

## **Regionalism and its Economic Effects on Iran in a Computable General Equilibrium (CGE) Model: A Case Study of the Eurasian Economic Union (EAEU)**

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### **Abstract**

Over the last three decades, membership in regional trade arrangements has become one of the most important tools of trade diplomacy. Regional agreements bring a lot of benefits for the member countries through reducing barriers and restrictions. Considering the signing of the Interim PTA Agreement between Iran and Eurasia and its effects, this study aimed to investigate the economic effects of implementing this agreement using the CGE method by SAM 2011. Four possible scenarios were analyzed which included 50% or 100% tariffs reduction for industry and agriculture sectors and %50 tariffs concession for one of them. The results showed that an average of 50% tariff concession in the agricultural and industrial sectors led to the growth of both sectors and increased the total consumption and welfare in Iran. In the case of 100% tariff concession, the growth of agriculture and industry will be much higher and higher welfare and total consumption will be observed. Policymakers are advised to pursue FTA between Iran and EAEU for achieving the best results. The creation of a joint financial mechanism and a database of Member States' traders, the issuance of business visas, and the establishment of a Eurasian Chamber of Commerce Joint Council are recommended.

**Keywords:** Eurasian Economic Union, Regionalism, Computable General Equilibrium Model, Iran.

**JEL Classification:** F15, C68, E20.

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## 1. Introduction

In recent years, at the beginning of the 21<sup>st</sup> century, much attention has been paid to regional studies, and this has led to highlight the regionalization and international trade agreements.

After World War II and eight rounds of negotiations on the General Agreement on Tariffs and Trade, trade liberalization accelerated economic integration in various parts of the world. Meanwhile, a number of developing countries sought regional trade agreements in the 1950s and 1960s, some of which succeeded. These were the first regionalization measures in the world. Regional agreements, by reducing barriers and restrictions, can create numerous benefits for member states. Decreasing transaction costs, lowering commodity prices, optimizing resource utilization, increasing competition among manufacturing firms, reducing investment uncertainty, technological growth, and increasing productivity are all factors that can drive economic growth among member countries. Regional agreements, and most importantly the successes of these agreements, will draw other countries' attention to these agreements and will also attract other countries (Carbaugh, 2015; Basnet & Pradhan, 2017). Given the benefits of the commercial bloc for different countries, many countries in the world are looking for such agreements and hence the number of regional trade agreements is increasing each year.

In recent years, numerous agreements have been signed between different countries, including the Afghanistan Pakistan Transit Trade Agreement (APTA), Economic Community of West African States (ECWAS), Caribbean Community, the Economic Cooperation Organization (ECO), Gulf Cooperation Council; South American Trade Bloc (Mercosur), North American Free Trade Agreement (NAFTA), and Asia-Pacific Economic Cooperation (APEC).

Over the last three decades, membership in regional trade arrangements has become one of the most important tools of trade diplomacy. By September 1, 2019, 481 regional (Bilateral and Multilateral) trade agreement had been announced to the World Trade Organization. Virtually, all WTO members are members of one or more regional trade agreements, and

some countries are members of more than 40 regional trade arrangements. For example, the European Union is a member of 41 Regional Trade Agreements (RTA), Chile is a member of 24 RTAs, and Turkey is a member of 23 RTA.<sup>1</sup>

One of these regional agreements is the Eurasian Economic Union (EAEU). The word Eurasia comes from the combination of European and Asian words first coined by the Austrian geologist Edward in 1883. After the Cold War, the geographical space of Eurasia was the focal point of the competition of world powers. Eurasia, this vast geographical area, with more than 20 million square kilometers, accounts for 14% of the world's population and has a strong human and natural resources population of 183 million (Eurasian Economic Union official website).

After the collapse of the Soviet Union, Eurasian integration was founded with the aim of forming a new framework for cooperation among the countries that survived the Soviet Union. The first steps taken to form the Eurasian Economic Union were in the 1990s. In this union, the members have agreed to apply the same tariff system to all non-member countries (Clingendael 2015; Mirfakhrai, 2016). At the same time, the Eurasian Customs Union was formally established and eventually provided the regional cooperation space for the successful formation of the Eurasian Economic Union at the due time.

Efforts to form this union eventually led to its formation in 2015 (Boroujerdi, Ansari Zadeh, & Karami, 2011). Iran also has a special position locating in the best transit position between the Caspian Sea in the north and the Persian Gulf in the south, as well as in the East-West transit position. In addition to the importance of Iran's membership for EAEU member states, membership in the union will create a special status for Iran in terms of transit. The Eurasian Economic Union is currently comprised of Russia, Belarus, Kazakhstan, Kyrgyzstan, and Armenia, which could be a good market for Iranian products.

Table 1 shows the economic indicators of the Eurasian Economic Union. The union's population in 2018 was 183.8 million, or 2.6 percent of the world's population. With a 5.4 percent of unemployment rate, the union has \$

<sup>1</sup> WTO Website

4.47 Trillion GDP.

**Table 1. Eurasian Economic Union Economic Indicators (2018)**

Area	Population	GDP(PPP)	Unemployment Rate	Income per Capita
20229248 (Km <sup>2</sup> )	183.8 M (2.6% of The World)	\$ 4.47 tr	5.4 %	24800 \$

Source: <http://www.eurasiancommission.org>

Although EAEU is a young organization compared to other regional unions such as the European Union, ASEAN, Mercosur, etc., it should be noted that at present it is the only regional economic organization that Iran could engage. However, the Eurasian Economic Union at the moment has no alternative to our country, so this is an opportunity to be looked at and the potential impact of this agreement on key sectors of the economy is examined in this research. Following is a brief explanation of regionalism and regional trade agreements, the background of the CGE model as well as policy recommendations and results of the four mentioned scenarios for policymakers. The purpose of this study is to survey the effects of regionalism, more precisely, the effects of the reduction or elimination of tariffs between Iran and EAEU on the Iran economy.

The authors have tried to answer this major question in this study: what is the effect of tariffs concession between Iran and EAEU countries on Iran's agricultural and industrial Sectors?

## 2. Regionalism and Regional Trade Agreements

A key element in defining the concept of regionalism and regional convergence is the concept of the region. The region is referred to as a group of countries that cooperate with each other in an unrestricted legal framework, including economic ones and gradually expand their cooperation (Hosseini & Aghli, 2008; Page, 2000). According to this definition, regionalism has a lasting characteristic and is intended to promote and enhance the cooperation of countries. Regionalism can be defined as a process based on the creation of a free trade area or a customs union between governments, with the aim of liberalizing and facilitating trade at the regional level. In general, based on the experience of the countries, there are two types of regional trade agreements: the first is superficial agreements

and the second is deep agreements. At the superficial type of these agreements, only tariffs and trade barriers between countries are reduced, and this agreement does not include other matters.

In the form of deep trade agreements, in addition to lowering tariffs and barriers, other things like the mobility of production factors and domestic policies are also homogenous. In general, 20 to 30 years after World War II, economic mergers or regional trade agreements were superficial. This is referred to as old regionalism. After the Uruguay round negotiations on the General Agreement on Tariffs and Trade (GATT), regional agreements tended to be deep agreements, which were implemented in both developing and developed countries, and referred to as new regionalism. In other words, regionalism is based on historical experience in the form of old regionalism (before the 1980s) and modern regionalism (after the 1990s). Given that there is a preference for tariffs in superficial trade agreements, the theories will be more complex.

