

Discussion on Russia-Iran Bilateral Trade in the Modern Era with emphasis on Russia's Economy

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Abstract

This paper is an empirical attempt to investigate bilateral trade flow between Iran and Russia. To this end, we used statistical analyses on macroeconomic series over the period of 1991-2017. Results revealed that there is a significant statistical difference in terms of exports between Iran and Russia, and that there has always been a buyer-seller dialogue between the two countries. According to the Export-Import Similarities (EIS), Iran and Russia represented low potential complementarity between the years 2001 and 2017, which indicated that there is more trade competitiveness rather than trade complementarities between the two countries. Results from the statistical tests of Friedman and Kruskal-W revealed that the service sector has played an important role in creating value in Russia's economy. In addition, there is a statistical significant difference with respect to Iran's exports to Russia in terms of Iran and Russia's sanctions and Russia's membership to WTO. During the sanctions imposed by the West, when Russia and Iran's GDP always decreases, they find each other as regional allies and try to strengthen their bilateral economic relationship. However, there is an obvious lack of diversity in Russian and Iranian export supplies and the volume of bilateral trade between them is not expected to increase in the future. Russia and Iran have failed to establish adequate economic, technical and educational ties and there is no active economic diplomacy between them. As a result, developing a clear program for the promotion of bilateral trade is a strategic priority, which must be operationalized by politicians.

Keywords: Cosine index, Economic institution, Sanctions, Structural barriers, Trade flow

1. Introduction

The topic of Russia's trade policy, its economic approach, and its trend after communism have been the subject of intense research over the past two decades. It seems that there is a significant relationship between the trade policy of a country and its economic situation. In addition, the economic size of a country and other socio-economic components are determining factors in trade volume among countries, as investigated by a considerable number of studies through the Gravity-trade models, Cosine, and Complementarity indices, which are well-known methods to analyze international trade patterns between nations.

Rigid protectionism and state monopoly on foreign trade are discussed as the two most important features of the Soviet Union's trade policy. They have made Soviet economy virtually insusceptible to external influence. Until the perestroika, oil price was the main channel of global market influence on the Soviet economy (Makeeva & Chaplygina, 2008). After 1991, over the years 1991 to 1998, Russia's trade policy shifted from rigid protectionism to principles of free market in the context of price liberalization, mass privatization, and stabilization of the ruble. During the mentioned period, Russia lost 30% of its GDP; inflation therefore raised drastically. On the other hand, transition had a significant impact on the structure of the country's economy and resulted in severe decline in structural infrastructures: this situation increased households' vulnerability, caused by income inequality. Furthermore, capital was leaving the country en masse, with nearly \$150 billion worth flowing out between 1992 and 1999 (Johnston, 2019; Rada et al., 2017; Lunze et al., 2015; Yakolev, 2014; Cooper, 2013). Following the 1998 crisis, domestic production in Russia started to grow, which resulted in a major change in trade policy. In

this line, the State started to restore control over the trade policy in 2000, characterized by an increased role of the state and a growing trend towards import substitution, without isolating Russia from international markets (Garanina, 2007; Makeeva and Chaplygina, 2008). In addition, as discussed by Akindinova et al. (2016, p. 219-220), "...although Russia has developed at a similar rate as Central and Eastern European countries on the key GDP per capita parameter", it is still subjectively perceived as a developing nation. This happens due to this fact that Russia has a higher level of social inequality, which increased even during periods of rapid economic growth" in the early of 2000s. This trend has increased with a moderate slope via the Gini index in the period of 2000 to 2015 (World Bank, 2018).

Over the years 2000-2008, and 2009-2013, Russia's physical exports gradually grew at approximately the same rate as its GDP. The average growth rate of exports amounted to 7.6% between 2000 and 2008 (Kurdin & Gurvich, 2015); however, since the time of the global financial crisis, which started in October 2008, the government of Russia has periodically increased tariff rates. Tariff hikes have been applied to automobiles, automobile bodies, meat, combines, steel products and televisions in the past. Furthermore, the average growth rate of exports decreased to 1.6% over the years 2009-2013, along with a sharp reduction in imports, which amounted to 3.5% by average, compared to 20.4% between the years 2000 and 2008 (UNCTAD¹, 2010. p. 2; Kurdin & Gurvich, 2015). In sum, the projected increase in the negative effects of the global crisis in the years 2008-2009 reduced the economic growth of Russia up to 1.3% in 2013, along with a reduction in

1. United Nations Conference on Trade and Development

competitiveness of the national economy, together with Russia's accession to WTO¹ in August 2012.

