Protection of Human Health or Safety	35.34
Protection of Environment	17.67
Prevention of Deceptive Practices and Consumer Protection	13.25
Quality Requirements	7.63
Consumer Information, Labelling	7.23
Harmonisation	4.02
National Security Requirements	2.41
Protection of Animal or Plant Life or Health	1.20
Other	11.24

Source: *Own construction using WTO's TBT STCs database.*

Table 4: Issues Raised in STCs (2004-2010)

Issues Raised	Share (%)
Unnecessary Barrier to Trade	18.41
Further information, Clarification	18.25
Transparency	12.95
International Standards	10.30
Rationale, Legitimacy	10.14
Discrimination	7.49
Time to adapt, "Reasonable Interval"	6.71
Non-Product Related Processes and Procedural Methods	3.28
Special & Differential Treatment	1.09
Technical Assistance	0.47
Other	10.92

Source*: Own construction using WTO's TBT STCs database.*

Table 5: Egypt's New and Previously Raised Concerns (2004-2010)

STC Item N.	Maintaining Countries	First Year Raised	Last Year Raised	Covered HS2 Sectors	N. HS4 Products Under STC	N. Years STC Assumed Unresolved	Index of N. Products & N. Years
35	EU	1999	2012	HS 84, 85, 90, 94, 95	148	13	1924
36	EU	1999	2009	HS 85	2	10	20
	EU	2000	2005	HS 95	3	5	15

41							
88	EU	2003	2017	HS 28,29, 30, 31, 32, 33, 34, 35, 36, 37, 38	178	15 (ongoing)	2670
249	Canada	2009	2011	HS 24	2	2	4

***Source**: Own construction using WTO's TBT STCs database.*

Table 6: Intensive Margin Estimation

	(1)	(2)	(3)
	Ln (Export Value)		
Ln (Tariff+1)	-1.062***	-0.659***	-0.418**
	(0.325)	(0.209)	(0.196)
Ln (Firm Size$_{-1}$)	0.0977***	0.103***	0.0923***
	(0.00535)	(0.00491)	(0.00487)
TBT$_{-1}$	-0.178	-0.162	-0.146
	(0.226)	(0.150)	(0.157)
TBT$_{-1}$* Ln (Firm Size$_{-1}$)	-0.00614	0.00873	0.00623
	(0.0136)	(0.0104)	(0.0108)
Observations	177,952	187,432	187,414
R-squared	0.882	0.868	0.870
Firm-Product-Destination Fixed Effects	Yes	Yes	Yes
Sector-Destination-Year Fixed Effects	Yes	No	No
Destination-Year Fixed Effects	No	Yes	Yes
Sector-Year Fixed Effects	No	No	Yes
Estimation Method	OLS	OLS	OLS

Robust standard errors in parentheses, clustered by product-destination-year

*** p<0.01, ** p<0.05, * p<0.1

Table 7: Extensive Margin Estimation

	(1)	(2)	(3)
	Export Participation Dummy		
Ln (Tariff+1)	-0.105	-0.0371	0.0343
	(0.0673)	(0.0463)	(0.0441)
Ln (Firm Size$_{-1}$)	0.0638***	0.0665***	0.0647***
	(0.000829)	(0.000779)	(0.000786)
TBT$_{-1}$	**-0.0848****	**-0.106*****	**-0.0810*****
	(0.0428)	(0.0312)	(0.0296)
TBT$_{-1}$* Ln (Firm Size$_{-1}$)	0.00345	**0.00885*****	**0.00671*****
	(0.00241)	(0.00210)	(0.00203)
Observations	410,739	419,607	419,599
R-squared	0.363	0.299	0.311
Firm-Product-Destination Fixed Effects	Yes	Yes	Yes
Sector-Destination-Year Fixed Effects	Yes	No	No
Destination-Year Fixed Effects	No	Yes	Yes
Sector-Year Fixed Effects	No	No	Yes
Estimation Method	LPM	LPM	LPM

Robust standard errors in parentheses, clustered by product-destination-year
*** p<0.01, ** p<0.05, * p<0.1

Table 8: Exit Probability Estimation

	(1) Export Exit Dummy	(2) Export Exit Dummy (Alternative Definition)	(3)	(4)
Ln (Tariff+1)	0.133	0.343**	0.128	-0.0347
	(0.121)	(0.147)	(0.0886)	(0.0780)
Ln (Firm Size$_{-1}$)	-0.0541***	-0.0939***	-0.0929***	-0.0944***
	(0.00200)	(0.00324)	(0.00277)	(0.00283)
TBT$_{-1}$	0.106	**0.344***	**0.289***	**0.171**
	(0.0795)	(0.0971)	(0.0711)	(0.0702)
TBT$_{-1}$* Ln (Firm Size$_{-1}$)	**-0.0100****	**-0.0237****	**-0.0206****	**-0.0134****
	(0.00449)	(0.00584)	(0.00457)	(0.00448)
Observations	192,734	45,845	50,932	50,907
R-squared	0.515	0.637	0.553	0.579
Firm-Product-Destination Fixed Effects	Yes	Yes	Yes	Yes
Sector-Destination-Year Fixed Effects	Yes	Yes	No	No
Destination-Year Fixed Effects	No	No	Yes	Yes
Sector-Year Fixed Effects	No	No	No	Yes
Estimation Method	LPM	LPM	LPM	LPM

Robust standard errors in parentheses, clustered by product-destination-year
*** p<0.01, ** p<0.05, * p<0.1

Table 9: Entry Probability Estimation

	(1) Export Entry Dummy	(2) Export Entry Dummy (Alternative Definition)	(3)	(4)
Ln (Tariff+1)	-0.181	-0.374	0.0415	0.104
	(0.134)	(0.328)	(0.158)	(0.157)
Ln (Firm Size$_{-1}$)	0.0594***	0.0511***	0.0597***	0.0555***
	(0.00129)	(0.00265)	(0.00223)	(0.00222)
TBT$_{-1}$	**-0.119***	**-0.208***	**-0.303*****	**-0.261*****
	(0.0683)	(0.111)	(0.0679)	(0.0693)
TBT$_{-1}$* Ln (Firm Size$_{-1}$)	**0.00707***	**0.0171*****	**0.0231*****	**0.0204*****
	(0.00393)	(0.00604)	(0.00474)	(0.00480)

Observations	183,375	46,290	54,346	54,329
R-squared	0.351	0.667	0.534	0.555
Firm-Product-Destination Fixed Effects	Yes	Yes	Yes	Yes
Sector-Destination-Year Fixed Effects	Yes	Yes	No	No
Destination-Year Fixed Effects	No	No	Yes	Yes
Sector-Year Fixed Effects	No	No	No	Yes
Estimation Method	LPM	LPM	LPM	LPM

Robust standard errors in parentheses, clustered by product-destination-year
*** p<0.01, ** p<0.05, * p<0.1

Table 10: IV Regressions (Second-Stage)

