

## PAK-AFGHAN BILATERAL TRADE: TRADE DIVERSION, NTBS AND GRAVITY MODEL ANALYSIS

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### Abstract

*Afghanistan and Pakistan are located at the junction of Central Asia and South Asia. Owing to geographical contiguity, common border, common culture and similar consumption patterns, bilateral trade between the two countries should have increased with the passage of time, in line with the assumptions of the Gravity Model of international trade. However, it has been observed that during the period 2012-2018, bilateral trade between the two countries has either stagnated or declined. There are various causes responsible for the declining trends in trade where this study uses both quantitative and qualitative evidences as primary and secondary data. The gravity model of trade was estimated by using random effect estimation technique for panel data set (secondary data). Furthermore, the trade potential was estimated which shows that Pak-Afghan trade is operating below potential level. For qualitative evidences, the input of the actual stakeholders (primary data) including traders, transporters, clearing agents and customs officials was taken and analyzed. The finding of the study shows that Pak-Afghan trade is operating below the potential level and is not in line with GMT. Similarly the non-tariff barriers (NTBs) for Pak-Afghan bilateral trade have resulted in trade diversion to Afghanistan's trade with India, Iran and Uzbekistan.*

**Keywords:** Gravity Model of Trade (GMT), Trade Diversion, Non-Tariff Barriers (NTBs), Random Effect Model, Gross Domestic Product

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## 1. Introduction:

South and Central Asia, of which Pakistan and Afghanistan are parts, are one of the least connected and trade integrated regions in the world, primarily because of the lack of connectivity and consequent below potential trade performance between these two counties.<sup>1</sup> The two countries sit on the intersection of the fast growing Indian and Chinese economies on the one hand and the energy-rich Central Asian Republics (CARs) on the other. Pakistan has direct access to the world's most critical sea lanes and corridors through the Arabian Sea and the Indian Ocean. It has the potential to capitalize on its geostrategic location by connecting the China Pakistan Economic Corridor (CPEC) to the South Asian states, the Central Asian states and countries in the Middle East.<sup>2</sup> Pakistani sea ports are the nearest in the region for the international trade connectivity and market access of the landlocked Afghanistan and the Central Asian Republics. Afghanistan on her part connects Pakistan with the energy rich emerging Central Asian markets. Seven of the ten ECO (Economic Cooperation Organization) members are landlocked and Afghanistan is the key to trade between Pakistan and Central Asian Republics. Pakistan also connects Afghanistan with India, Afghanistan's close trade partner, through Waga border. Thus, close Pak-Afghan bilateral trade connectivity has not only tremendous cross-road-effect potential and profound implications for their own economic integration and development but also for regional integration and development as well.

The assumptions of the Gravity Model of international trade too suggests neighbors to be close trade partners, owing to minimal distance and the commensurate trade costs involved. Thus Afghanistan, being neighbor, should be one of the important trade partner and export destination for Pakistan. However, the peculiar political and security situation in Afghanistan since 1979 till 2001 disabled these neighbors to develop, expand and institutionalize formal bilateral trade relations between the two countries. The 9/11 events and the subsequent regime change in Kabul however, triggered institutional development in Afghanistan which paved the way for trade expansion and development. As a result, Pak-Afghan bilateral trade too gradually increased from a meager \$ 100 million in 2001 to \$ 2.8 billion in 2012.<sup>3</sup> However, during the post 2012 period, a declining

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<sup>1</sup> Lord M, *Regional Economic Integration in Central Asia and South Asia*. (Munich, 2015)

Munich Personal RePEc Archive (MPRA) Paper No. 66436

<sup>2</sup> Akhtar R., *Building Regional Connectivity for Pakistan*, (Islamabad: Friedrich-Ebert Stiftung Foundation (FES), 2019).