Despite its long preparation period and the country's strong desire to become a member of WTO, only a handful of sectors have been able to derive a benefit thus far. The majority of the key sectors of Russia's economy are faring badly and seem to become even worse; the most important victim was agriculture, in which the constraints were removed in one go, rather than gradually (Belokrilova² and Cherkeзов³, 2014, p. 13; Kalugina, 2014; Zhebit, 2013). Finally, accession to WTO had both advantages and disadvantages for Russia's economic entities. Based on a report published by WTO (August 24, 2016, p.3), "the implementation of the WTO rules into the national legislation has contributed towards an improvement in Russia's international ratings. For instance, since 2012, Russia has been annually moving upwards in the Doing Business rating compiled by the World Bank Group. From being ranked 120th (out of 183) in 2012, Russia moved to the 51st place (out of 189) in 2016". Investigating the foreign trade behavior in Russia after the West's sanctions in the crisis of Ukraine is another important issue that has been examined in a significant number of studies. Gurvich and Prilepskiy (2015) investigated the impact of financial sanctions on Russian economy. Based on the results, during the years 2014-2016, sanctions had a negative effect on the economy; this negative effect is estimated at approximately \$280 billion. Makhmudova and Koroleva (2016) analyzed foreign trade behavior in Russia from 2012 to 2015. Results indicated that "the import substitution policy has been implemented in Russia since

1. World Trade Organization

2. Белокрылова

3. Черкезов

2014 due to external factors with regard to sanctions towards some economic branches”.

Creating appropriate institutions, implementing certain policies such as membership in regional and intera-regional entities, officials' diplomatic visits, sanctions, as well as market environment and the economic structure of the countries play an important role with regards to Russia's trade potential and its implications. As emphasized by Tapychkanov (2016), one of the main challenges of expanding trade potential between Iran and Russia is institutional barriers. This research aims to investigate the issue of bilateral trade and trade flow between Russia and Iran with an emphasis on Russia's economic structure. As confirmed by Kurdin and Gurvich (2015) as well as Russell (2018), public and quasi-public companies have a dominant position in the market environment of Russia. As a result, we witness “informal” relations with the state, killing incentives and cooling down other sectors of the economy. In addition, Becker and Vasileva (2017, p. 83) argue, “Russian patrimonialism hindered the rise of the economically facilitating state capacity and undermined both liberalization in the 1990s and re-etatization in the 2000s”.

In the years to come, Russia will face serious challenges in relation with markets, human capital, investments, and financial embargoes in the world economy. In addition, the instability of prices for its traditionally exported goods is considered as a problematic issue (Medvedev, 2016). Thus, Russia needs to break away from its heavy dependence on traditional export commodities, for which it is a marginal exporter, thus a price taker. In general, Russia's role in the global economic system is dominated by the export of natural resources and raw materials, particularly oil and gas, which induce vulnerability to large fluctuations in oil prices. A higher oil price not only leads to higher

economic growth and savings in the sovereign wealth fund, but also induces a rupture in Russia's economy. Public and household expenditure increases, while the traditional export industries suffer from real appreciation, in line with the Dutch disease hypothesis. Moreover, Russia would face a major challenge in dealing with integration into the world economy and general civilization process because of the existing technological gaps in most sectors of its economy (Benedictow et al., 2013; Myachin et al., 2015; Bradshaw & Connolly, 2016). In this line, as emphasized by Medvedev (2016), and Kudrin and Sokolov (2017), the government's greatest priorities for the future consist of strengthening productive areas, especially human and physical capital, security, education, infrastructure, and public health assistance to the most vulnerable groups in the population. Therefore, Russia's much more favorable business climate and new initiatives would lead to a much stronger economy and Russia's budget structure should reflect these priorities.

As indicated by Shiells (2003, p. 7), "the trade policy regime is relevant to the question of trade potential. If trade is below potential, this may be due to restrictive trade policy". Trade potential is defined as the maximum possible trade that can be achieved at an optimum trade frontier with "open and frictionless trade possible given the current level of trade, transport and institutional technologies" (Miankhel et al., 2009). According to certain researchers, under special regional circumstances such as the Syrian crisis, the US activities in the region, and the global economic collapse, Russia can improve its economic ties with different nations, particularly those with similar economic conditions. In this regard, Iran is a country that has experienced different sanctions imposed by the US and its alliances in the last decades; it is a nation that could work with Russia for solving

regional crisis and the US hegemony. Certain scholars believe that Iran could be considered as a potential partner in trading with Russia. Moreover, synergy flourishing from higher level of ties between Iran and Russia can be an important factor in helping Iran and Russia increase their local production and social welfare. Nevertheless, it seems that in the case of trade complementarity, due to the economic structures and internal potentials, there is no a significant convergence between the two countries.

Trade potential is explained as the maximum possible value of trade between Iran and Russia using Cosine index as a simple and primary tool, with focusing on a number of important constructs. In the case of Iran, based on the Russian Federation Federal State Statistics Service (2018), exports stand at only 0.268 percent of total Russian exports, but “a trade surplus and the existence of a large market for Russian manufactured goods make Iran an important partner” (Smagin, 2017). According to the data from the Russian Export Center (2019) and Iran-Russia Economic Database (2019), Iran was Russia's 50th largest trading partner in 2018 (down from 48th in 2017), accounting for 0.25% of Russia's total trade. As indicated by Smagin (2017) “Iran and Russia are able to offer each other a limited number of products at globally competitive rates”. In addition, the major share of Russian exports to Iran in 2018 was accounted for food products and agricultural raw materials (65.64%). On the contrary, the major share of Iran exports to Russia in 2018 was accounted for food products and agricultural raw materials (74.12%) (Iran-Russia Economic Database, 2019).