	(1) Ln (Export Value)	(2) Export Participation Dummy	(3) Export Exit Dummy	(4) Export Entry Dummy
Ln (Tariff+1)	-1.069***	-0.107	0.341**	-0.375
	(0.329)	(0.0674)	(0.147)	(0.328)
Ln (Firm Size$_{-1}$)	0.101***	0.0635***	-0.0926***	0.0509***
	(0.00548)	(0.000881)	(0.00336)	(0.00278)
TBT$_{-1}$	0.573	-0.222	**1.122***	0.198
	(0.774)	(0.151)	(0.380)	(0.520)
TBT$_{-1}$* Ln (Firm Size$_{-1}$)	**-0.143***	0.0110	**-0.0507****	0.0245
	(0.0416)	(0.00777)	(0.0217)	(0.0201)
Observations	177,952	410,739	45,845	46,290
R-squared	0.882	0.363	0.635	0.666
Firm-Product-Destination Fixed Effects	Yes	Yes	Yes	Yes
Sector-Destination-Year Fixed Effects	Yes	Yes	Yes	Yes
Estimation Method	2SLS	2SLS	2SLS	2SLS

Robust standard errors in parentheses, clustered by product-destination-year
*** p<0.01, ** p<0.05, * p<0.1

Table 11: Product Diversification Estimation

	(1)	(2)	(3)
	Ln Number of Products (per firm-sector-destination-year)		
Ln (GDP destination)	-	-	0.0640***
			(0.0145)
FTA	-	-	0.0186*
			(0.0113)
Ln (Tariff+1)	0.0350	0.0429	0.0269
	(0.0462)	(0.0462)	(0.0448)
Ln (Firm Size$_{-1}$)	0.0107***	0.0105***	0.0108***
	(0.000928)	(0.000946)	(0.000929)
TBT$_{-1}$	**0.0931*** **	**0.0504** **	**0.0947*** **
	(0.0250)	(0.0254)	(0.0249)
TBT$_{-1}$* Ln (Firm Size$_{-1}$)	**-0.00639*** **	**-0.00309***	**-0.00649*** **
	(0.00184)	(0.00179)	(0.00182)
Observations	146,756	146,736	142,823
R-squared	0.762	0.766	0.762
Firm-Sector-Destination Fixed Effects	Yes	Yes	Yes
Destination-Year Fixed Effects	Yes	Yes	No
Sector-Year Fixed Effects	No	Yes	No
Year Fixed Effects	No	No	Yes
Estimation Method	OLS	OLS	OLS

Robust standard errors in parentheses, clustered by sector-destination-year
*** p<0.01, ** p<0.05, * p<0.1

Table 12: Product Diversification Estimation (Sectoral Effects)

	(1)	(2)	(3)
	Ln Number of Products (per firm-sector-destination-year)		
Ln (GDP destination)	-	-	0.0640***
			(0.0145)
FTA	-	-	0.0180
			(0.0113)
Ln (Tariff+1)	0.0339	0.0415	0.0243
	(0.0461)	(0.0461)	(0.0447)
Ln (Firm Size$_{-1}$)	0.0103***	0.0103***	0.0103***
	(0.000915)	(0.000935)	(0.000915)

TBT_{-1}* Vegetables	**0.0170***	**0.0174***	**0.0190****
	(0.00998)	(0.0103)	(0.00925)
TBT_{-1}* Food	**0.0471****	**0.0486*****	**0.0626*****
	(0.0186)	(0.0173)	(0.0152)
TBT_{-1}* Chemicals	**0.0459***	**0.0411***	0.0365
	(0.0241)	(0.0223)	(0.0238)
TBT_{-1}* Leather/Wood	0.0433	-0.0168	0.0426
	(0.0352)	(0.0387)	(0.0371)
TBT_{-1}* Textiles/Footwear	-0.00951	-0.00425	-0.0116
	(0.0135)	(0.0108)	(0.0134)
TBT_{-1}* Stone/Glass	-0.0131	0.00662	-0.0148
	(0.0129)	(0.0165)	(0.0123)
TBT_{-1}* Base Metals	**-0.0570****	-0.0261	**-0.0583****
	(0.0249)	(0.0235)	(0.0247)
TBT_{-1}* Electrical/Mechanical	-0.0153	-0.00664	-0.0114
	(0.0190)	(0.0198)	(0.0184)
TBT_{-1}* Miscellaneous	-0.00900	-0.0109	-0.0120
	(0.0124)	(0.0140)	(0.0119)
Observations	146,756	146,736	142,823
R-squared	0.762	0.767	0.762
Firm-Sector-Destination Fixed Effects	Yes	Yes	Yes
Destination-Year Fixed Effects	Yes	Yes	No
Sector-Year Fixed Effects	No	Yes	No
Year Fixed Effects	No	No	Yes
Estimation Method	OLS	OLS	OLS

Robust standard errors in parentheses, clustered by sector-destination-year
*** p<0.01, ** p<0.05, * p<0.1

Table 13: Market Diversification Estimation

	(1)	(2)	(3)	(4)
	Number of New TBT-Free Destinations (Per Firm-Product-Year)		Probability of Adding a New TBT-Free Destination (Per Firm-Product-Year)	
TBT_{-1}* Small Firm	-	**0.260*****	-	**0.0776*****
		(0.0346)		(0.00990)
TBT_{-1}* Large Firm	-	**0.419*****	-	**0.124*****
		(0.0451)		(0.00941)
TBT_{-1}	**0.355*****		**0.105*****	
	(0.0356)		(0.00800)	
Observations	132,703	132,703	132,703	132,703
R-squared	0.380	0.380	0.371	0.372
Firm-Sector Fixed Effects	Yes	Yes	Yes	Yes
Sector-Year Fixed Effects	Yes	Yes	Yes	Yes
Estimation Method	OLS	OLS	LPM	LPM

Robust standard errors in parentheses, clustered by firm-product
*** p<0.01, ** p<0.05, * p<0.1

Table 14: Market Diversification Estimation (by geographical region)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Number of New TBT-Free Destinations (Per Firm-Product-Year)				Probability of Adding a New TBT-Free Destination (Per Firm-Product-Year)			
	Africa & Middle East	East & South Asia	Europe	Latin America	Africa & Middle East	East & South Asia	Europe	Latin America
TBT_{-1}* Small Firm	-0.0856	0.0801	**-0.0991*****	-0.0160	**-0.0686***	**0.0622***	**-0.0613*****	0.0184
	(0.0716)	(0.0502)	(0.0277)	(0.139)	(0.0412)	(0.0366)	(0.0166)	(0.123)
TBT_{-1}* Large Firm	**0.614*****	**0.215*****	**-0.133*****	-0.122	**0.168*****	**0.112*****	**-0.0528*****	-0.0156
	(0.141)	(0.0582)	(0.0275)	(0.145)	(0.0301)	(0.0320)	(0.0163)	(0.112)
Observations	94,571	9,128	42,884	2,206	94,571	9,128	42,884	2,206
R-squared	0.379	0.396	0.329	0.494	0.367	0.408	0.337	0.499
Firm-Sector Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector-Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation Method	OLS	OLS	OLS	OLS	LPM	LPM	LPM	LPM

Robust standard errors in parentheses, clustered by firm-product
*** p<0.01, ** p<0.05, * p<0.1

