An Empirical Analysis of Policy Barriers Related to Trade Costs for Exporters

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Abstract

The trade costs imposed by numerous policy and non-policy barriers on exporters are still considered an impediment in their export growth rate. Thus, this paper aims to measure over-year trends in total trade costs and trends in trade costs related to policy barriers. Further, to find out which trade cost-policy barriers are high. The research found that total trade costs have a decreasing trend for the rest of the world while developing countries like Pakistan have the lowest rate of a declining trend. Trade cost estimates associated with tariff barriers show a declining trend, whereas trade costs related to non-tariff barriers are on the rise as compared to developed countries. The results further reveal that higher trade costs are among the major factors that have rendered especially developing countries' exports uncompetitive in world markets.

Keywords: Tariff Barriers, Non-Tariff Barriers, Policy Barriers, Trade Costs, Trade Policies, Trading Partners

JEL codes: F1, F10, F13, F14

1. Introduction

The economic size and factor endowment are not the only variables that define the trade capacity for countries. Trade strength also depends upon many other factors, including trade costs. Within the modern stream of international trade research, trade costs have drawn the

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attention of international trade economists to explain the direction and trade volume between countries. Thus, trade costs have shown to be hazardous for economies incurring and reduce their potential volume of trade in the international market.

Along the same line, Samuelson (1954) claims that trade flows decrease by the same friction as melting an iceberg during passing through the sea. To capture an iceberg melting effect, the cost of trade between partner countries is measured. It is generally considered to comprise all the expenses to the point the product or services reach the end-user. On the other hand, according to Bernard et al. (2006) moving exportable commodities and final products to ports incur a huge cost and other risks. Baier and Bergstrand (2009) found that the increase in trade costs results in decreases in the volume of bilateral trade.

However, there is always a difference in the costs of trade in all countries. Largely this difference is due to the policy (tariff and non-tariff) barriers. Every country has different trade policy barriers that affect its costs of trade. To accelerate the growth of the economy for a country, it is imperative for reducing the trade costs associated especially with the policy barriers. Policy barriers associated with trade costs, such as tariffs, raise the price for consumers of imported goods, thereby discouraging the consumption of those goods. Saleem et al. (2014) also stated that increases the cost of both consumer goods and producer goods and depresses the economic benefits of competition, thereby inhibiting economic growth.

Further, Pomfret and Sourdin (2010) showed that trade costs associated with tariff barriers (TBs) are now at a historically low level in many countries, though total trade costs remain high. Marceau and Trachtman (2002) argued that international trade tariffs nowadays generally considered low, because of the liberalization, first in 1994 in the sponsorships of the General Agreement on Tariffs and Trade (GATT), the World Trade Organization (WTO)

among member countries, and then under the regional and bilateral preferential trade agreements.

Consequently, after the agreement of WTO liberalization of bilateral and preferential trade policies have been originated and applied. Besides, only the tariff liberalization has confirmed unsuccessful for decreasing the overall trade costs. More attention should have been given to the trade costs associated with non-tariff barriers (NTBs), as they now the effects of the trade restriction represent major factors.

Trade costs associated with NTBs include mostly the trade policy-related cost, which happens from the start point of production right up to final consumer's revenue, with the exclusion of tariffs. Anderson and Wincoop (2004) stated that trade costs associated with NTBs included internal transport, customs, storage, port procedures, and marketing costs. Hoekman and Nicita (2008) argued that trade costs (especially associated with NTBs) are becoming a key negotiating field not alone for established economies then also for emerging economies. It is therefore important that especially developing countries are fully aware of the size and consequences of the trade costs associated with NTBs.

However, the rate of trade costs associated with NTBs in international trade has not been comprehended well. This is because the study of trade costs associated with NTBs did not keep up with their growing obstacles, leading to a knowledge gap. In this regard, the focus of the study is the quantification of trends in total trade costs for the bilateral trade of developing countries as an example of Pakistan. It may also investigate the Pakistani perspective in comparison with other partner countries.

Literature shows that Pakistan's economy has almost hit rock bottom due to the failure of the export sector (Khattak et al., 2011; Khan and Abasyn 2017 and Adams 2019). Pakistan's

export growth since 2001 has been in proportion and synchronization with the tariff liberalization. According to GoP (2018), the tariff liberalization has been reversed by gradually increasing the applied tariff to 10.09%; the exports declined by 19% to US\$ 20.4 billion since 2014. One of the major causes of the decline in exports was the increase in trade-related revenue through multiple layers of the TBs, NTBs, and other taxes of trade. Production of exports has been rendered less competitive internationally. As excessively employed, the TBs and NTBs of the trade costs have decreased competitiveness for the export industry by increasing the costs of inputs.

The fact is that exports to GDP ratio went down from 13.5% in 2010 to 8.2% in 2017², reflects the impact of higher tariffs on exports. The regulatory duties have increased from 105 tariff lines in 2013 to over 1500 tariff lines in 2017. Currently, Pakistan maintains the third-highest average weighted tariff amongst the 68 countries having more than US\$ 20 billion annual exports. The customs duty and regulatory duties on raw materials, intermediate goods, and machinery are even higher. Like, the replacement of 0% duty slab, covering primarily the raw materials and machinery, with a 3% duty slab is adversely affecting the competitiveness of the manufacturing sector from 2014 to 2017.

The number of duty slabs further increased to 5% in 2018 (GoP, 2018). To encourage exporters, a range of schemes is implemented to waive/refund import duties on their inputs; however, the advantages of such schemes could not be made use. As many exporters often fail to avail of the benefits of such exemption schemes or duty drawbacks, due to higher tariffs on raw materials and capital goods. Therefore, the trade costs associated with TBs and NTBs need to be examined and these policy barriers established leading to higher trade costs.

² Data is available at: <https://databank.worldbank.org/source/world-development-indicators>

The present study attempts to fill the gap as a better understanding by quantifying the trade costs associated with TBs and NTBs. And identifying in rising costs of trade which policy barriers that lead to higher trade costs. Also, the study would provide an analysis of the implications of bilateral trade costs as it contains several areas that require particular attention.