The general framework presented in the above studies is a business-based general equilibrium model based on Hacker-Ehlin Theory. In this theory, the effects of a regional trade agreement are determined using several key variables:

- ✓ Changes in the amount of goods traded between member countries (trade creation effect)
- ✓ Changes in trade between member countries and other countries of the world (Trade Diversion Effects)
- ✓ Changes in global commodity prices (Terms-of-Trade Effects)

The effects of the creation of trade and the effect of the exchange relationship on the increase of prosperity and the effects of the diversion of trade are worsening trades. Thus, by establishing a trade agreement, an exchange will be created between the increase in the

welfare of the effect of the trade-off relationship and the creation of trade and the reduction of the welfare caused by trade diversion, and therefore the overall conclusion cannot be drawn from the effect of the creation of an agreement on economic welfare. This has led some studies on regionalism to increase prosperity and others to reduce welfare (Burfisher, Robinson, & Thierfelder, 2014).

Various models have been presented in several studies on how commercial agreements are effective on economic welfare, including the studies of Carrere (2006), Cheong, Kwak, and Tang (2018), Doan and Xing (2018), Fox (1998), Grossman and Krueger (1991), Kepaptsoglou, Karlaftis, and Tsamboulas, (2010), Konishi, Kowalczyk, and Sjöström (2003), Lim and Breuer (2019), Panagariya and Krishna (2002), Whalley and Srinivasan (1986). Now in this section, according to the Yi study (2015) which is a general equilibrium study, we aim to present how the regional agreements and regionalization affect welfare and economics.

It is assumed that the country  $N$  produces commodities ( $q_i$ ) with a certain amount of intermediate goods ( $M$ ) based on a linear production function. In this case, it is assumed that the cost of producing a unit of goods is constantly equal to  $c$ , and the shipping cost is also discounted. The utility function of the representative household in country  $i$  is defined as follows:

$$u^i(q_i; M_i) = v(q_i) + M_i = aQ_i - \frac{\gamma}{2}Q_i^2 - \frac{1-\gamma}{2}\sum_{j=1}^N q_{ij}^2 \quad (1)$$

In equation (1)  $i$  represents the country and  $j$  represents the product, so that  $q_{ij}$  represents the product  $j$  in country  $i$ .  $Q$  indicates the total consumption and  $M$  is the amount of intermediate goods. In the above equation,  $\gamma$  is the rate of substitution between goods. Intermediate goods have the ability to be transported among countries and are transported to different countries in order to balance trade.

In this model, it is assumed that each country consumes a particular type of commodity basket and the more use of commodities increases utility. So, it can be said that trade can increase utility in two countries. Firstly, with the business of the consumer basket of households, they have a higher variety and comprise of more goods, and secondly, firms are selling more and thus earning higher

profits.

Since it is assumed that the income, and the income from tariffs are paid to households, the increase in corporate profits as a result of trade also means increase consumption and, as a result, the profitability. According to what has been said, the welfare function in the countries is presented as follows:

$$W^i = CS^i + \pi^{ii} + TR^i + \sum_{i \neq j} \pi^{ji} \quad (2)$$

As can be seen in equation (2), the welfare of the country  $i$  ( $W^i$ ) is derived from the four components of consumer domestic welfare  $i$  ( $CS^i$ ), the income of the firm  $i$  in the country ( $\pi^{ii}$ ), the resulting tariff ( $TR$ ), and profits from the export of the firm in  $i$  ( $\pi^{ji}$ ) are formed. If the import tariff of country  $j$  for goods in country  $i$  is represented by  $\tau_{ij}$ , then the cost of producing and exporting the firm to country  $j$  will be in the relationship (3):

$$c_{ij} = c + \tau_{ij} \quad (3)$$

According to existing facts, it is assumed that the markets are separate from each other and each firm can determine the amount of its goods in each market. Therefore, the firm faces the following maximization problem:

$$\max \pi^{ii} = (p_{ij} - c_{ij})q_{ij} \quad (4)$$

The inverse of the market demand function for country  $j$  is also assumed to be:

$$p_{ij} = a - \gamma Q_i - (1 - \gamma)q_{ij} \\ = a - q_{ij} - \gamma \sum_{k \neq j} q_{ik} \quad (5)$$

The first-time conditions for the firm will be as follows:

$$\frac{\partial \pi^{ii}}{\partial q_{ij}} = p_{ij} - c_{ij} - q_{ij} \\ = a - c - \tau_{ij} \\ - (2 - \gamma)q_{ij} - \gamma Q = 0 \quad (6)$$

Using equations (3) and (5), and taking into account normalizing  $a-c = 1$ , also with the sum of first-order conditions (6) for  $N$  country, the equilibrium conditions will be as follows:

$$Q_i = \frac{[N - T_i]}{\Gamma(N)} \quad (7)$$

In the above relationship, the following conditions are met:

$$\Gamma(N) = 2 - \gamma + \gamma N \quad k=0, 1, 2, \dots, N \quad (8)$$

$$T_i = \sum_{j=1}^N \tau_{ij}$$

By substituting the relation (7) in equation (6), Nash equilibrium will be obtained for country  $j$  exports to country  $i$ :

$$q_i = \frac{[\Gamma(N) - \Gamma(N)\tau_{ij} + \gamma T_i]}{\Gamma(0)\Gamma(N)} \quad (9)$$

Accordingly, the export profit of country  $j$  to country  $i$  will be as follows:

$$\pi^{ij} = (p_{ij} - c_{ij})q_{ij} = q_{ij}^2 \quad (10)$$

According to what has been said, if a country increases tariffs on imports from the country  $j$ , the equilibrium of exports of country  $j$  to country  $i$  and, as a result, the profit from the export of country  $j$  to country  $i$  decreased. As a result, exports and profits in country  $i$  decreases due to the export of other countries to country  $j$  and the total amount of consumption. Internal firms in a country increase their sales within that country and, as a result, the firms get higher profits. Variations due to changes in import tariffs  $i$  from country  $j$  can be shown as follows:

$$\frac{\partial Q_i}{\partial \tau_{ij}} = \frac{-1}{\Gamma(N)} < 0, \quad \frac{\partial q_{ij}}{\partial \tau_{ij}} = \frac{\gamma - \Gamma(N)}{\Gamma(0)\Gamma(N)} < 0, \quad \frac{\partial \pi^{ii}}{\partial \tau_{ij}} < 0 \quad (11)$$

$$= 2q_{ij} \frac{dq_{ij}}{d\tau_{ij}} < 0$$

$$\frac{dq_{ik}}{\partial \tau_{ij}} = \frac{\gamma}{\Gamma(0)\Gamma(N)} > 0 \quad \frac{\partial \pi^{ik}}{\partial \tau_{ij}} = 2q_{ik} \frac{dq_{ik}}{d\tau_{ij}} > 0, \quad k \neq j \quad (12)$$