Table 15: Aggregate Estimation (at product-destination)

	(1) Ln (Average Export Per Firm in a Product-Destination)	(2) Ln (Number of Exporting Firms in a Product-Destination)
Ln (Tariff+1)	-0.643***	-0.333***
	(0.154)	(0.0499)
TBT_{-1}	0.0744	**-0.0971*** **
	(0.0478)	(0.0149)
Observations	71,557	71,557
R-squared	0.242	0.246
Sector-Year Fixed Effects	Yes	Yes
Destination-Year Fixed Effects	Yes	Yes
Estimation Method	OLS	OLS

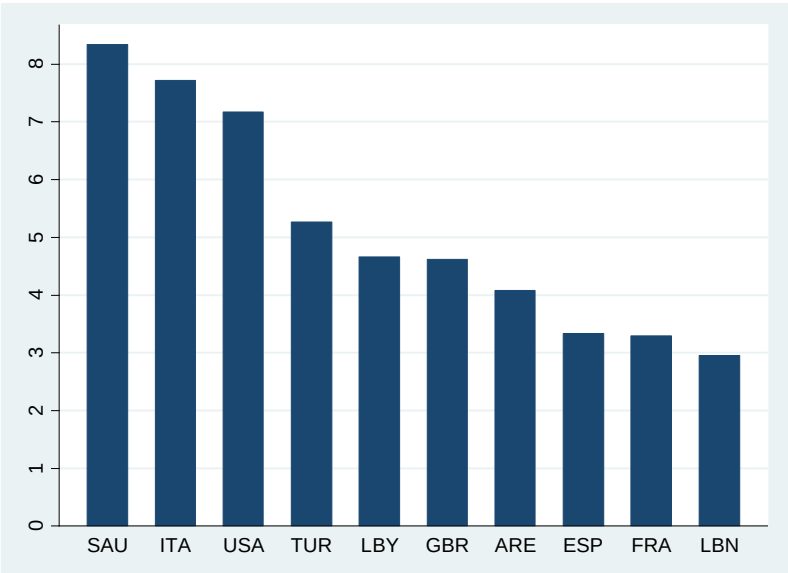
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

9. Figures

Figure 1: Mean Export Value by Firm (in million USD)

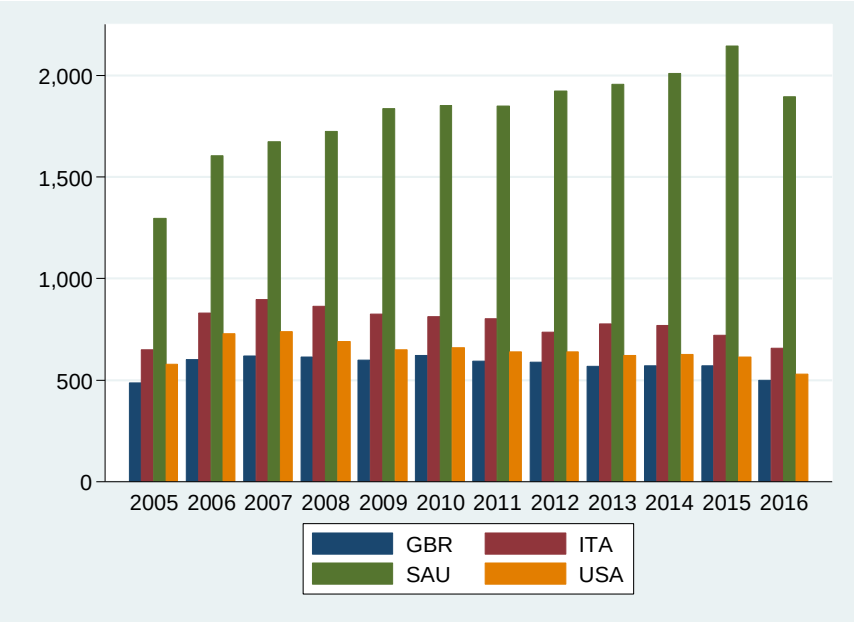
***Source**: Own construction using GOEIC dataset.*

Figure 92: Mean Share of Top 10 Destinations (%) (2005-2016)



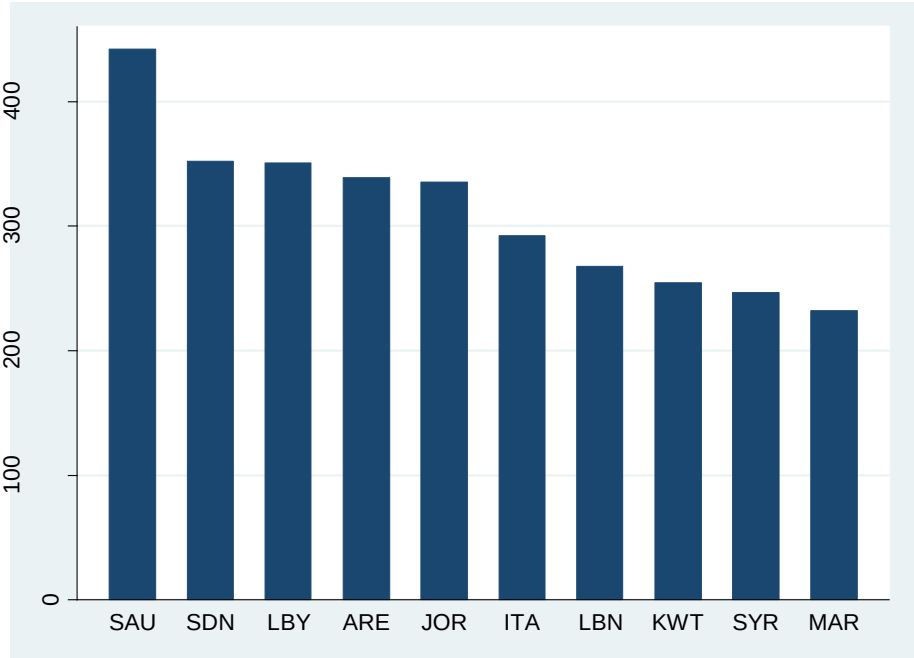
***Source**: Own construction using GOEIC dataset.*

Figure 3: Number of Firms per Destination (2005-2016)