In this study, a comparison is provided with competitor countries to quantify trade costs. It is going to the help of policymakers devise correct policy responses and to strengthen their capacity to conduct more efficient trade policies for the development of export-led growth. In the same way, the study will help to guide where they are needed the required technical and financial resources. Also, the current research could lead to a fairer international trade agreement. It may help to improve multilateral dialogue on policy issues related to trade costs.

The structure of this paper is as follows: Section 2 provides an overview of the relevant literature. Section 3 presents the methodology and source of data. Section 4 shows the empirical results and discussion. Section 5 concludes and provides policy implications of this work.

2. Literature Review

Economies consistently engage in trade across borders and face TBs, quotas, and other NTBs that constitute trade costs. These barriers include a lot of obstacles that limit the capability of a country for accessing the global markets.

How high a policy obstacle to trade costs for bilateral trade flows? This apparently simple question cannot be typically answered with accurateness, especially for developing countries. Different studies have analyzed trade costs policy barriers, but this contribution is minimal. The present study attempts to fill the gap as a better understanding by quantifying the trade costs associated with TBs and NTBs. And identifying in rising bilateral costs of trade

which policy barriers that lead to higher trade costs especially for developing countries like Pakistan. Besides, the study would provide an analysis of the implications of bilateral trade costs as it contains several areas that require particular attention.

Ferrantino (2012) argued that the policy barriers along the supply chain developed hurdles for international trade. Following the observation of tariffs declining since the 1940s, he proposed that the government need to remove the restrictions of NTBs of trade costs. European Union partners most have declined their imports from developing countries due to greater NTBs. Stated by Bora et al. (2002), the developing world's economies are more risk-prone to NTBs as these are largely concentrated in agriculture, garments, iron, steel, and textiles. Mostly these are top exporting products; therefore, trade of developing countries affected by them. Ferrantino (2012) said that NTBs might bear additional costs in meeting mandatory standards, for the case of an emerging world and could lead to market failures.

Although discussing the case of Pakistan, Saleem et al. (2014) study show that TBs for India and Pakistan are relatively higher. Trade barriers are the result of economic, military conflicts, and politics between these two countries. Pakistani exports encounter India's overwhelming implementation of NTBs, i.e. regulatory and security requirements that hinder Pakistani exports to India. According to Altaf et al. (2016), the United States is the top in the list for the enormous application of NTBs to Pakistani exports. Imposing NTBs most restricted the textile and clothing products in Pakistan.

In the empirical literature, Ardakani et al. (2000) use a gravity model for estimating the trade impact on the trade flow of TBs and NTBs levied from importers. Their study showed a negative effect of NTBs, affecting greater than that of TBs. Anderson and Wincoop (2004) surveyed and estimated costs of trade for developed countries to be around 170 percent of

which costs of TBs were almost 44%. Along the same line, De (2007) worked on the effect of costs on trade in Asian countries. He used the gravity model and found several trade cost components, including TBs, negatively and significantly influencing international trade patterns. In the same vein, Kee et al. (2008) calculated an index of trade restrictiveness based on observed international TBs. They showed that tariffs represent a significant degree of trade costs. In a later work, Novy (2013) used the theory-based versions of the gravity model. He showed that NTBs affect international trade for the emerging world more than TBs.

The literature shows there is limited empirical research that documents the importance of trade cost covering the policy barriers particularly for developing countries. This is mainly because the data limitations make it difficult to document general trends in the preparation of trade cost and its policy barriers components like TBs and NTBs. Given the limitations in the available literature, it intends to contribute to the empirical literature, by analyzing the worldwide dataset to measure the trade costs associated with the policy barriers.

3. Methodology

This study measures the trade cost for 141 partner countries of trade for Pakistan for the period of 2003 to 2018. Trade costs associated with TBs and NTBs measures have provided in Appendix A. The present study derives a micro-founded model of bilateral costs of the trade from a theoretically based model of gravity, which circuitously deduces the frictions of the trade from perceived data. The gravity equation considered an important model for worldwide trade, as it links countries' bilateral trade to their economic size and bilateral trade costs.

Anderson and Wincoop (2004) described a micro-founded model of gravity, through the following exogenous bilateral trade costs:

$$X_{ij} = \frac{Y_i Y_j}{Y^w} \left(\frac{t_{ij}}{\Pi_i p_j} \right)^{1-\sigma} \quad \dots (1)$$

where,

X_{ij} represent the nominal exports of a country i to j , $\frac{Y_i Y_j}{Y^w}$, denotes the income share for partner countries and y^w is the world's income defined as $y^w \equiv \sum_j y_j$. $\left(\frac{t_{ij}}{\Pi_i p_j}\right)^{1-\sigma}$ indicates the bilateral trade barriers of partner countries; σ represents the elasticity of substitution for commodities. $\sigma > 1$ represents the greater willingness of consumers to exchange for two products between them. p_j and Π_i are country j 's and country i 's price indices proxies for multilateral resistance variables, which indicate the barriers each country endures during trade with all their trading members and can be expressed as average costs of trade. t_{ij} is symmetric bilateral costs of trade, which is the proxy for a distance. The assumption of symmetric trade costs means price indices p_j and Π_i are the same for both countries.

There is a range of disadvantages to this model, such as the selection of trade cost proxy of distance, which might be misspecified. This is a time-invariant proxy and it is not useful to capture the trade cost trends over time. The misspecified function of trade costs does not include the major components such as TBs and NTBs of related to trade costs, nor is it a theoretically dependent model of gravity for trade costs. The authors make the model simpler by assuming the trade costs as symmetric ($t_{ij}=t_{ji}$). While bilateral trade costs are asymmetric like as compare to other countries if one country levies greater tariffs.

Keeping in mind the aforementioned disadvantages, this study follows a Novy (2013) approach that supports to resolve these shortcomings by developing an empirical model for calculating bilateral trade costs. This approach does not depend on any specific function of trade costs and does not enforce symmetry of trade costs. This method analytically solves a theoretical equation of gravity for parameters of exchange costs that identify obstacles to

worldwide trade, like TBs and NTBs. It also indicates that a rise in bilateral trade obstacles affects not only national trade but also global trade. In this situation, certain products, the country ‘i’ used to buy locally (intra-nationally) are nowadays transported abroad. So this is not only the volume of global trade that relies on obstacles to trade with the remaining world but similarly the sum of intra-national commerce.