The main purpose of this research is to provide an overview of trade potential between Iran and Russia with a focus on the structure of Russian economy during the years 1991-2017. In addition, this research aims to estimate bilateral trade potential by

Cosine index as a primary tool based on the data available from 2001 to 2017. The main assumption is that by recognizing the main institutions, we can reach a comprehensive perception about the underlying factors affecting bilateral trade between the two countries. This research has been carried out through literature review and data collected from the statistical databases of WITS¹, UNCTAD², World Bank and en.russian-trade.com. The rest of this paper is therefore structured as follows: Section 2 provides a brief description of trade flow between Iran and Russia, along with a brief literature review; data collection procedures and methodology are discussed in Section 3. Section 4 presents the research results and discussion, and Section 5 provides the study's concluding remarks.

2. Review of Literature

The literature on trade potential and bilateral trade development is rather rich. Works on bilateral trade may be grouped in two main categories based on the methodology. The first one includes studies that emerged from qualitative methods, and the second one includes models attempting to quantify qualitative data via mathematical and statistical methods. In this section, we will first focus on bilateral trade between the two countries from 1991 to 2017. In the second phase, bilateral trade will be investigated based on previous research, with an emphasis on Iran and Russia's trade flows. We will finally model a contingency table that presents a brief explanation of the underlying factors and variables that are important in developing bilateral trade between Iran and Russia.

Kozhanov (2015, p. 4) argues, "According to some political

1 . World Integrated Trade Solution

2 . *United Nations Conference on Trade and Development*

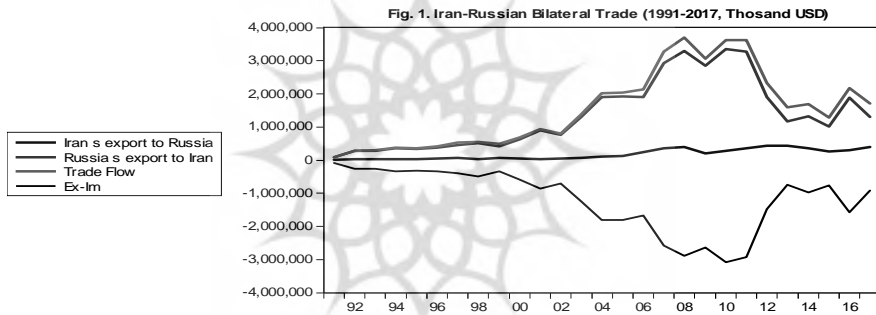
analysts, it is hard to find another country whose relations with Moscow have experienced such a huge number of drastic twists such the case of Iran". Three Russian interests in particular played (and in certain cases, still play) the central role in determining Moscow's approach to the Islamic Republic of Iran:

- Maintaining a certain level of positive dialogue with the West (primarily the United States)
- Ensuring Moscow's dominance in the space of the Commonwealth of Independent States (CIS) as a zone for Russian national aspirations
- Securing stability around the borders of the CIS and Russia (including deterring nuclear proliferation) (Kozhanov, 2015, p. 4).

Trade relations between Iran and Russia increased during the past two decades, but the trade volume continues to remain at a low level. Iran's exports to Russia have increased in a moderate slope from 2000 to 2015, but decreased in 2009 and 2015 by 46 and 26 percent respectively. In total, "because of the oil price shock of 1998 and under the pressure of the USA on Russia to put constraints on its exports to Iran, the Iran-Russian bilateral trade decreased by nearly 20% over 1998-1999" (Rasoulinezhad & Popova, 2017, p. 471). However, since the early 2000s, economic relations between the two countries improved significantly. In this line, according to the data extracted from the World Bank Data Sheet (2018), the trade flow between Iran and Russia exceeded to \$2 billion in 2004, and reached a peak in 2008 at almost \$3.7 billion. This trend was disrupted by the tightened regime of sanctions against Iran in 2010-2013; bilateral trade between Russia and Iran fell by almost \$1.6 billion. During the years 2014 to 2016, trade between Iran and Russia surged to \$2.2 billion, and in 2017 declined to \$1.7 billion again. This figure is not favorable,

compared to the main partners of Russia such as China and Turkey. As mentioned before, Iran-Russia Joint Chamber of Commerce (2016) indicated that banking and monetary issues, transportation, high tariff customs and export licenses are the major structural barriers in the economic relations of the two countries. The volume of trade between Iran and Russia during the years 1991-2017 is illustrated in Figure 1. As demonstrated, throughout the period under review, Russia maintained a surplus in bilateral trade with Iran.

Fig 1. Iran-Russian bilateral trade flows (1991-2017, Thousand US dollars).
Source of data: World Bank Data Sheet (2018)



A significant number of studies have investigated bilateral trade flows through various approaches. Idrisov et al. (2016), in a research on 'trade and Russian economic development' believe that Russia needs structural reforms. This strategy requires a diversification of production and exports in line with sustainability. In this regards, social stability, vulnerability reduction and reducing the impact of variability in terms of trade on the Russian economy should be targeted as the main issues to examine. Mamedova (2016) investigated the trade relations between Iran and Russia. The main obstacles to further expansion of collaboration can be divided into the two categories of "external and internal factors".