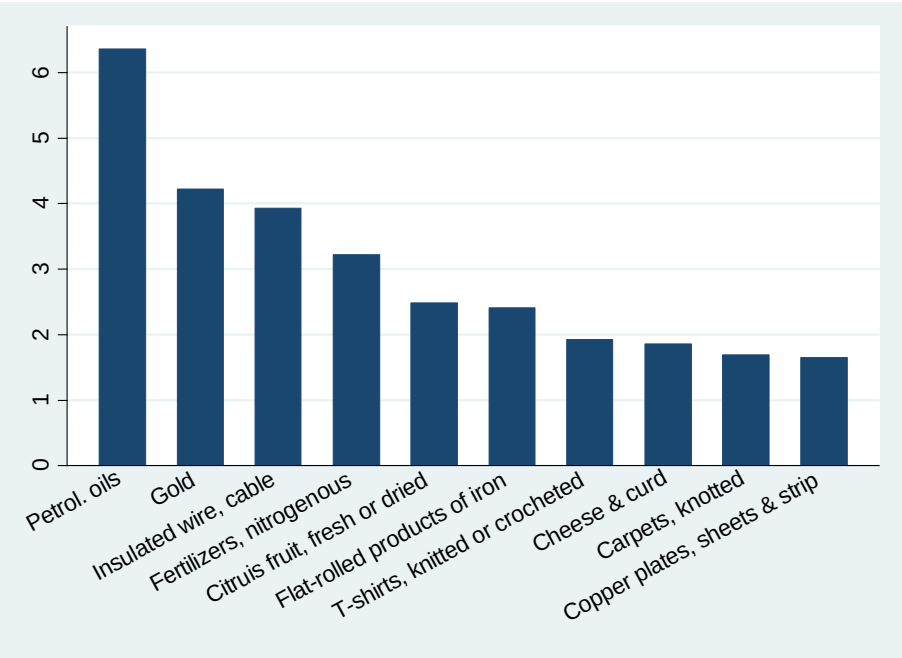
***Source**: Own construction using GOEIC dataset.*

Figure 4: Mean Number of HS products for Top 10 Destinations (2005-2016)



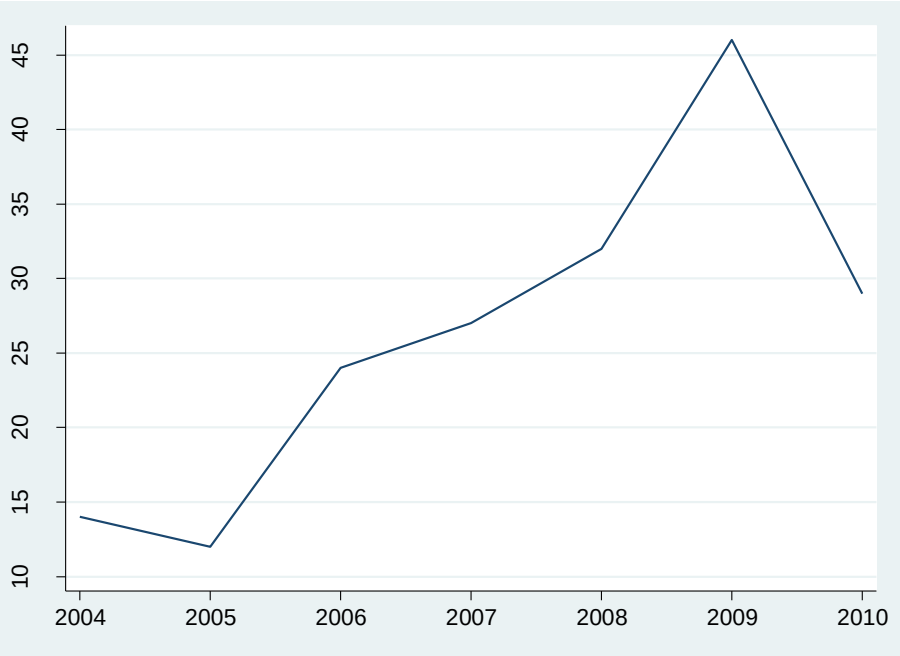
***Source**: Own construction using GOEIC dataset.*

Figure 5: Mean Share of Top 10 Products (%) (2005-2016)



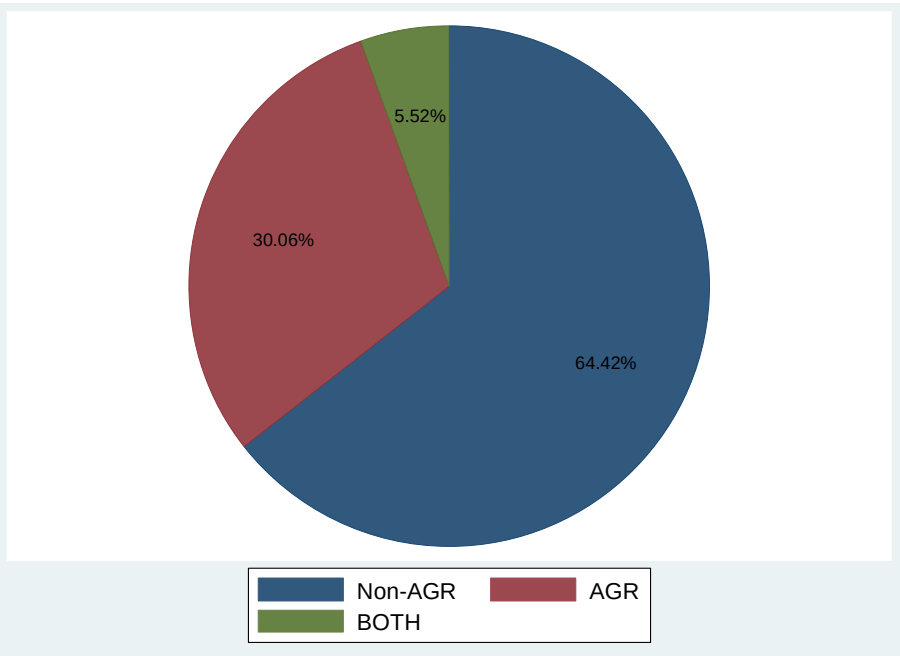
***Source**: Own construction using GOEIC dataset.*

Figure 6: Number of New TBT STCs (2004-2010)



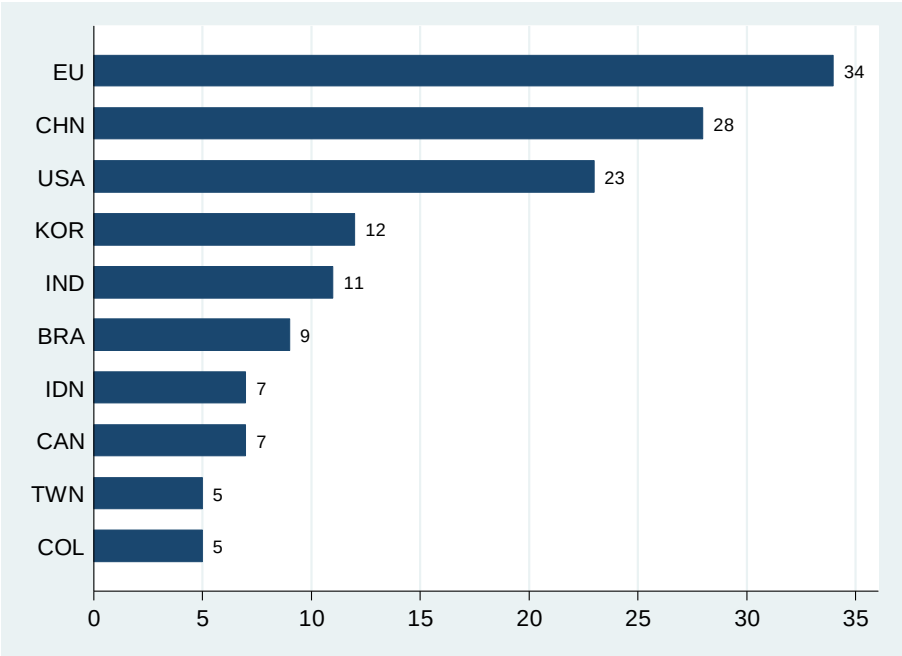
***Source**: Own construction using WTO's TBT STCs database.*