To obtain a bidirectional micro-founded theoretical based gravity equation, multiply Equation (1) with the opposite direction (X_{ji}) for trade flow are given as follows:

$$X_{ij}X_{ji} = \left(\frac{Y_i Y_j}{Y^w}\right)^2 \left(\frac{t_{ij} t_{ji}}{\Pi_i p_i \Pi_j p_j}\right)^{(1-\sigma)} \quad \dots (2)$$

The same way domestic trade flows are:

$$X_{ii}X_{jj} = \left(\frac{Y_i Y_j}{Y^w}\right)^2 \left(\frac{t_{ii} t_{jj}}{\Pi_i p_i \Pi_j p_j}\right)^{(1-\sigma)} \quad \dots (3)$$

By dividing Equation (3) with Equation (2) we get

$$\frac{X_{ij}X_{ji}}{X_{ii}X_{jj}} = \frac{\left(\frac{Y_i Y_j}{Y^w}\right)^2 \left(\frac{t_{ij} t_{ji}}{\Pi_i p_i \Pi_j p_j}\right)^{(1-\sigma)}}{\left(\frac{Y_i Y_j}{Y^w}\right)^2 \left(\frac{t_{ii} t_{jj}}{\Pi_i p_i \Pi_j p_j}\right)^{(1-\sigma)}}$$

Or,

$$\frac{X_{ij}X_{ji}}{X_{ii}X_{jj}} = \left(\frac{\frac{t_{ij} t_{ji}}{\Pi_i p_i \Pi_j p_j}}{\frac{t_{ii} t_{jj}}{\Pi_i p_i \Pi_j p_j}}\right)^{(1-\sigma)} = \left(\frac{t_{ij} t_{ji}}{t_{ii} t_{jj}}\right)^{(1-\sigma)}$$

By taking square-root (for the geometric average trade costs) and rearranging yields

$$\left(\frac{t_{ij} t_{ji}}{t_{ii} t_{jj}}\right)^{\frac{1}{2}} = \left(\frac{X_{ii} X_{jj}}{X_{ij} X_{ji}}\right)^{\frac{1}{2(\sigma-1)}} \quad \dots (4)$$

As shipping costs can be asymmetric between i and j, $(t_{ij} \neq t_{ji})$ represents as national costs of trade can vary crosswise countries. It is valuable to take the geometric average of the

obstacles in both ways (which reveals the critical bidirectional tendency of barriers to exchange costs and help identify the impact of policy barriers). It is also beneficial to subtract one to get a look for the tariff equivalent in the fraction of the value of the goods to indicate bilateral costs of trade. The resultant measure for costs of trade is denoted as τ_{ij}

$$\tau_{ij} \equiv \left(\frac{t_{ij}t_{ji}}{t_{ii}t_{jj}} \right)^{\frac{1}{2}} - 1 = \left(\frac{X_{ii}X_{jj}}{X_{ij}X_{ji}} \right)^{\frac{1}{2(\sigma-1)}} - 1 \quad \dots (5)$$

where,

τ_{ij} = Geometric average of trade cost between countries i and j .

$t_{ij}t_{ji}$ = International (bilateral) trade cost from country i to j and j to i .

$t_{ii}t_{jj}$ = Intranational (domestic) trade cost for country i and j .

$X_{ij}X_{ji}$ = International (bilateral) trade flow from country i to j and j to i .

$X_{ii}X_{jj}$ = Intranational (domestic) trade flow for country i and j .

δ = Elasticity of substitution (which is set = 8, based on Novy (2013)).

where τ_{ij} measures the bilaterally costs of trade, $t_{ij}t_{ji}$ indicate the relative costs of trade, domestically costs of trade represented by $t_{ii}t_{jj}$. Therefore, the estimates do not enforce national trade frictionless and capture what makes global trade more costly than national trade. It also calculates costs of trade in its broader sense, counting not only global costs of transport and tariffs TBs but also adds other elements for costs of trade addressed by Anderson and Wincoop research (2004). These include direct and indirect costs associated with language differences, currencies processes for import, and export. The elasticity of substitution set equivalent to 8 such as measured by Anderson and Wincoop (2004), which is the mid-range of 5 to 10 intended for the elasticity of substitution in all the calculations.

The rationale is clear behind τ_{ij} . If bilateral trade flow $X_{ij}X_{ji}$ increases relative to domestic trade flow $X_{ii}X_{jj}$. Trade between the two countries must become easier compared with domestic trade. This is taken by a reduction in τ_{ij} etc. Therefore, calculation measures economic costs indirectly by inferring them from measurable flows of exchange. Since these trading flows differ over time, not simply for cross-sectional data but similarly for panel and time-series data can be estimated for trading costs τ_{ij} . This is a benefit above the technique that Anderson and Wincoop (2004) have adopted which is used only cross-sectional data. This is also significant to emphasize that two-sided trade costs are considered as asymmetric ($t_{ij} \neq t_{ji}$), instead of symmetric as measured by Anderson and Wincoop (2004) and that bilateral trade flows might be unbalanced ($X_{ij} \neq X_{ji}$).

3.1 Bilateral Trade Costs Associated with TBs

The bilateral trade costs associated with TBs is a measure of the tariffs levied by the two-member countries for each other's imports. The traditional trade models such as (Melitz 2003; Eaton and Kortum 2002 and Melitz and Ottaviano 2008) specifically explain that exporting countries have a greater number of exporters with large productive firms and goods sent to foreign markets. On the other side, if exporting countries have high trade costs due to TBs, these measures forecast a decline in the total number of exporters, and hence several goods are exported. Nevertheless, they do not openly solve the problem of empirically measuring the extent of the effects of these policy barriers. This study empirically defines the bilateral costs associated with TBs as follow:

$$GATTC_{ij} = \sqrt{(1 + tariff_{ij})(1 + tariff_{ji})} \quad \dots (6)$$

where,

$GATTC_{ij}$ = *Bilateral geometric mean/average tariff trade cost.*

$tariff_{ij}$ = *AHS dutiable tariff lines share (%) imposed by country i on country j.*

$tariff_{ji}$ = *AHS dutiable tariff lines share (%) imposed by country j on country i.*

The TBs related to trade costs are calculated using effectively applied (AHS) dutiable tariff lines percentage share for all products. The calculation of this rate takes into consideration the categories in which tariffs are essentially imposed and disregards all other categories in which the tariffs are set to zero. Presently, this model would provide a greater estimation of average tariffs than the maximum of the other estimates as several countries have various categories of products with zero tariffs imposed.

