Determinants of Trade Cost of Agriculture and Manufacturing Sectors of Pakistan

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Determinants of Trade Cost of Agriculture and Manufacturing Sectors of Pakistan

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In the Name of Allah, the most Beneficent, the most Merciful"

DEDICATION

I dedicate this self-effacing endeavor, the fruit of my thoughts and study to those, who taught me how to walk and survive in this world, who have been a source of inspiration for me, My

PARENTS

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Raheela Kosar

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ABSTRACT

Determinants of Trade Cost of Agriculture and Manufacturing Sectors of Pakistan

Trade cost is considered as a driving force of bilateral trade pattern, thus impede economic integration. Trade cost forms a potentially imperative barrier to trade. Higher trade costs are an obstacle to trade and lessen the gains from trade. Determinants of trade costs of Pakistan with its leading export partners: Bangladesh, China, India, Italy, Korea, Kenya, Turkey, Saudi Arabia and Sri Lanka are investigated for the period of 2002-2017. Some gravity model variables are deployed for analysis of determinants of trade cost. For agricultural and manufacturing sectors, trade cost is calculated by applying a micro-founded trade costs measure. Estimation results of the analysis indicate that trade costs equivalents show a decreasing trend during the period of study. Estimated generalized least square model indicates that tariff, inflation and distance raises the bilateral trade costs; whereas, advancement in port infrastructure and devaluation of exchange rate reduce bilateral trade costs significantly. The comparative results also indicate that trade cost for agriculture sector of Pakistan is higher as compared to manufacturing sector. The study recommends that effective policy measures should be taken to reduce trade cost for agriculture exports specifically. Bilateral tariff and inflation need to be lessened to promote trade.

Keywords: Trade costs, Gravity model, LSCI, exchange rate, Pakistan

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Chapter 1

Introduction

1.1. Background

The trade costs fundamentally influence worldwide trade brought about domestic and international factors. Trade costs form a potentially imperative barrier to the trade liberalization process. Higher trade cost is considered an impediment to trade, thus destroying trade liberalization under globalization. Therefore, unique consideration is given to the costs of trading. Owing to the significance of trade costs in amplifying volume and direction of trade, foreign trade experts are increasingly focusing on trade costs and this has become an area of key interest for research. The passive decrease in trade cost during the past years increases international trade; thus, this change brought international trade volume improvement.

Now the question is, what actually are trade costs? Trade cost includes all those costs incurred after production to reach to the final user- consumers. Subsequently, trade costs include tariff, non-tariff barriers and transportation costs (both cargo expenses and time costs), distribution cost, information cost, legal, regulatory cost and cost associated with the use of various currencies, etc. (De, 2006). These costs occur in two different geographical regions, i.e., costs incurred in the importing country and the cost incurred in the exporting country.

Trade costs are essentially bifurcated into two key classifications. The first category ultimately involves bilateral components to put disconnection among imports

(transported in) and exports (transported out) and such factors are widely depending on exogenous variables, for instance, geographical location, land detachment, shared borders, etc. The second category comprises endogenous trade costs: worldwide accessibility, for instance, air or maritime transport services, tariffs and non-tariff measures, and other distinguishing factors that support trade. Two main categories involve to direct evidence on trade costs; costs levied by policy (quotas, tariffs, etc.) and costs required from the environment (time cost, cost of transportation, protection against different hazards, etc.) (O'Rourke and Williamson, 1999).

Overall, trade costs are high and generally differ across sectors and trading countries. Such costs tend to be greater in emerging countries than the emerging countries because of the presence of substantial tariffs and non-tariff measures led by dysfunctional carriage, bad infrastructure, and logistics. These costs can influence the balance between different sectors of a country like the agricultural and manufacturing sectors. Reducing these costs can help to find which part needs to give more attention in terms of specialization decision. For example, if there is no account related to trade costs and specialization decision depends on comparative advantage only; all resources are switched towards one specific sector at the cost of other sectors, thus making an anti-export bias towards other sectors (Arvis et al., 2012). Therefore, a detailed examination of trade costs across the different sectors is essential to base the specialization choices and competitiveness.

Trade costs have significant welfare consequences. Generally, about 10% of national income is worth existing policy-related costs (Anderson and van Wincoop, 2002). Rogoff and Obstfeld (2000) observed that all the general riddles related to international macroeconomics hold on trading costs. Different researches, for example, APEC (2002), OECD (2003), and Francois et al. (2005) investigate that if trade transaction costs are reduced by 1 percent, world income may increase by 30 to 40 billion US$. Evidence demonstrates that with increasing regionalism, trading nations have notably lessened the tariff rates, i.e., on average less than 5% in developed trading countries and 10% to 20% in emerging trading nations (Anderson and Wincoop, 2004). With an exceptional fall in trade levies, there are, some different barriers to trade that are daunting the trade performance. Most critical among those are obstacles to infrastructure quality along with tariff, non-tariff barriers etc.

In a progressively universal and liberal world, trade costs have great significance from a policy perception, and the reason is that they behave as an element of investment and mutual trade as well as of the physical transport of output. Besides, they may establish a nation's capacity to involve in local and international production systems. Bad infrastructure and poor organizations may change strategic trade policy aim, not just for the traditional structures of quotas and tariffs but also of organizations and infrastructures, the "behind the boundary concerns". Thus, the differences in economic volume and capabilities and the differences in trading costs, which perform as a conflict to trade, are why several countries trade more than others. Several nations are willing to gain the advantages that such systems can create, containing trade and investment-

linked technical overflow a firmed requirement in production. Thus, it is an important part of the debate over production system going up, hence realizing the costs of trading sources and the role of strategies that may reduce them.

According to the World Bank (2001), for 168 trading companions of United States out of 216, transportation impediments' costs exceed tariff barriers. It is observed that increasing distance by two times raises total cargo rates between 20% to 30% (Hummels, 1999b). International trade is also affected by time delays. It is estimated that one percent on an average trade decreases because of every extra day a commodity is being delayed. Every additional day that a commodity is postponed prior to being sent decreases trade by at least 1% (Djankov et al., 2006). Hence, the advantages of trade will be more if trade tensions are reduced. The volume of trading costs is heavy also, since it includes information on every variable which collects the cost of traded products from its starting point to the target country. In literature, different proxies are utilized to obtain trade costs. There is a rising discussion over the certainty of trade cost measures (Novy, 2008).

In an investigation of the transfer problem, Samuelson (1954) created "iceberg" model of transportation costs. This technique's benefit is that transportation costs only play as a form of simple tax for which no profits are produced. In worldwide trade patterns, it appears like there is tariff that generates with no returns. The data on Boston's 19th-century international Ice Trade reveals that transportation costs in routine are both an ad-valorem (iceberg) factor that can melt down in insurance and transit, and

some per unit cost mechanisms like landing, freight and loading costs. Though target-year specific factors describe most transportation costs per unit variation, there is significant change in such costs among cargoes of ice transfer in the same year. Moreover, such variation is not just random; rather, they are systematically associated with shipment size (Bosker & Buringh, 2020).

Comparatively, costs on storage, transport, and shipment on particular goods may significantly greater than the costs on such spending for other goods. For example, some primary goods and non-perishable agricultural goods, because of their bulky low value to weight characteristics. Similarly, some perishable agricultural goods like vegetables, meat and fruits processing and storage costs are significantly higher per unit value of commodities than the costs of such expenditures on manufacturing consumer commodities like apparel and clothing. If some countries' export system were predominantly primary agricultural commodities, then exports to such countries would badly influence high shipping/storage costs compared to industrial commodities transfers to other countries (Brenton et al., 2001).

In some cases, the actual level of protection given by transportation costs is larger than that given by tariffs (World Bank, 2001). Transportation cost occurrence in exports for some areas of African countries and large portion of Asia is five times greater than tariff cost prevalence (World Bank, 2001). Hence, trade restrictions are the main elements that have reduced several countries' capacity to achieve trade goals. Consequently, significant trade policies directing trade costs have earned substantial

significance in improving international trade. According to Francois and Manchin (2006), institutional quality, communication structure, and transport are essential factors for a nation's trade levels and export directions. Nordås and Piermartini (2004) have observed that infrastructure standard is an essential element of trade performance where port effectiveness is only the largest factor on trade between entire infrastructure indicators. De (2005, 2006b) confirmed that transaction costs in Asia are statistically substantial and valuable in justifying fluctuations in trade. In addition, De (2005, 2006b) also observed that ports' infrastructure quality and efficiency are two significant factors of trade costs. Greater the cost of the transaction, the smaller the trade volume will be. This connection clearly points to the fact that transaction costs can influence trade.

The trade costs imposed by numerous policy and non-policy barriers on exporters are still considered an impediment in their export growth rate. Noreen and Mehmood (2020), measures the over-year trends in total trade costs and trends in trade costs related to policy barriers. To find out which trade cost-policy barriers are high they 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 the major factors that have rendered especially developing countries' exports uncompetitive in world markets.

Ahmed and Hina (2019) takes into account effect on exports going from Pakistan by key trading partners, tariff imposed by exporting partners, population within

and outside Pakistan, distance with trading partner and exchange rate. They took data from 2005-17, and found that with population, GDP and tariff there is positive relation of exports going from Pakistan. While with exchange rate and distance there is negative relationship confirming that greater the distance lower will be the exports from Pakistan and also there is problem of exchange rate uncertainty. Their findings recommend that there is need for consistency in export destinations which are not flexible in case of Pakistan. They also recommend that Pakistan should look at internal cost of doing business with primary focus on improving compliance cost and also there is need to abolish protectionist policies which are depleting out capacity to compete for Pakistani enterprises.

Pakistan is heavily enriched with natural resources. Major trade partners of Pakistan are Asia, Europe and North American countries. These include India, China, UK, USA, Saudi Arabia, Bangladesh, Japan, UAE, Malaysia, and Germany. USA is also one of the largest trade partners of Pakistan. With Asian economies, Pakistan also has strong trade relations, like UAE, Malaysia, China and Saudi Arabia. Pakistan's largest trade with Asian countries is due to consumer tastes, low shipping costs, and trading priorities. The existing trade size of Pakistan does not truly indicate its trade potential. This is primarily due to the direction of Pakistan's external trade, which is mainly trading cost dependent, has not improved since its independence. Likewise, for gaining full advantages from international trade, while keeping in view Pakistan's trade potential, it is necessary to have a comprehensive insight into the determining factors of trade costs. Pakistan needs to give special consideration to the trade costs because only

then will it be to enhance its ability to stand better in worldwide networks of trade and production. A detailed study on the factors and measurements of trade costs may help find the areas that need special consideration to recognize authentic measures and policies that significantly influence trading costs. The problem which needs to identify is "What are the factors that influence trade costs faced by Pakistan with its major trading partners"? Due to the lack of available information, the study utilizes a set of Pakistan's selected exchange partners.

A review of several studies on the determinants of trade cost and its calculations showed that only a few research studies were done in Pakistan. Hence, a detailed research study is needed that can reveal Pakistan's position related to trade cost. Such type of study can give insights that if trade costs are properly targeted, they can be reduced as well as appropriate policies that can be provided to enhance the overall trade, thus improving Pakistan's situation in the worldwide trade network.

Existing literature did not provide any sectoral details and make use of trade data only. Observed outcomes of the study are supposed to help the Government make improved policies that can focus on those factors that may reduce trade costs substantially to achieve effectiveness in global markets.

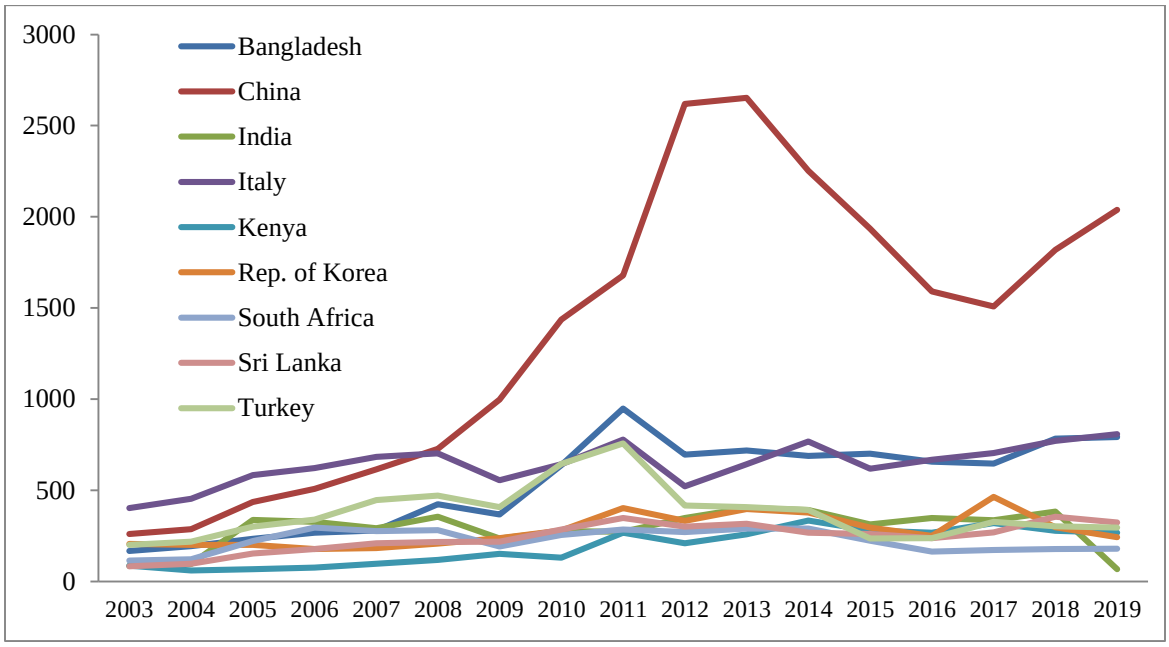
Pakistan trade regimes are enriched with primary and intermediate merchandise. This research thesis will analyze Pakistan's major trading partners' trading costs, including Bangladesh, China, Italy, Saudi Arabia, India, Korea, Kenya, Turkey, and Sri

Lanka.

Pakistan's Export to Major Trading Partners

Pakistan's export of agriculture and manufacturing sectors are noteworthy for the national economy.

Figure 1: Pakistan Export to Major Trading Partners (million)



Source: UNCommtrade Database, 2020

The figure shows that Pakistan's export has increased with Bangladesh, China, India, Italy, Kenya, Korea, Saudi Arabia, Sri Lanka, and Turkey.

1.2 Objectives of the Study

The objectives of the study are to:

- analyze the trade costs in exports of agriculture sector of Pakistan,
- analyze the trade costs in export of manufacturing sector of Pakistan, and
- compare trade costs of agriculture and manufacturing sectors to forward policy recommendations for stakeholders to reduce trade costs.

1.3 Delimitations

The study adopts a set of selected trading partners of Pakistan and years, because of the deficiency of available data. The trade costs variables' data is not compiled with uniformity for countries selected for this study, which limit to consider the study to years 2002 to 2017.

1.4 Hypothesis

Based on the above-mentioned study objectives, the study has tested following hypothesis:

$H_{\alpha 0}$: Connectivity and monetary factors are not affecting the trade cost of Pakistan in agriculture sector

$H_{\alpha 1}$: Connectivity and monetary factors are affecting trade cost of Pakistan in agriculture sector

$H_{\beta 0}$: Connectivity and monetary factors are not affecting the trade cost of Pakistan in manufacturing sector

$H_{\beta 1}$: Connectivity and monetary factors are affecting the trade cost of Pakistan in manufacturing sector

1.5 Research Question

Q 1: What are the factors that determine trade cost of agriculture exports of Pakistan with its trading partners?

Q 2: What are the factors that determine trade costs of manufacturing exports of Pakistan with its trading partners?

1.6 Plan of Study

The study is organized as follow:

Chapter One	provides the basic introduction about the background of trade cost objectives of the research and summarizes the present work.
Chapter Two	includes the detailed literature review of trade costs.
Chapter Three	explains the trade cost measure used to derive the trade costs of Pakistan.
Chapter Four	explains the methodology that contains the econometric model and estimation techniques.
Chapter Five	provides a description of selected variables and calculated trade costs.
Chapter Six	provides results interpretation of the study.
Chapter Seven	includes the conclusion made based on results and general recommendations of the study and, finally, the references.

Chapter 2

Literature Review

2.1 Introduction

The research's essential motivation is to measure the costs of trade of Pakistan with its significant trade companions, i.e., Bangladesh, China, Italy, Saudi Arabia, India, Korea, Kenya, Turkey and Sri Lanka and experimentally research the determinants of trade costs in Pakistan. As the world is rapidly incorporating and global trade is expanding enormously, examining the trade costs is necessary. Several studies have been directed in various countries of the world in which measurement and determinants of trade costs are concerned, but there are a limited studies in the case of Pakistan's trade cost with its major export partners.

Trade costs have become an essential area of interest for analysts. Moreover, it is necessary to understand which components trigger the trade costs of a specific economy. Previous literature throws light to some of the significant determinants of trade costs. This study reveals insight into the current literature in this area.

2.2 Theoretical Background

2.21 Gravity Model

The most widely recognized methodology applied in the literature to realize the concept of trade in a globalized world is a gravity model. This model is introduced by an

attempt of Jan Tinbergen (1962) which demonstrates that volume of mutual trade flows among two nations can be assessed by a law called the "gravity condition" by similarity with the Newton law of gravitation, which explains the size of trade among two nations depends on their size of economy and distance between them. The trade between them is inversely related to the distance and directly related to the GDP's between countries shows trade costs between them that will reduce the number of exporters (Melitz, 2003). Gravity models can appear as a scope of trade speculations. Specifically, Bergstrand 1989) demonstrates that the gravity model is an immediate consequence of a model of exchange in light of the monopolistic challenge created by Paul Krugman (1980). Deardorff (1998) demonstrates that the gravity model emerges from a conventional factor-endowment. Eaton and Kortum (2002) infer gravity-type conditions from Ricardian model, and Helpman, et al. (2008) and Chaney (2008) got it from a hypothetical model of worldwide trade separated products with firm heterogeneity. Moenius (2004) expressed that the gravity model is one of the best and subsequently utilized structures for observational investigation of exchange streams between nations. The gravity model has a few favorable circumstances over other comparative techniques in assessing the exchange streams among nations. The gravity model of international trade is more likely to use and to assess the factors influencing trade costs, depending on the nature and trend of pattern costs, because the gravity model will give us the primary link between trade flows and trade barriers.

2.2.2 Anderson and Van Wincoop's Contribution

Anderson and Wincoop (1979) gave hypothetical principles to the conventional gravity model and clarified it in the perspective of product distinguished by the nation of origin and that the choice of customers characterized over every single distinguished item. Typical gravity model is expressed as:

$$t_{ij}=G\left(\frac{y_i y_j}{D_{ij}}\right)$$

Distance (Dij) is utilized to catch the transportation costs between the trade partners. In any case, a few writers claim that distance alone can't clarify the transportation costs completely (Limao and Venables, 2001) and consequently, this triggered a discussion over finding different intermediaries that can catch the restrictions to trade. Along with this concept, the idea of trade costs was expanded beyond just being an element of distance. Trade costs contain different factors, for example, tariff and non-tariff hindrances and resources like infrastructure.

A critical commitment to the conventional gravity model has made by Anderson and Van Wincoop (2003). Trade costs between exchanging partners are an element of distance and the "trade obstacle" factors influence the degree of trade between them. Importer's and exporter's price indices were indicated as the multilateral impediment factors between the exchanging partners, though information on various nations' price indices is not accessible.

2.2.3 Novy's Trade Cost Measure

Novy (2007) altered the Gravity condition of Anderson and Van Wincoop (2003) and recommended a trade cost measure, which is easy to apply empirically and determined trade costs from directly noticeable trade information without depending on the certain trade costs proxy i.e., distance. For the multilateral trade resistance variables, Novy (2007) derived a clear systematic solution and thus resolved the trade cost function. This technique depends on the argument that if some variation occurs in trade barriers, they will affect both international trade and national trade. For example, when a country reduces its trade barriers, some products designed for local use are transported to overseas nations, indicating that trade barriers also affect domestic trade.