<sup>3</sup> *Trade Map*. Accessed on July 15, 2019, at: [www.trademap.org](http://www.trademap.org)

trend has been observed in Pak-Afghan bilateral trade which gives birth to the research question, *why?*

However, during post 2012 period, among the regional countries, only Pakistan's exports to Afghanistan declined from \$2,660,295 to \$1,347,934.<sup>4</sup> Regional countries whose exports to Afghanistan increased during the period, includes India, Iran and Uzbekistan which indicates trade diversion to these countries. Uzbekistan exports to Afghanistan increased from \$ 622,347 to \$ 1,107,897; the Islamic Republic of Iran's exports to Afghanistan increased from \$ 2,252,806 to \$ 2,926,662; and India's exports to Afghanistan increased from \$ 504,566 to \$ 728,496.<sup>5</sup>

Percentage-wise during the same period, Afghanistan's exports to India have increased from 12% of Afghan's total exports to 40%; to Iran, Afghan's exports slightly declined from 4% of her total exports to 2%; and Afghan's exports to Pakistan declined from 51% of her total exports to 42%. Thus cumulatively, Afghanistan's bilateral trade increased with all these regional countries except Pakistan. Trade being a moving target, if obstructed, quickly diverts to other routes and destinations in search of profit. As Pak-Afghan bilateral trade declined from \$ 2.83 billion in 2011 to \$ 1.34 billion in 2018, Afghanistan's bilateral trade with India, Iran and Uzbekistan has increased, indicating trade diversion to these three countries. This study is identify and estimate key determinants of Gravity model of international trade for Pak-Afghan bilateral trade and to examines the role of Non-Tariff Barriers as key factor in decline and diversion of Pak-Afghan Trade.

### **1.1 Problem Statement:**

Afghanistan and Pakistan are located at the junction of Central Asia and South Asia. Owing to geographical contiguity, common border, common culture and similar consumption patterns, bilateral trade between the two countries should have increased with the passage of time, in line with the assumptions of the Gravity Model of international trade. However, it has been observed that during the period 2012-2018, bilateral trade between the two countries has either stagnated or decline. This decline in bilateral trade has many and complex causes responsible for it. This study, along with estimation of Gravity Model of Trade and trade potential between Pakistan and Afghanistan, approaches the problem from a specific angle of the role of Non-Tariff Barriers (NTBs). How NTBs to Pak-Afghan bilateral trade have resulted in declining trends in trade since 2012? And trade

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<sup>4</sup> WITS (World Integrated Trade Solution). Accessed on July 15, 2019, at: <https://wits.worldbank.org>

<sup>5</sup> Ibid.

diversion to other Afghan's trade partners, particularly India, Iran and Uzbekistan.

## 2. Research Methodology:

The study follows both quantitative and qualitative approach to estimate gravity model of trade and analyzes border related NTBs to Pak-Afghan bilateral trade. The primary data, mainly Qualitative, is collected through focused group discussions and semi-structured interviews with the relevant stakeholders, forty stakeholders were interviewed, including five each from custom officials, clearing agents, traders and transporters on both sides of the Afghan-Pakistan border at custom stations Torkham and Chaman. Both semi- structured interview and focused group discussion are used as data collection tools. Whereas, secondary data (panel data on between Afghanistan and her 07 regional trade partners) was retrieved from WDI, UNCOMTAD and WITS on main variables such as Gross Domestic Product (GDP), Population growth (PopG), Distance, Common Border (C.Bord).

Econometric form based on Gravity model (Anderson and Wincoop, 2001) of trade used is as:  

$$\text{Log}(\text{Trade}_{ijt}) = a_0 + a_1 \log \text{GDP}_{it} + a_2 \log \text{GDP}_{jt} + a_3 \log \text{PopG}_{it} + a_4 \log \text{PopG}_{jt} + a_5 \text{Dist}_{ij} + a_6 \text{CBord}_{ij} + E_{ij}^6$$

Where  $a_0, a_1, a_2, a_3, a_4, a_5$  and  $a_6$  are coefficients to be estimated.  $\text{Trade}_{ijt}$  represents dependent variable i.e. aggregate bilateral trade flows between Afghanistan and partner country  $j$  in time  $t$ .  $\text{GDP}_{it}$  represents independent variable i.e. economic size of Afghanistan in time  $t$ .  $\text{GDP}_{jt}$  stands for independent variable i.e. economic size of partner countries in time  $t$ .  $\text{PopG}_{it}$  represents independent variable i.e. population growth of Afghanistan in time  $t$ .  $\text{PopG}_{jt}$  represents independent variable i.e. population growth of the partner country in time  $t$ .  $\text{Dist}_{ij}$  represents the distance in kilometres between Kabul and the partner country's capital.  $\text{Bord}_{ij}$  represents a dummy variable for common (contiguous) border between Afghanistan and partner country, which is 1 in case of presence and 0 in case of absence.  $i=1$ , which stands for Afghanistan  $J=1 \dots 7$ , stands for partner countries.  $t=$  stands for the time period 2008-2018.