Figure 7: Classification of Concerns by Sector (2004-2010)



***Source**: Own construction using WTO's TBT STCs database.*

Figure 8: Top 10 Maintaining Countries over (2004-2010)

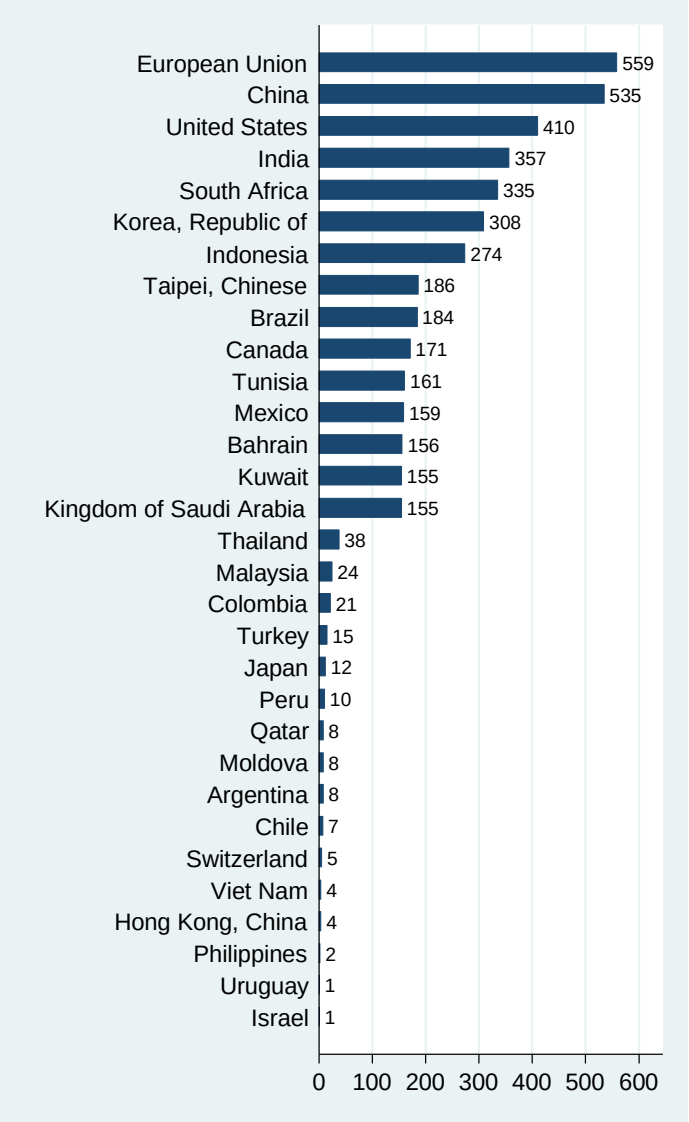


***Source**: Own construction using WTO's TBT STCs database.*

Figure 9: Number of HS 4-digit Products Subject to STC (2004-2010)

***Source**: Own construction using WTO's TBT STCs database.*

Figure 10: Number of HS4 products Subject to STC by Maintaining Country (2004-2010)

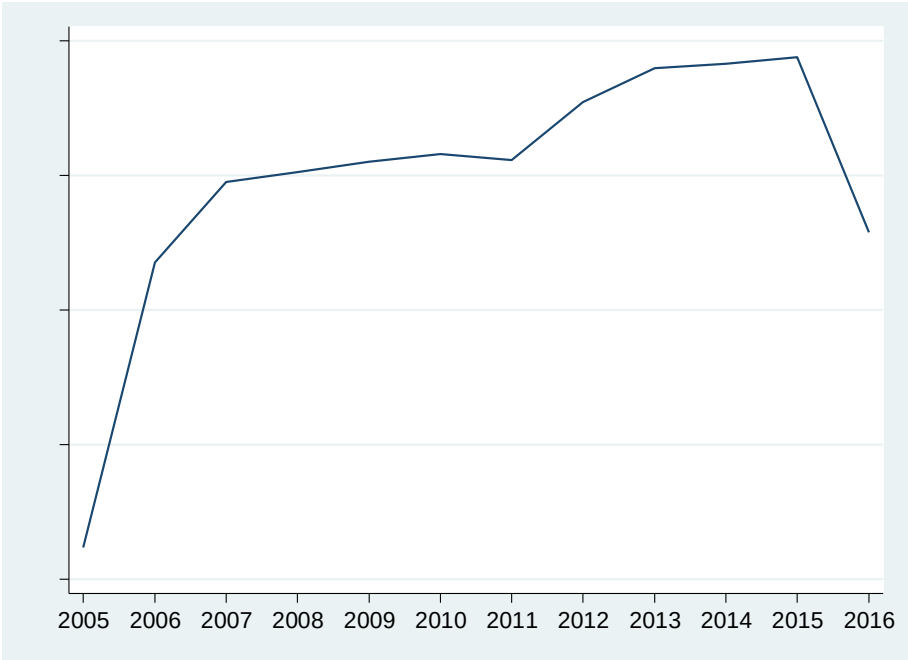


***Source**: Own construction using WTO's TBT STCs database.*

10. Appendix

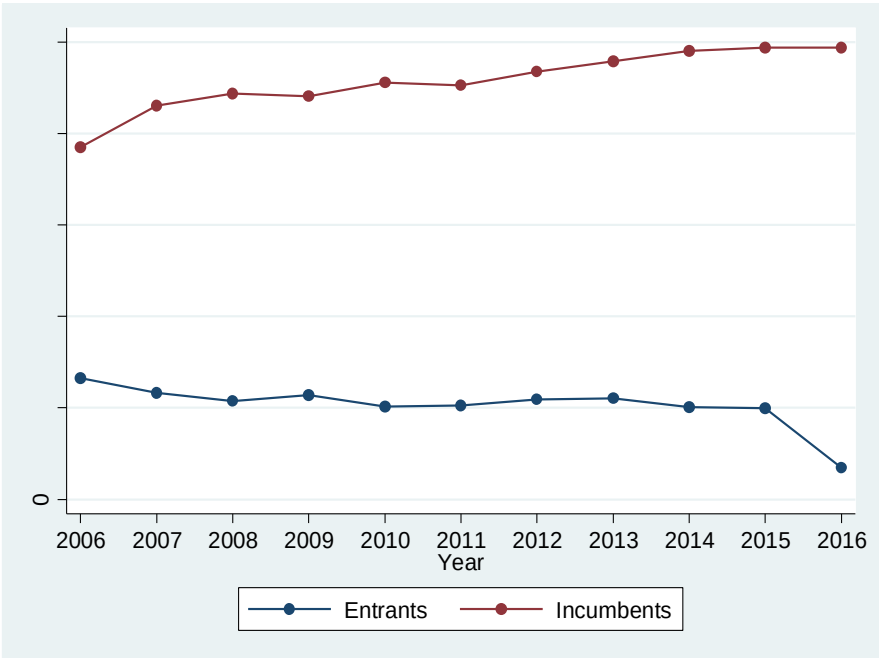
10.1. Appendix 1: Egypt's Export Dynamics