The idea behind Novy's trade cost measure has to overwhelm problems related to traditional gravity context through Anderson and Wincoop (2003), which levied particular uninformed trade cost purposes. To integrate multilateral trade resistance variables, the theory-based gravity model was modified into a refined form. Novy's techniques of trade costs measures are expressed as a component of mutual trade streams concerning local trade streams weighted by consistent flexibility of substitution among products and are stated as follows:

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

τ_{ij} is trade cost equivalent, also assign as price equivalent in writing, X_{ii} and X_{jj} denote intra-national trade of nation i and j separately, X_{ij} and X_{ji} denotes to mutual trade

flows between nation i and j, where σ represents the elasticity of substitution among the products. To determine trade costs proportionally, information on mutual trade among Pakistan and trading partners, just as intra-national trade information in every nation, is essential. A combined procedure of characterization has been utilized to gain information on mutual trade between nations i and j. All information is accessible in U.S. million dollars. Universal trade information can be acquired from standard sources; however, intra-national trade information should be made and isn't rapidly accessible. For this reason, intra-national trade is proxied by total trade less from GDP. Since trade information is for merchandise goods only, total GDP information cannot be utilized to estimate overall production as it considers information on all products and enterprises developed in a specific year.

Hence the study utilized GDP information for agricultural and manufacturing areas individually and the total amount of exports to the rest of the globe was deducted. σ is the elasticity of substitution and trade costs measure (τij) is responsive to the decision of σ. The value of σ is taken as 8, and it is selected on the theory made by Anderson and Wincoop's (2004) review study. However, this research is believed to be consistent and just influences the degree of certain trade costs, not their relative qualities.

2.2.4 Outline of International Literature

By utilizing a gravity model, McCallum (1995) evaluated the misfortune in trade volume after merchandise is shipped from the U.S. to Canada and contrasted it with the

misfortunes brought about when the items cross the commonplace outskirts inside Canada. The outcomes demonstrated that past trade costs were advanced than the current trade costs and this is because the nations are very coordinated through the North American Free Trade Agreement (NAFTA). Utilizing a few uncertainties and particulars, the writer found that the USA and Canada trade was lower than trade inside Canada's fringe.

On the other side, Brooks (2008) reported that as the economy of a country develops, earnings from non-agricultural economies usually expand rapidly compared to the agriculture sector. The ongoing economic development forces farmers, who cannot meet cost reduction, out of the market besides exploring non-market income sources such as governmental support. Unambiguously, farmers who are pushed to leave the sector may have excessive incentives to enter for more assistance. Alike reasoning can describe the observed better policy support in some sectors with comparative disadvantage. However, administrations' incentive to exchange transferences for political support is growing with decreasing relative earnings in the agriculture sector. This relationship is explained formally by Gorter and Tsur (1991). Hence, the anti-comparative advantage model is usually stated as a relative-income pattern (Swinnen, 2010).

In addition to Gorter and Tsur (1991), a vehicle costs factors were indicated which rely upon distance and foundation. The tobit model was assessed by Limao and Venables (1999) for the year 1990, taking 93 nations. Distance, contiguity and landlocked-ness were taken as geographical determinants and the nature of vehicle and

correspondence foundation were considered as infrastructural determinants. They examined that land separation is significantly more excessive than ocean separation. Landlocked nations have high vehicle costs, which can be decreased by better framework offices. The investigation highlighted the expense of being landlocked to the extent that reciprocal trade streams are concerned. Hummels (1999) evaluated general trade-weighted usual vehicle costs for the U.S. decreased from 6% to 4% through the most current 30 years. Production matters are strong because world trade in high-worth to-weight makes has developed a lot quicker than the trade-in low-worth to-weight essential items. He showed that airship cargo cost had reduced significantly while sea shipping cost has risen (alongside a move to containerization, which recovers the nature of the transportation administration). However, they recorded the wide scattering in the pace of progress of airship cargo rates across nation matches in the course of recent years.

Brenton et al. (2001) used the concept of trade cost by focusing at the areas where technical barriers are not that much significant and thus lead to more trade in those areas of the European Union. Later, De (2007) also worked on the outcome of trade cost on trade for Asian Countries and originates different types of trade cost components like; tariffs, infrastructure quality, and transport cost, significantly affecting international trade streams. They studied on the issue of trade cost and observed the different impacts of trade on investment and economic growth based on cross-country data and found a constant positive impact of trade on economic development with variations as per the GDP of countries with FDI and local investment being key factors. Burstein et al. (2004) developed local transportation costs from national information for tradable utilization

merchandise (which compare most near the products for which barely characterized trade costs are pertinent). They stated a weighted average of 41.9% for the U.S. in 1992 as a small amount of retail cost. They additionally showed that their information yield assessments of U.S. appropriation costs are generally reliable with study information from the U.S. Branch of Agriculture for agrarian merchandise and from the 1992 Census of Wholesale and Retail Trade.

Similarly, Head and Ries (2001) embraced a similar technique. They thought about two nations, the U.S., what is more, Canada, and expect that the main trade boundary is a trade related obstruction, which fluctuates across 3-digit industry information from 1990 to 1995. This methodology is like that in Hummels (2001) in that it utilizes proof on watched trade obstructions to secure the versatility. Another research on trade cost conducted by Messerlin (2001) attempted different methods to accumulate tariff equivalents for all European Union policy barriers. He combines the non-tariff barrier (NTB) tariff equivalents with the most favored nations (MFN) tariffs. Tariff equivalent of policy barriers for 1999 were 100.3 percent for dairy 125 percent for sugar 64.8 percent for meat and 5 percent for cereals. While the arithmetic average protection rate is 22 percent in textiles, 31 percent in agriculture and 30 percent in apparel. Baier and Bergstrand (2001) determined a hypothetical gravity condition somewhere duties and transport costs are the leading trade hindrances. They utilized total trade information for OECD nations and spotlight fluctuations in trade streams from the period 1958-1960 to 1986-1988.

Later, Rauch and Trindade (2002) estimated the influence of contracting and implementation cost. Systems give a sort of authorization through assents, which substitutes for formal agreements' powerless worldwide requirement. Their finding reveals that 89% trade expanding the impact of systems for reference value merchandise is challenging to decipher as data costs and might affect contracting costs. However, these products apparently have great flexibilities of substitution; the tax proportional is probably going to be less. Bradford and Lawrence (2004) utilized info yield foundations to quantify distribution costs for the USA and eight other industrialized nations, relatively isolated by the production cost, steady with the methodology right now detailing trade obstructions as far as advertisement valorem tax counterparts. They reported conveyance costs for chosen tradable family utilization products and a number-crunching normal for 125 merchandises. The midpoints extend over nations from 42% in Belgium to 70% in Japan. Average U.S. dispersion costs are 68% of production costs. The scope of distribution costs is a lot bigger across products than across nations, for instance, successively from 14% on Electronic Equipment to 216% on Ladies Clothing in the USA.

Fractional and deficient information on direct measures of trade costs applied together with a deduction on certain costs from trade streams and prices. Their findings revealed that overall trade costs in ironic nations are enormous. The ad valorem tax proportional is about 170% when pushing the information extremely hard. Poor nations face considerably higher trade costs. There is a ton of variety across nations and across merchandise inside nations, a lot of which makes economic sense (Anderson, et al.,

2004). Theory looms large in their study giving translation and point of view from one perspective and recommending enhancements for the upcoming on the other hand. Some new outcomes are exhibited to relate and understand gravity hypothesis appropriately, to deal with total suitably.

Batra (2004) examined India's international trade capacity by applying ordinary least squares (OLS) methods and using the improved gravity model. The pattern is applied to evaluate global trade flows and to examine India's trade volume with its leading trade partners. The model is strengthened by some specific conditioning variables that influence trade and some primary variables like distance and income. The analysis implies that India has extreme trade capacity in the Asia-pacific region, monitored by North America and western union. The maximum capacity for trade increase occurs with Italy, the UK, France, and China, indicating that several impediments and restrictions are eliminated. The findings reveal that India can possibly achieve ten times or above the current trade level with several other nations, including central-eastern European nations, Uzbekistan and Turkmenistan, Central Asian regions and E.U. through the gravity framework. They determined that trade strengthening/trade directions will benefit growth only if organizations can establish a system beneficial to secure and reliable interchange and guarantee that trade is desirable to and beneficial for all groups. Rodrik et al. (2004) have given proof that organizations are just as the foundation and help trade. Furthermore, if a few nations were lasting behind as far as trade and growth, poor condition of foundations and framework was the principle behind that moderate advancement. This agreement has educated the advancement motivation regarding

Development Agencies in the creating scene who have as of late centered on trade help and institutional structure to improve reciprocal trade.

Jacks et al. (2005) considered the development and determinants of universal trade costs at the reciprocal level during globalization's principal trend, i.e. 1870 to 1913. The investigation utilized Novy trade cost measure (2005) and board information estimation to control and estimate trade costs separately. The outcomes demonstrated that trade costs fell by just about 10% from 1870 to 1913. The determinants of trade costs are isolated into four classes, i.e., policies, geography, cultural legacy and establishments and the shipping costs. The decrease in trade costs is principally ascribed to three key determinants, i.e. diminished tariff levels, increased railroad mileage and expanded system coordination; likewise, these are the primary determinants of trade blasts of the late nineteenth century. Hummels and Klenow (2005) examined that higher-income nations export more units at more costs, and furthermore, they traded a more extensive arrangement of merchandise. They built up that E.M. (bigger arrangement of merchandise) represents 66% of the exports in bigger economies and 33% of their imports. Hausmann et al. (2007) also claimed that the export item blend is one of the income level elements and resulting economic improvement.

Helmers and Pasteels (2005) utilized a 3rd form of gravity model software named as "TradeSim" to determine trade capacity for emerging nations and transition economies. They showed how gravity models could be explicitly constructed and employed. Kumar (2005) studied that there is a need to address the tilted toll structures in

railroads in railroads, in which cargo rates have been set too much high to sponsor traveler passages. There is similarly a need to increment operational effectiveness as there are issues with venture execution. The findings revealed that in India, among the 300 undertakings in the 1 billion Indian rupees or more cost class, in excess of 130 ventures are experiencing time invades of as long as 160 months. An extensive audit of 78 such railroad ventures has uncovered that all endure immense time and cost overwhelms because of different issues identified with land obtaining, suit, restoration, temporary workers, and work.

De (2006) analyzed the effect of non-value determinants of global trade, for example, framework and trade cost on the mix of Northeast Asia. By utilizing an enlarged gravity model, they determined the effect of trade costs arranged trade streams of three Northeast Asian economies, particularly China, Japan and Korea for period 1991 to 2004. The factors fused are trade, separations, GDP, GDP per capita, foundation, receptiveness, conversion scale, tariff, and exchange costs and normal remoteness from the rest of the world for three Northeast Asian economies. The investigation discovered that trade costs alongside trade framework offices affect trade. Higher is the trade cost between the exchanging nations, the lesser they trade with one another. In addition, procedural complexities and high inconstancy in delivery costs are real impediments to trade in Northeast Asia. The examination likewise stressed the reception of fitting arrangement to diminish trade costs in this manner, encouraging trade in the district just as with the remainder of the world. Whereas Novy (2007) analyzed the examples of U.K. and USA trade costs with 31 exchanging accomplices from a time of 1960-2002. The

investigation discovered that tariff reciprocals of trade costs for USA have declined over the time of concentrate with U.S. indicating most reduced trade costs with Canada and Mexico while U.K. displayed a wonderful increment in its two-sided trade costs after some time. Novy utilized micro-founded established trade cost measure for estimation of trade costs. Fundamental determinants of trade costs were arranged into geological, verifiable and institutional variables. Separation, landlocked and conversion scale instability promotion tariffs demonstrated a positive association with trade costs while basic fringe, the participation of facilitated commerce understanding adversely influenced the trade costs.

Universal trade costs in handled sustenance's industry for a huge cross-area of developed and developing nations over the time of 1976-2000. Board information estimation strategy with nation and time fixed impacts was utilized in this investigation. The dependent variable was taken as tariff reciprocals of trade costs and the free factors were partitioned into four classes as land factors, authentic and social linkage, institutional elements and framework improvement. Their investigation discovered that topographical and verifiable variables command the infrastructural and institutional determinants of trade costs (Olper and Valentina, 2007). They likewise featured the requirement for more liberated trade condition keeping in view the persuasive pretended by trade strategy in decrease of trade costs. Baier and Jeffrey (2007) assessed the outcome of organized commerce concurrences arranged universal trade of the part states. To assess the impacts of FTAs on two-sided trade streams, they utilized board information from 1960-2000 for 96 nations. It was discovered that conventional

assessments of impacts of FTAs on two-sided trade streams are disparaged by 75-85%. Results demonstrated that all things considered, a facilitated commerce understanding duplicates the part districts trade following a time of 10 years.

Olper and Raimondi (2008) explored the challenges looked by exporting nations in market access in offering their sustenance items to different nations utilizing a basic gravity condition. They evaluated the pretended by approach boundaries (tariff and non-tariff obstructions) as hindrances irrelevant to trade arrangements, such as social vicinity and data-related costs in affecting trade streams. After the effects of pooled OLS crosswise over 18 nourishment businesses over the period 1996-2001 demonstrated that social vicinity and purchaser inclination enormously clarify the extent of fringe consequences for fabricated sustenance trade among the Quad nations. Tariffs and NTBs were observed to be adversely clarifying the respective trade. The simplicity of correspondence and nature of complementary data adversely clarified data-related part of trade costs and caused a solid decrease in the outskirt's impacts, subsequently diminishing trade costs and empowered trade. Moreover, the trade decrease impact actuated by these strategies, irrelevant segments is from 1.5 to multiple times more significant than that prompted by arrangement obstruction.

The section's determinants by remote firms were analysed by Amiti et al. (2008), they utilized data on 515 Chinese enterprises at the common level during 1998–2001. The examination depended on the original economic geography hypothesis and along these lines concentrated on market and provider contact inside and external the region of

passage, just as generation and trade costs. Outcomes demonstrated that marketplace and provider contact were the most significant components influencing remote passage. Brookes (2008) represented improved framework and coordination in upgrading the universal trade by decreasing the trade costs. Higher trade costs hinder the increases in trade. The investigation demonstrated that the additions from trade rely on tariff progression and the nature of foundation administrations. He examined the significance of trade as a driver of economic growth in Asia and stressed upon the significance of the framework in encouraging trade by bringing down trade costs and impacting relative favorable position and aggressiveness. The move toward lower weight proportions of traded products and expanded estimation of auspicious conveyance has suggestions for foundation ventures and extension. But Fratianni and Francesco (2008) evaluated the effect of trade costs on economic development. The examination utilized commonplace fare information from 103 Italian regions to 188 nations and tried the theory for the period 1995-2004 utilizing gravity condition. The investigation utilized separation versatility as an intermediary for trade costs, which relies on the two-sided separation, local understanding, bury local understanding between the exchanging territory and the nation, and whether the accomplices share the same cash and outskirt or not.

Banik and Gilbert (2008) explored that the trade between nations inside South Asian countries has remained low. While correspondences in cost outlines can explain this less estimation of trade, it probably will not be a legitimate one, particularly given the nearness of developing South Asian income. The intra-industry trade hypothesis recommends that complementarity may really build trade within sight of a rising income.

There might be other significant factors, for example, trade costs. Utilizing an increased gravity model in a board system, they attempt to recognize the segments of trade costs that may have lower South Asian trade. Further, they evaluated that the trade influences growth in three essential manners (Feder, 1983). Initially, trade supports a stream of assets from low beneficial segments to high gainful segments, prompting a general increment in yield. Fare growth may influence absolute efficiency growth through powerful overflow consequences for the remainder of the economy. Second, with redundant assets, an expansion in deals prompts a general extension underway and a fall in joblessness rate. As creation expands, on account of increment in the size of activity (economies of scale), firms become increasingly effective (Helpman and Krugman 1985). Third, worldwide trade additionally considers the acquisition of investment merchandise from distant nations and opens an economy to innovative developments of industrialized nations. Late hypothetical work recommends that capital merchandise imported from unconsciously propelled nations may develop efficiency and along with these lines growth, since data and innovation are illustrated in tackle and apparatus and, in this manner, moved through global trade (Chuang, 1998).

Helpman, Melitz, and Rubinstein (2008) showed that zero trade flows in total information are simply the after effect of firms' determination out of foreign/export business sectors because of firm's heterogeneous efficiency which relies upon firms' fixed expenses of trading, and points out if zero trade flows, do not represent, the evaluations could be upward one-sided. So as to represent biasness from discarding zero trade flows, HMR proposes a two-step technique where export business entry choice is evaluated in

the first stage and volume choice conditional on entering the market is assessed in the next stage. In any case, the technique is difficult to actualize with product aggregate data. This is because the avoidance limitation at the first stage estimation requires a variable that decides firms' fare market choice but will not influence their fares volume once they choose to enter a market. Cheong et al. (2009) measure trade cost (duty) versatilities utilizing reciprocal tax information at H.S. 2-digit level for 82 nations after 1996 to 2008. It broadens the Helpman, Melitz, and Rubinstein (2008) model to fuse firms' fixed expenses of sending out that fluctuate at the pair-item level. They apply a two-organize system as in Helpman, Melitz, and Rubinstein (2008) at product level estimations and got exclusion restrictions to implement Helpman, Melitz, and Rubinstein (2008) at the product level utilizing the signs from finding out export demand. The experimental outcomes show that there is a significant upward bias in the assessments of trade cost flexibilities in the writing. Keeping appropriate account of zero trade flows and firm heterogeneity utilizing more disaggregated information yields significantly littler assessments of trade cost flexibilities (for example, the magnitude declines significantly from - 3.7 to - 1.8), which suggests a lot bigger government assistance gains from trade.

Trade creation impacts of three territorial trade agreements (AFTA, COMESA and MERCOSUR) in the agriculture area was studied by Korinek and Mark (2009), and found that gravity model is utilized in the examination covering a time of 1992-2003. A Board dataset containing yearly respective information for 55 items involving every single rural item was utilized in the examination. Exact outcomes uncovered that separation, simple access to the ocean and commitment to cross various outskirts were

utilized to intermediary trade costs and hampered trade stream fundamentally. Recorded trade examples and economic binds were likewise observed to be critical determinants of trade streams. Besides, the investigation discovered that the production of local trade understandings trade streams between the nations. In any case, the impacts of local trade concurrences on trade streams on trade streams are diminished because of poor vehicle and correspondence framework, notwithstanding supply limitations. For example, trade costs, for example, transport and coordination, appear to stay significant factors in deciding agriculture trade streams. In some RTAs, nations have a relative preferred position in sending out a considerable lot of the equivalent farming items, diminishing the special market access. Trade intervals' arrangements within areas and explored its determining factors (Fuggaza and Molina, 2009). By utilizing an extended Cox model, they examined trade cost variables on the period of trade relationships of ninety-six nations from the time period of 1995-2004. Their estimation results revealed that trade dealings' period rises with the regional level of progress and the trade relations from better-off economies meet lower risks involving extensive duration. While trade dealings involving separated products for export survival, show a risk rate that is 11% to 13% lesser than trade dealings involving homogeneous goods. Furthermore, their results indicate that high-level export costs enhanced the possibility of export disaster in all regions but the impact shrinks with time, thus indicating that export experience and size of exports also problems means that the higher transaction, the greater the probability of survival.