Three estimation, techniques were used including REM (Random Effect Model) and I later part the trade potentials were estimated for all regional partners specially Pakistan and Afghanistan.

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<sup>6</sup> Anderson, J. E., Wincoop Eric Van, *Borders, Trade and Welfare*, (Brookings Trade Forum, 2001), 207-243. Retrieved on July 3, 2019, from: <http://www.jstor.org/stable/25063161>

Variables	Definition	Notation	Source	Unit	Expected sign
Trade	Imports, exports and aggregate trade of Afghanistan with trade partners.	$Trade_{ijt}$	UNCOMTAD and WITS	000 US \$	
Gross Domestic Product	Gross Domestic Product of Afghanistan in a specific year	$GDP_i$	World Development Indicators (WDI) data base	At market prices, constant at 2010 US \$	Positive
Gross Domestic Product	Gross Domestic Product of partner country	$GDP_j$	World Development Indicators (WDI) data base	At market prices, constant at 2010 US \$	Positive
Population Growth	Population Growth of Afghanistan	$PopG_i$	World Development Indicators (WDI) data base		Positive
Population Growth	Population Growth of partner country	$PopG_j$	World Development Indicators (WDI) data base		Positive
Distance	Distance from the Afghan capital	$Dist_{ij}$	CPII	Kilometers (km)	Negative
Common Border	Common border	C.Bord			Positive

### 3. Results:

The results of the study are divided into quantitative and qualitative analysis. The first section, main quantitative, discusses the descriptive statistics followed by the empirical results of the Gravity Model based on REM for Afghanistan's aggregate trade with regional trade partners, then empirical results of the Gravity Model for Afghanistan-Pakistan Bilateral trade and Afghanistan's potential Trade against actual trade with India, Iran and Pakistan. In the second section, dominantly qualitative, author discusses the Non-Tariff Barriers (NTBs) to the Pak-Afghan trade and strengthen the argument that Pak-Afghan trade volume is below potential for which the main reason is NTBs.

Table 01 shows descriptive statistics for the main variable of the study with 77 observations for each variable, broken down into measures of central tendency and measures of variability.

**Table 01**

Descriptive statistics					
Variables	Observations	Min	Max	Mean	St. dev
GDP <sub>i</sub>	77	10.05	10.32	10.24	0.08
GDP <sub>j</sub>	77	09.70	13.03	11.32	0.99
PopG <sub>i</sub>	77	02.26	03.49	02.87	0.42
PopG <sub>j</sub>	77	00.45	02.82	01.56	0.61
Dist <sub>ij</sub>	77	02.66	03.72	03.12	0.33
C.Bord	77	00.00	01.00	00.71	0.45
Trade	77	04.36	05.87	05.64	0.43
Imports	77	04.09	06.40	05.56	0.47
Exports	77	02.17	06.46	04.08	0.95

Source: Authors estimations

### 3.1 Afghanistan's aggregate trade with regional trade partners

Table 02 shows the empirical results of the Gravity Model, using Random Effect estimation technique. The table indicates the estimated impact of independent variables on Afghanistan's aggregate trade, imports from and exports to the regional trade partners during 2008-2018. Results are in line with the assumptions of the theory as over all the coefficients carry expected signs and are statistically significant.

Table 02: Empirical Results of the Gravity Model based on REM for Afghanistan's aggregate trade with regional trade partners

Variables	Trade	Imports	Exports
GDP <sub>i</sub>	1.76 (0.00)	1.89 (0.00)	0.01 (0.98)
GDP <sub>j</sub>	0.51 (0.00)	0.49 (0.00)	0.37 (0.41)
Population <sub>i</sub>	0.01 (0.82)	0.02 (0.73)	-0.14 (0.14)
Population <sub>j</sub>	0.45 (0.00)	0.51 (0.00)	-0.64 (0.00)
Dist.	-0.11 (0.64)	0.08 (0.75)	-2.42 (0.06)
C.Bord	0.64 (0.00)	0.88 (0.00)	-0.51 (0.62)

**Note:**Probability Values are in parentheses and  $p < 0.01$ (Significant at 10 percent),  $p < 0.05$ (Significant at 5 percent),  $p < 0.10$ (Significant at 1 percent).