Now, we assume that that  $k$  number of countries sign a regional free trade agreement from the countries concerned. In this case, the following optimization problem should be solved:

$$\max W^i = CS^i + \pi^{ii} + TR^i + \sum_{i \neq j} \pi^{ji} \quad (13)$$

$$i = 1, \dots, k, \quad \tau_{ij} = 0 \text{ for } i = 1, \dots, k$$

By defining the following relationship:  
 $\Psi^F(k) \equiv [\Gamma(0) + 1]\Gamma(k) - \Gamma(2)$  and  
 $D^F(k) \equiv \Psi^F(k)\Gamma(N) + \Gamma(k)\Gamma(2)$  (14)

The equilibrium value for maximizing equation (13) for  $q_I \wedge F(k)$  countries and for non-member states is called  $q_o \wedge F(k)$ . By solving equation (13) with respect to the given

description, the equilibrium and optimal value for tariffs in member states can be obtained as follows:

$$\tau^F(k) = \frac{\Gamma(0)\Gamma(2)}{D^F(k)} = \frac{[2 - \gamma][2 + \gamma]}{[4 + 3(k-2)\gamma - (k-1)\gamma^2][2 + (N-1)\gamma] + [2 + (k-1)\gamma][2 + \gamma]} \quad (15)$$

As it is shown in equation (15), the optimal tariff for free-trade countries ( $\tau \wedge F(k)$ ) is a downward function of the number of member countries  $k$ , which means that the increase of these countries leads to the optimal tariff reduction. Therefore, the member states will reduce or suspend import tariffs from non-member countries, taking into account the benefits they will have.

It can be shown that the reduction of import tariffs  $i$  from country  $j$  will lead to lowering import tariffs of this country from other countries. So if country  $i$  reduces import tariffs from country  $j$  to zero, the export cost of country  $j$  to country  $i$  decreases and therefore the enterprises of country  $j$  will expand their exports to country  $i$ . This leads to an increase in the household demand for goods in country  $j$  and decreases household demand for country  $k$ , and as a result, the sales of firms in country  $k$  decrease in country  $i$ . Establishing tariffs has a double effect; on one hand, it will increase tariff revenues and, on the other hand, it will reduce consumer welfare in the domestic economy. Now, with the creation of tariffs for country  $k$ , the consumption of goods  $k$  in the household basket decreases, and the consumption of goods in country  $j$  increases. Since it is assumed that the welfare of households will increase with increasing a variety of goods, this type of tariff can reduce prosperity, and thus reduce tariffs to the extent that the final benefits accrue from increased incomes of tariffs as well as the welfare of households. Therefore, according to the model, the tariff for imports decreases until the situation of all countries improves. A trade agreement is an agreement between two or more countries to facilitate and/or improve trade between them. This agreement would apply export and import tariff rates among members as well as their duties. Regional trade agreements are a general term that encompasses all levels of economic convergence.

**Table 2. Types of Trade Agreements (Stages of Economic Integration)**

1	Preferential Trade Agreement	Reduce part of Customs Tariffs
2	Free Trade Agreement	Elimination of Customs Tariffs
3	Customs Union	2+ common tariffs
4	Common Market	2+3+ + Equalization + Mobility of Agent
5	Union	2+3+4+ Policy Coordination

Source: Research Studies

### 1-2. Iran Bilateral Trade Agreements

Iran with a population of more than 83 million has engaged in a number of trade agreements according to policymakers' views.

Table 3 shows Iran's bilateral trade agreements. According to Iran's information, it had the highest number of concessions to

Pakistan (309; 6-digit codes) and the highest number of tariff preferences received by the same country (338; 6-digit codes). There are currently free trade agreements with Syria. Iran had 931 items of concessional goods and 936 items of goods received from Syria.

**Table 3. Iran Bilateral Trade Agreements**

Row	Country	Date	Number of preferential Tariffs
1	Uzbekistan	2005	27 ; 6 and 8 digits received 27 ; 6 and 8 digits awarded
2	Pakistan	2996	309; 6 digits awarded 338; 6 digits received
3	Tunisia	2007	256 ; 4, 6 and 8 digits awarded 174 ; 6 and 8 digits received
4	Syria	2008	Free trade agreement
5	Cuba	2008	44 ; 8 digits awarded 88 ; 6 and 8 digits received
6	Bosnia	2009	170 ; 6 digits awarded 170 ; 4 and 6 digits received
7	Turkey	2014	125 ; 6 digits awarded 139 ; 6 digits received
Total of concession received awarded (except Syria)			931 tariff raw
Total of concessions awarded (except Syria)			936 tariff raw

Source: TPO, 2020

### 2-2. Trade Agreements under the Negotiation of Iran

- Negotiation with the Eurasian Economic Union (EAEU)

The Eurasian Economic Union includes Russia, Kazakhstan, Armenia, Kyrgyzstan, and Belarus. The Interim Trade Agreement between Iran and the Union was signed on May 17, 2018, and the Preferred Trade Agreement was effective from October 27, 2019 with the following issues:

- Negotiating with Pakistan for a Free Trade Agreement,
- Negotiating with Lebanon,
- Negotiating with Turkey to increase the level of coverage of the former Preferential Trade Agreement, and modifying the list of previous agreements,

- Negotiating with Indonesia, Malaysia, Vietnam, India, Uzbekistan, Bosnia and Herzegovina, Tunisia, etc. on Preferential Trade Agreements.

### 3. Signing the Preferential Trade Agreement between Iran and the Eurasian Economic Union

Interim Agreement on Free Trade Arrangements between Iran and Eurasia was signed after two years of negotiations in May 2018.

Free Trade Agreement negotiations would commence in a year from the above date. After three years, if the Free Trade zone has not been finalized, the Parties shall decide whether to extend the Interim Agreement (Report of Trade Promotion Organization, Eurasia Desk, 2019).

Therefore, the free trade negotiations

between Iran and the Eurasian Economic Union would start next year, and over a period of 7 to 10 years, nearly 90 percent of the parties' goods will be subject to zero tariffs.

Agricultural and industrial sectors consist 360, 8-digit codes, of which ۱۳۳ are subject to tariff fixation at the time of agreement and ۲۲۷ are subject to an average tariff concession of 63%. The concessions granted by the Economic and Eurasian Union consist of 502, 10-digit codes (agricultural and industrial sectors) with ۷-tariff consolidation codes, and 495 codes are subject to an average tariff concession of 63%.

This is significant that these codes are not vast and does not have a large impact on the export to the 5 mentioned countries. But, it is still necessary to take a look at these capabilities and their sublimity in the long run when Iran has signed a free trade agreement with a regional organization.