These factors include regime of sanction, low energy prices, lack of diversity in Russian and Iranian exports, and lack of a clear program for the promotion of bilateral relations. In addition, Russia and Iran do not have joint banking and insurance institutions, and the level of social and cultural relations remains low. Parand (2016) presented major obstacles to economic cooperation between the two states. These obstacles are as follow: financial transaction and credit line, Russia's quality standard system, which is not compatible with that of Iran, a strict and complicated procedure for exporting Iranian goods to Russian market, insurance and credit lines for Iranian projects, lack of tariff preferences between the two states, and high rate of customs tariff for Iranian exporting goods. Rasoulinezhad (2017) analyzed "the effects of Russia's WTO accession on Russia's foreign trade policy with top 40 trading partners" based on a gravity model. Results indicated that economic size, trade remoteness and bilateral exchange rates have had a stronger effect on industrial trade flows between Russia and its top trading partners before the WTO accession, while economic size, trade remoteness and trade openness seem to have a stronger impact on industrial trade flows after the accession. The results of this research suggest that scholars in future researches could investigate the effects of sanctions. The study of sanctions effects on Russian trade pattern is one of the recommendation proposed by this research. Riasi and Amiri Aghdaie (2013) conducted a research on the "Effects of a hypothetical Iranian accession to the World Trade Organization on Iran's flower industry". The statistical population consisted of four different groups including flower producers, flower exporters, flower importers, and flower distributors. Results indicated that the performance of several industry factors would be increased under Iran's accession to WTO. These factors are as follow: "direct foreign investment, the competitive strength of flower exporters, related job opportunities,

and the number of international flower distribution companies in Iran” (Riasi & Amiri Aghdaie, 2013, p. 102).

Sazhin (2016, p. 20-21) investigated the Iran-Russia strategic partnership. He concluded, “Russia’s objective to establish reliable ties in the shortest time is possible and for a long term that would be independent of the political climate both inside the two countries and beyond them”. In addition, Russia has a limited area for presence and competition in the Iranian market. He points out that Russia and Iran are interested in developing economic cooperation, but there is a challenging issue: “post-sanctions Iran is clearly turning towards the West”. Rasoulinezhad and Popova (2017) attempted to estimate the impact of economic sanctions and oil price shocks on Iran-Russian trade over the period of 1991-2014. Results indicated that there is a statistical negative causal relationship between financial sanctions, non-financial sanctions and Iran-Russian trade. In addition, oil price shocks negatively affect Iran-Russian trade. “Furthermore, financial sanctions had the greatest negative impact on Iran-Russian trade rather than non-financial sanctions and sharp oil price shocks” (Rasoulinezhad & Popova, 2017). Arapova and Chkonia (2016) studied “trade potential of BRICS¹”. They concluded that inappropriate trade in industry and low competitive capacity to some extent, high cost of trading, and non-tariff barriers are among the key elements that have a negative impact on trade development. Zakharova (2016) analyzed bilateral economic relations between Russia and North Korea. His findings depicted that “Korea needs to improve its economic situation and reduce the unilateral dependence on China in terms of trade and investment” (Zakharova, 2016. p. 160). In addition, South Korea plays an important role in developing bilateral trade between Russia and North Korea in the context of

1. BRICS is the acronym coined for an association of five major emerging national economies: Brazil, Russia, India, China and South Africa

joint projects. In this way, Russia could become a faithful mediator and a balancer between the two Koreas. Ono (2017, p. 331) examined “the finance-growth nexus in Russia with the vector auto-regression model”; he suggested that Russia could begin “a financial system to stimulate sustainable economic growth with less dependency on natural resources” (Ono, 2017, p. 331). As emphasized by Yakolev (2014, p. 10), “economic growth is impossible without investment, which explains Russian leaders’ increased interest in improving Russia’s business climate”. Vahalik (2014) attempted to analyze bilateral trade between the European Union and ASEAN¹, and China and ASEAN by using indices of regional trade intensity and trade complementarity. Results indicated that “from the view of trade intensity China keeps better position to the ASEAN countries but in the case of trade complementarity, the European Union has better long-term results than China. The European Union is also a better natural trading partner for ASEAN countries than China” (Vahalik, 2014, p. 716). Sinitsina (2012) classified the main obstacles of cooperation between Russia and Central Asia as follow:

1. Dominance of energy and mining sectors in economic cooperation;
2. Strong dependency on top-down decision-making that inhibits cooperation development;
3. Lack of sufficient resources by Russia, which has caused the country to not have yet reached a level of economic attractiveness,
4. Controversies between the CA countries in relation to the implementation of large-scale projects.

Overall, this paper attempts to analyze Russia-Iran bilateral trade with a focus on Russia’s economic structure in order to

1. Association of Southeast Asian Nations

discover the degree of similarity of trade pattern in this structure. Table 1 presents a theoretical framework in form of a contingency table. It summarizes and models a brief explanation of the underlying factors and variables that are important in developing bilateral trade between Iran and the Russian federation.