The simple average tariffs exaggerate the degree of trade costs if a nation has the majority of its trade in a rare category with the zero tariffs, but has greater tariffs in many other import categories where imports would not ever be valuable. By using a weighted average tariff this issue can be ignored to some degree. Like, supposing a nation has comparatively minimum trade because it has excessive tariffs (i.e. as to eliminate imports set higher tariffs) in several categories, then for such a highly protectionist country, a low tariff trade cost could be reported. It can also be noted that the simple average tariff would, in this case, record higher tariff trade costs. Using the regular tariff rate at dutiable imports for all products is the best way to exaggerate the level of tariff exchange costs.

Such as for the year 2018 Pakistan impose tariff on China's products are 62.12%, while China impose tariff on Pakistan's products are 67.73%. Thus, the bilateral tariff trade cost is $\sqrt{(1 + 0.6212)(1 + 0.6773)} = 1.6490$. Stated in ad valorem equivalent method, the

geometric mean/average bilateral tariff levied by Pakistan and China is $(1.6490-1) = 64.86\%$ (see Table 2).

3.2 *Bilateral Trade Costs Associated with NTBs*

Trade costs associated with NTBs are not easy to define. Their measurement is a multifaceted task that is faced with specific quantitative restrictions and limited accessibility of the data. To overcome this problem, by following Anderson and Wincoop (2004), this research analyzes the bilateral costs of trade associated with NTBs, which includes all other costs except tariffs for trading goods as follows:

$$NTC_{ij} = \left(\left(\frac{1 + (t_{ij}/100)}{GATTC_{ij}} \right) - 1 \right) \times 100 \quad \dots (7)$$

where,

NTC_{ij} = trade cost associated with NTBs.

t_{ij} = Bilateral trade cost.

$GATTC_{ij}$ = Geometric mean or average tariff trade costs.

Like total trade cost between Pakistan-China in 2018 is 2.263952 (while in ad valorem equivalent form it is 126.39521) and geometric mean or average bilateral tariff cost is 1.0756575. Then non-tariff trade cost without tariff trade cost is $((2.263952/1.0756575)-1)*100 = 110.47\%$ (see Table 3). This measure of non-tariff trade cost is best applicable as this research more focus on to facilitate the exporters for their export.

4. Results and Discussion

4.1 *Total Trade Costs*

The countries for which trade costs can be estimated in the sample for all years were only considered for analysis. Table 1 represents that the trend in the costs of trade is declining and this

trend is fairly steady worldwide. Results show that a steady historical reduction in the costs of trade trend stayed undoubtedly one of the main reasons for the rise of worldwide trade flows to the extent that almost every country trades more today than it did decades ago.

The findings revealed the growth rate of world trade increases because of the decline in the costs of trade. The declining trend in trade costs for Pakistan is comparatively low compared to the world. The trade cost values are calculated in ad valorem equivalents. The total value of the trade cost indicators varies greatly, including in ad valorem form, depending on the underlying assumptions regarding the value of the elasticity of substitution.³ This estimated trade cost should therefore ideally be used for comparative analysis or to analyze changes in trade costs over time.

In 2003, the ad valorem equivalent trade cost for all trading goods between Pakistan and partner countries was 274% (see Table 1). It indicates that, on average, trade in goods between Pakistan and the partner countries concerned for all tradable goods imposes an additional cost of approximately 274% of the value of the goods when Pakistan trade these goods within its borders.

Table 1 show that the difference of decreasing trend in the costs of trade for Pakistan in comparison to the world as a whole was almost 40% less in 2003. This gap of a trend instead of decreasing became larger to around 67% in 2018. Results show that variance in the rate of this declining trend of trade costs in comparison to developed countries is also lower, as in 2003 for the United States, the United Kingdom, and Germany it was 131%, 127%, and 105% respectively lower. In 2018, it increased to approximately 156%, 150%, and 127% respectively for the same countries, which are correspondingly higher amounts.

Further, In comparison with emerging countries such as India and China, the gap of the rate in declining trend of trade costs for 2003 was almost 49% and 87% respectively lower. In 2018,

³ Based on the literature review the elasticity of substitution set equal to 8. See Jacks et al. (2008) for more details.

the gap in declining trend steadily increased by 74% and 115% respectively. The country's relative position is, nonetheless, deteriorating because the reduction in the costs of trade for the rest of the world is faster than Pakistan (Table 1).

Table 1 Average Bilateral Trade Costs for World, Pakistan, India, China, USA, UK and Germany

Year	World	Pakistan	India	China	USA	UK	Germany
2003	234	274	209	171	143	147	169
2004	233	274	209	170	143	147	168
2005	233	273	207	169	142	146	168
2006	232	272	207	168	142	145	167
2007	228	271	205	166	141	145	166
2008	225	269	205	166	139	144	164
2009	223	268	202	164	136	142	161
2010	222	266	201	163	133	138	157
2011	221	266	201	162	129	137	154
2012	215	265	200	159	126	134	150
2013	211	263	197	158	122	129	148
2014	203	260	193	155	118	126	144
2015	201	260	190	151	113	117	140
2016	198	259	187	148	111	113	135
2017	195	259	185	144	108	111	133
2018	191	258	184	143	102	108	131

Source: Author's calculations.

Note: The costs of trade are estimated in ad valorem equivalent form.