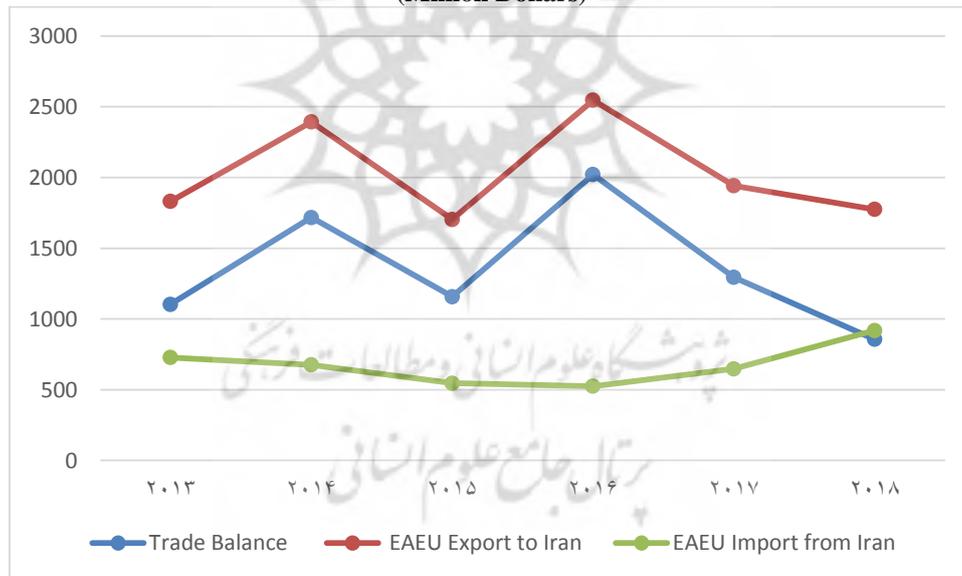
**1-3. Iran Trade with Eurasian Economic Union Countries**

The trend of Iran's trade with the Eurasian Economic Union including Russia, Belarus, Kazakhstan, Kyrgyzstan, and Armenia from 2013 to 2018 is shown in Figure 1. According to the information, Iran's trade volume with the EAEU is only \$ 2.6 billion (0.3 % share), given the potential of Iran's trade with the union. So, it is necessary to sign a preferential trade agreement.

Since 2016, Iran's trade with the Eurasian Economic Union has been experiencing a downward trend.

One of the main reasons is the sanctions imposed by the USA and the absence of any rules and agreements to strengthen bilateral relations.

**Figure 1. Eurasian Economic Union Trade Process with Iran (2013-2018)**  
(Million Dollars)



Source: ITC

**Table 4. Eurasia Major Export/Import to/from the World and Iran (2018)**

<b>EAEU Major Export</b>	mineral fuels, mineral oils, ores, slag and ash, copper and articles thereof, natural or cultured pearls, cereals, aluminum and articles thereof, zinc and articles thereof, oil seeds and oleaginous fruits, beverages, spirits and vinegar.
<b>EAEU Major Imports</b>	machinery, mineral fuels, mineral oils, articles of iron or steel, plastics and articles thereof, pharmaceutical products, iron and steel, paper and paperboard, furniture
<b>EAEU Major Export to Iran</b>	cereals, mineral fuels, mineral oils and products of their distillation, meat and edible meat offal, edible vegetables and certain roots and tubers, oil seeds and oleaginous fruits; electrical machinery and equipment and parts thereof; iron and steel
<b>EAEU Major Imports from Iran</b>	mineral fuels, mineral oils, salt, sulfur, stone, plastics and articles thereof, edible fruit and nuts; iron and steel, articles of iron or steel, inorganic chemicals; organic or inorganic compounds of precious metals, ceramic products, glass and glassware, machinery, mechanical appliances, nuclear reactors, boilers; parts thereof, soap, organic surface-active agents, washing preparations

Source: <http://www.intracen.org/>

Table 4 shows the major items of Eurasia trading with the world and with Iran.

According to the information provided on the official website of the International Trade Center presented above, there is a huge potential for the promotion of commercial and trade collaboration between Iran and the EAEU which has been motivated through the implementation of such agreement.

#### 4. Previous Studies

The current research background can be divided into several general categories; some studies have examined the trade liberalization of macroeconomic variables in different countries, while others studied the effects of exports and imports on the economies of the countries. In another category of studies that is closer to the present study, the effect of creating and joining regional business agreements on various economic variables has been studied. Here, a brief overview of the background of this research is considered.

Arajo and Flaig (2016) studied the effects of commercial liberalization on the Brazilian economy using a CGE model. In this study, to simulate the CGE model, in order to access research objectives, scenarios were used to reduce import tariffs and export taxes. The simulation results of this study showed that commercial reforms in Brazil would boost the industry sector and gain access to the export advantage. The results also showed that the increase in production and investment would be associated with a significant increase in employment.

Basnet and Pradhan (2017) studied the economic integration of the South American Common Market (Mercosur). In this study, the economic interdependence of the member countries was considered by examining the trends and business cycles among countries using the variables of the two real and financial sectors. Investigating serial self-dependence of variables in this study showed that the real production, investment, and trade variables of the countries in this region have a common trend and therefore the interconnection between the countries has been confirmed. In this study, the breakdown of the actual production and trade from cyclical fluctuations also revealed that there is a positive and strong relationship between the two trends. Their results in this

study showed that economic integration, or, in other words, deep regionalism in the countries and its positive effects, could be expected.

Vinokurov (2017) studied simulation of the various monetary policy rules at various levels of monetary cooperation in the Eurasian Economic Community countries. In this study, a general dynamic equilibrium model was used in different regimes and seasonal data for the period from 2003 to 2015. The results of this study showed that the optimal monetary policy is a policy that responds to inflation and the exchange rate (dollar price).

The countries also showed a short-term monetary policy, as well as a reaction to the rate of other currencies (e.g. the Russian Ruble). The results of this study indicated that monetary and foreign exchange policies of Eurasia can be effective when cooperation between the above countries exists (in particular, in the creation of a common currency).

Fry-McKibbin, Hsiao, and Martin (2018) studied the convergence of economics and financial integration in Asian countries, with emphasis on ASEAN countries. In this study, using entropy theory, they examined the advantages and disadvantages of this regional agreement emphasizing the role of financial integration. The results of this study, which were based on the data from the period 1998 to 2015, showed that the fiscal consolidation process in the countries has been progressing, but this trend has been subject to deviations during the 2008 financial crisis.

Boglioni (2018) in his study examined the relative advantages of free trade in the integration of the economies in the European countries. In this study, with the calculation of the Net Product Possibility Frontier, the author examined the comparative advantage of the EU countries and the hypothesis on trade. The results of this study showed that the specialization hypothesis of free trade was not observed in some products, and therefore, it argued that the advantage of free trade could not be realized in some cases.

Tayebi and Masrijejad (2007) studied the effects of commercial liberalization in agriculture on the distribution of income and welfare among Iranian households. In this study, they used a CGE model to estimate and measure the response rate of some economic variables to the liberalization of the agricultural

sector. It showed that the adjustment of imported tariffs in line with the liberalization of trade in the agricultural sector, while improving the welfare of households, has had a positive effect on the level of income and consumption. In this study, the effects of the agricultural sector liberalization on the economic sector have been studied and other sections have been ignored. On the other hand, the previous models presented by other researchers have been used in this study.

Hassanzadeh (2010) examined the effects of the global financial crisis on the welfare of households in different income groups by applying a well-balanced general equilibrium model. This study focused on foreign trade and the price changes of Iranian exported and imported goods as well as foreign savings. Equations of general equilibrium are divided into four blocks of price, production, trade, institutions, and constraints. The results of this study showed that the impact of the global financial crisis on the welfare of households would vary with the depth of the crisis. If a financial crisis is limited, the welfare of high-income wages would be more effective than low-income deciles, and if the financial crisis deepens, the welfare of the poor and the rich would converge and the two groups would be equally affected.