Source: Authors estimations

The estimated coefficient value 1.76 for the variable of Afghanistan's GDP (home country's GDP) shows positive relationship with the aggregate trade flows of the country. It indicates that 1 percent increase in Afghanistan's GDP increases the country's aggregate trade by 1.76 percent. Moreover, P-value of 0.00 shows that the relationship is not only positive but also highly significant. Separately in terms of imports and exports, 1 percent increase in home country's GDP increases Afghan imports by 1.8 percent while exports by merely 0.01 percent. It indicates that the increase in total trade is mainly due to increase in Afghan imports from the regional trade partners instead of exports to these countries. The P-values 0.00 for Afghan imports and 0.98 for export too indicates that the relationship is highly significant for the country's imports only.

Regarding the impact of the trade partner's GDP as a variable of Afghanistan's aggregate trade, it produces almost identical results: with estimated coefficient value 0.51 and P-value 0.00, the relationship is not only positive but also significant. It implies that 1 percent increase in partner countries' GDP, increases Afghanistan's aggregate trade by 0.51 percent i.e. less than proportionately.

In terms of imports, with estimated coefficient value of 0.49 and P-value 0.00, the relationship of partner's GDP with Afghanistan's imports is not only positive but also highly significant. In terms of exports however, with estimated coefficient value 0.37 and P-value 0.41, partner's GDP cultivates slightly positive relationship with Afghanistan's exports but remains insignificant.

Population growth of home country has positive relationship with the country's aggregate trade. The estimated coefficient value of 0.01 implies that 1 percent increase in Afghanistan's population growth causes the aggregate trade of the country to increase by 0.01 percent, and P-value 0.82 shows that the relationship is also insignificant. As against expectations, population growth has insignificant relationship with Afghan's total trade.

In terms of imports, with the estimated coefficient value 0.02, Afghanistan's population growth by 1 percent increases the country's imports by 0.02 percent. The relationship is positive but insignificant, carrying P-value 0.73. Similarly for exports, the estimate coefficient value  $-0.14$  and P-value 0.14 indicates that Afghanistan's population growth has negative relationship with the country's exports, but the relationship is insignificant. It also indicates that the country's exports fail to keep pace with increasing population.

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The estimated coefficient value 0.45 indicates that 1 percent increase in partner's population, the country's aggregate trade increases by 0.45 percent. Separately in terms of imports and exports, 1 percent increase in partner's population growth boosts the country's imports by 0.51 percent showing positive relationship while exports of the country is adversely been affected by  $-0.64$  percent showing negative relationship. But partner countries' population as a variables is highly significant with P-values 0.00 for Afghanistan's aggregate trade, P-value 0.00 for imports as well as P-value 0.00 for exports.

Distance as a variable for Afghanistan's aggregate trade behaves in line with the theory where 1 percent increase in distance decreases aggregate trade of the country by 0.11 percent. While it has an insignificant relationship with the country's imports, a 1 percent increase in distance decreases the country's exports by 2.42 percent, exactly in line with the assumptions of the model. In terms of significance, distance from the Afghan capital as a variable is insignificant for the country's aggregate trade, imports and exports, with P-values 0.64 for aggregate trade, P-value 0.75 for imports and P-value 0.06 for exports.

Common border as a time-invariant variable has positive relationship with the country's aggregate trade as well as imports with estimated coefficient values 0.64 and 0.88 respectively. Common border is also significant for both aggregate trade as well as imports, with P-values 0.00. The model however, produces unexpected results for the relationship of common border with the country's exports, with estimated coefficient value  $-0.51$ , indicating inverse relationship between dependent and independent variables, albeit insignificant one with P-value 0.62.