Table 1. Contingency table of underlying factors

Resource	Variable	Trade flow	GDP	Sanction	Membership in WTO and other institutions	president's visit
Ram and Prasad, 2005		■				
Gul and Yasin, 2011			■	■	■	
Antonio, 2014		■	■			
Evgeniya, 2011			■		■	
Zakharova, 2016						
Shiells, 2003			■		■	
Kandogan, 2010						
Anukoonwattaka, 2015					■	
Babetskii et al, 2003		■	■	■	■	
Babecka-Kucharcukova et al, 2010			■	■		
Belobrov et al, 2014				■		
Mamedova, 2016				■		
Ravikumar and Waugh, 2016			■			
Sultan and Munir, 2015		■				
Rasoulinezhad and Kang, 2016			■		■	
Baldwin and Harrigan, 2011			■			
Rasoulinezhad, 2017			■	■	■	
Rasoulinezhad and Popova, 2017				■	■	■
Kashtiakova, 2016				■		
Geda and Seid, 2015		■	■		■	
Doan and Xing, 2017					■	
Riasi and Amiri Aghdaie, 2013					■	

3. Methodology

In an attempt to analyze trade relations between Iran and Russia, we have first investigated the structure of the Russian economy by comparing the value added of dominant economic sectors. It is assumed that by recognizing the economic structure of a trade partner, we could develop strategic partnerships based on the opportunities. This research is descriptive from a statistical point of view, and uses Kruskal-Wallis, as well as Friedman statistical tests to compare the value added created by subsectors. According to the literature review, four dummy variables of sanction, WTO membership, EEU¹ membership, and PV (President's visit) are selected as classified factors in order to investigate their effects on Iran's exports to Russia during the years 1991 to 2017. Finally, Cosine index was used to measure the degree of trade complimentary between the two countries. There are several measures in studies on international trade issues for comparing the commodity composition of trade flows (Linnemann and Beers, 1987). One of the ways of ascertaining the potentials of trade cooperation between a pair of countries is by comparing their exports and imports vectors at a certain point of time, and bringing out the matching between the two. Such a comparison between the export supply of one country and the import demand of the partner country can be captured by constructing a Trade Complementarity Index" (Das et al., 2012, p. 157). As discussed by Xia et al (2015), researchers always seek suitable measures of similarity; a well-defined similarity metric is a good measure to accomplish numerous tasks, such as classification and clustering. In addition, "Cosine similarity is a widely used metric that is both simple and effective". In this line, this research aims to examine the extent of

1. Eurasian Economic Union

trade similarities and complementarities between the two countries based on the import-export correspondence index of Cosine, which is defined as the “inner product of these two vectors divided by the product of their lengths” (Ye, 2011). “COS is the cosine of the angle between the vectors of country *i* exports and the vectors of country *j* imports in an *n*-dimensional commodity space and varies between zero (no correspondence between the exports of country *i* and the imports of country *j*) and one (perfect similarity)” (Geda & Seid, 2015). The formula of index, which is presented by Linnemann and Beers (1987), is as follows:

$$COS_{ij} = \frac{\sum_K E_{ik} \cdot M_{jk}}{\sqrt{\sum_K E_{ik}^2 \cdot \sum_K M_{jk}^2}}$$

“Taking *i* and *j* for exporting and importing countries, respectively. As well as, E_{ik} is the exports of country *i* in commodity class *k*; M_{jk} is the imports of country *j* in commodity class *k*; and *k* is commodity class 1, ..., *n*.” (Geda & Seid, 2015, p. 46).

Raw data gathered from the World Bank, the UNCTAD, the WITS, as well as the Russian-trade databases are analyzed through SPSS and Eviews software. Table 2 reports the definitions and units of the research variables. The main hypotheses of this study is therefore as follows: The lack of convergence of trade structure has an impact on bilateral trade potential. Sanctions, diplomacy and membership in intra-national organizations have had significant effects on bilateral trade potential.

Table 2. Variables of research

Variables	Definition	Unit
Trade flow	Iran and Russia's exports and imports	Thousand US\$
SANCF	Dummy variable taking a value of 1 if there are sanctions against Iran and Russia	Dummy (0/1)
PV	Dummy variable captures a value of 1 in the years when there is president's visiting from Iran or Russia, otherwise it takes 0	Dummy (0/1)
WTO	Dummy variable captures a value of 1 in the years of Russia's membership to the WTO (2012,2013 and 2014), otherwise it takes 0	Dummy (0/1)

4. Results and Discussion

4.1. Russian Economy and Value Added

As explained by Faskhutdinov (2015), the Russian industry is a resource-based economy and this structure has been growing for the latest ten years. "Since 2002, the quota of the manufacturing industry in GDP reduced from 17% to 15%, while the extractive industry increased its share from 7% to 11%"¹ (Faskhutdinov, 2015, p. 190). Extractive industry refers to natural resources and includes activities involved in removing oil, metals, coal, stone, etc. (Extractive Industry, 2018). In addition, as indicated by Faskhutdinov (2015, p. 190) "the structure of the Russian economy is characterized by following indicators: rural economy – 4-6%, material production (except rural economy) – 30-35%, and services – 63-68%. At the same time, in the developed countries the share of