Abonouri, Bliss, Becky Haskoei, and Zare (2017) studied the long-term effects of Iran's accession to the World Trade Organization. In this study, a general equilibrium model, social accounting matrix (2011), was used. In this model study, the model for the baseline scenario and the scenario of lowering tariffs were set at the average level of tariffs in 22 countries in the simulation association. The results of this study showed that during a period of 30 years, the welfare level of households increased in all years after accession, compared with before accession, but the results showed that the welfare growth rate would decrease in the first decade than before accession. The authors used a dynamic measurable general equilibrium model which indicated the innovation of this study. But what distinguishes this study from current studies is the case study that investigates the implications of Iran's accession to the Eurasian Economic Union.

Fathi and Yusufi (2018) studied the effects of Iran's membership in the World Trade

Organization on Iran's industrial growth. In this study, the data from 179 members of World Trade Organization from 1980 to 2015 and the dynamic panel data method were used. The results of this study showed that there was a positive and significant relationship between the growth of value-added of the manufacturing industries with the process of accession negotiations and membership in the WTO. This study can be considered to be the latest study in the field of current research, but it is clear that this study used previous information and econometric methods as well as the experience of other countries.

In the previous studies, the effects of signing a trade agreement with the Eurasian Economic Union were not taken into consideration by researchers. On the other hand, in previous studies, the effects of increasing trade on different economic sectors have received less attention by economists in Iran. Hence the lack of such a study is felt in the economic literature.

## 5. The Computable General Equilibrium (CGE) Model

Since the early 1990s, the CGE model has been widely used to study the commercial effects of bilateral trade agreements, trade reforms, WTO accession, and regional agreements. The main advantage of CGE models is that they have the ability to examine different business policies in different sectors of the economy and can identify the prosperity or stagnation of various industries that are under free trade. On the other hand, these models can show free trade and different business policies, the total employment, the return on the factors of production, and more importantly, the change in the welfare of households (Adams, et al., 1998; Burfisher, 2012).

This approach enables researchers to have a near-realistic description of the economic conditions, as well as relationships between economic agents and various sectors of the economy (Brockmeier, 2001). In this study, a general equilibrium model was presented for Iran, consisting of four sections of Enterprises, Households, Government, and the Foreign Sector, which are described below.

### 1-5. Enterprises

In this study, the real production in various economic sectors is assumed to follow a fixed-

displacement pull-out function as follows:

$$VA_i = (\gamma_{F_i} K_i^{-\rho_{F_i}} + (1 - \rho_{F_i}) L_i^{-\rho_{F_i}})^{-\frac{1}{\rho_{F_i}}} \quad (16)$$

In this relation,  $VA_i$  represents the value-added of the  $i$ -th section of the economy. In the present study, the production in each section  $X_{di}$  is assumed to be based on a Leontiff function and is shown as follows:

$$X_{D_i} = a_i VA_i = a_i (1 - IO_i) \quad (17)$$

In the above relationship,  $IO$  represents an intermediate item in the  $i$ -th section. Now, with the above description, the production function in each section will be as follows:

$$X_{D_i} = (\gamma_{F_i} K_i^{-\rho_{F_i}} + (1 - \gamma_{F_i}) L_i^{-\rho_{F_i}})^{-\frac{1}{\rho_{F_i}}} \quad (18)$$

In this study, it is assumed that the three sectors of agriculture, industry, and product services are formed in the country.  $\Gamma_{Fi}$  represents the contribution of the parameter for the  $i$ -th section and the succession elasticity between the production factors for the  $i$ -th section is  $(\frac{1}{1 + \rho_{F_i}})$ .

In order to obtain the functions of labor and capital demand, the following optimization problem is solved:

$$\begin{aligned} \min C_i(K_i, L_i) &= r_i (1 + t_{ki}) K_i + w_i (1 + t_{li}) L_i \\ \text{s.t.} \end{aligned} \quad (19)$$

$$X_{D_i} = (\gamma_{F_i} K_i^{-\rho_{F_i}} + (1 - \gamma_{F_i}) L_i^{-\rho_{F_i}})^{-\frac{1}{\rho_{F_i}}}$$

Using equation (4), the labor and capital demand function for the  $i$ -th sector will be achieved. Here,  $r_i$  represents the price of capital or return on capital in the  $i$ -th section,  $w_i$  represents the wage of the  $i$ -th section,  $t_{ki}$  is the capital tax in the  $i$ -th section, and  $t_{li}$  indicates the labor tax in the  $i$ -th section.

By solving the above model, the demand functions of labor and capital are obtained as follows:

$$\begin{aligned} K_i &= \gamma_{F_i}^{\sigma_{F_i}} [(1 + t_{ki}) r_{ki}]^{\sigma_{F_i}} (\gamma_{F_i}^{\sigma_{F_i}} [(1 + t_{ki}) r_{ki}]^{1 - \sigma_{F_i}} + (1 - \gamma_{F_i})^{\sigma_{F_i}} [(1 + t_{li}) w_i]^{1 - \sigma_{F_i}})^{\frac{\sigma_{F_i}}{1 - \sigma_{F_i}}} \left(\frac{X_{D_i}}{a_i}\right) \\ &\quad + (1 - \gamma_{F_i})^{\sigma_{F_i}} [(1 + t_{li}) w_i]^{1 - \sigma_{F_i}} \left(\frac{X_{D_i}}{a_i}\right) \end{aligned} \quad (20)$$

$$\begin{aligned} L_i &= (1 - \gamma_{F_i})^{\sigma_{F_i}} [(1 + t_{li}) w_i]^{\sigma_{F_i}} (\gamma_{F_i}^{\sigma_{F_i}} [(1 + t_{ki}) r_{ki}]^{1 - \sigma_{F_i}} + (1 - \gamma_{F_i})^{\sigma_{F_i}} [(1 + t_{li}) w_i]^{1 - \sigma_{F_i}})^{\frac{\sigma_{F_i}}{1 - \sigma_{F_i}}} \left(\frac{X_{D_i}}{a_i}\right) \\ &\quad + (1 - \gamma_{F_i})^{\sigma_{F_i}} [(1 + t_{li}) w_i]^{1 - \sigma_{F_i}} \left(\frac{X_{D_i}}{a_i}\right) \end{aligned} \quad (21)$$

In relations (20) and (21),  $r$  indicates the price of capital, or, in other words, the interest rate and  $w$  represent the labor price or, in other words, the wage.  $t_{li}$  and  $t_{ki}$ , respectively, indicate the tax rate on wages and the tax rate on capital. For simplicity and with regard to the conditions of Iran's economy, in this study, the wage of labor in different sectors is equal to the average wage in economic sectors, and hence wages will be displayed with  $w$  for each sector.