Venables and Behar (2010) analyzed transportation costs on the volume of universal trade and explored determinants of transportation costs. By utilizing information for 180 nations for 2006, they found that transport cost influences global trade and the other way around. Transport costs and universal trade both are affected by factors like separation, framework, innovation, geography and strategy towards trade. Geographical variables, including separation and being landlocked, show a positive association with vehicle costs. Experimental outcomes demonstrated that landlocked nations confronted a noteworthy cost hindrance. They contended that transport-related framework influences time to travel. Along with these lines, improvement in infrastructural offices is contrarily related to vehicle costs. Anyhow the land highlights, procedural obstacles, and port infrastructural insufficiencies irritate trade costs. Brookes and Benno (2010) investigated India and China's product trade streams to gauge their reciprocal trade costs. Novys gravity-based trade cost measure was utilized for the figuring of trade costs over a time of 1990-2008. The examination discovered that tariff reciprocals of trade costs between the two nations tumbled from 117% in 1990 to 44.3% in 2008. Besides, this decrease in trade costs was joined by a significant increment in trade size between the two nations. China represented the main part of the trade cost decrease. They called attention to that India has a huge capability of foundation speculation, which would further decay the trade costs.

The effect of the end of import tariff and non-tariff hindrances on farming trade among sub-regions of East Asian organized trade agreement were evaluated by Chang and Kazunobu (2010). Discoveries of the investigation demonstrated that the expulsion of

tariff and non-tariff hindrances strongly affects macroeconomic factors and GDP. They contended that relying on the FTA accomplice, the expulsion of the whole evacuation of strategy boundaries yields various results from simply the evacuation of tariffs. Observational outcomes demonstrated that by utilizing OLS estimation method for eighty-seven East Asian nations for the year 2006, a wide range of outskirts hindrances frustrated imports and block trade. Tariffs and all different sorts of outskirts hindrances debilitate trade. Provincial history, basic language emphatically influenced trade anyway nations import less from inaccessible and high-income nations. So as to get all the more exceedingly aftereffects of FTA development, we need increasingly complex reconciliation of the fringe impacts and the database. Pomfret and Sourdin (2010) analyzed the variety in Australia's trade costs with its exchanging accomplices after some time. They saw that Australian trade costs are over 5% contrasted with normal tariffs of under 4% over 1990-2007. They contended that high trade costs are because of approach just as non-strategy boundaries, i.e., degenerate custom authorities, port framework are arrangement correlated. In contrast, different elements of trade costs might stand by implication approach related e.g. rivalry between shippers due to non-usage of the anti-imposing business model approach. They also examined that trade costs consistently exist, yet nation varieties happen because of establishments, such as poor law implementation. In general, Australian trade costs diminished over the time of the study. Controlling for good ways from Australia, the paper analyzed different determinants of trade costs related to sending out nation attributes and found that these qualities give an immediate connection among organizations and economic growth.

Behar and Venables (2010) estimated the impact of conveyance costs on worldwide trade's size and environment. Their study indicated that conveyance costs also influence the organization of manufacture, the commodity composition of trade as well as 'just-in-time' procedures get broadened to the worldwide level. In turn, the new production techniques are placing rising demands on the transportation system. There are several cross-country differences in transportation costs and in trading costs more precisely. However, they revealed that transportation costs had not reduced as much as many people might expect through time. The trade costs of Indian Mekong sub-local and assessed the strategy related and different factors to encourage trade and diminish trade costs Duval and Chorthip (2011). Novys (2010) trade cost measure has been utilized for computing the trade costs. Different trade related variables which perhaps affected the trade costs of the Indian Mekong sub district were observed to be a respective separation between the exchanging accomplices, social separation, tariffs between the exchanging nations, direct sending availability list, web clients per hundred individuals, simplicity of working together and financial costs of moving a compartment from industrial facility to port and port to distribution center. A cross-sectional informational index of 64 nations has been assessed for the year 2006 utilizing the Ordinary Least Square estimation. The outcomes demonstrate that trade costs among India and Mekong nations are high. Anyway, China, India, Thailand and the greater part of other Mekong nations are gaining ground in diminishing trade costs among themselves when contrasted with different nations like Japan and USA, which is partly because of the improved local availability.

The examination likewise explored the commitment of illustrative factors. Results uncovered that the regular obstructions contribute around 22 percent to the different varieties in trade costs pursued by the distinctions in sea coordination's and afterward the trade-related non-trade explicit estimates yet, for example, credit data, degree of data exposure representing around 16 percent and 7 percent varieties individually in trade costs. The examination featured the significance of coordination and data innovation administrations guideline as significant issues to decrease the trade costs. Novy (2010) evaluated the U.S.'s trade costs with its 13 noteworthy exchanging accomplices for the timeframe 1970 to 2000. He inferred a small scale established proportion of total two-sided trade costs dependent on the gravity condition. The investigation likewise analyzed the main impetuses behind the solid growth of global trade. The investigation credited the development of respective trade to three primary factors: the development of pay, the decrease of reciprocal trade obstructions and decay of multidimensional boundaries. The investigation utilizes a trade cost measure that gets trade cost from legitimately noticeable trade information and time variation. The reliant variable in the examination is tariff identical and the informative trade cost intermediaries are isolated into two classes, i.e. land and institutional factors. The geographical factors incorporate separation, nearness and whether the nation is an island or not. The institutional factors are classified as normal language, unhindered commerce understanding and money association.

The trade costs of Indian Mekong sub-region and evaluated the policy correlated and other aspects to facilitate trade and reduce trade costs (Duval and Utoktham, 2011). Various trade related factors which possibly effected the trade costs of the Indian

Mekong sub-region were found to be bilateral distance among the trading companions, cultural distance, tariffs among the trading countries, liner shipping connectivity index, internet users per hundred person, ease of doing business and monetary costs of moving a container from factory to port and port to store room. A cross-sectional data set of 64 countries has been estimated for 2006 using the Ordinary Least Square estimation. The results show that trade costs between India and Mekong countries are high. However, China, India, Thailand and most of other Mekong countries are making growth in decreasing trade costs among themselves.

China maintains restrictions, licensing and prohibitions on the grounds of state security and morality. All these factors add to levels of trade costs. Bilateral trade costs among the two countries can be reduced by upgrading and distance, consequently reducing trade costs. Long shipping routes between the two countries add to costs of trade which can be lessened by the construction of a direct corridor from Kashgar to Gwadar, which is estimated to cut down the existing costs associated to long distance by one-third of the current levels (Kayani et al., 2013).

The cost joined to landlocked-ness concerning the global trade as reported by Arvis et al. (2012). In light of exact examination, the investigation discovered that the enormous extent of least created nations is landlocked and their market access relies on the accessibility of trade passageway or a travel framework. A high level of flightiness related to transportation time expands landlocked economies' trade costs alongside high cargo charges. The examination featured the requirement for solid strategic

administrations, which are hampered by defects in travel framework usage. They pointed out that the business network should plan and actualize thorough trade help methodologies. Notwithstanding the physical limitations, least created nations are additionally looked with an issue of across the board lease looking for exercises. Consequently, they demonstrated that high trade costs of LDCs are primarily because of high transportation costs, which clarify the significant extent of high strategic costs and weakness of supply chains and these regions should be focused on explicitly. Duan and Jason (2012) observed the environment and scope of agriculture trade costs for a time of 45 years 1965 to 2010 and 121 nations utilizing Novys proportion of trade cost and gravity condition. The aftereffects of the investigation demonstrate that agriculture trade costs have declined since 1965. In any case, because of high tariffs on rural and nourishment things, the trade cost middle level is as yet 125 percent, which is not exceptionally low and there is a space for further progression. Time pattern, separation between two nations, language, infectious fringes and approach type impacts identified with multilateral and provincial courses of action have been utilized as the determinants of trade costs.

Turkson (2012) saw that trade streams in creating nations could be improved through trade foundation and coordination progress. He utilized an enlarged gravity model in his examination, taking 103 nations covering a time of 2005-2007 and discovered that coordination's had a solid positive impact on respective trade streams of creating nations. Simplicity and reasonableness of transportation were distinguished as the most significant proportion of coordination. Custom effectiveness, separation and

tariffs indicated a negative association with trade while the economic size of the exchanging accomplices emphatically impacted the trade since progress in framework, coordination's and trade help contrarily influences trade costs. He called attention to that very much created framework and coordination assumed a noteworthy job in expanding India and China's trade streams. Coughlin and Novy (2010) contrasted the worldwide fringe impact and the household outskirt impact on U.S. trade. The examination joined 48 U.S. bordering states and 50 fare accomplices of the U.S. for 1993, 1997, 2002. OLS estimation with Random impacts was performed utilizing geographic separation and two fakers for worldwide and household fringe impacts. Results recommended that if there should be a U.S. occurrence, states local outskirts involved a bigger trade hindrance than intersection the global U.S. fringe in the wake of controlling for separation and nation size. They pointed that in spite of the fact that exchanging universally is more exorbitant altogether than exchanging locally, shockingly, the outcomes showed that the evaluated minimal increment in trade obstructions when to exit the household government remains moderately bigger than expansion related with leaving the United States. In light of the investigation discoveries, the researcher featured the requirement for grouping of economic movement and trade streams at close level.

Irarrazabal et al. (2015) estimated additive trade costs, such as per unit tariffs, quotas, partially transportation costs, etc. Nevertheless, they have no wide and efficient proof of the size of these expenses. So, they built up another observational system for assessing added substance trade costs from standard firm level trade information. Their outcomes propose that added hindrances are on average 14 percent, comparative with the

average cost. The point evaluations are powerfully associated with basic intermediaries for trade costs. By utilizing smaller scale estimates, they determined that a decrease in additive trade costs delivers a lot higher welfare expansions and growth in trade flows than a comparative decrease in multiplicative trade costs. Jalerajabi and Moghaddasi (2014) estimated Iran's trade with a gathering of producing nations and its powerful factors over the time of 1995-2010 utilizing OLS estimation procedure. The examination assessed two-sided rural segment trade costs of Iran and its impact on trade volume. Results demonstrated that Iran's agricultural trade costs have declined by 44 percent over the time of the study. Para tariffs and slack of agrarian trade costs are emphatically related with trade costs though island and nearness factors adversely impact trade costs. Trade costs shift impressively over merchandise, and nations like short-lived products are moved through airship cargo with respect to more affordable trucks or sea shipping. In this way, the choice of fares of the agrarian area ought to be based, keeping in view the segment's trade costs. Singh and Mathur (2014) analyzed the trade costs of Indian economy inside Asia utilizing the Novys trade cost measure (2008) and furthermore discovered the determinants of trade costs for the period 1990-2012.The paper discovered that India's trade costs are declining all through the time of concentration, aside from the Asian monetary reserve. The determinants of trade costs considered in the examination are conversion scale, tariff rates connected by India and other accomplice nations, the separation between the nations, level of foundation and whether the nations are infectious or not. The examination utilized board information estimation method and discovered that factors influenced the trade costs in the normal way, however, were not able to clarify a noteworthy segment of trade costs which is delineated by the low value of R^2,

which implies that a portion of the non-included variable is assuming a powerful job in deciding trade costs.

Yilmazkuday and Hakkan (2017) examined the job of direct air flights in diminishing trade costs. They utilized smaller scale value informational collections on 49 merchandise for 114 nations over 2010-2014 and connected direct OLS method with nation-fixed impacts. The examination discovered that air transport prompts expanded worldwide market combination and contended that non-stop trips between any two urban communities crosswise over nations diminishes trade costs by 1400 miles in separation comparable terms while a universal outskirt builds trade costs 14,907 miles. Along these lines, the negative impacts of global fringe can be remunerated by constructive outcomes of non-stop flights on trade costs. The investigation featured the significance of the utilization of air shipment for a decrease of trade costs. Arvis et al. (2016) exemplified this approach, where trade costs are expressed as the ratio of domestic trade of countries to their trade with other countries. Falling trade cost would imply a shift from domestic trade toward international trade. Based on this method, the authors estimate that trade costs have been falling from 1996 to 2010 with countries in Asia and Middle East and North Africa declining fast, and slower decline for Latin America and the Caribbean, and Sub-Saharan Africa. However, a limitation with indirect measures of trade costs is that it rarely informs policy makers of the key components that can attenuate its effects on trade flows. Hence, recommend using both indirect and direct measures of trade costs as complements for analyses.

Egger and Prusa (2016) measured the understanding of bilateral trade capacities towards several trade cost features. They use the random coefficient model, examines a cross-sectional sample of bilateral trade data for 96 countries in 2005. They observed trade elasticity fluctuate intensely through bilateral tariffs and bilateral distance due to quantity error about these aspects. However, the variability of coefficients shows a significant impact for trade cost measures. Their estimations revealed that trade elasticity with detail to tariffs in different countries fluctuates relatively more than that with respect to distance. It shows consistency with a multitude of sources of measurement error about bilateral tariffs (due to strategic or non-strategic misrepresenting; the potential inappropriateness of the allowance of disaggregated tariffs, etc.). Doshi and Mathur (2016) analyzed the trade costs with the start of several trade theories, statistical sophistication and ease of information availability. They studied that here exist so many aspects of international trade that can be investigated. Their attempt was to recognize India's bilateral trade costs and several APEC (Asia Pacific Economic Cooperation) nations over the time dated from 1990 to 2014. They used a micro founded quantity by Novy (2010) of trade costs, which links the gravity equation in Anderson and van Wincoop (2003). The tariff equivalent τ_{ij} shows a decline over time for most of the 16 APEC states examined albeit with variations. The pooled OLS estimation and fixed effects of trade cost determinants show that tariffs and RTAs are statistically significant laterally with time effects. Further, they decompose bilateral trade growth to regulate some elements like income growth, income inequality, and income convergence, reducing bilateral and multilateral trade costs. Income convergence provides the least

while income growth and decline in bilateral trade costs have wide-ranging influences for a different trading companion.

Yeo and Deng (2019) debated on trade cost and protectionism is ravaging in recent years. The industrialized countries are losing more and more market to the benefit of emerging countries. The findings revealed the statistically significant correlation of trade policy variables on exports and imports. The study extended the analysis by examining four specificities groups of trade costs and continuing the analysis by estimating different country groups according to geographical or organizational clusters. The findings indicated that the specificities of trade cost have a statistically significant effect on exports and imports. Moreover, the signs of the coefficients are opposite in both models. The main political implication is that the proliferation of trade cost agreements can have a positive impact on international trade. Feenstra (1998) demonstrates high costs for mattel's barbie doll. The cost of production for the doll is $1, and it vends for about $10 in U.S. The transportation cost, marketing cost, retailing and wholesaling have ad valorem tax equivalent of 900 percent. For industrialized countries, the estimate of tax equivalent of representative trade costs is about 170 percent, i.e., 55 percent retail and wholesale distribution costs, 44 percent border barrier costs, and 21 percent of transportation costs.

Rose and van Wincoop (2001) estimate the currency barriers that affect trade costs and present a dummy variable, which is considered as one when two nations use the same currency and equal to zero otherwise. For 143 nations, the estimated tariff

equivalent associated with using different currencies is 14% when $\sigma = 8$. Rose and van Wincoop (2001) calculate the tariff equivalent of trade obstacles from joining a currency union, and a large number of studies have verified a positive effect of currency unions on trade. By utilizing data for 186 nations from 1970-1990, they estimate a traditional gravity model and conclude that nation in a currency union trade three times as much. Using data from the 19th and early 20th century, Estevadeordal et al. (2003) reveal a big impact of currency union on trade, belonging to the same product regime, such as a gold standard. Rose (2003) deliberates the evidence from 19 papers on the impact of currency unions on trade and finds that overall evidence from all revisions recommends if nations belong to currency unions, it will cause a doubling of trade. Anderson et al. (2004) reveals direct evidence on trade costs and classified it into two main types: costs imposed by the environment i.e., time costs, insurance against different risks, transportation costs, and costs imposed by policy, i.e., quotas and tariffs etc. They provide evidence on transportation costs, wholesale and distribution costs, and international policy barriers, while focusing on existing and previous trade costs in their study by following Williamson and companions' work for historical evidence.

Melitz (2003) develop methods for language differences that influence trade and estimate various variables that each take different features of communication. For example, direct communication is a variable that depends on the percentages of the two nation's people who can speak the same language. Another variable is open circuit communication that is considered one of two nations using the same official language or the language spoken by at least 20 percent of both nations. The direct communication

variable reveals that trade needs direct communication, while the other variable, i.e., open circuit communication, reveals a need to capture an advanced translation network. Evans (2003) estimates the border-related obstacles and reveals that estimates of higher border-related obstacles do not cause home biasness for domestic products. Within a gravity framework, data about the size of border-related obstacles is attained by comparing domestic trade to international trade. Evans also analyzes a traditional gravity model for OECD bilateral trade flows information for twelve industries while keeping trade as dependent variable and distance, GDP, border dummy and remoteness as independent variables. Results show that location is not considered the nationality of a firm that sells the products and after controlling the size of border, remoteness and distance, the local sale within non-USA OECD nations is 4.36 times imports from the USA. The study finds that home biasness is identical when comparing domestic sales in non-USA OECD nations of associates of United States OECD multinationals to import from the USA.

Rose (2000) uses several tools related to inflation and find that the currency union has a significant impact on trade. They first analyze the possibility that a nation implements each of 4 potential anchor currencies and concludes that currency unions' effect on trade is great and significant. Broda and Romalis (2003) utilize an instrumental variables method and find that endogeneity is significant. They claim that currency union should not influence merchandise trade. The finding reveals that the coefficient of currency union instrument remains low and insignificant. Ritschl and Wolf estimate that trade between partners of new currency blocs is 2-3 times greater than the trade between nations with the same currency bloc. Rauch and Trindade (2002) have examined those

information obstacles to trade can be lessened when two nations have an important Chinese network, i.e., population percentages of Chinese ethnicity in two nations. They evaluate a conventional gravity model for both differentiated products that do not have reference price and the reference price products. The finding reveals that the Chinese network variable's trade-increasing impact is greater for differentiated goods than the reference price products. The difference among them represents the impact of information transfer by using the network. These Chinese networks save the cost of information worth 6 percent with an elasticity of substitution 8.

Evans (2001) reveals that external contracting costs are higher than internal contracting costs within a firm. However, the tax-equivalent of trading costs is an average 37 percent higher than U.S. parents' trading costs. The study reveals evidence that limited assets related to transactions, such as the transaction of a brand with sound reputation or technologically advanced character, can play a significant role in this regard. Subsequently, the aims of unaffiliated firms may differ, i.e. there are higher risks related in selling the products that contain considerable branded assets, which may involve greater contracting costs. Rashid (2015) analyzes the domestic terms of trade for agriculture in Pakistan and estimates an efficient terms of trade index from the time period of 2000-2010 for agriculture compared to the industry in Pakistan. On Pakistan's economy, the impact of applying an income tax and agriculture income is estimated by using the computed general equilibrium model (CGE) for Pakistan. Results indicate that terms of trade weakened from 2000 to 2005, while in 2006, the terms of trade index improved rapidly because of the price rises in specific agriculture merchandise. Though,

terms of trade for the Agri-sector stayed unfavorable through this period. The computed general equilibrium model is utilized to estimate the effect of applying income tax on Pakistan's agriculture income. The estimated results reveal that by applying that tax, public income will increase. The consumption of farm-owning households as well as public income will reduce by a volume relative to tax. However, the country's investment increases specifically in construction, manufacturing, and cement industries, as the public deficit decreases because income tax creates a condition where agriculture is not much beneficial source of income. Thus, public switches to more beneficial sources of non-agriculture income.