This decline of trade costs with small tendencies because of the trade restrictions, political uncertainty, and strict procedures for licensing permits, fluctuations in global economic policies such as trade protectionism and visa hassles (Kee et al., 2008). There are also many other factors behind the less decreasing trade costs trend; includes less trade liberalization, currency restrictions, minimum trade facilitation, scarce energy supplies, and no corporate taxation. Technological factors are also responsible for Pakistan's slow declining trend of trade costs compared with other partner countries.

The net result for higher trade costs is a decline in the export flows of Pakistan to the international markets. As the declining trends of trade costs become smaller (Table 1), in the same way, exports lead to negative growth. This negative growth or decline in exports was reached to around 12.4% for the FY 2014-2016 (GoP, 2018). Such as not enough attention is paid to the issue of trade cost shows the inability of Pakistan to export its potential from the last two decades. Since the government's lack of support in terms of regulations, legislation, and institutional support, etc., hurts further export growth.

Figure 1 also show empirical facts in the support of Pakistan's low export share to partner countries because of the higher costs of trade. As a first look at the data, Figure 1 represents that the export share more than 70 to 80% was going to limited partner countries (China, UK, USA, U.A.E, Bangladesh, Afghanistan, Spain, Germany, France, and Italy) due to the different size of their costs of trade.

Figure 1 Export Partner Share and Bilateral Trade Costs of Pakistan

Source: Author's calculations, export's share data taken from WITS.

Therefore the difference in the costs of trade for different countries accounts for the difference in the share of exports to them. This suggests that merchandise goods are not exported more to those partners with them trade costs are large, it holds for a large range of countries. For that, one can see that maximum export share to partner countries are below the forty-five-degree line in Figure 1. This indicates that higher trade costs lower down the speed of exports growing in Pakistan. This empirical fact is consistent with a greater number of studies in the literature for the trade costs, which also finds that export has been seen on the continuous decline because of the imposition of large trade costs (Brenton et al., 2001; De, 2007 and Were 2014).

In these conditions, creating a structure and guidelines to assist and reduce the costs of trade faced by their exporters is a policy challenge. Only then it will be in a position to participate efficiently in the global value chain and supply for long-term development. As lower and more competitive trade costs encourage the countries to move up in the global value chains

(GVCs). Therefore, a need for the adoption of efficient trade policies is essential for the future faster decline of trade costs and to promote international trade.

4.2 Costs of Trade Associated with Policy Barriers

4.2.1 Trade Costs Associated with TBs

In the quantification of trade costs associated with TBs for Pakistani exporters levied by partner countries, Table 2 shows the declining trend. Results show that the extent of this decreasing tariff trade cost becomes less, when compared from the year 2003 to 2018 for developed partner countries. The declining trend in developed partner countries likes for the United States, the United Kingdom, and Germany in 2003 was nearly 12.86%, 71.01%, and 65.35% respectively. This trend decreased, but with a small proportion in 2018, nearly 11.89%, 66.45%, and 64.74% respectively. Pakistan's three largest trading partners are not regional neighbors, but they represent its relatively large export markets. GSP+ status allows Pakistan duty-free access to the European market at zero tariffs and preferential rates of 70%. A declining trend in trade costs associated with TBs, but with a small proportion gives a way of thinking in promoting further bilateral free trade agreements and liberalizing trade with them.

Table 2 reflects, in comparison with developing partners like China, India, Afghanistan, Sri Lanka, and Bangladesh, trade costs associated with TBs trends are also falling with more rates. The decline rate of the costs related to TBs for these countries was around 63.52%, 59.06%, 62.34%, 65.24%, and 58.29% respectively in 2003. This trend is more declining at 68.57%, 65.48%, 64.02%, 67.98% and 61.76% respectively in 2018.

This is because the maximum standard tariff rate for developing partner countries was also reduced after becoming a member of the South Asian Association for Regional Cooperation (SAARC) and the Economic Cooperation Organization (ECO). Successive rounds

of multilateral trade negotiations have also helped to bring about substantial reductions in trade costs associated with TBs.

Multilateral negotiations under WTO auspices have brought tariffs down to historic lows for Pakistan in the last two decades. Goods tariffs were also lowered during the eight rounds of WTO and GATT negotiations. The free trade agreements (FTAs) with developing partner countries include the removal of Pakistan's quotas, tariffs and other barriers to international trade. Pakistan has signed various FTAs and preferential trade agreements (PTAs) with its developing trade partners. Such as, in the South Asian region, since June 2005 Pakistan has FTA with Sri Lanka. Under this FTA Pakistani exporters enjoy duty-free market access in the Sri Lankan. The FTA between China and Pakistan was also approved in 2006. Under this FTA tariff on Pakistani exports to China, 50% of the product lines have been removed. Pakistan and Malaysia signed FTA in 2007, whereby Malaysia abolished tariffs for imports from Pakistan by nearly 78%⁴.

Similarly, Pakistan has also a PTA with Iran and Mauritius. The Pakistan-Mauritius PTA was signed in 2007, in which Mauritius granted tariff concessions on 102 Pakistani products/items. Iran in its PTA offered Pakistan tariff concessions on 309 tariff lines. Likewise, the South Asian Free Trade Area (SAFTA) is yet another important trade agreement between Pakistan and several other South Asian countries formed in 2006. Nonetheless, Pakistan was not very successful in exploring the full potential of these trade agreements because of poor trade policies and less responsive in reducing its costs of trade.