## 2-5. Households

In this study, it is assumed that households have a Stone-Geary Utility Function by maximizing the utility function of households as a function of household demand. In other words, households are supposed to face the following optimization problem:

$$\begin{aligned} \max U(C, h) &= \prod (C_i - \mu H_i)^{\alpha H_i} \\ \text{s.t.} \\ Y^d &= \sum (1 + t_{c_j}) P_j C_j \\ Y^d &= Y - t_y Y - S \\ S &= s(Y - t_y Y) \\ Y &= m \sum R_i K_i + \sum W L_i + TR \end{aligned} \quad (22)$$

In this study, the household income is assumed to be due to the income derived from capital, income from labor, as well as government transfers. Households in the current model pay their taxes, consumptions, and savings, and savings are also a function of income and taxes. In the above relationships,  $Y^d$  is household income. Also,  $t_y$ , income tax,  $m$  households' share of capital income,  $s$  ultimate savings,  $s$  saving,  $t_y$  income tax rate, consumption  $c$ , and  $TR$  are government transfers. By solving the above optimization problem, the demand function of households for each segment is obtained as follows:

$$C_i = \mu H_i + \frac{\alpha H_i (Y^d - \sum (1 + t_{c_j}) P_j \mu H_j)}{(1 + t_{c_j}) P_i} \quad (23)$$

**3-5. Government**

Government revenue includes taxes on consumption (Cotax), production taxes (Prtax), capital tax (K tax), labor tax (L tax), income tax (Y tax), oil revenues (ER.OIL), as well as tariffs. Of course, the government's transitional revenues should be reduced to the total of these revenues. In this section, the tariffs received by the government from exports and imports are divided into two categories of trade tariffs with the countries of the Eurasian Assembly, and trade tariffs with non-member countries of the Eurasian Assembly. The government's demand will also be achieved by maximizing the government's absorption function, which is considered as a Cobb Douglas production function, in line with the government's budget. The following equations show government revenues:

$$\text{Prtax} = \sum \text{tx}_i \cdot \text{PD}_i \cdot \text{XD}_i \tag{24}$$

$$\text{Cotax} = \sum \text{tc}_i \cdot \text{P}_i \cdot \text{C}_i \tag{25}$$

$$\text{Ltax} = \sum \text{tl}_i \cdot \text{W} \cdot \text{L}_i \tag{26}$$

$$\text{Ktax} = \sum \text{tk}_i \cdot \text{R}_i \cdot \text{K}_i \tag{27}$$

$$\text{Ytax} = \text{t}_y \cdot \text{Y} \tag{28}$$

$$\text{Tariff} = \sum (\text{treur}_i \cdot \text{meur}_i \cdot \text{peur}_i \tag{29}$$

$$+ \text{tro}_i \cdot \text{mo}_i \cdot \text{po}_i) \cdot \text{ER}$$

$$\text{GTR} = \text{Prtax} + \text{Cotax} + \text{Ytax} + \text{Ltax} \tag{30}$$

$$+ \text{Ktax} + \text{Tariff}$$

$$+ \text{ER.OIL}$$

In the above function,  $\text{treur}_i$  is the tax on import for goods in section  $i$  of the Eurasian Assembly countries,  $\text{meur}_i$  is the amount of imports from section  $i$  of the EAEU,  $\text{peur}_i$  is the price of commodity  $i$  in the member countries of the EAEU,  $\text{tro}_i$  is the import tax rate for goods  $i$  for other countries,  $\text{mo}_i$  is the amount of  $i$  imports from other countries,  $\text{po}_i$  is the price of goods  $i$  in other countries,  $\text{ER}$  is currency (Rials per dollar),  $\text{OIL}$  is oil exports, and  $\text{GTR}$  is also the total government revenues.

In this study, part of the demand for the government is considered, and according to this, the function of the government's demand based on the maximization of the government's Cobb Douglas production function is as follows:

$$\max \quad U(\text{GC}) = \prod (\text{GC}_i)^{\alpha \text{GC}_i} \tag{31}$$

s.t.

$$\text{GTR} = \text{GC}_i + \text{TR} + \text{BD}$$

$$\sum \alpha \text{GC}_i = 1$$

In the above relationship,  $\text{GC}$  represents government spending and  $\text{BD}$  shows government deficit.

**4-5. External (Foreign) Sector**

For the external part, we have to consider a fuzzy element. Here, given the conditions of the Iranian economy and according to previous studies, it is assumed that Iran is a small open country. In other words, import prices and export prices are determined externally and by world markets. According to Armington (1969), domestic goods and imported goods are assumed to be the substitute for each other.

This assumption shows that the commodity  $X$  is a combination of imported goods produced internally, based on the CES fixed-displacement function. By minimizing the cost of goods  $i$ , the relative combination product and the import demand function for commodity  $i$  will be obtained. In other words, in order to extract the import demand function of the commodity, the following optimization problem should be solved:

$$\min \quad C_i(0) = \text{Peur}_i \cdot \text{Meur}_i \cdot \text{ER} + \text{Po}_i \cdot \text{Mo}_i \cdot \text{ER} + \text{MD}_i$$

s.t.

$$X_i = aA_i \cdot (\gamma A1_i \cdot \text{Meur}_i^{-\rho A_i} + \gamma A2_i \cdot \text{Mo}_i^{-\rho A_i} + \gamma A3_i \cdot \text{XDD}_i^{-\rho A_i})^{-\frac{1}{\rho A_i}} \tag{32}$$

In the above optimization problem,  $\text{XDD}$  is the amount of demand for domestic products. In the above equation,  $aA_i$  is the shift parameter,  $\gamma A1_i$ ,  $\gamma A1_i$ , and  $\gamma A1_i$  are the contributing factors and  $1/(\rho A_i)$  is the elongation of the succession between the domestic and foreign products. On the other hand, it is assumed that there is a limited substitution between the product produced for the inside and the goods produced for import, which is represented by the CES model. By maximizing the producer's income, the equivalent function of the export demand function can be obtained from the CET function. Therefore, solving the following optimization problem results in the export

demand function:

$$\begin{aligned}
 \max \quad & Rev_i(0) = P_{eur_i} \cdot EX_{eur_i} \cdot ER \\
 & + P_{o_i} \cdot EX_{o_i} \cdot ER \\
 & + XDD_i \\
 \text{s.t.} \quad & XD_i \\
 & = aT_i \cdot (\gamma T1_i \cdot EX_{eur_i}^{-\rho A_i} \\
 & + \gamma T2_i \cdot EX_{o_i}^{-\rho A_i} \\
 & + \gamma T3_i \cdot XDD_i^{-\rho A_i})^{\frac{1}{\rho T_i}}
 \end{aligned} \tag{33}$$

In the optimization equation (18)  $aT_i$  is the shift parameter and  $\gamma T1_i$ ,  $\gamma T2_i$  and  $\gamma T3_i$  are the contribution parameters. Also,  $1 / (\rho T_i)$  is the subtraction pull between the imported and exported products. In the above relation,  $EX_{eur}$  is related to exports to Eurasia,  $EX_o$  is the amount of export to other countries, and  $XDD$  also shows the amount of product consumed internally.

### 5-5. Equilibrium

In this study, the equilibrium in various sectors including the household budget, market for goods and services, compound goods market, government budget, and foreign market is established as follows:

- Equilibrium in the household budget: equilibrium in the household budget is provided through savings, which is included in the equation (7).
- Equilibrium in the market for goods and services and commodities: balance in the goods and services market is created through equal supply and demand for goods and services.
- Equilibrium in the state budget: as shown in equation (16), the government can create a budget balance with its savings or deficit and its budget surplus.
- Foreign exchange market: equity of supply and demand of foreign exchange caused by exports and imports creates a balance in the foreign exchange market and its currency exchange rate equilibrium.