1. according to the data published by Russian Federal State Statistics Service, www.gks.ru

the rural economy amounts to 2-4%, of the material production – 30-33%, services – 64- 67%. Thus, the structure of the Russian economy does not greatly differ from the structures of the developed countries, but there is a differentiation in the structures of export (the high proportion of the raw goods) and import (the high proportion of the advanced technology products)”. On the other hand and based on the quota of the main economic sectors in GDP, the Russian economy is predominantly service-based. In 2016, agriculture, industry and service value added accounted for 4.74, 32.42, and 62.83 percent of the country’s GDP respectively (World Bank Data Sheet, 2017). Russia’s share of exports in the field of fuel and energy increased from 39 to 71 percent in the period between 1998 and 2013, and then gradually reduced to 47 percent in 2016. Fuel and energy have an important role in the exports and trade structure of Russia, and the majority of the exported goods include raw material such as oil, gas and coal (World Bank Data Sheet, 2017; Zakharova, 2016).

The value added of agriculture, industry and service sectors were compared at constant 2010 USD prices by using the World Bank data from 1991 to 2015. As illustrated in Table 3 and Table 4, there is a statistically significant difference between them in terms of the value added, while service sector played the main role in creating value in the Russia’s economy.

Table 3. Kruskal Wallis Test

Chi-Square	57.761
Df	2
Asymp. Sig.	.0001

Resource: Authors’ compilation from SPSS 21.0

Table 4. Ranks

	Factor variable	N	Mean Rank
Value added of the three sectors	Service	25	59.44
	Industry	25	41.56
	Agriculture	25	13.00
	Total	75	

Resource: Authors' compilation from SPSS 21.0

The value added of seventeen subsectors is compared by the raw data obtained from the first quarter of 2016, which is available at the Russian Federation Federal State Statistics Service. According to the Friedman test, there are significant differences between them (Table 5), and based on the Ranks test, the main three sectors in creating value added are as follow, respectively:

- 1- Real estate, renting and business activities
- 2- Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
- 3- Manufacturing / Net taxes on goods (Table 6)

Table 5. Friedman Test

N	2
Chi-Square	31.922
Df	16
Asymp. Sig.	.010

Resource: Authors' compilation from SPSS 21.0

Table 6. Ranks

Item	Mean Rank
-Real estate, renting and business activities	17
-Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	16
-Manufacturing	14.5
-Net taxes on goods	14.5
-Mining and quarrying	13
-Public administration and defense; compulsory social security	12
-Transport, storage and communications	11
-Financial intermediation	10
-Construction	8.5
-Health and social work	8.5
-Electricity, gas and water supply	7
-Education	6
-Agriculture, hunting and forestry	5
-Other community, social and personal service activities	4
-Hotels and restaurants	3
-Household activities	2s
-Fishing	1

Resource: Authors' compilation from SPSS 21.0

4.2. Trade potential

In estimating trade potential between countries, we may use different models and indicators such as simple estimate of trade potential, Cosines index, and Drysdale and gravity model. In this section, various statistical measures on bilateral trade between Iran and Russia will be presented; a Cosine index was calculated for a

simple and primary representation of the trade potential between the two countries.

4.2.1 Export Trend

As illustrated in Table 7, there is a significant statistical difference in terms of exports between Iran and Russia in average ($t = -5.861$, Prob: 0.0001); it can therefore be argued that Iran is an importing country versus Russia. In other words, there has always been a buyer-seller dialogue in terms of trade between Iran and Russia.

Table 7. Trade trend (US\$ Thousand), 1991-2017

Variable	N. Obs	Mean	Median	Std.D	Min	Max
-Iran's exports to Russia	27	175081.08	103181.58	154049.75	582.382	432920.97
-Russia's exports to Iran	27	1361812.92	1168616.1	1040746.4	93378.99	3359045.63

Source: Authors' compilation from Eviews 9.0

4.2.2. Gross Domestic Product (GDP)

As illustrated in Figure 2, Russia's gross domestic product has grown over the past 27 years; there is a significant difference between Iran and Russia as far as the GDP trend is concerned. Gross domestic product is an important indication of the size of an economy. As the size of the economy grows, business capacity is expected to increase. In other words, the larger the economy, the

more business opportunities. During the period from 1991 to 2016, Russia's average GDP per capita (income) raised from 8012 USD to nearly 25000 USD, which places it in a significant position in comparison with its top export partners. Nevertheless, as illustrated in Figure 2, *the drop in oil prices had a significant effect on the Russian economy*. Indeed, according to Gurvich and Prilepskiy (2015, p. 384), "the drop in prices leads to GDP losses of 8.5 p.p. cumulatively from 2014 through 2017". This can be interpreted as the impact of the current Western financial sanctions on the Russian economy. Rasoulinezhad (2017) investigated the issue of trade potential between Russia and its trading partners around the world. Results indicated that a higher joint GDP has influenced the agricultural trade of Russia with top trading partners after 2012—the year of Russia's WTO membership. This means that after Russia's WTO accession, a higher size of economy encourages the agricultural trade at 1.38%. In the case of industrial trade, results indicate that joint GDP has influenced this kind of trade at 1.43% before Russia's membership to the WTO and 1.82% after its membership, respectively.