Theoretical literature reveals that increasing GDP and agricultural protection may increase and decrease agricultural share in the country and when customers consume a smaller portion of their income on food (Brooks 1996). However, per capita income will rise with growing GDP and economic development. Following Engel's law, a lower portion of a household's income is spent on food (Engel, 1857). According to Downs (1957) when taxpayers and consumers pay less attention to government policies, fully informed about costs and policy impacts compensate the individual benefits of reducing alternative policies, they are considered wisely ignorant. Hence, the agricultural programs' costs impact taxpayers and consumers less because they consume a little share of their rising incomes on food they have less incentives to use countervailing stress. Linda (2016) estimates the determinants of trade balance in post-liberalization Ghana using the autoregressive distributed lag bounds test approach. The study also used impulse response function and the variance decomposition to examine the active

simulations of the model's variables. The study examines the evidence of a long-run balance relationship "cointegration" among exchange rate, government consumption expenditure, household consumption expenditure, foreign income, money supply, agricultural growth rate, domestic prices and trade balance as well. Findings reveal that in the long-run growing levels of government consumption expenditure, household consumption expenditure, domestic prices and money supply degrades Ghana's trade balance, whereas foreign income expands it. While in the long-run agricultural growth rate exchange rate remains insignificant. Short-run outcomes also indicate that government consumption expenditure, household consumption expenditure, exchange rate, and money supply cause a fall in Ghana's trade balance. Agricultural growth rate, domestic prices and foreign income were insignificant in the short run. However, the variance decomposition outcomes reveal that household consumption expenditure improvements significantly contributed to the predicted error of Ghana's trade balance relative to other explanatory variables. The results and suggestions of the research provide essential material for trade policy improvements.

Hirsch and Oberhofer (2017) analyze the bilateral trade agreements and determinants of trade distortions in agriculture sectors using different dynamic panel data estimators and reveals that a rise in the number of mutual free trade agreements (FTA) shows significant short-run as well as long-run distortion, reducing impacts. Study shoes that the Uruguay Agreement of WTO on the Agriculture sector do not systematically contribute to lessening agricultural trade distortions. The results thus reveal the lack of efficiency of multilateral trade compromises. Frazzini et al, (2018) analyze trade costs by

utilizing 1.7 trillion dollars of live executive trades data from the time period of 19 years across 21 emerged equity markets and examines real-world trade costs and price effect function. They give a novel description of how the costs may vary across trade size, trade type, stock characteristics, time, and exchanges internationally to check certain theories of price effect. They reveal that real trade costs can be an order of significance and explains the trading process lead to these costs. A model is adjusted to meet the distribution of real costs across stocks, trade size and time to explain the independent costs from dealers and realized costs of trading index funds as well. Their finding reveals that the above-mentioned costs are minimal compared to the price impact costs meeting a large official trader.

2.3 Analysis of Trade Cost: A Case of Pakistan

The trade costs imposed by numerous policy and non-policy barriers on exporters are still considered an impediment in their export growth rate. Noreen and Mehmood (2020), measures the over-year trends in total trade costs and trends in trade costs related to policy barriers. To find out which trade cost-policy barriers are high they 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.

Zahid and Hyder (1986) have secured period 1973-84 and determined rural positions of trade dependent on maker costs, input costs, and buyer costs. After the effects of Zahid and Hyder's examination showed that residential terms of trade regarding customer costs improved over the base year 1973-74 for just three years, i.e.1975-77 and 1978-79, and for the rest of the periods, local terms of trade failed over the base year. Whereas, Chishti and Malik (2001) contended that when government revenues measures to lessen obligations, endowments on agricultural trade, the situation brings expansion in agricultural creation because of extended competition from other nations. Researchers of those agrarian items, which can bring more significant prices in the global market, usually earned after the higher prices and better market. Customers have to follow through on greater costs in this case. Once the costs in the universal market are lesser than the residential market, the free trade takes low benefits for the agriculturalists and brings more purchasing power for the customers. The general public reaps the full benefit in both situations, whether the global market costs are progressive than the profits or costs in native markets are subordinate to the profits.

Duval and Utoktham (2011) and Altaf et al. (2016) used OLS and Panel Fully Modified OLS respectively to analyze trade costs and its determinants. Milner and McGowan (2013) found that trade costs impact the export blend of exchange accomplices. Utilizing an example of assembling businesses from 37 OECD (Organization for Economic Co-operation and Development) nations for the period

1995– 2004, these researchers discover schemes situated in high trade cost nations improvement a generally minor offer in the export of merchandise.

A report directed by the State Bank of Pakistan (2005) observed a gravity model for sectoral level investigation on trade cost. Export values are taken as the reliant variable; some models are incorporated to catch impacts of contiguity, taxes, conflict, area, common language and so forth. The dataset consists of fifteen areas for the time period of 2002 and 2003 to inspect Pakistan's trade capability among leading exchange companions. The outcomes show significant capacity for extending trade among India and Pakistan. As designated by the statement, genuine trade volume might have been distant more prominent had the two nations not occupied with clashes or had tax and non-tariff impediments been kept low. The investigation shows the presence of high trade capacity in food, beverages, refreshments, textiles, synthetic compounds, and leather made items and tobacco items. Rehman et al. (2006) applied a modified gravity model to distinguish trade diversion, trade creation impacts starting from SAARC Preferential Trading Agreement (SAPTA) as well as nine associates from Regional Trade Agreement (RTA). By utilizing panel information technique through nation pair-explicit and year-explicit fixed impacts and mention estimated symbols for all the standard gravity factors and models. They also discovered a substantial intra-regional transfer formation impact now SAPTA, presenting proof of a net export diversion impact too. Their study's outcomes reveal that Bangladesh, India and Pakistan are expected to earn benefit from joining the Regional Trade Agreement (RTA).

Aftab et al. (2009) utilized a technique and determined the sectoral relations of trade for farming in Pakistan for the time of 2000 till 2008. The procedure linked the export cost from the farming to manufacturing division through the imports from manufacturing to agribusiness division. Outcomes recommend that terms of trade for agribusiness stay negative all through this period. In particular, the terms of trade indicators failed from 2000 till 2005. In 2006 terms of trade indicators expanded dramatically because of the cost increment in certain agricultural stuffs. Though, in general, the terms of trade for farming have stayed negative. Reporting increased trade cost, IMF studied Pakistan trade cost. IMF reported that in 2010, the Government of Pakistan's tax revenue is assessed to be around 10% of GDP, with the most minimal on the globe. Just around 1% of the people are enlisted to give income tax. At present, Pakistan consumes about 25% of government profits on protection and additional half on interest and sponsorship installments. This has implied that Pakistan consumes and kept on bringing about a great deficit. Over the most recent 3 years, the financial shortage was about 6% of GDP and in year 2010-11 shortfall expanded to 6.6% of GDP. Over the most recent 3 years, funding the monetary shortage moved to a great extent near bank financing (counting State Bank of Pakistan). Now the financial year 2010-11, about half of the financial shortfall is subsidized complete bank financing (IMF, 2012).

By using Gravity model, Gul and Hafiz (2011) evaluated Pakistan's trade cost and trade capability crosswise over forty-two nations for the time period of 1981-2005. Discoveries of the examination uncover that Pakistan has a colossal capability of trade with EU nations, North and Latin American states and ASEAN nations. Military strains

and the nation's political unquenches ability hamper the nation's trade with its neighboring nations, explicitly India. The investigation additionally found that the nation needs to broaden its fare as far as items and markets. Trade volume can be expanded altogether if the trade potential is completely investigated and the nature of fares is improved, which will upgrade the intensity. Mamoon et al. (2011) broke down intra-local trade execution of Pakistan over the period 2003-2010. They utilized certain trade pointers like Trade Complementarity Index (TCI), Grubel Lloyd Index (GLI), Revealed Comparative Analysis (RCA), Bilateral Revealed Comparative Analysis (BRCA) and Revealed Market Access (RMA) with the end goal of assessment of trade execution. Trade complementarity examination uncovered that immense potential for intra-territorial trade lies between the South Asian nations since these districts are at various phases of creation inside an industry. Trade complementarity of Pakistan along Bangladesh, Sri Lanka was affectionate to be high though Pakistan and India show a low degree of trade complementarity. A general improvement in Pakistan's local economic relations in South Asia was found particularly after the arrangement of SAFTA.

In Pakistan's case, Khan and Kalirajan (2011) estimated the trade cost and explored the idea of decomposition. They decomposed trade costs into different categories of costs and proposed a way to measure these components' effects on change in exports between countries in the lack of complete data on all trade modules between home and partner countries. Khan et al. (2013) analyzed Pakistan's bilateral trade streams with its real exchanging accomplices utilizing panel data estimation. Their investigation utilized Gravity model for the examination of respective trade streams over the time of

1990-2010. The creators inferred that Pakistan's trade size is emphatically identified with GDP and GDP per capita while separation and social similitudes are conversely identified with trade volume. Concentrate found a hidden trade capability of Pakistan with Japan, Turkey, India, Malaysia, and Japan to propose the arrangement of organized commerce territories with these nations. The examination recommended that trade with neighboring nations ought to be improved as lower transportation costs increment the interest in fares and imports.

Ali (2015) estimated the effect of trade costs on the foundation of Pakistan's export and separated small scale-level data from managerial information of exports, imports, and innovation and practices it to evaluate firms and commodities' serious and broad margins. At that point, the study decomposes the reactions of trade margins along various components of firm heterogeneity, including exporters' trade direction, spatial and sectoral division and methods of shipments. Of those that export, just a few transport various items to different markets. There is enormous convergence of firms and items to a couple of business sectors from significant exporting stations. Both the quantity of firms and the arrangement of items rise with the market scope of exchanging partners. The impact of trade costs seems a lot more prominent on the broad limits of practices and items and their serious limits, and this impact is incredibly strong for practices situated in areas that are generally distant from ports. The analysis suggests an enormous unused trade capability of trading, non-trading firms that can be exploited by the enlightening trade-processing foundation, through further policy and non-policy components.

Additionally, it also recommends that approaches planned for expanding the broad margins are considerably more meaningful for advancing exports.

Transportation and customs clearance is the primary strategic difficulties to trade. Popular the World Bank's Logistics Performance Index (LPI). Pakistan ordered 68 out of 160 in 2016 with a normal score of 2.92. It falls behind India, and East Asian comparators, for example, China and Vietnam. This is somehow a direct result of moderate custom strategies. For instance, in 2015, it took 141 hours for exporters and 294 hours for merchants to clear customs at Karachi, weighed a normal 20 hours and 13 hours, separately, in the OCED (World Bank, 2016). The other primary difficulty tested in Pakistan is the unnecessary dependence on a bad quality road infrastructure (and a minimal effort, low-quality trucking industry), with in excess of 90 percent of all cargo being moved by roads. The trade policy advancement of the 1990s has endured an inversion, and Pakistan still has generally high duty and non-tariff hindrances to trade. A consistent program of tariff lessening and rearrangements was completed from 1990 until 2006; for instance, the most extreme custom imposing rate was cut from 65 percent in 1997 to 25 percent by 2003, but this pattern discontinued in the mid-2000s. Pakistan's trade strategy is vigorously dependent on optional instruments, and one-sided against exporters, particularly SMEs. High import obligations on intermediate products perform as a tax on exporters, who will, in general, utilize imported inputs more seriously than non-exporters. Subsequently, there is an effort to countervail this with unique omissions to firms and administrative orders. For instance, nearly 45 percent of imports (by all out worth) claimed some type of customs obligation exception in 2015/16, but obligation

exclusions excessively advantage enormous firms. To profit by a custom obligation exception, a corporation must import its inputs directly, which is more probable for enormous exporters. For example, little firms in the textile cluster depend on commercial shippers and along these lines have to face a greater effective cost of imported inputs. About 75 percent of customs obligation exceptions are claimed by the biggest 100 firms (World Bank, 2016).

Saba et al. (2017) analyzed the estimates of trade costs for Pakistan's trade with major trading partners across Asia, Europe and North America over the period 2003-2012, using Panel FMOLS. The study observed the connection between trade costs and its major determinants using panel data estimation techniques. They studied tariff, shipping cost, distance, area, FTA. World Bank reported that investments related to connectivity, for example, the China-Pakistan Economic Corridor (CPEC) can open the better potential for Pakistan. Trade coordination, better foundations, and border administration can improve the nation's ability to take part in local worth chains adequately. Different activities to seek regional connectivity, by building up a trade and travel system linking South Asia as well as Central Asian Republics (CARs), can advance Pakistan's situation as an "economic pathway". Explicit activities to accomplish this objective include: directing some components that are important to sustain improved travel and business trade; embracing a modern risk-based way to deal with administrative consistence for cross-edge trade, sustained by a strong and empowering legislative structure; and completely representing a computerized, shortened and straightforward arrangement of administrative controls by all border organizations (World Bank, 2016).

Recent literature by Ahmed and Hina (2019) evaluated the effect of trade cost on exports of Pakistan with its main trading companions, exchange rate, peoples, distance with partner countries, and tariffs imposed by partner countries. This concept is considered based on the model by [Tibergen (1962); Bergstrand (1985) and Deadroff (1995)]. They examined the results by taking the data from 2005-17 and concluded that with tariff, population and GDP, there are positive relations of Pakistan's exports. While with distance and exchange rate, there is an inverse relation indicating that the higher the distance, the less the exports and the problem of exchange rate uncertainty. According to the results, they suggested that there is a need for consistency in export purposes that are not flexible in Pakistan's case. They also suggested that Pakistan should emphasize at the internal cost of doing business with primary concentration on refining compliance cost and also there is need to eliminate protective policies that reduce the capability to participate for Pakistani businesses. After Ahmed and Hina (2019), few studies on Pakistan trade cost by Altaf et al (2020) explored that the trade costs are cited as an important determinant of volume of trade. Higher trade cost is an obstacle to trade as it impedes the realization of gains from trade liberalization. Determinants of trade costs of Pakistan for the period 2003-2012 with their major trading partners across Asia, European Union and North America are investigated. Several gravity type variables have been used as trade cost determinants. Trade costs for agricultural and non-agricultural sector are also calculated using a micro-founded trade costs measure. Estimates of trade costs equivalents show a declining trend of trade costs estimates over the period of study. Fully Modified Ordinary Least Square estimation of the model shows that tariff rates and

distances between the trading partners increase the bilateral trade costs and thus adversely affect trade. Results show that improvements in port infrastructure and membership of free trade agreement significantly reduce the trade costs. Z-test shows that the effect of determinants of trade costs for agricultural and non-agricultural sectors is invariant. This paper recommends that the agreement on trade facilitation be implemented and reduce the red tape at border crossings to cut down the trade costs.

Poorly planned or executed regulations can hamper proficient resource restructuring and firm dynamism by certainly preferring a few firms over others (Restuccia and Rogerson, 2017). For example, legislative highlights of the tax code or employ guideline may force greater expansion costs on firms' specific classifications. An excessively trapped production licensing system could prompt licenses being over-designated to firms that are acceptable at managing red tape. Direct intervention by the state may also deform markets. For instance, agricultural cost assurances can deform farmers' motivating forces to turn out to become more effective. An excess of capital can be dropped into ineffective state-claimed undertakings. So the, shortcoming in the market supporting framework can also hamper the ability of business sectors. For instance, credit distribution could be one-sided toward huge firms without better information frameworks. This segment clarifies how such expressions continue in key parts of the Pakistani economy.

To finish up, an audit of the writing demonstrates that a well-created foundation alongside a couple of other arrangement factors, such as tariff hindrances and conversion

standards, are the fundamental determinants of trade costs of any district. Few such investigations accessible numbers estimate trade costs of Pakistan just as recognizes its determinants. Therefore, the current investigation turns into all increasingly critical to fill this research gap.

Chapter 3

Trade Cost Measures

3.1 Trade Cost Measures

Trade costs are an obstruction to free trade of merchandise among commodities. They hamper the volume of universal trade too. Trade costs are huge, even beside trade strategy barriers. Estimation of these trade costs is a lumbering method. A comprehension of the barriers that obstruct worldwide economic joining is basic to devise the measures, which could reduce these trade costs and help encourage the bilateral trade pattern. This examination deployed Novys (2008) trade costs measure. This is a small-scale established proportion of trade cost that has been gotten from Anderson and Wincoop (2003), dependent on the Gravity model. Gravity approach is the most broadly utilized instrument for demonstrating the bilateral trade streams, as it relates the nation's bilateral trade with GDP and trade costs. This measure scientifically solves the hypothetical gravity approach for trading cost factors that catch impediments to global trade.

Conventional gravity estimation limits a particular trade cost function, depending on some trading cost proxies, such as geographical separation as an explanatory variable. Some other significant factors which have a significant role in determining trade costs are neglected. These incorporate the role of informational cost, language barriers, non-tariff barriers and so on. Moreover, the trade cost intermediaries utilized in conventional gravity conditions, such as separation between the two nations, are invariant. Though in reality, the trade costs do differ after some time and the differences can only be captured

by including time-variant factors of trade costs. This measure is obtained by Novy's trade cost measure as a function of time-variant noticeable trade information and permits to catch variations in trading costs over time. However, if nations impose some levies in their trade (as is normal situation), at that point, it is impossible to expect bilateral trading costs asymmetric. To the extent that a nation can impose a higher levy on imports from a partner nation comparative with what that partner nation imposes, bilateral trade costs are asymmetric, i.e. ($t_{ij} \neq t_{ji}$). If trade duties among two nations are considered equivalent, it seems unrealistic to expect that other trade functions will also be the same. Therefore, it pursues that inward and outward bilateral trade resistance among nations i and j are not equivalent ($\Pi i \neq Pj$).

To address these disadvantages, Novy (2010) created a straightforward, systematic way out for the bilateral trade resistance variable, thus resolved the trade costs function. However, this technique depends on a claim that variations in trade impediments do not just influence worldwide trade local trade however also, because when a nation eliminates or diminishes trade taxes, some products that are produced for local use are also transported to outside nations, suggesting that trade barriers affect local trade also. The conventional theory-based gravity model miscalculates the boundary costs since it does not consider the non-tradable (domestic trade) portion. Trade barriers do not just influence global trade, however local trade too. The constitution behind this claim is clear; variation in trade obstacles will give a move-in resources between tradable and non-tradable sectors (import challenging) and it can bring changes in trade flows as well (either multilaterally or bilaterally). It is particularly in case of multilateral obstruction of

trading nations since it depends on local trade. It suggests that there is a requirement to incorporate local trade-in gravity model to represent the home business as well.

However, the Novys technique is to defeat disadvantages related to the theory-based gravity equation by Anderson and Wincoop (2003), which imposed some random trade cost functions. Theory-based gravity condition was a modification of conventional gravity conditions to incorporate some multilateral trade resistance factors.

Thus, a micro-founded trade cost measure derived by Anderson and Wincoop (2003) based on a multinational equilibrium model which is expressed as:

$$xij = \frac{yiyj}{yw}\left(\frac{tij}{\pi_i p_j}\right)^{1-\sigma} \quad \text{-------1}$$

$\boldsymbol{Xij}$ denotes bilateral trade from country i to j, while the nominal income of country i and j are represented by $\boldsymbol{Yi}$&$\boldsymbol{Yj}$, $\boldsymbol{Yw}$is world income, $\boldsymbol{\Pi i}$is multilateral resistance of country i, $\boldsymbol{Pj}$ is multilateral resistance of country j, and $\boldsymbol{tij}$is bilateral trade cost measures, σ is the elasticity of substitution between goods. The significant improvement in Anderson and Van Wincoop's (2003) model is to integrate importer and exporter price indices (P and Π) such that trade not just depends on bilateral trade costs among two nations but also depends on the trade "resistance" which they face with all of their trading companions in rest of the world. If πi is greater than $\boldsymbol{Pj}$, country i is more likely to trade with country j, meaning the multilateral resistance of country i to all other partners is higher.