Figure A.1: Number of Firms (2005-2016)



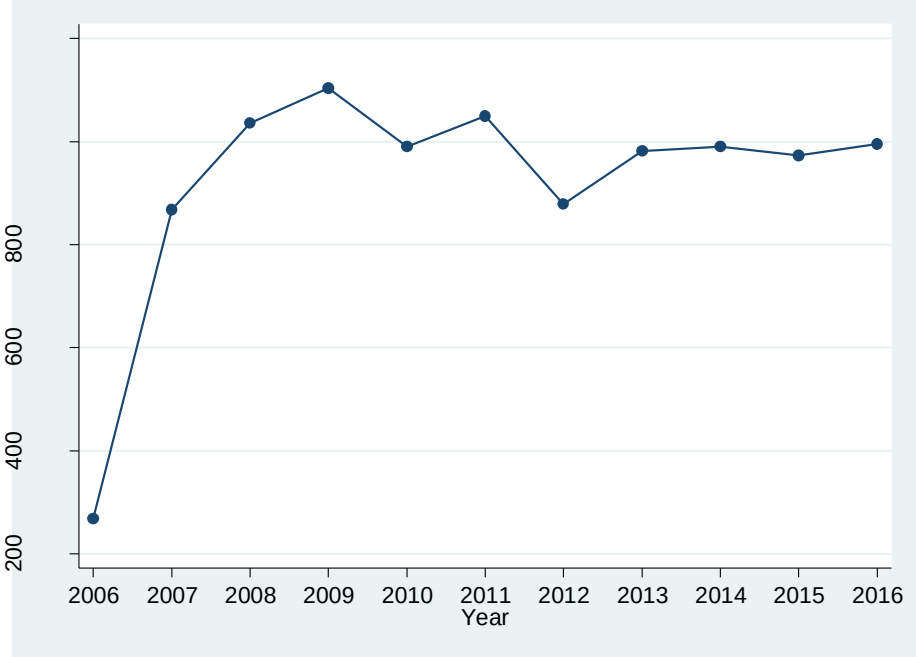
***Source**: Own construction using GOEIC dataset.*

Figure A.10.12: Number of Entrant and Incumbent Firms (2006-2016)



***Source**: Own construction using GOEIC dataset.*

Figure A.3: Number of Exiting Firms (2006-2016)



***Source**: Own construction using GOEIC dataset.*

Table A.16: Summary Statistics for the Number of Entrant, Incumbent and Exiting Firms (2006-2016)

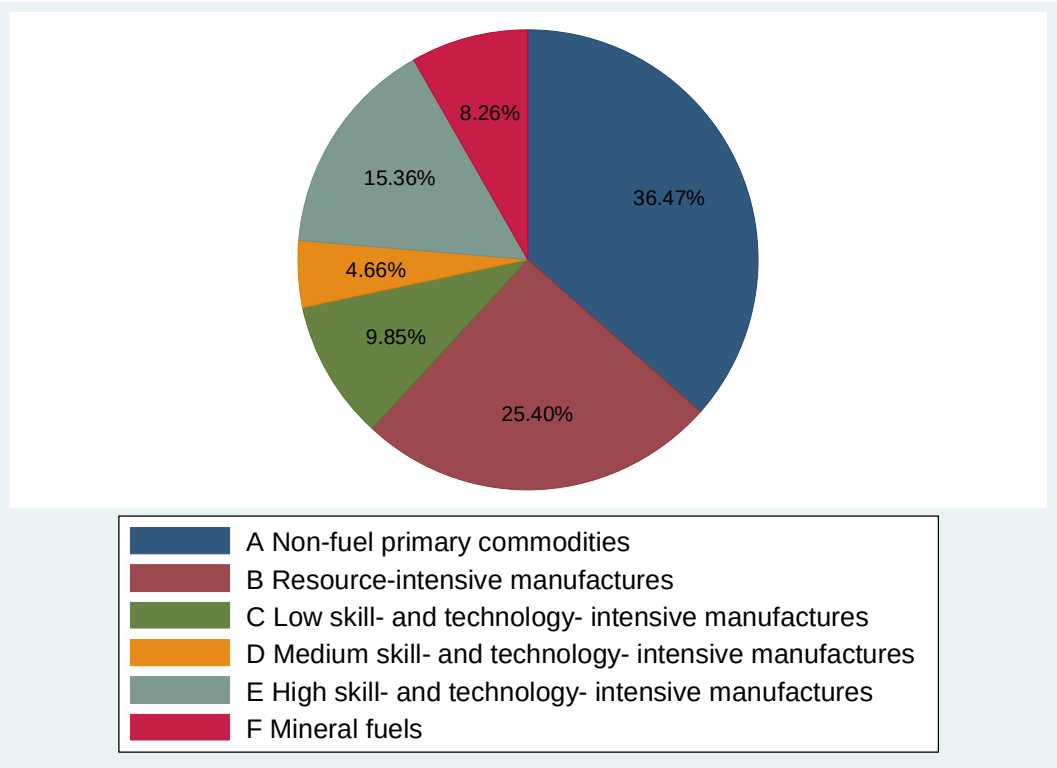
Variable	Mean	Min	Max
N. of Entrant Firms	1027.7	343	1327
N. of Incumbent Firms	4578.3	3850	4945
N. of Exiting Firms	921.4	268	1104

***Source**: Own construction using GOEIC dataset.*

Figure A.4: Total Exports Value (in billion USD)

***Source**: Own construction using GOEIC dataset.*

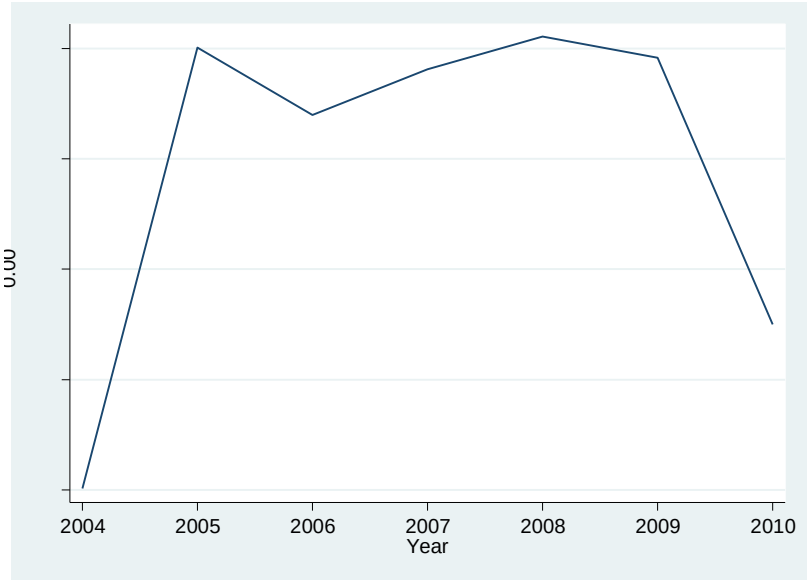
Figure A.5: Technological Classification of Products (2005-2016)