Fig. 2. GDP Comparison



Source of data: World Bank Data Sheet (2018)

4.2.3. Dummy Variables

In this research, four dummy variables with the nominal scale of 0 and 1 were used as classified factors in order to compare the volume of Iran's exports to Russia during the period of 1991 to 2017. According to the theoretical framework (Table. 1), it is assumed that each dummy variable significantly contributes to the development of bilateral trade relations between Iran and Russia. The operational definition of dummy variables is illustrated in Table 8.

Country	Sanction	WTO Membership	President's Visit
Iran	10 years (2006-2015)	No	Seven times jointly
Russia	7 years (2008-2010; 2014-2017)	Six years (2012-2017)	

Results illustrate that there is a statistical significant difference with respect to Iran's exports to Russia in terms of sanctions and Russia's membership in WTO. As illustrated in Table 9, during the period of Iran and Russia's sanctions, the volume of exports significantly increased in average. It may be explained that in terms of sanctions imposed by West, the degree of convergence between Iran and Russia has increased due to the improvement of political relations. As discussed by Malle (2016), in response to the sanctions imposed by the EU- its major trade partner for decades- Russia tries to work out a patriotic model of growth based on two vectors: "import and trade partner substitution"; yet, both of these vectors are complicated and need appropriate institutions. In

addition, it has been argued, “economic sanctions have no harsh effects in short-run” (Lundahl as cited in Rasoulinezhad, 2017). However, in a research conducted by Rasoulinezhad and Popova (2017), findings indicate, “financial sanctions, non-financial sanctions and oil price shocks negatively affect the Iran-Russian trade. Furthermore, financial sanctions had the greatest negative impact on Iran-Russian trade rather than non-financial sanctions and sharp oil price shocks”. Regarding the WTO membership, results revealed that Iran’s exports to Russia have increased after Russia’s accession to WTO, but this result is not in line with Rasoulinezhad and Popova (2017). They did not find any significant relationship between the accession of Russia to the WTO and the Iran-Russian bilateral trade flow, while any president’s visiting strongly accelerates the trade growth between these two nations, which is not in line with the results of this research.

Table 9. Classifying Iran’s export to Russia based on the dummy variables (US\$ Thousand)

Variable	Code	Obs.	Mean	Std.Dev	P-value
Russia’s sanctions	0	20	126442.7	145886.1	0.003
	1	7	314047.9	70882.45	
Iran’s sanctions	0	17	83752.46	105267	0.00001
	1	10	330339.7	79490.04	
Russia’s WTO Membership	0	21	121646.5	127108.4	0.0002
	1	6	362102.3	69370.66	
President’s Visit	0	20	152903.7	154942	0.212
	1	7	238445.1	143142.8	

Resource: Authors’ compilation from Eviews 9.0

4.2.4. Cosine Index

As mentioned in this study's methodology, "Cosine index" is a measure designed to estimate the complementarity of trade between pairs of countries. This index was developed by Linnemann in 1966. Cosine value varies between zero and one. The value of zero indicates that there is no correspondence between the exports of country *i* and the imports of country *j*, and the value of one represents a perfect similarity (Raghavan, 1995; Geda & Seid, 2015). The analysis of potential trade complementarities is performed in the form of Export-Import Similarities (EIS). The data for this part of the research was gathered from the International Trade Center, and consisted of production values for 5883 commodities at six digits from 2001 to 2017. According to Sharma (2006, p. 223), the measure can be interpreted as follow:

1. Low potential (LP) falls under the range of value more than 0.001, but less than 0.250;
2. Moderate potential (MP) falls under the range of value more than 0.250, but less than 0.550; and
3. High potential (HP) falls under the range of value more than 0.550, but less than 1.000.

As presented in Table 10, the values of cosine similarities range between (0.002) and (0.152). Thus, the observations based on the Export-Import Similarities (EIS) indicate that Iran and Russia represented low potential complementarity during the period between 2001 and 2017. In other words, the supply capabilities of Iran slightly match the demand potential of the Russian Federation. However, the low level of EIS implies that there exists more trade competitiveness rather than trade complementarities between the two countries. One reason for this observation is the fact that raw

material, especially oil and gas, has a dominant position in the economic system of both Russia and Iran. Moreover, owing to the high oil dependency of both Russia and Iran's government budget, an oil price shock significantly influences the revenues of both countries' budgets. In this case, as probed by Rasoulinezhad and Popova (2017), an oil price shock, whether a sudden sharp increase or decrease in prices, influences adversely the bilateral trade of these two exporting oil countries.