By using Equation (1), consider intra national trade of country i as:

$$Xii = \frac{yiyj}{yw}\left(\frac{tii}{\pi_i p_i}\right)^{1-\sigma} \text{... (2)}$$

and rewrite it as:

$$\pi_i p_i = \left(\frac{xii/_{yi}}{yi/_{yw}}\right)^{\frac{1}{\sigma-1}} tii \quad \text{... (3)}$$

Multiplying equation (1) with $\boldsymbol{Xji}$, we obtain:

$$x_{ij}\, x_{ji} = \left(\frac{y_i y_j}{y^w}\right)^2 \left(\frac{t_{ij} t_{ji}}{\pi_i p_i \pi_j p_j}\right)^2 \text{... (4)}$$

We can derive bilateral trade costs relative to domestic trade cost by substituting (3) for country i and j into (2) expressed as tariff equivalent by subtracting 1:

$$\tau_{ij} = \left(\frac{t_{ij} t_{ji}}{t_{ii} t_{jj}}\right)^{\frac{1}{2}} \text{-1} = \left(\frac{x_{ii}\, x_{jj}}{x_{ij} x_{ji}}\right)^{\frac{1}{2(\sigma-1)}} - 1 \text{ ----------(5)}$$

where,

τij = tariff equivalent trade cost i.e., measures domestic trade relative to bilateral trade.

tij = international trade cost from country i to j.

tji = denotes international trade costs from country j to country i.

tii= intra-national trade costs of country i.

tjj = intra-national trade costs of country j.

xij = international trade flows from country I to country j.

xji = international trade flows from country j to i.

xii = intra-national trade of country i.

xjj = intra-national trade of country j.

and elasticity of substitution between goods is denoted by σ.

τij is defined as "a ratio of trade cost across national border relative to trade cost within national border weighted by the elasticity of substitution". It must be noted that τij is not directional, i.e., τij determines the barrier between country i and j on average, reveals that this is a two-way trade cost measure. Instinctively, it calculates bilateral trade costs for both exporting and importing countries. Thus, trade costs τij, represent international trade costs among nations i and j relative to local trade costs within the nation. Instinctively, the trading costs are higher if nations trade more with themselves than trade with each other, i.e., as $XiiXjj/XijXji$rises. International trade costs must be reduced compared to domestic trade costs, as the ratio falls and nations trade more internationally than locally. An additional advantage of Novys trade cost measure is that it permits the time-varying dimension of bilateral trade obstacles. However, we can examine and explain the determinants of trade costs and bilateral border effects with readily available data for trade and production in tradable product categories.

Elasticity of Substitution

The evaluations of trade costs from trade streams are very sensitive to theories concerning the elasticity of substitutions that is σ. Though several studies have determined the elasticity of substitution from mutual trade flow procedures, merely some have utilized the theory-based gravity. An approach to attaining an estimate of σ is to apply the data as directly observed from trade obstacles. Harrigan *et* al., explained the estimation of theoretical gravity equations by information regarding tariffs and

transportation costs. However, previous literature reveals that σ is likely to be in the range of 5-10.

Chapter 4

Methodology

4.1 Methodology

World trade has grown significantly due to globalization in recent decades, such as new technologies in transport services are introduced and changes occur in international strategy. The conventional trade theory believes that nations that specialize and export commodities either because of technology or productivity have a comparative advantage (Ricardo, 1917). According to some other economists, the comparative advantage decides international trade patterns between some countries in the world of monopolistic competition and because of differentiated products and several substitution factors, as customers prefer variety (Krugman, 1980). The highly competitive and technologically improved country can export toward other countries around the globe in monopolistic competition. In the countries, trade pattern also depends upon combined preferences for commodities, Linder (1961). The advanced gravity model predicts that the trade volume between the two nations always depends on their economy size and distance between them. The gravity model depicts trade volume between nations as being positively correlated to the sum of GDPs of trading nations, while the distance between them is negatively related; as the distance between them rises, the trade volume decreases (Tinbergen, 1962). Because of these appearances of the Tinbergen technique, the gravity model is named as its correspondence to Newton "Absolute Gravitation Law."

The gravity model is used to examine economic and trade theory proposition and estimate the international trade pattern, Bergstrand (1985) & Deardorff, (1998). The gravity model's relationship appears in every trade-related model, including trade costs that rise through distance, for many products, it correctly forecasts trade flows among nations. The empirical facts reveal the increasing cost of trade challenged by exporting nations, decrease export ratio, and the number of merchandised products, Melitz (2003). The advanced gravity model of Anderson & Van Wincoop (2003) contains all characteristics which decide the mutual trade flow that economists earlier expected. They develop a gravity model that includes the impact of trade costs and classifying trade costs into distance and border effects among trading nations. They believe that trade cost includes only differences geologically, but border trade costs have further classification, i.e., tariffs and non-tariff obstacles toward trade (Chen, 2004).

4.2 Gravity Model

The trade costs are cited as an essential determinant of international trade. Given the nature and pattern of the trade costs, the gravity model of global trade is most appropriate for determining factors that influence trade costs. This is because of the model presents core association among trade flows as well as trade barriers. The gravity model has also become a major pillar in applied International Economics (Evenett and Hutchinson, 2002). Jan Tinbergen (1962) proposed the gravity model, which describes universal bilateral trade. Newton's gravity equation is as follows:

$$Tij = G\ (YiYj/\ Dij)\ \ldots.\ (6)$$

Tij is respective exchange volume, for an aggregate of imports and exports; Y_i is nation i's GDP and Y_j is nation j's GDP, also the Dij is the separation between nation i and nation j; G is gravitational constant term; without any subscript script because this connects to a typical gravity condition in accompanying structure. The multiplicative essence of equation (6) implies it can be made linear in parameters by taking logs.

$$\ln T_{ij} = ln_G + \alpha_1 lnGDP_i + \alpha_2 lnGDDP_j - \alpha_3 lnD_{ij} + \in_{ij} \ldots\ldots(7)$$

The gravity model of the globe or international trade is more likely to use and estimate the factors influencing trade costs, depending on the nature and trend of pattern costs, because the gravity model will give us the primary association between trade flows and trade barriers. In equation (7) the coefficients α_1>0, α_2> 0, α_3<0 and the coefficient α_3 signifies the gap between ' i ' and ' j ' trading countries that marks in trading costs, particularly in costs of transportations (World Trade Report, 2012). From various trade theories, the gravity model can arise. In the light of the economists' gravity model is a direct result of Paul Krugman (1980)'s monopolistic model of competition trade. The gravity model is the only model that captures the effect of tariffs as well as non-tariff barriers excellently. They accomplished that trade gravity model in bilateral trade partners effectively analyzes empirical evidence of trade impact. The model can approximate the trade protectionist strategies on the volume of trade. The gravity model is also proficient on the way to examine the trade enhancing impact, Moemus (2004) & Mahe, (1997).

4.3 Empirical Model

$\tau ij = f$ (DIST, TARIFF, EXCH, LSCI, INF, CONT)……..(8)

Where τij is a dependent variable reflecting the tariff correspondent of trade costs, whereas DIST is the distance between Pakistan and the partner countries. TARIFF is the product of tariffs imposed by Pakistan and other trading partners, and EXCH is the official exchange rate for Pakistan (taken in current US dollars). LSCI is the Pakistani and partner country linear shipping connectivity index, INF is inflation. CONT is a dummy for contiguity and if two partner countries share a common border, then the value of contiguity will be 1; otherwise, it will be considered zero. At the back of Novy (2007), mutual observation of non-bilateral variables for the nation i and j is generated by multiplying each country variables that lead to symmetric and constant interaction consequences.

4.4 Empirical Specification

The empirical general model is transformed as the following econometric equation, which links trade cost with its determinants and is given as follows:

$\tau ij^{A} = \beta 0 + \beta 1 EXCHijt + \beta 2 TRit^{*} TRjt + \beta 3 DISTij + \beta 4 LSCIit * LSCIjt + CONT_{ij} + \beta_6 INF + \varepsilon_{ijt}$ …. (9)

$\tau ij^{M} = \beta 0 + \beta 1 EXCHijt + \beta 2 TRit^{*} TRjt + \beta 3 DISTij + \beta 4 LSCIit * LSCIjt + \beta_5 CONT_{ij} +$

β_6INF+ ε_{ijt} … (10)

where,

i= home country (Pakistan)

j=partner country

τij^A is tariff equivalent trade cost for agriculture sector

τij^M is tariff equivalent trade cost for manufacturing sector

EXCHijt is exchange rate between country I and country j in year t.

TRit is tarif imposed by home country

TRjt is tariff imposed by partner country

DISTij is distance between home country and partner country

$CONT_{ij}$ is contiguity show common border between home and partner country.

LSCIit is linear shipping connectivity index of Pakistan.

LSCIjt is linear shipping connectivity index of partner countries.

INF is inflation rate of home country.

4.5 Method

The study uses balanced panel data set of nine major partner countries of Pakistan for the time period taken of 2002-2017. Panel data assessment involves estimating the performance of the different cross-section variables over time. It is essential to find the order of co-integration of the variables before determining the model, as the variables can show a trend, i.e., they may be non-stationary.

4.6 Diagnostic Test

While moving to the key evaluation methodology, different tests are performed to run regression analysis. The tests are stated below.

4.6.1 Descriptive Statistics

In first step the descriptive statistics of all variables are described. Descriptive statistics explain the summary of all variables data quantitatively. Some statistics i.e. central tendency and measure of dispersion are used to describe the sample. Summary statistics begin from reporting the number of observations comprised in the sample, after this central tendency is used that includes maximum and minimum values and mean, median plus mode, and then standard deviation is also used as a measure of dispersion.

4.6.2 Test for Stationarity

Levin and Chu (2002), Hadri (1999) and Pesaran & Shin (2003) have recently developed panel-based unit root tests which are more efficient than the unit root test that implemented on individual sequence. The Panel unit root tests assume a widespread unit root method based on the null hypothesis of unit root and other alternatives of stationary time series. Levin-Lin test is designed for balanced panels and is therefore ideal for our data set. If the test results reject the unit root hypothesis at the average level of

significance, then that variable is stationary at the point i.e. I(0), while rejection at first difference will indicate I(1) series.

4.6.3 Hausman Specification Test

Two econometric techniques are used to evaluate the panel data if the variables show stationary trend at level, i.e. I(0), these are fixed effects as well as random effects (which are based on the book by Baltagi). These two methods can be used to estimate unique cross-section specific coefficients for variables comprised in model. The Hausman specification test is performed to choose between Fixed Effects also Random Effects model.

It assumes that estimators are consistent under the null hypothesis, but βo is inefficient, while under the null hypothesis, βo is consistent and efficient, but β1 is inconsistent. Therefore, Hausman test in the panel data helps to analyze whether the repressors are associated with individual effects or not. Furthermore, if Hausman testing is conducted on the panel data and if H-statistics show a significant difference between estimators, then the null hypothesis is rejected, moreover random effect is not appropriate for estimation.

If all the variables show stationary trend at 1^{st} difference, i.e. 1(1) implies the same order of co-integration, then, according to Engel and Granger (1987), if the residuals obtained from simple OLS estimation are stationary, co-integrated variables will appear and have a long-term relationship. Kao (Engel-Granger inspired) co-

integration study had applied the same approach, based on the nullity of no co-integration and the alternative hypothesis of co-integration existence. If the test results deny the normative significance of the null hypothesis of co-integration, then we can conclude that there is co-integration and that variables have a long-term affiliation. However, suppose all the variables exhibit stationary trends at different integration orders like some at the level I(0) and some at first difference I(1). In that case, the Philips-Ouliaris co-integration test is applicable, based on null no co-integration and the alternative hypothesis of co-integration existence.

If the above panel co-integration test yields result that demonstrate a meaningful co-integration relationship, then the model can be estimated, and long-run coefficients will be given. Estimating the equation in the panel context with ordinary least squares (OLS) will yield asymptotically biased results with undesirable serial correlation and endogeneity problems.

This study uses panel data and in panel data, both cross-sectional, as well as time series, are involved. Moreover, there may arise the problem of autocorrelation and heteroskedasticity. EGLS method is used to resolve these problems of autocorrelation and heteroscedasticity, and this method gives more better results and high significance most of the time as well. Moreover, in cross-sections, the sizes of countries are different so we assign cross-section weights.

Estimation Technique of Study

The econometric model of study is used when there exists a problem of heteroskedasticity in the model. The heteroscedasticity is a circumstance in which the variance of error term or the residual term in a regression model varies, i.e., a regression model that does not have a constant variance. In the presence of heteroscedasticity problems in the model of ordinary least square (OLS), the estimates will give biased as well as inconsistent results. Particularly, when the dependent variable elements have unequal variances or correlated, the variance is no longer a scalar variance and covariance matrix; hence, there is no assurance that the OLS estimator is most efficient within the class of linear unbiased (or class of unbiased) estimators.

Alexander Aitken first developed GLS method in 1936 and it is an extension of the well-known least-square (LS). It is a technique in statistics that estimate unknown parameters in linear regression model, when there is an association among the residuals in a regression model. In these cases, the ordinary least squares (OLS) and weighted least squares (WLS) can be statistically inefficient and give disingenuous suggestions. The generalized least square (GLS) method is projected an evaluation procedure that yields coefficient estimators at least asymptotically more proficient than single equation OLS estimators. The basic advantage of this method is the possibility of estimating the parameters of a system corrupted with the noise of an arbitrary spectrum (Soderstrom, 1974).

The GLS model simplifies OLS regression that settles down assumption, which describes that the errors are homoscedastic and uncorrelated.

The OLS assumes that

$Var(\varepsilon) = \sigma 2I.$

while GLS assumes that

$Var(\varepsilon) = \sigma 2\Omega.$

$\sigma 2\Omega$ is an $n \times n$ symmetric, invertible matrix whose diagonal elements indicate the error variances for every case, moreover whose off-diagonal elements specify the error correlations for each pair of cases. Due to this change in assumptions, the GLS rather than OLS are unbiased estimator of β by the minimum sampling variance among the class of linear unbiased estimators (Greene, 2008).

4.6.4 Data Selection

Based on panel data, this study addresses the econometric method on which panel data is estimated. Panel data is commonly utilized because time series and cross-sectional dimensions both are provided. There are many advantages of panel data as compared to cross-sectional data. A key benefit of panel data is that the results obtained are so efficient, as the sample size of data can significantly be enhanced, (Baltagi, 1998). Another benefit is that in the case of panel data, omitted variable bias can occur less often. Moreover, it can be balanced or unbalanced. If the time period for each cross-sectional observation remains the same, the panel data shall be considered balanced,

while in the case of unbalanced panel data set, the number of observations between the cross-sections is different. This study analyzes Pakistan's trading costs in addition to its foremost trading partners, including Bangladesh, China, Italy, Saudi Arabia, India, Korea, Kenya, turkey, and Sri Lanka. Pakistan is an exporting country in this study, while above some exporting countries are agricultural and non-agricultural.

In this study, along with tariff, inflation, distance, linear shipping connectivity index (LSCI), gross domestic product of importing countries and GDP of Pakistan is also analyzed for calculating Pakistan's trade costs for the time period of 2002-2017. GDP indicates the country's size also a stage of economic growth that affects the dynamics of exports (Besedina, 2015).

4.7 Definition of Variables

Variable	Variable	Definition	Proxy of	Data Source
EX	Export	Bilateral trade flows between country *i* and *j*	Direct Variable	United Nation International Trade Statistics database. UN Comtrade
GDP	Gross domestic product	Output of agricultural and non-Agricultural sectors of country *i* and *j* in current US Dollars	Direct Variable	WDI (world development indicators) World Bank
TARIFF	Tariff	Product of simple average tariffs imposed by Pakistan and partner Country	Measure of restrictiveness	WITS
ER	Exchange Rate	Average official exchange rate of Pakistan (US Dollar)	Competitiveness	Pakistan Economic Survey, GOP

DIST	Distance	Distance between Pakistan and partner countries capital cities	Transportation costs	CEPII
CONT	Contiguity	Dummy equal to unity if two countries share a common border, zero otherwise	Information costs	CEPII
LSCI	Linear shipping connectivity index	Product of country *i* and *j* scores on liner shipping connectivity index	Trade infrastructure	WDI, World Bank
INF	Inflation	General increase in price level and decrease in purchasing power	Direct variable	WDI, World bank

Chapter 5

Variable Description

5.1 Data and Selection of Variables

In this chapter, the variables assortment, their data as well as sources utilized to perform this study, are described. Annual panel data for the time period of 2002-2017 is used to analyze Pakistan's trade cost of agriculture and manufacturing sectors. Data is collected from WITS, UNComtrade, (CEPPII), WDI, World Bank as well as the Economic Survey of Pakistan.

Furthermore, this study employed the panel generalized least square model by using tariff, distance, linear shipping connectivity index, exchange rate, contiguity and inflation. These variables are listed below:

5.1.1 Exports

The export is a function of global trade, where products formed by one nation by utilizing labor and capitals are dispatched to other nations for further trade. The trade of this merchandise produces income for that nation, which includes its national GDP. While examining the nation's development and financial execution, exports play an exceptionally huge and efficient job. Hence, to calculate Pakistan's trade cost and examine the impact of tariff and other determinants on Pakistan's trade cost, this study utilizes Gravity model that requires trade costs as a dependent variable. However,

Pakistan's official agriculture and manufacturing exports information with nine countries from U.N. Comtrade in U.S. million dollars is collected from 2002 to 2017.

5.1.2 Gross Domestic Product

The gross domestic product shows the production capacity and monetary execution of nations. In current U.S. dollars, gross domestic product of both Pakistan and its trading partners are utilized. Gross domestic product of Pakistan is a proxy in the direction of its supply limit of exports. Gross domestic product is taken from world development indicators (WDI). GDP is the estimation of all final goods and services formed inside a nation in one year. It includes all yields that are created inside the boundaries of a nation. The nation's gross domestic product incorporates the nation's personal consumption expenses, Government expenditure, business venture, and net exports. There are three procedures concerning the gross domestic item that incorporates income, expenditure and product approach. Whereas the consumption approach incorporates only the expenditure value made as a result of the final consumer and the income approach contains the total summation of all payments created as a result of production. In contrast, all value-added products in each phase of production are included in the production approach. Literature also reveals that GDP considerably concluded the nations' financial exhibition (Anzuini *et al*. 2012).

Moreover, literature reveals, that countries with bigger GDP have a positive and direct connection to their imports. Simultaneously, as the GDP of nations rises, their buyers' interest for variety, protected along with standard products, also increases, and

their import markets also change. The nations can make their situation in remote markets that can fulfill exports products standards and high quality.

5.1.3 Distance

In the gravity model, the distance appears as a proxy of transportation cost and the coefficient of distance is expected to impact trade costs directly. It is measured by geographical distance between two countries and there are different measures among trading countries, i.e., capital city distance, border distance and major city distance. This study uses border distance between Pakistan and its partner countries in kilometers (Km) and the data is taken from the Centre for Prospective Studies and International Information (CEPII). According to gravity model by Jan Tinbergen (1962), the distance among countries has a substantial role in trade, and bilateral trade among the two nations is based on their respective GDPs and distance. Trade volume is inversely related to distance and directly related to the GDP of trading countries. According to Leamer and Levinsohn (1995) effect of distance on trade, costs is the most valuable and substantial factor. Literature also reveals that if border distance among partner countries remains large, it will raise transportation costs between them and decline trade between them. Hong (1999) also empirically demonstrate that when distance rises among countries, trade cost also rises while overall trade volume declines. However, globalization improves economic activity, leading to a decline in transaction costs between trading countries

5.1.4 Tariff Rate

Tax or custom duties which are imposed on imported products, are called as tariffs. The tariff is imposed on imports by the government because it is used as a protective measure to limit trade flow. The tariff imposed by the partner countries is expected to raise the mutual trade cost, also the imposition of tariff reduces the intensity of imports and exports because, in the manufacturing of exportable goods, imported raw materials and inputs are used, which cause a shift towards local trade and thus increases trade costs. Thus, overall international trade volume fall and local trade raise, consequently increasing trade costs. Hoekman and Nicita (2011) investigated different types of trade constraints applied at the border involving tariffs and thus discovered a direct link between trade costs and tariffs. Gravity model by Tinbergen (1962) incorporates the additional variable that describes the impact of limiting or promoting joint trade. This study uses simple weighted average tariff data of all chosen countries, which they imposed on Pakistan's all exported products from the year 2002-2017. The data is collected from the WITS online tariff download facility.