***Source**: Own construction using GOEIC dataset & UNCTAD classification of HS4 products.*

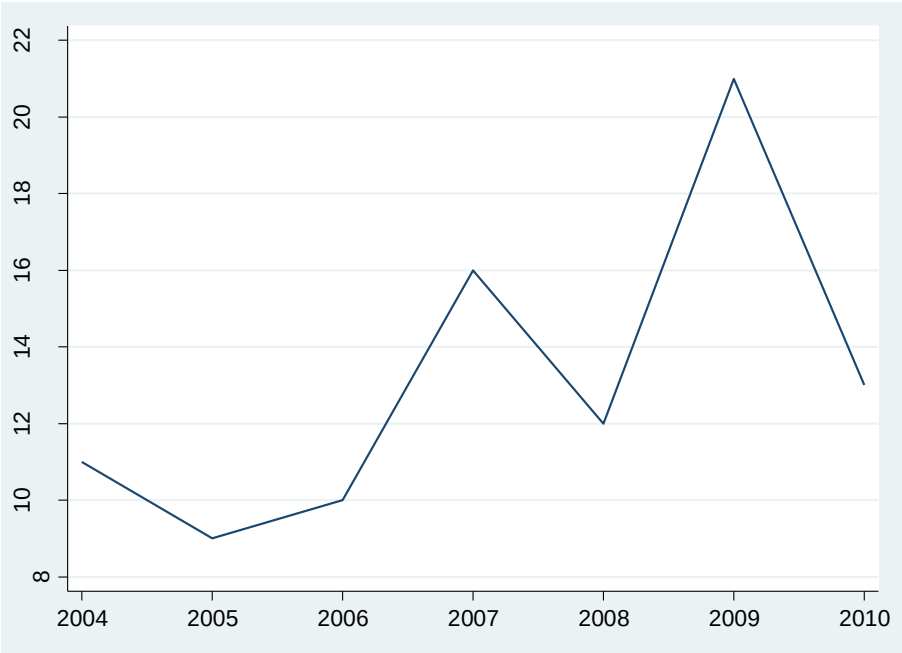
10.2. Appendix 2: TBT STCs

Figure A.6: Growth Rate of TBT Regular Notifications (2004-2010)



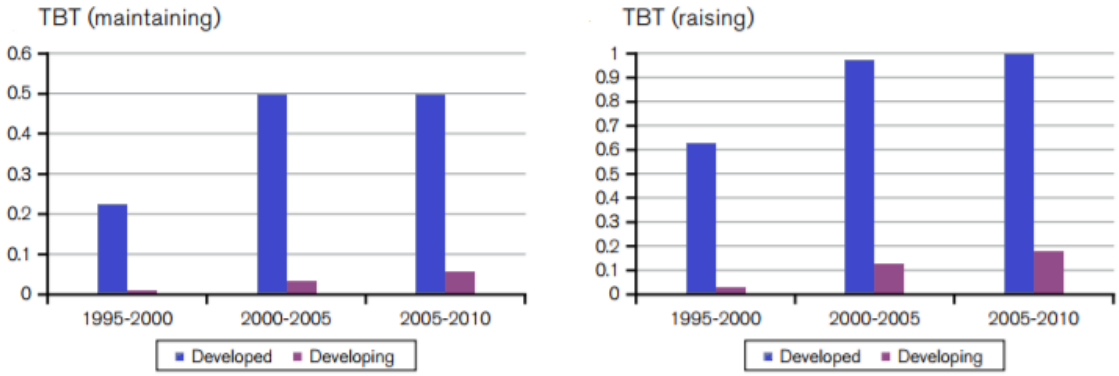
***Source**: Own construction using WTO's TBT Information Management System.*

Figure A.7: Number of Maintaining Countries (2004-2010)



***Source**: Own construction using WTO's TBT STCs database.*

Figure A.8: Number of Maintaining and Raising Countries (as a share of total number of countries by development status) (1995-2010)



***Source**: WTO report (2012).*

Table A.17: Number of HS4 products Subject to STC by HS2 sector over (2004-2010)

HS 2-digit Sector		N. products
84	Nuclear reactors, boilers, machinery & mechanical appliances	86
28	Inorganic chemicals; compounds of precious metals, radioactive elements	51
85	Electrical machinery & equipment & parts thereof; sound recorders	47
29	Organic chemicals	42
72	Iron and steel	29
38	Miscellaneous chemical products	25
15	Animal or vegetable fats & oils & their cleavage products	21
70	Glass and glassware	20
71	Natural/cultured pearls, precious stones & metals; jewellery; coin	18
61	Articles of apparel & clothing accessories, knitted or crocheted	17
62	Articles of apparel & clothing accessories, not knitted/crocheted	17
55	Man-made staple fibres	16
32	Tanning/dyeing extract; tannins & derivatives; pigments, paints	15
7	Edible vegetables and certain roots and tubers	14
8	Edible fruit and nuts; peel of citrus fruit or melons	14
12	Oil seed, oleaginous fruits; miscellaneous grains	14
69	Ceramic products	14
87	Vehicles other than railway roll-stock, parts & accessories	14
51	Wool, fine/coarse animal hair, horsehair yarn & woven fabric	13
52	Cotton	12
5	Products of animal origin, not elsewhere specified	11
53	Other vegetable textile fibres; paper yarn & woven fabrics	11
58	Special woven fabrics; tufted textile fabrics; lace; tapestries	11
59	Impregnated, coated, covered/laminated textile fabrics	11
2	Meat and edible meat offal	10
4	Dairy produce; birds' eggs; natural honey	10
9	Coffee, tea, mate and spices	10
63	Other made up textile articles; sets; worn clothing	10
11	Products of the milling industry; malt; starches; inulin; wheat gluten	9
20	Preparations of vegetable, fruit, nuts or other parts of plants	9
22	Beverages, spirits and vinegar	9
56	Wadding, felt & non-wovens; yarns; twine, cordage	9
10	Cereals	8
41	Raw hides and skins (other than fur skins) and leather	8
54	Man-made filaments	8
75	Nickel and articles thereof	8
90	Optical, photographic, measuring, checking, precision, medical instruments	8
3	Fish & crustacean, molluscs	7
33	Essential oils & resinoids; perfumery, cosmetic/toilet preps	7
34	Soap, organic surface-active agents, washing preps	7
35	Albuminoidal subs; modified starches; glues; enzymes	7
37	Photographic or cinematographic goods	7