Table 10. Cosine index of Iran's exports and Russia's imports (2001-2017)

2001	2002	2003	2004	2005	2006	2007	2008	2009
0.094	0.284	0.147	0.152	0.077	0.039	0.037	0.036	0.024
2010	2011	2012	2013	2014	2015	2016	2017	-
0.003	0.002	0.020	0.015	0.026	NA ¹	0.011	0.025	-

Resource: Authors' compilation from Eviews 9.0

It is important to note that the low value of cosine similarity does not necessarily mean that there are no trade capabilities or potential between the two countries. Actually, there are a significant number of factors affecting Iran-Russian trade relations, but Cosine index presents a primary but important view about the degree of trade complementarity between them based on the harmonized system and commodity groups. Meanwhile, as emphasized by Tapychkanov (2016, p. 32) "there is still no real foundation to Russia-Iran relations, one that would make it possible to call it a genuine strategic partnership, rather than a declarative

1. No available for Iran

one". Despite the needs generated by regional and global level-concerns, Russia and Iran have failed to establish adequate economic, scientific, technical and educational ties. Smagin (2017) concluded, "a key challenge for the expansion of economic cooperation between Russia and Iran is that the countries are able to offer each other a limited number of products at globally competitive rates". Finally, Sinitsina (2012, p. 18) argues that "integration processes could be intensified by expanding mutual deliveries within the framework of intra-sectoral production cooperation, accompanied by a modernization of participating economies. Without these efforts, the significance of integration efforts in promoting regional trade will decline".

5. Conclusion

This study investigated bilateral trade flow between Iran and Russia during the past two decades, and analyzed its trend in terms of sanctions, Russia's accession to WTO, and presidents' visits, as classified dummy variables. The study focused on the economic structure of Russia according to the value added created by the main institutional sectors including agriculture, industry and service. It is assumed that by recognizing the economic structure of trade partners, we could develop strategic partnerships based on opportunities. Trade flow, time series of Iran and Russia's gross domestic product, and trade complementarity by using the Cosine index were therefore respectively examined in this study.

The results indicated that Russia maintained a surplus in bilateral trade with Iran over the period of 1991-2017. In addition, statistical analysis revealed that there is a significant statistical difference in terms of exports between Iran and Russia ($t = -5.861$,

Prob: 0.0001), and that it can be argued that there has always been a buyer-seller dialogue in terms of trade between Iran and Russia.

According to the main results of the study, and the observations based on the Export-Import Similarities (EIS), it can be concluded that Iran and Russia represented low potential complementarity during the years 2001 to 2017. The low level of EIS implies that there exists more trade competitiveness rather than trade complementarities between the two countries. It should be noted that Russia's role in the global economic system is dominated by the export of natural resources and raw materials, particularly oil and gas, which induce vulnerability to large fluctuations in oil price. With regard to oil, Iran is a potential rival to Russia as a producer, and the West sanctions against Iran could be an advantage to Russia to seize the opportunity for creating an oil hegemony in the region and the world. Furthermore, there is an obvious lack of diversity in Russian and Iranian export supplies.

In addition, mutual trust at the government level is a challenging issue. Based on the results of the study, during the period of Iran and Russia's sanctions, the volume of exports significantly increased in average. This could be explained by the fact that in terms of sanctions imposed by the West, the degree of convergence between Iran and Russia has increased due to the improvement of political relations. The other challenges consist of the fact that public and quasi-public companies have a dominant position in the market environment of Russia, as well as Iran. This would increase the level of vulnerability in terms of sanctions, and in the structure of the exporting organizations of Iran and Russia, although "economic sanctions have no harsh effects in short-run" (Lundahl as cited in Rasoulinezhad, 2017, p. 89). However, as Iran opens up due to the lifting of sanctions, Iranians are looking to the West, not

the North for economic improvement. Iranian traders, similar to the Russian ones, look towards the EU and East Asia such as Japan, South Korea and China. As a result, the volume of the trade between Iran and Russia will not have a meaningful increase in the future. This indicates that unfortunately, there is no active economic diplomacy between the two allies. Furthermore, neither country has a clear program for the promotion of bilateral economic relations.

In cognitive terms, one of the main obstacles to economic cooperation between the two states lies within soft institutions. In this case, despite the needs generated by regional and global level-concerns, Russia and Iran have failed to establish adequate economic, scientific, technical and educational ties. Lack of enough or even necessary awareness of the Russian market needs and tastes have hindered the Iranian businessmen's success in the Russia's market. Moreover, lack of fixed banking and bilateral insurance system, transportation, high tariff customs and export licenses are among the key elements that have a negative impact on trade development. In this regard, being prepared for an agreement to create a special free trade area between the EEU and Iran, as well as Iran's membership to the EEU have been advised by certain researchers in a way that regional and intra-regional integration may be an opportunity to expand any bilateral trade. However, based on this research authors' point of view, without creating the necessary underlying institutions including soft and hard ones, Iran cannot drive a benefit from it in the short-run. Implementing the Green Customs Corridor Memorandum was therefore proposed as one strategic solution.

Based on the conceptual models of trade potential, the size of the economy is an important determining factor in explaining bilateral and multilateral trade potential. The results of this research

revealed that there is a significant difference between Iran and Russia in terms of GDP trend during the period of 1991-2016. Unlike Russia, during the above period, Iran's GDP has not grown significantly. This situation, along with a high dependence on crude oil export, has severely undermined Iran's ability to seize business opportunities. Therefore, relying on domestic capacities and capabilities is a vital strategic policy to be considered by Iranian authorities in both short and long term.

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