Bao & Qiu (2009) studied that tariff is a relatively more harming trade barrier instrument than the other non-tariff barriers. Tariff rates act as the barrier to trade, thus it increases trade costs. Levying of tariff rate decreases import and exports as well, because tariff rates levied on the import of raw material for the production of export-able goods, that causes switch toward the intra-national trade that leads to enhance trade costs. Therefore, an increase in tariff rates affect adversely overall the trade flows. Product of

tariff rates levied by Pakistan and the trading partners is deployed, reflects a degree of market access in the two countries, that leads to an increase in the trade cost. Coefficients sign for the variable estimated is positive

5.1.5 Implication of Tariff on Trade

Kurgman et al. (2008) studied the impact of tariffs on exporters, importers, and overall trade in their book of International Economics. Before the imposition of tariff, the world price is for exports for the home country lower in foreign countries while they can get high price domestically. Exporters are not willing to export unless foreign price exceeds the domestic price. There is excess demand in the foreign market; thus, prices in foreign markets rise unless it reaches the domestic price of exported goods. On the other hand, high prices for exportable goods in the domestic market cause the rise of quantity supply, with less demand and excess supply in exporting countries because of the market price in the domestic market. Thus, the foreign country's price rises and the domestic market price falls until it reaches equilibrium. In the presence of that market situation when the tariff is imposed by importing country on exporting country products, then prices in foreign market increases, while due to tariff exporters of the home country badly affected, as export price increases in a foreign market that cause low product demand in the foreign market, as now it becomes costly for foreign consumers.

If the rise in price in the foreign market is not equal to tariff cost, then the tariff burden will shift to exporters. The high prices due to tariff cause lower export demand in the foreign market, leading to excess supply in the domestic market. So, due to tariff,

exporters gain less in the foreign market. On the other hand, due to domestically excess supply of those goods, they also face lower domestic market prices. However, it is not profitable for exporters, which leads to reduced supply and increased demand domestically and thus, overall export supply decreases by exporting country. Thus, the volume of goods traded declines due to applied tariffs. At that point, foreign country export demand equals to exporting country export supply with loss of trade volume (Kurgman et al. 2008).

5.1.6 Exchange Rate

The exchange rate has a significant impact in household macro-economic indicators as well as on the general exchange of the nation. It is the rate at which one currency is exchanged against another currency's value among two monetary standards. The exchange rate is characterized like the estimation of local country currency as far as international standard currency. In this study, the average official exchange rate concerning Pakistan (in U.S. dollars), is used as a proxy for competitiveness.

Pakistan's official exchange rate data is collected from the Pakistan Economic Survey (GOP) from 2002-2017. The State Bank of Pakistan (SBP) reports the official exchange rate against U.S. dollar. This study utilized Pakistan's nominal exchange rate as the explanatory variable and it is utilized for all partner countries as an explanatory variable. Depreciation of the exchange rate is utilized here, which implies Pakistan's currency depreciation with US$ (PKR US$).

As indicated by Pakistan National Tariff Commission (2015), normal trade theory connects exports along with variations of the exchange rate. The variances in exchange rate influence mutually the value as well as the amount of trade. If the domestic exchange rate rises, then that nation can buy fewer imported products in exchange for the exports of local products. In contrast, domestic products become relatively cheap for overseas and imported products become costly for domestic purchasers and makers after the devaluation. Domestic purchasers can purchase a smaller amount of imported products, whereas foreign buyers can buy generally supplementary imported products. It reveals that currency devaluation will mark the trade surplus of that country. However, currency depreciation will profit toward domestic country if there is a resilient export demand of that nation's products. While in the case of weak elasticity of export demand, the exports of local products will not increase.

Moreover, the domestic nation's currency devaluation will improve exchange balance if demand for imported merchandise is flexible. It will prompt a change in consumer behavior into a domestic nation, since because of increment in the exchange rate, the relative demand of imported products falls because of its price rises. At that point, the domestic nation's consumers will repay its utilization of imported products by consuming local items instead of foreign products, and that will be compelling the worth of imports toward fall.

Baldwin and Krugman (1989 reveals that large exchange rate shocks effects trade. In the present globalized world, industries are so unified, as one industry relies upon

other industries; if any industry produces export items that need a huge extent of imported inputs, then if currency devaluates of that nation, it will influence imported inputs utilizing in the production procedure. Inputs required to create export items will be more expensive and may not really be substitutable with locally produced items. Furthermore, levels of exchange rate have a significant effect on foreign investment flows and foreign debt installments. Currency devaluation of a nation infers that the amount or volume of liability to be paid through that nation rises into aboard currencies, while the worth of domestic currency debt reduces for overseas creditors. Singh & Mathur (2012) expressed that the exchange rate coefficient is anticipated in the direction of a negative symbol by maintaining this exchange rate affiliation through trade.

5.1.7 infrastructure

The conventional Gravity model uses distance to demonstrate transport costs and these transport costs are the component of distance and infrastructure (Bourghees et al. 1999). In this way, the conventional gravity model was modified to incorporate additional variables as well. Hence, the linear shipping connectivity index (LSCI) is utilized in this study to measure the trading nations' infrastructure advancement. Literature reveals a negative connection among linear shipping connectivity index (LSCI) and trade costs; by Duval *et al.* (2011) also utilized this index to obtain the international shipping costs and related services accessibility in addition to proficiency. The five quantitative indicators made this index such as: number of ships delivering services to importing and exporting countries (b) joined TEU (20-foot proportionate unit: standard size container) loud capacity of these ships; (c) number of services provided; (d) number of liner

organizations giving these services; and finally (e) maximum vessel size accessible into a nation. These five indicators collectively give an inclusive analysis of the sea services accessible and the port framework's quality. LSCI is taken as a proxy for trade infrastructure and services, and the coefficient of LSCI is expected to have an inverse relation with trade costs. Better infrastructure services facilitate trade hence lessening transportation costs and overall trade costs. However, about 80% of the worldwide trade still occurs via shipment (Duval and Chorthip, 2011). The distance among partner nations and border connectivity are geographical features that decide trade costs. These geographic components can influence physical transportation costs and, furthermore, catch the chance to trade information, as in the common border connectivity. Efficient maritime connectivity and better port productivity (of both Pakistan and partners) lessen the delays in the shipment of trading goods, and thus lower the trade costs.

5.1.8 Contiguity

Our model includes a dummy variable to show a common border with the trading partner. Common border again is a proxy for transportation and information costs, which tend to be lower for contagious trading partners because they are well known of consumers' demand and trading prospects and can make mutual trade less costly. The nations that are connected with common borders are indicated through a unitary significance of dummy variables, which is known as contiguity. The coefficient of contiguity is expected to be negative. Novy (2007) also found a negative linkage between trade costs and contiguity. Contiguity is used as a proxy for capturing information costs.

Data on the contiguity of trading partners are taken from CEPII website from the time period of 2002-2017.

5.1.9 Inflation

The inflation is said to be decrease the purchasing power of currency due to a rise in the economy's prices. The rise in inflation effects trade cost through different channels as it effects different type of costs, for example, purchase of inputs and raw materials which are used in the manufacturing of exportable goods become more expensive as the purchasing power of the dollar falls relative to other currencies, thus switched towards the increase in trade costs. It also affects transportation expenditure, which leads to an increase in trade costs. The increase in prices can decrease exports because of competition in international trade. Domestically rise in inflation makes domestic goods more costly and less attractive for the local consumers, who increasingly shift to less costly imports. Thus, these higher prices decline the level of exports because of competition in international trade, Houck (1979).

Chapter 6

Results and Discussion

6.1 Sectoral Trade Costs

Table 6.1, along with 6.2, demonstrates the trade costs of the agricultural and manufacturing sectors. On average, Pakistan and Saudi Arabia have lower trading costs in their mutual trade, i.e., 7.92% for the agricultural sector and 1.32% for manufacturing sectors. Many factors involved behind these lower costs between these two countries; these comprise cultural relations, geographical proximity, ample energy supplies, no currency limitations from Saudi administration, and no commercial taxation (Hamid and Hayat, 2012). With a decline in oil prices, trade costs are expected to reduce further between these countries, which will reduce transportation costs.

Another outcome of trade costs calculation is that despite being neighboring nations, trading costs between India and Pakistan are pretty high, such as 8.09% for agricultural and 1.49% for the manufacturing sector (Tables 6.1 and 6.2). The trading cost is not low between both countries due to the political, economic, and strategic issues. There is a biased strict implication of India's non-tariff obstacles, i.e., some preventive measures and safety and regulatory requirements that reduce Pakistani supplies to India. Visa hassles, political ambiguity and strict dealings for certifying also create barriers to trade and cause high costs.

India keeps deterring trade management specifically in agricultural products, which illustrated the high level of trade costs (T.C.) of the agricultural segment. Similarly, India observes a colossal amount of non-tariff barriers containing para-tariffs, pre-shipment inspection as well as sanitary and Phyto-sanitary (SPS) measures for textile exports. Some products between both countries can only be traded through some particular ports and road paths, which only open for trades of a limited number of products. These blockages on road and rail track and inefficient transportation linkages between these two countries cause an increment in the trade costs (T.C.) (Saleem et al. 2014).

Ease of doing trade in this sense is of particular importance in many perspectives. For example, Pakistan and India have only one legalized terrestrial border passing, at Attari-neighboring countries, leading trade partners and having common Wagah. Traditionally, this crossroad is well recognized as a checkpoint for dealers. However, some measures associated with trade facilitation are adopted, which improved trade performance to some extent. Furthermore, India has developed a Unified Check Post, with a committed cargo structure, a trade warehouse and vehicle parking accommodations. Similar services have been introduced in Pakistan. Cargo size has been expanded tenfold and border crossing time also increased from eight hours per day to twelve. Trade assistance has brought tangible advantages to the trading partners in the form of less trading costs and better volumes (Saba, et al. 2016).

Table 1Estimates of Trade Costs Equivalents for Agricultural Sector

Years	BD	CHN	IND	ITL	KOR	KEN	SL	SA	TUR
2002	5.336	8.728	7.0347	10.074	7.661	6.962	7.915	7.955	6.840
2003	9.526	8.263	7.873	11.353	7.311	8.602	8.947	8.109	8.089
2004	9.368	11.317	10.837	11.494	10.996	12.186	10.682	9.201	12.806
2005	8.525	9.526	7.775	11.133	10.302	12.773	8.885	7.773	12.176
2006	9.859	10.392	6.321	11.148	8.784	13.558	9.437	7.826	9.771
2007	9.720	9.320	8.106	14.813	10.021	14.037	9.781	8.113	8.810
2008	9.417	9.767	7.617	13.095	8.096	13.152	9.261	8.176	8.752
2009	7.041	9.118	8.821	10.776	7.406	13.654	9.097	7.341	7.122
2010	10.030	8.786	7.205	11.608	8.516	14.818	8.730	8.002	8.756
2011	9.376	7.930	8.040	12.558	7.596	14.639	9.343	8.499	7.737
2012	9.409	8.333	7.608	10.935	7.137	17.400	8.156	8.013	8.041
2013	9.920	8.273	7.421	13.500	7.655	11.625	8.723	7.805	8.333
2014	9.716	8.046	6.659	11.530	6.819	13.093	7.993	7.338	7.119
2015	10.064	7.864	8.683	11.756	6.868	12.954	9.426	7.571	7.499
2016	10.205	7.612	9.932	12.459	7.217	11.236	8.110	7.858	7.903
2017	10.145	8.530	9.612	11.584	7.273	12.990	8.347	7.278	8.309
avg	9.229	8.863	8.097	11.864	8.104	12.730	8.927	7.928	8.629

Estimated results reveal that Pakistan and China's mutual trade costs remain high in-spite of being border as well. The trading cost between both these countries is 8.86% for the agricultural sector and 1.16% for the manufacturing sector. China's government encourages local consumption through basic tax reduction strategies, which boost internal demand in China. Though, mutual trade streams between China and Pakistan are very

significant, China's trade procedures still require coordination. Moreover, China's tariff regimes have not reformed considerably, which is a possible cause behind increasing costs. Also, China keeps limitations, licensing, and prevention on grounds of national safety and morality, all these features contribute to higher trade costs. Mutual trade costs between both countries can be lessened by advancing the Karakoram Highway, which yields short distances between these two countries. Extensive shipping paths between China and Pakistan increase trading costs, which can be reduced by forming a direct path from Kashgar to Gwadar, which is expected to cut down the prevailing costs related to extensive distance by one-third of the existing levels (Kayani, et al. 2013).

Table 2Estimates of Trade Costs Equivalents for Manufacturing Sector

Year	BD	CHN	IND	ITL	KOR	KEN	SL	SA	TUR
2002	1.3006	0.8178	1.4750	1.4457	1.3747	1.2186	1.2324	1.2652	1.5103
2003	1.5064	1.3032	1.7697	1.5615	1.4489	1.1613	1.4149	1.2374	1.6687
2004	1.4878	1.2868	1.6145	1.5358	1.4482	1.2491	1.4258	1.2538	1.7009
2005	1.3793	1.2031	1.4057	1.4787	1.4783	1.2274	1.3807	1.2408	1.5571
2006	1.4697	1.2093	1.3499	1.4840	1.5594	1.3010	1.3733	1.3203	1.6652
2007	1.3961	1.1896	1.3914	1.4982	1.5910	1.3133	1.3971	1.3373	1.6363
2008	1.3962	1.2233	1.3486	1.5058	1.5014	1.3115	1.4082	1.2622	1.6692
2009	1.4726	1.2243	1.4760	1.5307	1.4890	1.2815	1.4649	1.3250	1.6582
2010	1.3677	1.1582	1.4169	1.5357	1.4806	1.2951	1.4727	1.2951	1.5332
2011	1.3385	1.1652	1.5047	1.5959	1.4436	1.2177	1.4506	1.3058	1.5745
2012	1.4521	1.1159	1.4836	1.5833	1.4922	1.2866	1.4776	1.3283	1.6602
2013	1.5080	1.1127	1.4107	1.6139	1.4902	1.2454	1.4974	1.3212	1.6864
2014	1.5515	1.1343	1.4493	1.5976	1.5425	1.2439	1.5682	1.3182	1.7202
2015	1.6331	1.1559	1.5431	1.6555	1.6101	1.2787	1.6032	1.4043	1.8062
2016	1.6310	1.1922	1.5878	1.5907	1.6548	1.2905	1.6544	1.4686	1.7808
2017	1.6781	1.2218	1.6207	1.5632	1.5288	1.1783	1.6233	1.4699	1.7264
avg	1.4730	1.1696	1.4905	1.5485	1.5084	1.2563	1.4653	1.3221	1.6596

Source: Authors' calculations. Note: B.D. stands for Bangladesh, CHN stands for China, IND stands for India, ITL stands for Italy, KOR stands for Korea, KEN stands for Kenya, SL stands for Sri Lanka, SA stands for Saudi Arabia, and TUR stands for turkey.

Trade costs between Pakistan and Bangladesh are relatively high, like 9.22% for the agricultural sector, and 1.47% for the manufacturing sector. Bangladesh and Pakistan

did not bring a substantial decline in their mutual trade costs. Even though trade flow between both countries is increasing progressively and has reached $1 billion mark, there is still a need to grow trade facilitation policies that can reduce trade expenses. Inadequate shipping connection between these countries hinders the flow of supplies, and thus causes higher trading costs. However, both countries are facing significant challenges in security and political cooperation. For example, in 2013, there were some MoUs signed among trade partners from both sides; the business society has faced troubles about getting business permits, non-signing in case of free trade agreement, absence of completion of regional agreements like the South Asian Free Trade Agreements SAFTA (Ahmed, 2017).

Trade costs between Korea and Pakistan are also high, i.e. 8.10% for the agricultural sector and 1.50% for the manufacturing sector while it is an important Pakistan trade partner. However, trade cost observations do not represent a significant picture. The import policies, appropriate requirements and quarantine conditions make it more challenging to export Pakistani items, especially food products. Pakistani suppliers also have trouble because of more distance from the market than its competitors, such as Japan, Thailand, China and Russia, etc. This raises cost of transportation and slow down the transport of goods (Altaf, et al. 2017). Both these partners need to conquer these hindrances to bilateral trade. By launching trade connections between these two countries' traders, mutual trade can be improved further, and trade costs can be lessened.

Turkey and Pakistan are old as well as valuable trading partners, there is satisfactory trade flow among these countries, but trade cost between both nations is moderately high, i.e., 8.62% for the agriculture sector also 1.65% for the manufacturing sector. However, both countries are enjoying historical, cultural, religious and military relations and these relations are growing day by day. However, due to the imposition of tariff and non-tariff barriers and protective duties, the trade cost between Turkey and Pakistan is high. Pakistan Chamber of Commerce and Industry (FPCCI) president Daroo Khan Achakzai said Turkey should remove local preventive duties and non-tariff barriers and introduce a train service to reduce trade cost shipment time as trade via sea is not cost-effective for both these countries.

Estimated trade costs reveal that the agricultural sector yields a high level of costs compared to the manufacturing sector because, in the agricultural sector, the problem of storage and perish-ability arises. Pakistan requires lessening of tariff and non-tariff obstacles to transport and fully utilizing the benefits from trade. At present, the significance of trade costs as a factor of general trade performance and effectiveness have been critically identified by the developed nations. The governments of developed countries have been seriously investigating and executing research studies for achieving efficient strategies for lessening trade costs. While developing countries have been somewhat unaware and not many attempts, have been made to tackle this problem, estimated trade costs reveal that Pakistan still faces high bilateral trade costs with its key trade partners. Pakistan still transfers the high level of agricultural commodities, whereas the agriculture sector's trading costs are significantly greater to the manufacturing sector,

which reveal sectoral inadequacy and bias in strategies. Thus, there is a need to recognize the basic sources of trade costs and express what authority should do to tackle them so that trade can support a high level of economic expansion throughout for a long time.

6.2 Summary Statistics

In this study, the trade costs of Pakistan's agricultural and manufacturing sectors with its major export partners are analyzed. The analysis starts with descriptive statistics of data given below in Table 6.3. Summary statistics is a numerical account of the key elements of data operated in the study. Standard deviation, minimum, and maximum values denote variability measures, while median and mean are utilized as central tendency measures. The Table illustrates the total number of observations comprised for all variables are 144 with 9 export partners during the time period 2002-2017. Table 6.3 specifies summary statistics of Pakistan's trade costs of Pakistan's agricultural and manufacturing sectors with all included variables in the study. The average mean value of agricultural sector trade costs is 9.37%, with a maximum value of 17.40% and a minimum of 5.33%. The manufacturing sector's mean value of trade cost is 1.43%, with a maximum value of 1.80% and a minimum of 0.81%. At the rate of 19.63, simple average tariffs is applied on exports and standard deviation shows 21.91 dispersion is present in tariff rate. On average Linear Shipping Connectivity Index (LSCI) of Pakistan with partner countries are 53.35 with maximum 169.56 and minimum 3.81. Pakistan's average border distance with its trading partners is 4005.98 km, while Pakistan's maximum border distancing is 6172.93 Km and the minimum is 683.36 km. During that time, the exchange rate's maximum devaluation is 2054.04, while the lowest is 1.30. The standard deviation

for all variables is different but the exchange rate possesses the highest dispersion from the mean. Fluctuation in prices is on average 5.96, with the highest value of 37.57.

Table 3Descriptive Statics

Variables	Mean	Median	Standard Dev.	Minimum	Maximum	Observations
T.C. (agr)	9.37479	8.77041	2.100836	5.336616	17.40082	144
TC (manuf)	1.43263	1.45139	0.169061	0.817895	1.806295	144
Tariff	19.6337	9.54010	21.91907	0.104127	75.76886	144
Exchange rate	335.041	68.9478	554.9948	1.305332	2054.046	144
LSCI	53.3577	45.7300	39.76766	3.810000	169.5600	144
Inflation	5.96663	5.77061	6.091751	-16.9085	37.57443	144
Contiguity	0.22222	0.00000	0.417191	0.000000	1.000000	144
Distance	4005.98	3950.77	1591.854	683.3699	6172.934	144

6.3 Empirical Results of Panel Unit Root Test

Stationarity tests are used in the first stage to check the long-run relationship between explanatory variables and trade cost. It is essential to analyze the presence of unit root in the data series. As to perform cointegration tests, panels should be non-stationary. Panel unit root test (Levin, Lin & Chu, 2002) is run for this purpose. Some variables show stationarity at 1st difference while some are stationary at level. Table 6.4

illustrates the results of both cases. According to the variables implicated in study, following hypothesis have been developed in this regard.