⁴ See for more detail, ministry of commerce .
Available at: <http://www.commerce.gov.pk/>

Table 2 Average Bilateral Tariff Barriers Trade Costs of Pakistan with World and Major Partner Countries

Year	World	USA	UK	Germany	China	Afghanistan	India	Sri Lanka	Bangladesh
2003	79.25	66.39	8.24	13.90	15.73	16.91	20.19	14.01	20.96
2004	79.02	62.84	8.04	12.84	11.82	15.81	20.76	14.27	19.64
2005	84.12	63.50	9.35	12.69	9.81	13.83	15.40	14.33	17.41
2006	82.54	62.37	9.45	10.69	9.74	11.49	15.41	10.80	18.68
2007	82.28	62.80	9.29	9.62	8.91	10.38	14.83	9.53	17.85
2008	79.81	61.62	8.80	9.58	8.59	10.23	14.40	7.84	16.35
2009	79.36	61.40	9.26	9.54	8.21	10.18	11.14	12.31	17.82
2010	76.97	60.77	9.20	9.51	7.53	9.87	8.61	10.54	17.29
2011	6.29	60.41	9.51	9.50	7.33	9.64	7.40	5.00	17.97
2012	75.28	60.65	9.18	8.89	6.56	9.59	7.73	5.85	18.04
2013	75.75	60.08	9.20	8.88	5.89	9.59	13.12	10.23	17.61
2014	73.64	62.13	7.70	8.83	5.60	9.48	11.13	4.34	14.32
2015	75.33	62.36	7.10	8.83	5.24	9.42	10.69	3.48	10.39
2016	74.77	61.83	7.00	8.72	5.19	9.42	7.59	3.60	11.22
2017	73.23	63.15	6.89	8.71	5.17	9.41	7.62	5.06	11.22
2018	73.43	61.54	6.98	8.69	4.86	9.41	7.95	5.45	11.67

Source: Author's calculation.

Note: The trade costs are estimated in ad valorem equivalent form.

Exports, however, do not flow freely between partner countries, even among those with excellent relations in Pakistan. Still, the potential benefits of further reducing the barrier to partner countries in Pakistan are important. Table 2 results show that greater export flows could occur, especially among neighboring countries if tariffs for all Pakistani products are more liberalized.

4.2.2 Trade Costs Associated with NTBs

Between 2003 and 2018, the increase in trade costs associated with NTBs for Pakistan is rising. Table 3 illustrates this growing trend with world and also with its major partners. Results indicate that these trade cost trends are more or greater than Pakistan's trade costs associated with TBs and vary enormously across its partners. This reflects trade costs associated with NTBs restricted the increasing trade flows with partners.

Another important finding from this study is that the rate of growing trends in trade costs associated with NTBs to developed countries is greater than that of emerging countries. For example, developed members; the United States, the United Kingdom, and Germany showed an increasing trend in trade costs associated with NTBs around 45.55%, 45.77.8%, and 44.05% respectively in 2003. While this trend rises in a higher proportion in 2018, for the same partner countries, approximately 112.42%, 112%, and 100.14% respectively.

In developing countries like China, India, Afghanistan, Sri Lanka, and Bangladesh, the rising trend in trade costs related to NTBs was around 39.36%, 16.32%, 86.75%, 55.01%, and 47.33%, respectively. In 2018, this rising trend rate increased to almost 115.86%, 90.21%, 127.46%, 84.6% and 107.34% respectively.

Table 3 Average Bilateral Non-Tariff Barriers Trade costs of Pakistan with World and Major Trading Partner Countries

Year	World	USA	UK	Germany	China	Afghanistan	India	Sri Lanka	Bangladesh
2003	152.84	107.29	107.07	108.79	113.48	66.09	136.52	97.83	105.51
2004	156.58	108.10	106.74	110.71	113.76	66.31	122.05	97.84	106.17
2005	177.41	109.11	103.11	113.08	109.40	66.77	114.84	95.88	102.17
2006	190.30	99.26	106.49	116.32	109.51	67.02	107.60	99.39	106.60
2007	198.76	103.64	114.41	116.55	112.14	67.63	113.06	104.46	103.02
2008	201.67	109.09	116.84	116.81	119.73	68.81	112.34	114.06	107.59
2009	204.46	109.80	112.96	119.57	111.40	72.29	127.35	109.39	109.56
2010	206.06	107.87	109.83	119.75	105.85	80.21	128.56	114.44	100.96
2011	212.53	112.57	109.26	120.57	111.27	77.62	142.40	126.34	98.81
2012	213.11	122.41	112.42	122.89	106.06	86.45	139.19	126.22	107.73
2013	214.07	120.22	111.29	123.44	100.33	89.29	117.87	115.88	113.11
2014	216.13	124.49	113.38	124.53	106.22	85.38	124.69	143.29	124.50
2015	217.45	122.81	119.00	124.94	107.66	78.78	133.24	147.84	137.92
2016	218.38	121.98	114.90	125.21	109.13	77.49	142.03	150.75	117.95
2017	221.10	117.57	116.12	126.15	112.17	95.84	144.53	144.24	118.97
2018	226.33	113.91	114.33	126.19	110.47	98.87	136.12	141.73	118.99

Source: Author's calculation.

Note: The trade costs are estimated in ad valorem equivalent form.

Because of poor connectivity, less trade facilitation, less favorable concessional arrangements, and a strict security paradigm, trade costs related to NTBs are becoming a major challenge for Pakistan and raising the price of its exported goods particularly for the countries of neighboring partners.

Higher trade costs related to NTBs, not lone cost Pakistan global trade, but similarly demonstrate that the major achievements of Pakistan's bilateral FTAs, RTAs, and liberalization of the economy have not fully achieved trade gains. This growing trend in trade costs associated with NTBs further raise trade costs and likely diminishes Pakistan's opportunities for new trade and investment. Pakistan frequently struggles to access international markets due to greater costs of policy constraints particularly related to NTBs. Policy initiatives that go well beyond the limits of the conventional trade policy need to be addressed. There is a need for a policy framework that involves reducing the trade costs associated with NTBs.

5 Conclusion

This study aims to quantify trends in total trade costs, to find out the trend in bilateral trade costs and whether developing countries like Pakistan has experienced higher or lower costs compared to other partner countries and the world as a whole. And to analyze estimates of the trend in the costs of trade over the years related to policy barriers (such as TBs and NTBs). To quantify the costs of trade-related to TBs and NTBs and to find out which trade cost policy barriers are large. The empirical analysis was shown using trade data for 141 trading partners for the period 2003–2018.

Empirical results show that, compared to other countries in the world, Pakistan has the lowest rate of a declining trend in total trade costs. Trade costs are declining with small trends due to trade restrictions, political uncertainty, and restrictive licensing procedures and visa

difficulties. These also act as a barrier to the export of products, since most of the inputs to produce exported goods are imported only through designated ports and roads, the restricted number of export commodities, etc. It indicates that there is still substantial room to further lower them.