50	Silk	7
65	Headgear and parts thereof	7
73	Articles of iron or steel	7
82	Tools, implements, cutlery, spoons & forks, of base metal	7
1	Live animals	6
18	Cocoa and cocoa preparations	6
21	Miscellaneous edible preps	6
30	Pharmaceutical products	6
36	Explosives; pyrotechnic prod; matches; pyrophoric alloys	6
40	Rubber and articles thereof	6
60	Knitted or crocheted fabrics	6
64	Footwear, gaiters and the like	6
74	Copper and articles thereof	6
94	Furniture; bedding, mattress, cushions	6
16	Preparations of meat, fish or crustaceans, molluscs	5
19	Preparations of cereal, flour, starch/milk	5
31	Fertilisers	5
42	Articles of leather; saddlery/harness; travel goods	5
57	Carpets and other textile floor coverings	5
95	Toys, games & sports requisites; parts & accessories	5
6	Live trees & other plants; bulb, root; cut flowers	4
17	Sugars and sugar confectionery	4
43	Fur skins and artificial fur; manufactures thereof	4
25	Salt; Sulphur; earth & stone; plastering materials; lime & cement	3
91	Clocks and watches and parts thereof	3
24	Tobacco and manufactured tobacco substitutes	2
39	Plastics and articles thereof	2
92	Musical instruments; parts and accessories of such articles	2
96	Miscellaneous manufactured articles	2
26	Ores, slag and ash	1
44	Wood and articles of wood; wood charcoal	1
48	Paper & paperboard; articles of paper pulp, paper/paperboard	1
80	Tin and articles thereof	1
83	Miscellaneous articles of base metal	1

***Source**: Own construction using WTO's TBT STCs database.*

Table A.18: HS 2-digit Sectors under STCs by Maintaining Country (2004-2010)

Maintaining Country	HS 2-digit Sector
Argentina	22, 30
Bahrain	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 83
Brazil	2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 84, 85, 90, 94, 95
Canada	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 24, 84, 85
Chile	33
China	1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 28, 29, 33, 38, 41, 42, 43, 52, 53, 54, 55, 56, 57, 58, 60, 61, 62, 63, 64, 84, 85, 87, 90, 94
Colombia	4, 22, 64, 87
European Union	2, 4, 6, 9, 10, 12, 15, 16, 21, 25, 26, 28, 29, 30, 31, 33, 35, 36, 38, 40, 41, 42, 43, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 69, 70, 71, 72, 73, 74, 75, 82, 84, 85, 87, 90, 94, 95, 96
Hong Kong, China	75, 84, 85
India	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 33, 40, 65, 69, 72, 84, 85, 87, 90, 95
Indonesia	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 25, 30, 31, 32, 33, 34, 36, 38, 39, 40, 42, 48, 61, 62, 64, 69, 70, 72, 73, 74, 84, 85, 87, 90, 91, 92, 95
Israel	19
Japan	2, 84, 85, 87, 90
Kingdom of Saudi Arabia	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22
Korea, Republic of	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 30, 33, 40, 70, 84, 85, 87
Kuwait	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22
Malaysia	30, 33, 72
Mexico	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 69
Moldova	22
Peru	4, 19, 21, 39, 40, 64
Philippines	69
Qatar	40, 87

South Africa	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 42, 43, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65
Switzerland	87
Taipei, Chinese	1, 2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 32, 38, 87
Thailand	19, 20, 22, 72
Tunisia	2, 3, 4, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22
Turkey	22, 30, 84, 90, 94
United States	1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17, 18, 19, 20, 21, 22, 24, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 44, 61, 62, 63, 71, 73, 84, 85, 95, 96
Uruguay	11
Viet Nam	22

***Source**: Own construction using WTO's TBT STCs database.*

10.3. Appendix 3: List of Egypt's Trade Partners

AFGHANISTAN	CONGO, DEMOCRATIC	INDIA	MONTENEGRO	SLOVAKIA
ALBANIA	COSTA RICA	INDONESIA	MONTSERRAT	SLOVENIA
ALGERIA	COTE D IVOIRE	IRAN	MOROCCO	SOMALIA
ANDORRA	CROATIA	IRAQ	MOZAMBIQUE	SOUTH AFRICA
ANGOLA	CUBA	IRELAND	MYANMAR	SPAIN
ANGUILLA	CURACAO	ISRAEL	NAMIBIA	SRI LANKA
ANTIGUA AND BARBUDA	CYPRUS	ITALY	NEPAL	SUDAN
ARGENTINA	CZECH REPUBLIC	JAMAICA	NETHERLANDS	SURINAME
AUSTRALIA	DENMARK	JAPAN	NETHERLANDS ANTILLES	SWAZILAND
AUSTRIA	DJIBOUTI	JORDAN	NEW CALEDONIA	SWEDEN
AZERBAIJAN	DOMINICA	KAZAKSTAN	NEW ZEALAND	SWITZERLAND
BAHAMAS	DOMINICAN REPUBLIC	KENYA	NICARAGUA	SYRIA
BAHRAIN	ECUADOR	KOREA, DEMOCRATIC	NIGER	TAIWAN
BANGLADESH	EL SALVADOR	KOREA, REPUBLIC	NIGERIA	TAJIKISTAN
BARBADOS	ERITREA	KUWAIT	NIUE	TANZANIA
BELARUS	ESTONIA	KYRGYZ REPUBLIC	NORWAY	THAILAND
BELGIUM	ETHIOPIA	LATVIA	OMAN	TIMOR-LESTE
BELIZE	EQUATORIAL GUINEA	LEBANON	PAKISTAN	TOGO
BENIN	FIJI	LIBERIA	PALESTINE	TONGA
BERMUDA	FINLAND	LIBYA	PANAMA	TRINIDAD AND TOBAGO
BOLIVIA	FRANCE	LITHUANIA	PAPUA NEW GUINEA	TUNISIA
BOSNIA AND HERZEGOVINA	GABON	LUXEMBOURG	PARAGUAY	TURKEY
BOTSWANA	GAMBIA	MACAU	PERU	TURKMENISTAN
BRAZIL	GEORGIA	MACEDONIA	PHILIPPINES	UGANDA
BRUNEI DARUSSALAM	GERMANY	MADAGASCAR	POLAND	UKRAINE
BULGARIA	GHANA	MALAWI	PORTUGAL	UNITED ARAB EMIRATES
BURKINA FASO	GREECE	MALAYSIA	PUERTO RICO	UNITED KINGDOM
BURUNDI	GRENADA	MALDIVES	QATAR	UNITED STATES
CAMBODIA	GUADELOUPE	MALI	REUNION	UNITED STATES MINOR OUTLYING ISLANDS
CAMEROON	GUAM	MALTA	ROMANIA	URUGUAY
CANADA	GUATEMALA	MARSHALL ISLANDS	RUSSIAN FEDERATION	UZBEKISTAN
CAPE VERDE	GUINEA	MARTINIQUE	RWANDA	VENEZUELA
CENTRAL AFRICAN REPUBLIC	GUINEA-BISSAU	MAURITANIA	SAMOA	VIETNAM
CHAD	GUYANA	MAURITIUS	SAUDI ARABIA	VIRGIN ISLANDS, BRITISH
CHILE	HAITI	MAYOTTE	SENEGAL	YEMEN
CHINA	HONDURAS	MEXICO	SERBIA	ZAMBIA
COLOMBIA	HONG KONG	MOLDOVA	SEYCHELLES	ZIMBABWE
COMOROS	HUNGARY	MONACO	SIERRA LEONE	
CONGO	ICELAND	MONGOLIA	SINGAPORE	

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