H_{a0}: agriculture trade cost is non-stationary variable.

H_{a1}: agriculture trade cost is stationary variable.

H_{b0}: LSCI is non-stationary variable.

H_{b1}: LSCI is stationary variable.

H_{c0}: tariff is non-stationary variable.

H_{c1} : tariff is stationary variable.

H_{d0} : exchange (EXCH) is non-stationary variable.

H_{d1} : exchange rate (EXCH) is stationary variable.

H_{e0}: inflation is non-stationary variable.

H_{e1} inflation is stationary variable.

H_{f0}: manufacturing trade cost is non-stationary variable.

H_{f1}: manufacturing trade cost is stationary variable.

Table 4Unit Root (Levin, Lin & Chu andlm, Pesaran & Shin test)

	Level		First Difference		Decision
	Common Unit Root	Individual Unit Root	Common Unit Root	Individual Unit Root	
Variables	LLC	IPS	LLC	IPS	
Tariff	-5.26252	-3.61131	-12.1960	-9.47926	
	0.0000	0.0002	0.0000	0.0000	1(0)
Exchange Rate	-0.44814	1.27846	-6.03690	-4.53565	
	0.3270	0.8995	0.0000	0.0000	1(1)
Inflation	-6.64940	-4.61138	-10.5666	-8.23601	
	0.0000	0.0000	0.0000	0.0000	1(0)
LSCI	-1.99670	-0.99235	-11.8241	-7.91471	
	0.0229	0.1605	0.0000	0.0000	1(1)
Agriculture Trade Cost	-6.72047	-4.85107	-7.39766	-7.77026	
	0.0000	0.0000	0.0000	0.0000	1(0)
ManufactureTradeCost	-7.05526	-3.45941	-13.7532	-10.5207	
	0.0000	0.0003	0.0000	0.0000	1(0)

The results of Levin, Lin & Chu (LLC) Andlm, Pesaran and Shin (IPS) show that agriculture trade cost, manufacturing trade cost, tariff and inflation are stationary at level while linear shipping connectivity (LSCI) and exchange rate are stationary at 1st difference. The remaining two variables, i.e. contiguity and distance between countries, is independent of time, hence failing to show any result.

To check the problem of endogeneity in model and to choose between fixed-effects models (FEM) in addition and the random effect model (REM), hausman

specification (1978) test is used. The below tables show hausman test result for Pakistan's agricultural and manufacturing trade cost with its major trade partners.

Table 5Hausman Test of Agriculture Trade Cost

Cross-section random	32.258061	4	0.0000

Table 6Hausman Test of Manufacturing Trade Cost

Cross-section random	23.660505	4	0.0001

Ho: Random effect is better than fixed effect

H1: Fixed effect is better than random effect

The Table 6.5 as well as 6.6 show the Hausman test results of the agriculture and manufacturing trade cost of Pakistan and its foremost trade associates. A zero P-value shows the result for the fixed effect model as well as random effects is significantly different from each other. Hence, we reject the null hypothesis, which is described as, random effect model is better, and thus the alternative hypothesis is accepted. This shows that the fixed effect model is suitable. The hausman specification test results are acceptable because Pakistan's trade partners have diverse distinctiveness with respect

toward GDP and the size of the population. EGLS estimation process requires the selection of RE or F.E., which is done here through Hausman test.

6.4 Empirical Analysis of Panel Estimated Generalized Least Square Model

Table 6.7 indicates the results of variables using the estimated generalized least square (EGLS) technique in regression. I have used cross-section (SUR), including 9 export partners of Pakistan with 144 panel observations.

6.4.1 Results and Discussion on Trade Cost of Agriculture Sector Trade

The EGLS model results show that tariffs, i.e., levied by foreign to Pakistan have a positive and significant effect on agriculture trade cost. Estimated results indicate that 1 unit raise in tariff on Pakistan exports (partner countries) would raise the agricultural sector's 0.07 unit of trade costs. t stat of tariff for agriculture sector is 12.75 that is significant at 1 percent level of significance, indicating that tariff is an essential factor that affects Pakistan's trade cost. The tariff is considered as an impediment to international trade, which increases the cost of trading. The imposition of tariff reduces the exports, because in the manufacturing of exportable goods, imported raw materials and inputs are used, causing a shift towards local trade and thus increasing trade costs. These results are the same as the findings of Novy (2007), De (2006) & Altaf *et al.* (2017).

Table 7Empirical Results of EGLS Agriculture Sector Trade

Variable	Coefficient	Std. Error	t statistics	P-values
Tariff	0.075801	0.005945	12.75006	0.0000
LSCI	-0.001047	0.003132	-0.334405	0.7386
Inflation	0.024614	0.006270	3.925348	0.0001
Exchange Rate	-0.000956	0.000196	-4.878104	0.0000
Distance	0.000280	7.11E-05	3.935266	0.0001
Contiguity	0.284913	0.233078	1.222392	0.2237
C	6.915152	0.267550	25.84622	0.0000
R-Squared	0.658247	Mean Dependent Var		4.532189
Adjusted R-Squared	0.643280	S.D. Dependent Var		7.301997
S.E. of Regression	1.016131	Sum Squared Resid		141.4555
F-Statistic	43.97905	Durbin Watson Stat		1.732130
Prob. (F-Statistic)	0.00000			

Table 6.7 results show that the nominal exchange rate (EXCH) has a negative estimated coefficient sign and it is statistically significant at 1 percent level, which indicates that by nominal depreciation of exchange rate, Pakistan's trade cost is negatively affected. T-statistics of the exchange rate (EXCH) is 4.87 for the agriculture sector and is significant at 1 percent. This shows that the total volume of trade goes up with the depreciation of the exchange rate. As trade volume increases, local trade decreases which cause trade cost to reduce. This result is in line results of Singh et al. (2012). Thus, the rise in international trade more than the rise in domestic trade due to the

depreciation of the exchange rate suggests that countries should trade more internationally instead of trading domestically to reduce their trading costs.

Distance is considered as a geographic determinant of trade costs. Distance affects the transaction and transportation cost between the trading countries and cause a negative effect on trade flows thus, geographic distance impedes the bilateral flow of trade between partner countries (Linder, 1961). Table 6.7 indicates the estimation result that geographic distance among Pakistan and its partner countries is positive and significant. For the agricultural sector, t statistics of distance is 0.93 and the estimation results indicate that 1 unit increase in distance will raise the trade costs by .0002 unit. These results are in line with Behar and Anthony (2010) results and Duan and Jason (2012).

Table 6.7 shows that inflation exhibits a positive relationship with trade costs. According to our estimated results, the coefficient sign of inflation is positive and significant. Estimated results indicate that 1 unit rise in inflation may increase the agriculture sector's trade cost by 0.02 units. A rise in inflation affects trade cost through different channels as it affects different types of costs; for example, the purchase of inputs and raw materials used in the manufacturing of exportable goods becomes more expensive, thus switching towards an increase in the trade cost. It also affects transportation costs, which leads in the direction of an increase in trade cost. The increase in prices can decrease exports because of competition in international trade. However, our findings are similar as the findings of Lynch (2018).

A proxy for infrastructure progress is used, i.e., linear shipping connectivity index (LSCI). Efficient maritime connectivity and better port productivity (of both Pakistan and partners) lessen the delays in the shipment of trading goods, and thus lower the trade costs. Table 6.7 describes that the variable of linear shipping connectivity index (LSCI) exhibits a negative relationship with the agriculture sector's trade cost. The coefficient sign is negative and statistically insignificant. Improved shipping connectivity and port proficiency can lower the postponements in delivering things, leading to decreased trade costs. Improved port infrastructure lessens maritime transportation costs. The estimated result indicates that maritime transport connectivity is crucial for poor nations in lessening trade costs. These results are same with the results of Duval and Chorthip (2010), Singh et al. (2012) and Olper and Valentina (2007).

To analyze the accomplishment of regression in regulating values of the dependent variable, R-square is used. R-squared of the model is 66% for the agriculture sector, which indicates that our independent variables have 66% impact on agriculture trade cost. The value of F-statistics is less than 0.05, which shows that our model is significant. The adjusted R-squared value is not very high because of several indirect costs and some other hidden factors that act as a determinant of trade cost. For example, costs are linked with international trade because of paucity of apparent procedures, domestic distribution costs, lack of organizations in the overseas partner country like identified laboratories and several other technical barriers. These costs and hidden factors will continue a challenge given the shortage of suitable proxies.

Results and Discussion on Trade Cost of Manufacturing Sector Trade

Table 8Empirical Results of EGLS manufacturing Sector Trade

Variable	Coefficient	Std. Error	t statistics	P-values
Tariff (FPWA)	-0.001438	0.000348	-4.138071	0.0001
LSCI	-0.001144	0.000216	-5.291531	0.0000
Inflation	4.17E-05	0.000551	0.075639	0.9398
Exchange Rate	0.000161	1.03E-05	15.59691	0.0000
Contiguity	-0.104820	0.023591	-4.443174	0.0000
Distance	-3.06E-05	3.14E-06	-9.756525	0.0000
C	1.604352	0.022356	71.76426	0.0000
R-squared	0.789208	Mean dependent var		5.502947
Adjusted R-squared	0.779976	S.D. dependent var		13.95532
S.E. of regression	1.002165	Sum squared resid		137.5939
F-statistic	85.48826	Durbin-Watson stat		1.318185
Prob(F-statistic)	0.000000			

Table 6.8 indicates that estimated determinants result from Pakistan's trade costs for the manufacturing sector with its leading trade partners by applying the estimated generalized least square method (EGLS).

A proxy for infrastructure progress is used, i.e., linear shipping connectivity index (LSCI). Table 6.8 shows that the variable linear shipping connectivity index (LSCI) exhibits a negative relationship with trade cost. The coefficient sign is negative and

statistically significant. Improved shipping connectivity and port proficiency can lower the postponements in delivering things, leading to decreased trade costs. Improved port infrastructure lessens maritime transportation costs. The estimated result indicates that maritime transport connectivity is crucial for developing nations in lessening trade costs. These results are the same with the results of Duval and Chorthip (2010), Singh et al. (2012), and Olper and Valentina (2007).

Inflation exhibits a positive relationship with trade costs. According to our estimated results, the coefficient sign of inflation is positive but insignificant. A rise in inflation affects trade cost through different channels as it affects different types of costs; for example, the purchase of inputs and raw materials used in the manufacturing of exportable goods becomes more expensive, thus switching towards an increase in trade cost. It also affects transportation costs, which lead on the way to an increase in trade cost. The increase in prices can decrease exports because of competition in international trade. However, our results are similar in line with the findings of Lynch (2018).

Contiguity is taken as a dummy variable for information cost and transportation cost. Our regression result contiguity (CONT) (common border) exhibits an inverse relation with the manufacturing sector's trade costs. Estimated results indicate that the coefficient sign of contiguity is negative and significant as well. Sharing a common border can make mutual trade less costly and contagious trading countries know the trading forecasts and well aware of consumers' choices, leading mutual trade less costly. In countries sharing a common border with Pakistan, trade cost decreases by a 0.10 unit (Table 6.8). The results are similar to the findings of Duvan & Jason (2012).

Estimated results show that tariff, exchange rate and distance have a contradiction in the case of the manufacturing sector. The reason behind this intuition is a dependency on the agriculture sector. Pakistan is an agriculture-based country and its exports are mainly depending on agriculture goods. Hence manufacturing trade volume is too low; imports exceeds exports. If manufacturing products are not exported, then tariff, exchange rate, and other factors cannot influence this sector's trade cost. Comparatively, trade cost in agriculture is higher than in the manufacturing sector. This is because agricultural trade faces more trade restrictions, a higher level of tariffs, and trade in manufacturing products (Arvis *et al.* 2015).

To analyze the success of regression in regulating values of dependent variables, R-square is used. R-squared of the model is 78 percent for manufacturing, indicating that the above determinants are 78 percent of the variation in trade costs. The value of F statistics is less than 0.05, shows that our model is significant.

Chapter 7

Conclusion

This study examined trade cost estimates for Pakistan's agricultural trade and manufacturing trade for 2002-2017 with its major trading partners, including Bangladesh, China, Italy, Saudi Arabia, India, Korea, Kenya, Turkey and Sri Lanka. Utilizing the panel data estimation techniques investigated the correlation between the trade costs and its main factors.

Despite the substantial integration of the international economy, our analysis of tariff equivalents of trade costs emphasizes that significant unexploited benefits can be reaped by further reducing the difference between the cost of producing goods and the price paid by the final consumer, i.e., by reducing trade costs. Our estimates of trade costs show that Pakistan's trading costs with its major export partners follow a disproportionate pattern. Although the figures show a significant decline in trade costs, yet they also suggest that there is still considerable scope for further reducing them. In particular, high bilateral trade costs with some of its very largest trading companions, call for policies that can effectively reduce trading costs among trading partners. Policymakers need to address the challenges of higher trade costs to boost the country's absolute and relative global trade role.

Our estimates indicate that distance, tariff, and inflation positively impact trade costs for the agriculture sector, while the exchange rate and linear shipping connectivity index negatively influence Pakistan's agriculture sector's trade cost. Estimated results

show that tariff, exchange rate and distance have a contradiction in the case of the manufacturing sector. The reason behind this intuition is the dependency on the agriculture sector. Pakistan is an agriculture-based country, and its exports are mainly depending on agriculture goods. Hence manufacturing trade volume is too low; imports exceed exports. At the sectoral level, costs of trade for agricultural sector exceed the costs of trade for manufacturing sector which means that agricultural trade costs are comparatively higher in many emerging countries than in manufacturing sector indicates that concentrating on trade facilitation efforts for the agricultural division would be particularly beneficial for Pakistan, as WTO trade facilitation agreement also emphasizes the release of perishable goods as soon as possible. In addition to mapping Pakistan's level of trade costs in the last decade, study used econometric methods to examine various trade cost determinants.

For this purpose, study decompose the trade cost components into different policy and non-policy features. The study's main outcome is that trade costs relate to distance, maritime transport, and trade facilitation matters for trade costs. The trade infrastructure and depreciation of the exchange rate with the trading partners are two areas that are particularly amenable to government action to reduce trade costs. Another significant source of trade costs than tariffs is UNCTAD's liner shipping connectivity index (LSCI). This is because improved shipping connectivity with the trading partners effectively enhances transport routes, thus reducing time and other costs. The empirical analysis allowed us to identify certain trade facilitation initiatives and policies that are the most significant trade costs determinants. This indicates that a rise in the geographical distance

among trading companions and tariffs is positively linked with trade costs. However, sharing a common border among trading partners, nominal exchange rate depreciation and linear shipping link index, cause trade costs to decline.

7.1 Policy Implications

The benefits of trade as an engine of economic growth and sustainable progress as well as means of poverty reduction, can only be achieved if these high trade costs are controlled. Higher trade costs increased competition, thus limiting the potential trade benefits. Pakistan is a developing country and trade will turn out to be a useful tool for achieving prosperity and economic welfare if it takes care of these large trade costs.

The study clearly demonstrates that there is sufficient space for reducing the costs of the trade if appropriate policy actions are taken. The findings of the study may be used to draw important policy implications, of which few are listed as follows:

- Pakistan may be actively involved in the WTO trade facilitation agreement and should eliminate red tape at border crossings to minimize trade costs.
- High levels of trade costs in the agricultural sector can also be reduced by strictly following the Trade Facilitation Agenda (TFA), which allows WTO Member States to speed up the shipment and release of perishable goods as soon as possible.
- Better shipping connectivity (LSCI) promotes goods transport and reduces trade costs. Such elements are also related to other forms of transport, e.g., roads and railways. Therefore, policymakers should also focus on improving relevant infrastructure such as road, rail, and air links to improve economic connectivity.

- Ports need to implement a properly customized risk management framework. The transport services market should be liberalized so that efficiency can be improved and best practices nationally and regionally diffused.
- The government should streamline the non-tariff barriers, and the harmonization of NTB's among trading partners would significantly reduce trade costs. Geographic factors are exogenous and cannot be adjusted, but they are not yet beyond the reach of the scope of policy intervention. For example, the impact of a wider distance may be nullified or at least limited by the construction of soft and hard infrastructure that will help to improve communication with international trade.
- The distance among trading companions acts as a hurdle to trade in terms of delivery time, obstructing market access. Applying advanced technological methods such as electronic media, advertisement, and publicity stumps can help reduce this resistance element and decrease a trade cost.

Appendix
Estimates of Overall Trade Costs (Total)

	1.386319	0.874715	1.56225	1.494281	1.42641	1.304858	1.293908	1.321517	1.577432
	1.598539	1.374357	1.868202	1.612533	1.501915	1.237307	1.479039	1.292159	1.739236
	1.575119	1.358089	1.699231	1.583224	1.498664	1.323767	1.485139	1.305338	1.768014
	1.459727	1.268147	1.481879	1.522785	1.527014	1.29971	1.435203	1.289878	1.618388
	1.556072	1.275681	1.425755	1.531104	1.612875	1.371083	1.429865	1.373163	1.730159
	1.47874	1.254435	1.468406	1.545543	1.644647	1.384842	1.454135	1.389611	1.699517
	1.479784	1.288079	1.424379	1.552919	1.55253	1.385445	1.470337	1.311926	1.733027
	1.558055	1.286522	1.557506	1.579108	1.540682	1.359308	1.528739	1.375901	1.723419
	1.450027	1.219649	1.498136	1.585121	1.533339	1.37738	1.529689	1.346634	1.598876
	1.423906	1.229724	1.594282	1.650628	1.499083	1.304395	1.51175	1.360708	1.643329
	1.53689	1.175769	1.567378	1.634128	1.545197	1.375771	1.53393	1.380105	1.726527
	1.591423	1.171701	1.492616	1.665172	1.542831	1.332787	1.554499	1.372208	1.750032
	1.615193	1.193288	1.531655	1.648139	1.596403	1.334471	1.627686	1.36898	1.784198
	1.737809	1.214711	1.626951	1.707087	1.665383	1.377807	1.664884	1.456631	1.873204
	1.711981	1.249761	1.671922	1.639262	1.709091	1.436638	1.714431	1.521062	1.844067
	1.757904	1.278286	1.703256	1.610186	1.580341	1.282648	1.682048	1.521317	1.787022
	1.557343	1.232057	1.573363	1.597576	1.561025	1.343014	1.524705	1.374196	1.724778

Hausman Test of Total Trade Cost

Cross-section random	28.750198	4	0.0000

Result of EGLS (Cross Section SUR) of Total trade cost

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TARIFF_FP	-0.001297	0.000349	-3.715332	0.0003
EXCHANGE_RATE	0.000149	1.05E-05	14.18332	0.0000
INF	-2.25E-05	0.000552	-0.040849	0.9675
LSCI	-0.001367	0.000229	-5.957581	0.0000
CONTIGUITY	-0.080460	0.023297	-3.453653	0.0007
DISTANCE	-2.66E-05	3.27E-06	-8.136279	0.0000
C	1.662038	0.023905	69.52719	0.0000
	Weighted Statistics			
R-squared	0.746397	Mean dependent var		5.598602
Adjusted R-squared	0.735290	S.D. dependent var		12.81233
S.E. of regression	1.003548	Sum squared resid		137.9740
F-statistic	67.20241	Durbin-Watson stat		1.341248
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.271910	Mean dependent var		1.498673
Sum squared resid	2.957576	Durbin-Watson stat		0.367912

REFERENCES

1. Afzal, M. (1977). Parity ricing as an approach to Price support programmes: A Policy Analysis. *The Pakistan Development Review,* 16(3), 281-297.
2. Ahmed, S. S. (2017). The effect of public sector development expenditures and investment on economic growth. Evidence from Pakistan. *Journal of Economics and Political Economy*, 4(2), 203-214.
3. Ali, S. (2015). *Trade Costs and Trade Composition: Firm-level Evidence from Pakistan*. Working paper.
4. Altaf, S., Mahmood, Z., & Noureen, S. (2017). Trade costs of Pakistan with its major trading partners: Measurement and its determinants. *Perspectives on Pakistan's Trade and Development,* 175.
5. Amiti, M., & Javorcik, B. S. (2008). Trade costs and location of foreign firms in China. *Journal of Development Economics*, 85(1-2), 129-149.
6. Anderson, J., & Van Wincoop, E. (2002). Gravity with gravitas: A review of theory and evidence. *American Economic Review*, 93, 170-192.
7. Anderson, J. E., & Van Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *American Economic Review*, 93(1), 170-192.
8. Anderson, J. E., & Van Wincoop, E. (2004). Trade costs. *Journal of Economic Literature*, 42(3), 691-751.
9. Anzuini, A., & Fornari, F. (2012). Macroeconomic determinants of carry trade

activity. *Review of International Economics,* 20(3), 468-488.