Basically, the CGE model is a set of commands. Some of these commands simply prepare the model's premises and define endogenous and exogenous sets, parameters, and variables. Other commands form the economic equations of the model. These

commands are typically divided into the following blocks:

- consumption,
- manufacturing,
- factor markets (i.e. capital and labor),
- international trading,
- government

The CGE model database can be organized into a table called the SAM (i.e. Social Accounting Matrix). The Social Accounting Matrix is a logical arrangement of the model database that simplifies the links between entities.

### 6. Experimental Results

As stated above, the purpose of this study is to examine the effects of different tariff concession scenarios between Iran and the Eurasian Economic Union within the framework of the Computable General Equilibrium model. In the CGE model, the calibration requires a set of information about the initial values of the variables, tractions, and other parameters used in the model. Initial values of the model variables have been determined using the Social Accounting Matrix (2011) of the Iran Majlis Research Center and for the parameters used in previous studies such as Zoghipoor and Zibaei (2009), and Abonouri et al. (2017).

By applying the basic model, the values of the research variables are calculated assuming the average import tariff rates for different sectors. The values of the variables of the basic model are shown in Table 5. In this study, the variables are: value-added, employment, capital formation, export, import and total consumption.

**Table 5. The Variables Value of the Basic Model Billion Dollars**

Variables	Agriculture	Industry	Services
Value-added	442134	879942	2732245
Employment (Million)	4312	9818	13256
Capital Formation	114326	4321213	255666
Export	292332	221562	241864
Import	242181	472176	296513
Total Consumption	3142761		

Source: Extracting the data from Social Accounting Matrix (SAM) 2011

Currently, according to the agreement signed between Iran and the Eurasian Economic Union, tariffs for goods have been lowered and stabilized for some, but the authors of the present study have considered four general scenarios for the ability to estimate results and ease of calculation. As shown in Table 6, these scenarios are as follows:

- 100% tariffs concession in both agricultural and industrial tariffs in Iran and EAEU,
- 50% tariffs concession in both agricultural and industrial tariffs in Iran and EAEU,
- 50% tariffs concession only in the agriculture sector in Iran and EAEU,
- 50% tariffs concession only in the industrial sector in Iran and EAEU.

**Table 6. Scenarios for Studying the Effects of Preferential Trade Agreement Between Iran and the Eurasian Economic Union**

Scenario	Agriculture	Industry
First Scenario	100*	100
Second Scenario **	50	50
Third Scenario	50	0
Fourth Scenario	0	50

Source: Authors

\* percentages of tariffs concession in Iran and Eurasia countries.

\*\*Considering that by signing the Agreement between Iran and the Eurasian Economic Union on the basis of existing documents, the average tariff rebate of Iran is 32.1% and the average Eurasian tariff rebate is 65.3%. The second scenario is most likely to be closer to the reality of the agreement between Iran and Eurasia.

In the following, the effects of applying these scenarios and changing the variables to the baseline model are discussed.

### 1-6. The First Scenario

The effects of the complete elimination of import tariffs on both agricultural and industrial sectors in Iran and Eurasia are presented in Table 7. The numbers in the table show the percentages of changes in the variables mentioned in both agriculture and industry

sectors relative to the initial (basic) values as mentioned in Table 7.

**Table 7. Percentages of Change in the Variables under the First Scenario**

Variables	Agriculture	Industry
Value-added	3.09 *	-0.48
Employment (Million)	3.28	-0.54
Capital Formation	4.25	0.01
Export	7.20	-0.64
Import	2.16	1.62
Total Consumption		2.14

Source: Authors

\* The percentage change of the mentioned variable relative to the base model.

With the elimination of tariffs between Iran and Eurasia, the agricultural sector has grown, but the industry sector has suffered. Studies have shown that Iran's exports to Eurasia are mostly agricultural and mineral products and also imports of industrial products from Russia and Kazakhstan.

Therefore, according to Armington's assumption (1969), given the reduction in tariffs and thus the competitiveness of Iran's industrial products against the Eurasian Union member states, exports of this sector decreased, imports increased and as a result, the value-added of this sector decreased. Also, the tariff reduction in all sectors of the economy, agricultural employment increased and industrial sector employment decreased by % 0.54.

With the increase in the export of the agricultural sector, capital formation and employment in these sectors have increased and the reverse has been created for the industry sector. With the industrial and agricultural tariffs concession in Iran and Eurasia, consumption in Iran will increase by 2.14 percent, which with the consistency of other conditions, meaning that an increase in the per capita income would lead to improving welfare in the Iran economy.

The 100% tariffs concession could increase the consumption in Iran through two tracks. First, eliminating tariffs leads to cheaper imports, on the other hand, tariff elimination increases the value-added and employment rate in the agriculture sector and increases the consumption rate.

Table 8 shows the values of variables under the first scenario after the elimination of tariffs of both agriculture and industry sectors in Iran and EAEU.

For example, agricultural employment in Iran and Eurasia, after the elimination of tariffs in Iran and Eurasia with a growth rate of 3.28 %, has reached to \$4313 million.

**Table 8. Variables under the First Scenario**  
Billion dollars

Variable	Agriculture	Industry
Value-added	455796	875718
Employment (Million)	4313	9765
Capital Formation	119185	4321214
Export	292333	220144
Import	247412	472177
Total Consumption		3310016

Source: Authors

### 2-6. The Second Scenario:

The Second Scenario is a 50% tariff concession for industry and agriculture sectors. Table 9 shows the result of this scenario.

The 50% reduction of the industrial and agricultural sectors tariffs would increase the consumption by 1.55% growth rate, which could be due to higher incomes as well as facilitating the flow of cheaper foreign goods into the country.

Comparing the results of this scenario with the first one also shows that both scenarios are welfare-enhancing but with different sizes

**Table 9. Percentages of Change in the Variables under the Second Scenario**

Variables	Agriculture	Industry
Value-added	2.17	-0.31
Employment (Million)	2.42	-0.42
Capital Formation	3.69	0.005
Export	3.15	-0.41
Import	1.09	1.06
Total Consumption		1.55

Source: Authors

The 50 % tariff concession in the industrial and agricultural sectors has increased the value-added of the industry and agriculture sectors, but facilitating the import of foreign industrial goods leads to reduce the value-added of the industrial sector. As it is evident, with the 50% tariff concession, agricultural exports will

increase by 3.15%. Meanwhile, import rates of both sectors will increase. Following the increase of agricultural value-added, investments, employment, and exports will increase as expected.

The decrease of industrial value-added will lead to the reduction of investment and employment in this sector.

Comparison of the results shows that tariff concession and tariff reduction between Iran and Eurasian countries will have a parallel impact on the added value, employment, capital formation, export and import in the economic sector in Iran.

But, it is clear that the tariff concession from 50% to 100% has not had the same effect on value-added and other variables of Iran's economy.

Under the second scenario, a 50% tariff concession on both agricultural and industrial sectors would benefit both the agricultural and industrial sectors like the first scenario.