The consequences of a continuously increasing pattern of costs of trade associated with NTBs are also an essential cause of why the costs of trade mainly for developing countries remain stubbornly higher. The empirical conclusion is that trade costs associated with NTBs greater or more than Pakistan's TBs related trade costs, especially with developing countries. As a result, economies can forego opportunities to engage in global trade if exporters decide that the cost of meeting additional market requirements is too high. The policy barriers become the key constraints, particularly for exporters.

5.1 Policy Implications

The success of trade liberalization depends heavily on the ability to control trade costs, particularly in terms of the NTBs imposed costs on exporters. In the same way, quotas, prohibitions, export taxes, marketing costs, port processes, internal transport processes, storage, and other voluntary export restrictions are enforced at the border, i.e. for goods entering or exiting the State. Nonetheless, this needs an innovative policy response in line with current trade facilitation trends, effective border clearing procedures, etc. In this regard, the principles that should guide regulatory practices are as follows:

- Policymakers should remove these trade costs using clear rules and should urge all member countries to reduce trade costs associated with TBs and NTBs by developing their bilateral, multilateral, and FTAs.

- There are currently numerous efforts being made to facilitate trade at national, international, and multilateral forums. Developing countries need to take an active part in these efforts to benefit from changing global trade patterns. Two current initiatives are the WTO's trade facilitation agreement (TFA), and the US-led mega trading blocks in Asia and Europe (Trans-Pacific Partnership and Transatlantic Trade and Investment Partnership agreements). Active engagement in these programs could expand the developing economies like Pakistan by promoting export-oriented organizations and lowering the trade cost of policy barriers.
- For reducing the trade costs associated with NTBs, the partner countries should avoid using rules which limit exports. They should redesign procedural verification compliance and other paper transactions between administrations and producers or suppliers, thereby reducing red tape. Effective measures must be taken by the custom dealings, reducing port inefficiencies, revamping internal connectivity, reducing corruption, and enhancing other trade-related institutional and socio-political factors. Such policy regulatory measures among trading partners have the power not only to minimize the trading costs but also to modernize administrative operations.
- Trade costs can be reduced by dialog and information exchange with partner countries. The government should create a standing task force that periodically analyses changes in partner countries' trade policies, assesses the effect of those policies on reducing trade costs, and reacts in real-time with counter-policy interests in reducing trade costs. In this way, regulators become another important tool for international collaboration to raise trade costs.

These principles constitute a long-term goal for developing countries like Pakistan to reduce the bilateral trade costs. The above regulation of government policy reforms suggests a way for the central role among trading partner countries.

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Authors' contributions

Shabana Noureen is the main author of the manuscript; she undertook the literature review, developed the theoretical framework, collected and analyzed the data from the different sources. Zafar Mahmood is a co-author of this manuscript; he approved the research idea, supported the empirical data analysis, and gave suggestions and comments. Both authors read and approved the final manuscript.

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Availability of data and materials

Intra-national trade flows (domestic output minus exports) data have been collected from EU Klems (capital, labor, energy, materials, and service), OECD (Organization for Economic Co-operation and Development) STAN (Structural Analysis Statistics), OECD I/O (Input/ Output) tables, UN-ESCAP (United Nations Economic and Social Commission for Asia and the Pacific), Trading Across Borders Data, WDI (World Development Indicators), Direction of Trade Statistics and complemented with national data.

Data for international trade flows have been collected from OECD ITCS (International Trade by Commodity Statistics), UN COMTRADE, whereas the bilateral tariffs data have been obtained from WITS (World Integrated Trade Solution), WTO (World Trade Organization) and UNCTAD (United Nations Conference on Trade and

Development) TRAINS (Trade Analysis Information System). Linear interpolation has been used to fill in the missing observations.

Competing interests

The authors declare that they have no competing interests.

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Appendix A

(Average 2003 -2008)

Sr. No	Partner Countries	Total Trade Costs	Tariff Trade Costs	Non-Tariff Trade Costs
1	Afghanistan	170.961	14.68167	122.4316
2	Algeria	94.11692	6.243329	79.61848
3	Angola	266.0625	14.07962	134.6374
4	Argentina	58.1691	8.752449	39.65365
5	Armenia	331.4433	16.73657	341.9217
6	Austria	53.8109	16.88966	16.74214
7	Azerbaijan	71.04378	13.63303	93.22906
8	Bahrain	108.9848	14.59795	66.61136
9	Bangladesh	118.8821	12.36075	90.47015
10	Barbados	195.1223	11.50377	184.2244
11	Belarus	21.10932	11.56256	36.8993
12	Belgium	141.0213	16.55838	94.5618
13	Benin	40.47365	12.13866	16.08781
14	Bolivia	183.3172	13.26315	172.9251
15	Bosnia & Herzegovina	219.5312	11.93276	213.1658
16	Botswana	246.8945	12.2511	237.9227
17	Brazil	43.87928	8.234073	28.6998
18	Brunei	221.0192	15.92977	232.9577
19	Bulgaria	55.06635	15.85517	18.04503

20	Cambodia	30.12426	11.87197	44.89358
21	Cameroon	20.15004	10.00824	2.015692
22	Canada	103.5157	15.75209	62.67028
23	Central African Republic	289.8097	11.34084	268.1712
24	Chad	170.8293	8.470464	157.0955
25	Chile	40.06443	14.65458	8.975959
26	China	135.6989	15.09346	91.14995
27	Colombia	22.69762	12.316	41.70231
28	Congo, Dem. Rep.	131.7259	14.05193	141.1647
29	Costa Rica	134.1644	15.68286	148.808
30	Cote d'Ivoire	30.14849	12.65065	10.61758
31	Croatia	7.755126	15.19682	38.77003
32	Cyprus	1.809173	13.93	28.43452
33	Czech Republic	74.13995	16.39069	32.77892
34	Denmark	92.54745	16.42656	50.64097
35	Dominican Republic	132.8231	11.93116	129.5722
36	Ecuador	154.1961	8.705811	145.4323
37	Egypt, Arab Rep.	88.5852	8.261001	65.58367
38	El Salvador	171.0084	12.79722	185.3572
39	Equatorial Guinea	283.4711	4.531311	229.7646
40	Estonia	111.2522	17.17595	12.8197
41	Ethiopia(excludes	262.2342	12.6457	30.85875