Overall, the results indicate that Afghanistan trade more with the neighbors (regional trade partners) than with distant trade partners. It partially explains that the country's economy being basically traditional and agrarian, it trades more in primary and perishable goods. Such goods are traditionally traded more with neighbors than with distant trade partners.

### **3.2 Afghanistan-Pakistan Bilateral Trade**

Table 03 indicates the empirical results of the influence of independent variables on Afghan-Pakistan bilateral trade.  $GDP_i$  shows positive relationship carrying coefficient values 2.3 for aggregate trade, 2.4 for imports and 0.2 for exports of the country to Pakistan, which is in line with the assumptions of the model. It also implies that 1 percent increase in  $GDP_i$  in the variable increases bilateral trade by 2.3 percent while it increases the country's imports by 2.4 percent. However, 1 percent increase increases exports of the country by only 0.2 percent. The relationship is also highly significant for aggregate trade and imports with P-values 0.00.



However, the relationship is not significant for the country's exports to Pakistan with P-value 0.61 and does not influence Afghanistan's exports to Pakistan.  $GDP_j$  also shows positive relationship with Afghan-Pakistan bilateral trade as per expectations of the model. The variable influences bilateral trade positively with coefficient value 0.28 for aggregate bilateral trade, 0.46 for the country's imports and 1.43 for exports. However, the relationship is not significant carrying P-values 0.85 for aggregate trade, 0.78 for imports and 0.44 for exports of the country. Afghanistan being a thinly populated country, the coefficient values for the influence of  $PopG_i$  on bilateral trade of the country are not in line with the expectations. Estimated results show coefficient values -0.001 for aggregate bilateral trade, 0.01 for the country's imports and -0.15 for exports. But the relationship is not significant for either direction of trade carrying P-values 0.98 for aggregate bilateral trade, 0.87 for imports and 0.09 for exports.

$PopG_j$  is not significant for both aggregate bilateral trade having P-value 0.65 and for imports with P-value 0.54. However, it is highly significant for the country's exports with P-value 0.00. The coefficient value 0.05 for the country's aggregate bilateral trade implies that 1 percent increase in  $PopG_j$  increases bilateral trade with 0.05 percent and imports by 0.07 percent. However, 1 percent increase in  $PopG_j$  slightly but adversely affects the country's exports by -0.58 percent.

Similarly, in line with the theory, an increase in distance ( $Dist_{ij}$ ) between the two countries shows negative impact on aggregate bilateral trade with coefficient value -1.05; on imports with coefficient value -1.84 and on exports with coefficient value -5.26. However, the relationship is not significant for either direction of trade: it carries P-value 0.87 for aggregate bilateral trade, P-value 0.79 for imports and P-value 0.50 for the country's exports to Pakistan.

$C.Bord_i$  is not significant for the country's aggregate bilateral trade and imports from Pakistan with P-values 0.63 for aggregate bilateral trade and 0.13 for the country's imports from Pakistan. However,  $C.Bord_i$  is significant for Afghanistan's exports to Pakistan with P-value 0.05. The relationship of  $C.Bord_i$  with aggregate bilateral trade is positive with coefficient value 0.13 indicates that the presence of common border increases the country's aggregate trade by 0.13 percent and imports from Pakistan by 0.44 percent. But it shows negative relationship with the country's exports to Pakistan by 1.36 percent.

**Table 03: Empirical Results of the Gravity Model for Afghanistan-Pakistan Bilateral trade**

Variables	Trade	Imports	Exports
<b>GDP<sub>i</sub></b>	2.32(0.00)	2.42(0.00)	0.26 (0.61)
<b>GDP<sub>j</sub></b>	0.28(0.85)	0.46 (0.78)	1.43(0.44)
<b>PopG<sub>i</sub></b>	-0.00(0.98)	0.01 (0.87)	-0.15(0.09)
<b>PopG<sub>j</sub></b>	0.05 (0.65)	0.07 (0.54)	-0.58(0.00)
<b>Dist<sub>ij</sub></b>	-1.05(0.87)	-1.84 (0.79)	-5.26(0.50)
<b>C.Bord</b>	0.13 (0.63)	0.44 (0.13)	-1.36(0.05)
<b>Note:</b> Probability Values are in parentheses and $p < 0.01$ (Significant at 10 percent), $p < 0.05$ (Significant at 5 percent), $p < 0.10$ (Significant at 1 percent).			