**Table 10. Variables under the Second Scenario**  
Billion dollars

Variable	Agriculture	Industry
Value-added	451728	877214
Employment (Million)	4416	9777
Capital Formation	118545	4321429
Export	301540	220654
Import	244821	477181
Total Consumption		3191474

Source: Authors

### 3-6. The Third Scenario:

Tables 11 and 12 show the results of the implementation of the preferential trade agreement between Iran and Eurasia under the third-scenario, a 50% tariff concession of agricultural sector and a non-change in industry tariffs. As can be seen in the results, the tariff concession of agriculture and the non-change in industrial tariffs leads to the positive effect on both agriculture and industry sectors. The 50% tariff concession of the agriculture sector will increase the value-added of agricultural and industrial sectors by a growth rate of 2.35% and 0.19%, respectively. Applying this scenario, the employment in these two sectors will increase by 2.76% and 0.23%, respectively. Likewise, the formation of capital, exports, and imports

will also increase in these two sectors.

On the other hand, as a result of 50% tariff concession, consumption as an indicator of welfare will increase by mostly 1.56%. Based on the theoretical principles of the CGE model and because of the intended relationship between different economic sectors, it is acceptable that the economic growth in one sector will positively affect other sectors as well.

In addition, the signing of a Preferential Trade Agreement between Iran and the Eurasian Economic Union and the elimination of tariffs between Iran and Eurasian countries, as already stated, have had a greater impact on different sectors than the reduction of tariffs.

So, the best policy for Iran is to eliminate tariffs and reach Free Trade Agreement. Because of the elimination of tariffs, we would meet a higher value-added, investment, and employment. In addition, the consumption rate has increased more.

**Table 11. Percentage of Change in the Variables under the Third Scenario**

Variables	Agriculture	Industry
Value-added	2.35	0.19
Employment (Million)	2.76	0.23
Capital Formation	3.44	0.39
Export	4.12	0.91
Import	0.98	0.30
Total Consumption		1.56

Source: Authors

**Table 12. Variable under the Third Scenario Billion Dollars**

Variable	Agriculture	Industry
Value-added	452524	881614
Employment (Million)	4430	9840
Capital Formation	118259	4338066
Export	304376	223578
Import	244554	473592
Total Consumption		3191788

Source: Authors

#### 4-6. The Forth Scenario:

The Fourth Scenario in this study is a 50% tariff concession of the industrial sector and no change in agricultural tariffs.

The results show that the 50% tariff concession of the industrial sector and no change in agricultural tariffs lead to decrease the agricultural value-added. Similarly, agricultural and industrial employment rates will also change. Studies have also shown that

consumption has increased by 0.38 percent compared to the baseline model. So, it can be said that this scenario will increase the welfare rate.

**Table 13. Percentages of Change in the Variables under the Forth Scenario**

Variables	Agriculture	Industry
Value-added	-0.81	-0.39
Employment (Million)	-0.62	-0.55
Capital Formation	0.08	0.007
Export	-0.52	-0.49
Import	1.45	0.81
Total Consumption		0.38

Source: Authors

As a result of agricultural tariff concession and no change in industrial tariffs concession, imports will increase in both sectors and exports in both sectors will decrease. Under such circumstances, the investment in both sectors will increase.

In general, both agriculture and industry sectors will suffer, except in the investment and import sectors under this scenario.

**Table 14. Variable under the Forth Scenario Billion Dollars**

Variable	Agriculture	Industry
Value-added	438552	876510
Employment (Million)	4285	9764
Capital Formation	114417	4321515
Export	290812	220476
Import	245693	476000
Total Consumption		3154703

Source: Authors

## 7. Summary and Conclusion

Foreign policy has always been a function of international and regional conditions. Over the years, Iran's presence in all areas, especially regional organizations, has shown Iran's efforts to capitalize on the situation. Meanwhile, as the United States continues to exert maximum pressure on Iran, Iran is seeking commercial solutions to evade pressures and economic growth, using the capabilities of its neighbors and regional powers alongside regional agencies to reduce the impact of sanctions. It has always been in the interest of policymakers in the country.

On the one hand, considering the signing of the Preferential Trade Agreement between Iran

and the Eurasian Economic Union in May 2018 and the importance of examining the effects of this agreement, and on the other hand, the robustness of the Computable General Equilibrium (CGE) method for analyzing the economic effects of increased trade and the signing of regional trade agreements, the purpose of this study was to investigate the economic effects of signing a preferential trade agreement with the Eurasian Economic Union in Iran. In this study, a Computable General Equilibrium Model including four sections of Firms, Households, the Government, and Foreign Sector was presented and the economic effects of the signing of a trade agreement between Iran and the Eurasian Economic Union on agriculture and industry sectors were investigated.

Base values of the model variables were determined using the Social Accounting Matrix 2011 of the Majlis Research Center, and previous studies such as Zoghipour and Zibaie (2010), Abonouri et al. (2017) and Calibration were used for the parameters used.

In this study, four scenarios were analyzed. These scenarios included 100% tariffs concession in both agricultural and industrial tariffs in Iran and EAEU, 50% tariffs concession in both agricultural and industrial tariffs in Iran and EAEU, 50% tariffs concession only in the agriculture sector in Iran and EAEU, and 50% tariffs concession only in the industrial sector in Iran and EAEU.

The results of this study showed that the best scenario would be the complete elimination of tariffs for both agriculture and industry sectors, which would lead to the growth of both sectors, and total consumption and welfare which would be achieved after 3 years based on the agreement between Iran and EAEU.

In other scenarios, except for the fourth scenario, the agriculture sector would grow. Industry capital formation has grown in all scenarios, and the third scenario, namely a 50% reduction in agricultural tariffs and no change in industry tariffs, had the best results for the industry.

The second scenario, which is closer to the ones in the Iran-Eurasia Preference Trade Agreement, leads to the growth of the agricultural sector as well as the growth of the capital formation of the industrial sector. In this case, the total consumption will grow by

1.55%.

## 8. Policy Recommendations

According to what the theoretical foundations have suggested and observed in various studies, increasing commercial freedom enhances economic prosperity in different countries. Therefore, the first proposal is to implement policies to increase trade freedom in the country. However, in view of the various studies and their results, different suggestions are offered.

Based on the results of this research, suggestions will be made that will hopefully be exploited by relevant organizations and researchers.

- Conducting research projects to inform and encourage investors, especially in neighboring border provinces,

- Encourage policymakers to try to completely eliminate tariffs between Iran and Eurasia,

- Holding seminars and workshops to familiarize Iranian businessmen and producers with the economic potential of Eurasia,

- Establishment of a Joint Council of Eurasian Chambers of Commerce,

- Holding trade fairs and permanent exhibitions introducing preferential goods in each EAEU Member State,

- Taking advantage of the country's transportation capabilities and advantages such as the East-West Corridor and Chabahar with the aim of cooperating with EAEU countries,

- Establishing a joint financial mechanism for internal exchanges between Iran and the 5 member states of the Union (e.g. using Russian banks or establishing joint banks) as well as removing barriers to banking and financial transfers,

- Creating a database of EAEU member countries' traders for Iranian businessmen,

- Using national currency in the facilitation and establishment of bank branches in the country to facilitate the business process of financing and providing services such as lending,

- Technical and economic cooperation and the renewal and facilitation of monetary and banking relationships such as SWIFT, letter of credit, bank guarantees and financing and so on,

- Establishing the necessary framework for

mutual investments, transfer of technical knowledge, and modern technologies and trade exchanges in the production and processing of export-oriented products.

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