10. Arvis, J.-F., Duval, Y., Shepherd, B., & Utoktham, C. (2012). Trade costs in the developing world: 1995-2010. *ARTNeT working paper series; no.* 121.
11. Baier, S. L., & Bergstrand, J. H. (2001). The growth of world trade: tariffs, transport costs, and income similarity. *Journal of International Economics,* 53(1), 1-27.
12. Baier, S. L., & Bergstrand, J. H. (2007). Do free trade agreements actually increase members' international trade? *Journal of International Economics,* 71(1), 72-95.
13. Baldwin, R., & Krugman, P. (1989). Persistent trade effects of large exchange rate shocks. *The Quarterly Journal of Economics,* 104(4), 635-654.
14. Baltagi, B. H., & Giles, M. D. (1998). Panel data methods. *Statistics Textbooks and Monographs,* 155, 291-324.
15. Banik, N., & Gilbert, J. (2010). Regional integration and trade costs in South Asia. *Trade Facilitation and Regional Cooperation in Asia*, 123.
16. Batra, A. (2004). India‘s global trade potential: The gravity model approach, *Indian Concil for Research on International Economic Relations,* WP, No. 151.
17. Bergstrand, J. H. (1985). The gravity equation in international trade: some microeconomic foundations and empirical evidence. *The Review of Economics and Statistics*, 474-481.
18. Bergstrand, J. H. (1989). The generalized gravity equation, monopolistic

competition, and the factor-proportions theory in international trade. *The Review of Economics and Statistics*, 143-153.

19. Besedina, E. (2015). Technical barriers to trade and SPS measures and export dynamics.*Norweigian Institute of International Affairs*

20. Blanchard, E. J., Bown, C. P., & Johnson, R. C. (2016). *Global Supply Chains and Trade Policy*: The World Bank.

21. Bosker, M., & Buringh, E. (2020). Ice (berg) transport costs. *The Economic Journal*, 130(629), 1262-1287.

22. Bradford, S., & Lawrence, R. Z. (2004). Has Globalization Gone far Enough?: the costs of fragmented markets: *Columbia University Press.*

23. Brenton, P., Sheehy, J., & Vancauteren, M. (2001). Technical barriers to trade in the European Union: importance for accession countries. *JCMS: Journal of Common Market Studies*, 39(2), 265-284.

24. Brooks, D., & Ferrarini, B. (2010). Changing trade costs between People's Republic of China and India. *Asian Development Bank Economics Working Paper Series*, (203).

25. Brooks, D. H. (2008). Regional cooperation, infrastructure, and trade costs in Asia. *Tokyo: Asian Development Bank Institute (ADBI)*. Working Paper, 123.

26. Burstein, A., Kurz, C. J., & Tesar, L. (2004). Trade, production sharing and the international transmission of business cycles. *Monetary Economics, 2008.*

27. Chang, K. I., & Hayakawa, K. (2010). Border barriers in agricultural trade

and the impact of their elimination: evidence from East Asia. *The Developing Economies,* 48(2), 232-246.

28. Chen, M. X., & Mattoo, A. (2004). Regionalism in standards: good or bad for trade? : *The World Bank.*

29. Cheong, I., & Cho, J. (2009). The impact of Free Trade Agreements (FTAs) on business in the Republic of Korea.

30. Chishti, A. F., Malik, W., & Chaudhry, M. G. (2001). WTO's Trade iberalisation, agricultural growth, and overty alleviation in Pakistan. *The Pakistan Development Review*, 1035-1052.

31. Chung, K. H., & Charoenwong, C. (1998). Insider trading and the bid-ask spread. *Financial Review,* 33(3), 1-20.

32. Coughlin, C. C., & Novy, D. (2013). Is the international border effect larger than the domestic border effect? Evidence from US trade. *CESifo Economic Studies,* 59(2), 249-276.

33. De, P. (2006). Regional trade in Northeast Asia: Why do trade costs matter? *Leibniz-Informations zentrum Wirtschaft Leibniz Information Centre for Economics.*

34. De, P. (2007). Impact of Trade Costs on Trade*: Empirical evidence from Asian countries*. (No. 27). *ARTNeT* Working paper series.

35. Deardorff, A. (1998). Determinants of bilateral trade: does gravity work in a neoclassical world? *In The Regionalization of the World Economy* (pp. 7-32): University of Chicago Press.

36. Djankov, S., & Freund, C. L. (2006). Trading on time. *American Economic Review.*

37. Doshi, G., & Mathur, S. K. (2016). An enquiry of trade costs, trade cost determinants and trade growth accounting between India and APEC Nations during 1995–2010. *The World Economy*, 39(9), 1399-1413.

38. Duan, S., & Grant, J. H. (2012). *Agricultural Trade Costs:* 1965-2010. (No. 323-2016-11785). Working Paper.

39. Duval, Y., & Utoktham, C. (2011). *Trade facilitation in Asia and the Pacific: Which policies and measures affect trade costs the most?* (No. 94). *ARTNeT* Working Paper Series.

40. Eaton, J., & Kortum, S. (2002). Technology, geography, and trade. *Econometrica*, 70(5), 1741-1779.

41. Egger, P., & Průša, J. (2016). The determinants of trade costs: a random coefficient approach. *Empirical Economics*, 50(1), 51-58.

42. Engel, R., & Granger, C. (1987). Co-integration and error correction representation, estimation and testing econometrica, Vol. 55.(2) 251-76.

43. Falvey, R. E. (1976). Transport costs in the pure theory of international trade. *The Economic Journal*, 86(343), 536-550.

44. Feenstra, R. C. (1998). New product varieties and the measurement of international prices. *The American Economic Review*, 157-177.

45. Francois, J., & Manchin, M. (2006). Institutional quality, infrastructure, and the propensity to export. *Unpublished, January, World Bank, Washington, DC.*

46. Fratianni, M., & Marchionne, F. (2008). Heterogeneity in trade costs. *Economics Bulletin*, 6(48), 1-14.

47. Frazzini, A., Israel, R., & Moskowitz, T. J. (2018). Trading costs. *Available at SSRN* 3229719.

48. Fugazza, M., & Molina, A. C. (2009). *The Determinants of Trade Survival*. No. 05/2009. *HEID Working Paper*, 2009.

49. Greene, W. H. (2008). The econometric approach to efficiency analysis. *The Measurement of Productive Efficiency and Productivity Growth*, 1(1), 92-250.

50. Gul, N. (2011). The Trade Potential of Pakistan: An Application of the Gravity Model. *Lahore Journal of Economics*, 16(1), 23-62.

51. Hadri, K. (1999). Testing the null hypothesis of stationarity against the alternative of a unit root in panel data with serially correlated errors. (No. 1999_05) *Economic Theory and Practice.*

52. Hamid, N., & Hayat, S. (2012). The opportunities and pitfalls of Pakistan 's Trade with China and Other Neighbors. *Lahore School of Economics.*

53. Head, K., & Ries, J. (2001). Increasing returns versus national product differentiation as an explanation for the pattern of US-Canada trade. *American Economic Review*, 91(4), 858-876.

54. Helpman, E., Melitz, M., & Rubinstein, Y. (2008). Estimating trade flows: Trading partners and trading volumes. *The Quarterly Journal of Economics*, 123(2), 441-487.

55. Hong, H., & Stein, J. C. (1999). A unified theory of underreaction, momentum trading, and overreaction in asset markets. *The Journal of Finance*, 54(6), 2143-2184.

56. Hummels, D., & Klenow, P. J. (2005). The variety and quality of a nation's exports. *American Economic Review*, 95(3), 704-723.

57. Hummels, D. L. (1999). Toward a geography of trade costs. *Available at SSRN* 160533.

58. Irarrazabal, A., Moxnes, A., & Opromolla, L. D. (2015). The tip of the iceberg: a quantitative framework for estimating trade costs. *Review of Economics and Statistics*, 97(4), 777-792.

59. Jacks, D. S., Meissner, C. M., & Novy, D. (2005). Trade Costs, 1870-2000. *American Economic Review*, 98(2), 529-534.

60. Jalerajabi, M., & Moghaddasi, R. (2014). Investigation of Effective Factors on Bilateral Trade Costs of Agricultural Product (Case Study: Iran's Bilateral Trade With Developing Countries). *International Journal of Resistive Economics*, 2(3), 51-59.

61. Kayani, F., Ahmed, M., Shah, T., & Kayani, U. (2013). China-Pakistan economic relations: lessons for Pakistan. *Pakistan Journal of Commerce and Social Sciences*, 7(3), 454-462.

62. Khan, I. U., & Kalirajan, K. (2011). The impact of trade costs on exports: An empirical modeling. *Economic Modelling*, 28(3), 1341-1347.

63. Khan, S., & Khan, D. (2013). An empirical analysis of Pakistan's bilateral trade: A gravity model approach. *Romanian Economic Journal*, 16(48).

64. Korinek, J., & Melatos, M. (2009). Trade impacts of selected regional trade agreements in agriculture. *OECD Trade Policy Papers No.* 87

65. Kraay, A., & Dollar, D. (2001). *Trade, growth, and poverty*: The World Bank.

66. Krugman, P. (1980). Scale economies, product differentiation, and the pattern of trade. *The American Economic Review*, 70(5), 950-959.

67. Krugman, P. R. (2008). International economics*:* Theory and policy, 8/E*:* *Pearson Education India.*

68. Kumar, S., & Chowdhury, N. (2005). Trade and Environment in the WTO: Negotiating Options for Developing countries. *East Asian Bureau of Economic Research.*

69. Leamer, E. E., & Levinsohn, J. (1995). International trade theory: the evidence. *Handbook of International Economics*, 3, 1339-1394.

70. Levin, A., Lin, C.-F., & Chu, C.-S. J. (2002). Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of Econometrics*, 108(1), 1-24.

71. Limao, N., & Venables, A. J. (2001). Infrastructure, geographical disadvantage, transport costs, and trade. *The World Bank Economic Review*, 15(3), 451-479.

72. Linder, S. B. (1961). *An essay on trade and transformation*: Almqvist & Wiksell Stockholm.

73. Lopez-Acevedo, G., & Robertson, R. (2016). Stitches to riches?: Apparel employment, trade, and economic development in South Asia: *The World Bank.*

74. Mamoon, D., Paracha, S., Mughal, H., & Ayesha, A. (2011). Pakistan's trade competitiveness & complementarities in South Asia. *Pakistan Institute of Trade and Development.*

75. McCallum, J. (1995). National borders matter: Canada-US regional trade patterns. *American Economic Review,* 85(3), 615-623.

76. Melitz, M. J. (2003). The impact of trade on intra-industry reallocations and aggregate industry productivity. *Econometrica,* 71(6), 1695-1725.

77. Moenius, J. (2004). Information versus product adaptation: The role of standards in trade.*Available at SSRN* 608022.

78. Nordås, H. K., & Piermartini, R. (2004). Infrastructure and trade. *WTO Staff Working Paper, No. ERSD*-2004-04

79. Novy, D. (2007). Gravity Redux: Measuring International Trade Costs with Panel Data! *Economic inquiry*, 51(1), 101-121.

80. Novy, D. (2010). Trade costs and the open macro economy. *Scandinavian Journal of Economics*, 112(3), 514-545.

81. O'Rourke, K. H., & Williamson, J. G. (1999). The Heckscher-Ohlin model between 1400 and 2000: when it explained factor price convergence, when it did not, and why (0898-2937). *National Bureau of Economic Research*

82. Olper, A., & Raimondi, V. (2007). Patterns and Determinants of International Trade Costs in the Food Industry. *Available at SSRN* 1106106.

83. Olper, A., & Raimondi, V. (2008). Explaining national border effects in the QUAD food trade. *Journal of Agricultural Economics*, 59(3), 436-462.

84. Pomfret, R., & Sourdin, P. (2010). Trade facilitation and the measurement of trade costs. *Journal of International Commerce, Economics and Policy*, 1(01), 145-163.

85. Rahman, M., Shadat, W. B., & Das, N. C. (2006). Trade potential in

SAFTA: An application of augmented gravity model. *CPD Occasional Paper Series*, 61, 512.

86. Rauch, J. E., & Trindade, V. (2002). Ethnic Chinese networks in international trade. *Review of Economics and Statistics*, 84(1), 116-130.

87. Restuccia, D., & Rogerson, R. (2017). The causes and costs of misallocation. *Journal of Economic Perspectives*, 31(3), 151-174.

88. Ricardo, D. (1917). *The Principles of Political Economy and Taxation*, London: JM Dent & Sons Ltd. In: Ausgabe.

89. Rodrik, D., Subramanian, A., & Trebbi, F. (2004). Institutions rule: the primacy of institutions over geography and integration in economic development. *Journal of Economic Growth*, 9(2), 131-165.

90. Saleem, N., Jabeen, S., Omer, S., & Hanan, M. A. (2014). Indo-Pakistan trade relations: A Critical discourse analysis of daily Dawn. *South Asian Studies (*1026-678X*)*, 29(1).

91. Samuelson, P. A. (1954). The transfer problem and transport costs, II: Analysis of effects of trade impediments. *The Economic Journal*, 64(254), 264-289.

92. Singh, S., & Mathur, S. (2012). *Trade Costs of India within Asia: Measurement and Its Determinants*. Vol. 746. Working Paper No, 2014.

93. Söderström, T. (1974). Convergence properties of the generalised least squares identitication method. *Automatica*, 10(6), 617-626.

94. Spielman, D. J., & Kennedy, A. (2016). Towards better metrics and policymaking for seed system development: Insights from Asia's seed

industry. *Agricultural Systems*, 147, 111- 122.

95. Tinbergen, J. (1962). An analysis of world trade flows. *Shaping the World Economy*, 3, 1- 117.

96. Turkson, F. E. (2012). Using observable trade data to measure bilateral trade costs in Sub-Saharan Africa. *CREDIT Research Paper.*

97. Venables, A., & Limao, N. (1999). Infrastructure, Geographical Disadvantage, and Transport Costs: *The World Bank.*

98. Venables, A. J., & Behar, A. (2010). Transport Costs and International Trade. *A handbook of transport economics*.

99. Yilmazkuday, D., & Yilmazkuday, H. (2017). The role of direct flights in trade costs. *Review of World Economics*, 153(2), 249-270.

100. Zahid, S. N., & Hyder, S. S. (1986). Pakistan's agriculture terms of trade: 1973-74 to 1983-84. *Pakistan Journal of Applied Economics*, 5(2), 91-143.

101. Milner, C., & McGowan, D. (2013). Trade costs and trade composition. *Economic Inquiry*, 51(3), 1886-1902.

102. Ahmed, S. S., & Hina, H. *The Impact of Trade Cost on Exports of Pakistan: An Empirical Modelling.* Working paper

103. Evenett, S. J., & Hutchinson, W. K. (2002). The gravity equation in international economics: Theory and evidence. *Scottish Journal of Political Economy*, 49, 489-490.

104. Bao, X., & Qiu, L. D. (2009, May). *Quantifying the trade effects of technical barriers to trade: Evidence from China*. In Asia Pacific Trade

Seminars, Hong Kong (A1620). Available at: http://tinyurl. com/hvjjuvk.

105. Bougheas, S., Demetriades, P. O., & Morgenroth, E. L. (1999). Infrastructure, transport costs and trade. *Journal of international Economics*, 47(1), 169-189.

106. Houck, J. P. (1979). *Inflation and International Trade* (No. 784-2016-52048, pp. 57-63). *Journal of Agricultural Economics*, 1979.

107. Broda C. & Romalis J. (2003). Identifying the effect of exchange rate volatility on trade. *Unpublished Manuscript. Chicago: GSB*.

108. Brooks, D. H. (2008). Regional cooperation, infrastructure, and trade costs in Asia. *Tokyo: Asian Development Bank Institute (ADBI). Working Paper*, 123.

109. Dawar, N., & Frost, T. (1999). Competing with giants: Survival strategies for local companies in emerging markets. *Harvard Business Review*, 77, 119-132.

110. Downs A. (1957). An economic theory of political action in a democracy. *Journal of Political Economy*, 65(2), 135-150.

111. Engel E. (1857). The production and consumption conditions of the Kingdom of Saxony. *J. Stat. Bur. R. Sax. Minist. Inter*, 8-9.

112. Evans C. L. (2001). The Costs of Outsourcing, Working paper. 2001b. Board Gov. Fed. Reserve System. *FRB of New York Staff Report*.

113. Evans C. L. (2003). Home bias in trade: Location or foreign-ness?

W*orking paper* 2001a, Board Gov. Federal. Reserve System. *FRB of New York Staff Report.*

114. Falk, G., Lynch, K. E., & Tollestrup, J. (2018). Federal spending on benefits and services for people with low income: In brief. *Washington, DC: Congressional Research Service*.

115. Khan, M., Kiani, F. A., Ashraf, A., & Iftikhar-ul-Husnain, M. (2009). Skills, competitiveness and productivity. *The Pakistan Development Review*, 473-486.

116. Linda, S. B. (2016). *An Essay on Trade and Transformation*: Almqvist & Wiksell Stockholm.

117. Messerlin P. A. (2001). Measuring the costs of protection in Europe: European commercial policy in the 2000s . *Peterson Institute*.

118. Novy, D. (2007). Gravity Redux: Measuring International Trade Costs with Panel Data *Economic inquiry, 2013.*

119. Obstfeld, M., & Rogoff, K. (2000). The six major puzzles in international macroeconomics: is there a common cause? *NBER Macroeconomics Annual*, 15, 339-390.

120. Qamar, A. (2005). Trade between India and Pakistan: Potential items and the MFN status. *State Bank of Pakistan Research Bulletin*, 1(1), 51-52.

121. Rashid S. & Sheikh A. T. (2015). Farmers' perceptions of agricultural land values in rural Pakistan. *The Pakistan Development Review*, 809-821.

122. Rose A. K. (2000). One money, one market: the effect of common currencies on trade. *Economic policy*, 15(30), 08-45.

123. Rose A. K. & Van Wincoop E. (2001). National money as a barrier to international trade: The real case for currency union. *American Economic Review*, 91(2), 386-390.

124. Venables, A. J., & Behar, A. (2010). Transport costs and nternational Ttrade. *A Handbook of Transport Economics*.

125. Yeo, A. D., & Deng, A. (2019). The trade policy effect in international trade: case of Pakistan. *Journal of Economic Structures*, *8*(1), 43.

126. Arvis, J. F., Ojala, L., Wiederer, C., Shepherd, B., Raj, A., Dairabayeva, K., & Kiiski, T. (2018). *Connecting to compete 2018: trade logistics in the global economy*. World Bank.

127. Noureen, S., & Mahmood, Z. (2020). An Empirical Analysis of Policy Barriers Related to Trade Costs for Exporters.