Source: Authors estimations

An increase in distance decreases Afghanistan-Pakistan aggregate bilateral trade, imports from Pakistan as also exports to the country in line with the theory. The relationship is however, not very significant probably due to deep trade dependency and engagement between the two countries and the development of road infrastructure along all historical trade routes in the recent past. The population growth of Pakistan shows significant relationship with Afghanistan exports to Pakistan but the population growth of either country does not influence Afghan imports from Pakistan, indicating stagnation in Pakistan's exports to Afghanistan. It also indicates that the latter is meeting her rising demand from other trade routes and destinations

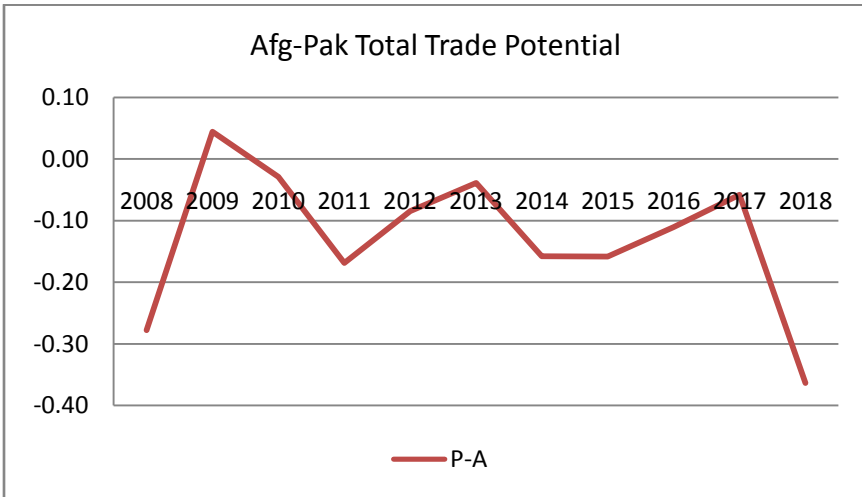
Similarly common border as a variable shows slightly positive relationship but is not significant for aggregate bilateral trade as well as for the country's imports from Pakistan (Pakistan's exports). It even shows negative relationship in case of Afghanistan's exports to Pakistan. It indicates that the two countries are not reaping the benefits of contiguous border probably due to complex set of trade barriers between the two countries.

### **3.3 Afghanistan's potential Trade against actual trade with India, Iran and Pakistan**

The study includes an estimation of potential trade between Afghanistan and her 7 regional trade partners through the Gravity Model.

The Model shows that the coefficient for Afghanistan's aggregate trade with India remained positive except for the years 2008 and 2018, indicating greater potential than the actual trade. But during the remaining whole decade, the countries' actual trade was more than the potential trade. Specifically, in terms of India's exports to Afghanistan, trade remained above potential, except for the year 2018. Some similar is the case with Iran where the country's actual trade was more than potential trade, except during the years 2014, 2015 and finally 2018. Specifically in terms of Iran's exports to Afghanistan, trade remained above potential, except for the years 2015 and 2018. It may also be added that Iranian imports from Afghanistan remained above potential throughout the 11 years under observation.

On the other hand, Pak-Afghan aggregate trade though out the 11 years under observation remained below potential, except for the year 2009. Similarly, both exports as well as imports remained below potential, except for the year 2009 when Pakistan's exports to Afghanistan remained above potential. Following is the diagrammatic representation of potential trade between Afghanistan:



These figures clearly indicate the stagnating or declining trends in trade between the two countries. As predicted by the model, statistics indicate Pakistan's untapped trade potential with Afghanistan. The traders, clearing agents, transporters and customs officials also pointed out that there was potential for enhancement in bilateral trade provided barriers and constraints to bilateral trade would be mutually removed. While Pakistan is Afghanistan's largest trading partner, the percentage increase in bilateral trade (especially Pakistan's exports to the country) is unimpressive when

viewed against the percentage increase in Afghanistan's bilateral trade with other regional trade partners, particularly India, Iran and Uzbekistan.