	Eritrea)			
42	Fiji	187.5156	11.39253	183.1019
43	Finland	72.22315	17.19917	32.58974
44	Fm Sudan	11.39783	13.34881	27.03333
45	France	112.5371	17.26116	66.15956
46	Gambia, The	51.27029	9.680306	69.07072
47	Georgia	110.9839	15.46065	133.7284
48	Germany	129.5032	16.55592	81.97908
49	Ghana	63.49084	10.93046	74.7203
50	Greece	59.93231	16.62796	22.62067
51	Guatemala	23.89782	15.43757	12.86194
52	Guyana	62.44444	13.70168	82.27827
53	Honduras	99.45846	11.41414	103.2714
54	Hong Kong, China	127.5505	17.64396	80.38369
55	Hungary	67.41123	16.67598	21.41722
56	Iceland	199.2309	15.22367	219.0957
57	India	111.6653	13.48805	91.29868
58	Indonesia	101.4218	12.67899	66.04922
59	Iran, Islamic Rep.	107.7059	6.257303	85.92795
60	Ireland	62.43083	17.1217	23.45911
61	Italy	121.2416	16.75755	75.42147
62	Jamaica	236.5981	10.08747	221.9319
63	Japan	83.35216	15.07451	48.75778

64	Jordan	74.16801	11.73383	44.47097
65	Kazakhstan	10.3447	15.19504	36.78124
66	Kenya	144.6941	10.15553	110.1769
67	Korea, Rep.	109.4884	11.4211	77.07384
68	Kuwait	124.1321	15.32291	82.34724
69	Kyrgyz Republic	114.403	17.03849	141.9144
70	Lao PDR	203.8572	11.86205	158.7626
71	Latvia	50.83404	17.63621	9.556703
72	Lebanon	42.88956	13.07734	12.32561
73	Lesotho	32.24658	4.981373	44.18729
74	Liberia	99.26674	13.20974	119.5004
75	Lithuania	64.10288	17.63459	22.18313
76	Luxembourg	70.05161	16.96549	99.11766
77	Macedonia, FYR	232.8615	9.880139	171.276
78	Madagascar	67.00026	13.90809	32.85418
79	Malawi	48.30541	11.31043	62.59064
80	Malaysia	145.4649	13.93964	98.49519
81	Mali	87.903	11.44639	94.87375
82	Malta	55.49247	15.6491	98.45648
83	Mauritania	75.04427	12.75841	92.15166
84	Mauritius	16.86516	14.88312	51.21461
85	Mexico	23.76974	10.52735	3.613805
86	Moldova	172.9585	15.704	188.6881

87	Mongolia	429.6747	18.26865	450.5825
88	Morocco	80.46984	5.812117	63.60097
89	Mozambique	37.24347	14.17821	5.541503
90	Myanmar	35.07677	15.79248	52.40344
91	Namibia	161.1358	8.106598	154.1157
92	Nepal	75.53462	12.6579	89.60019
93	Netherlands	49.07908	17.44328	72.19784
94	New Zealand	48.75278	15.62556	20.66587
95	Nicaragua	44.09157	11.20112	149.1953
96	Niger	128.0102	13.69624	143.7887
97	Nigeria	65.19015	10.47253	72.69235
98	Norway	24.40927	16.59685	10.53053
99	Oman	128.399	14.79186	87.83453
100	Panama	138.05	14.8639	152.6679
101	Papua New Guinea	127.3184	12.51638	135.2955
102	Paraguay	57.2059	11.37564	68.66883
103	Peru	37.00884	14.77176	62.01264
104	Philippines	58.36716	12.2372	30.5056
105	Poland	53.16713	16.0553	27.54976
106	Portugal	76.16298	16.90272	35.02916
107	Qatar	85.84266	15.49042	47.93848
108	Romania	34.50641	14.23393	3.212794
109	Russian Federation	67.62364	13.54558	35.09664

110	Rwanda	210.9273	9.291923	189.4062
111	Saudi Arabia	140.3432	15.32784	96.60952
112	Senegal	23.43875	12.49615	42.59416
113	Singapore	26.94141	18.12101	13.56459
114	Slovak Republic	137.5779	16.49875	145.6775
115	Slovenia	64.55243	16.04065	27.64119
116	South Africa	99.08988	9.456853	71.81931
117	Spain	104.4527	17.46274	58.69412
118	Sri Lanka	127.583	13.57841	95.1024
119	Suriname	214.339	14.71343	264.3925
120	Swaziland	223.1364	9.759436	211.1951
121	Sweden	99.86397	17.20477	57.44289
122	Switzerland	69.60507	15.4427	35.07791
123	Syrian Arab Republic	7.430358	11.09519	90.99744
124	Tajikistan	35.34986	14.27209	49.86606
125	Tanzania	67.88499	13.37981	33.60601
126	Thailand	101.9763	9.29075	82.69406
127	Togo	43.72618	10.79163	10.84155
128	Trinidad and Tobago	156.6664	11.42131	148.2195
129	Tunisia	23.24994	3.975042	19.34926
130	Turkey	100.4113	15.35926	62.06182
131	Uganda	59.41723	13.09084	77.71328
132	Ukraine	94.20039	14.69071	55.81731

133	United Arab Emirates	165.7166	1.618697	122.0264
134	United Kingdom	138.6357	16.23023	97.12645
135	United States	130.2779	13.94394	87.18809
136	Uruguay	13.56985	11.10848	30.73179
137	Uzbekistan	30.5403	13.9219	78.74199
138	Vietnam	19.52577	9.577114	4.557747
139	Yemen	27.07306	15.36824	1.843161
140	Zambia	68.79035	12.19625	88.23256
141	Zimbabwe	75.29946	9.720767	86.41676