### 3.4 Non-Tariff Barriers (NTBs)

Forty stakeholders were interviewed five each from custom officers, clearing agents, traders and transporters working on both sides of custom stations Torkham and Chaman. Table 01 shows summary of responses by the stakeholders in order of priority.

		Stakeholders			
		Traders	Transporters	Clearing Agents	Customs Officers
Non-Tariff Barriers	Overlapping Jurisdiction	5	10	10	10
	Lack of sufficient infrastructure	4	10	5	10
	Under-staffed Offices	3	7	8	10
	Quarantine Certificates	10	0	8	8
	Restrictions and Prohibitions	8	0	3	3
	Road and transport infrastructure	9	10	6	4
	Import/export Permits and licenses	10	0	3	3
	Rules of Origin	10	0	6	5

Source: Results based on the author's interviews and focused group discussions at Torkham and Chaman

Results indicate that an overwhelming majority of stakeholders believe that border related NTBs have adversely affected Pak-Afghan bilateral trade, resulting in trade diversion. Data indicates that 3 out of 4 categories of stakeholders including transporters, clearing agents and customs officials unanimously think overlapping jurisdiction of bordering agencies is the top most obstacles to Pak-Afghan bilateral trade. Similarly, transporters and customs officials unanimously think lack of infrastructure, both road as well as terminal infrastructure, has adversely affected Pak-Afghan bilateral trade. Traders (importers and exporters) consider procurement of quarantine certificates, import/export permits and certificate of origin as the most important barriers to Pak-Afghan bilateral trade. Majority of the transporters think overlapping jurisdiction of bordering

agencies, road, transport and terminal infrastructure are NTBs that directly affect them in terms of time, hardship and money. Clearing agents consider overlapping jurisdiction of bordering agencies, understaffed offices and procurement of quarantine certificates as the most important NTBs to Pak-Afghan bilateral trade. Finally, custom officials feel the strain of overlapping jurisdiction of bordering agencies, lack of sufficient infrastructure and understaffed offices as important non-tariff barriers to trade. In addition, they also consider quarantine certificate as an important barrier to trade, mainly due to the lack of laboratory infrastructure, equipment and trained officials of the concerned Plant Protection Department (PPD).

Collectively, all the four categories of stakeholders think bilateral trade has been adversely affected by the border related listed non-tariff barriers, resulting in trade diversion. Potential trade indicators calculated indicate that for most part of the period under observation, Afghanistan traded above potential with Iran and India and below potential with Pakistan. Consequently, it can safely be concluded that the listed NTBs resulted in Pak-Afghan trade diversion to these two countries.

#### **4. Conclusion**

Afghanistan and Pakistan are located at the junction of Central Asia and South Asia. Owing to geographical contiguity, common border, common culture and similar consumption patterns, bilateral trade between the two countries should have increased with the passage of time, in line with the assumptions of the Gravity Model of international trade. However, it has been observed that during the period 2012-2018, bilateral trade between the two countries has either stagnated or declined. In this study the gravity model of trade was estimated by using random effect estimation technique for panel data set (secondary data) and trade potential was estimated. The finding of the study, based on quantitative analysis, shows that Pak-Afghan trade is operating below the potential level and is not in line with GMT. Furthermore, based on qualitative analysis, NTBs significantly distort bilateral trade, where assessing the incidence of NTBs is difficult due to the very nature of these barriers, not being quantifiable; having sparse data and large information gaps. However, from the foregoing discussion, it is evident that NTBs have left Pak-Afghan bilateral trade costly and inconvenient in terms of extortion, additional costs of doing trade and time consumption. On the other hand, Afghanistan's regional trade partners closely compete trade advantages conferred by common border, culture and similar consumption patterns on the Pak-Afghan bilateral trade. All these countries have overlapping ethnicities, common languages and cultures for sharing trade information, with Afghanistan. The country is fast deepening her trade ties with all her regional trade partners through rail and road connectivity, introduction of automation to border processes and other trade

facilitation measures. Thus, in order to keep pace with the fast changing and competing trade environment in the region, Pakistan needs to weed out NTBs to trade with Afghanistan and facilitate formal legal trade by not only increasing notified legal routes but also by introducing international best practices on her border with Afghanistan.

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