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Analyzing the impact of sanctions against Iran

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Abstract: The main objective of this paper is to investigate this issue whether the sanctions, as claimed, have significant impacts on the economy of Iran? To achieve this aim, the paper is classified into three main sections; first section investigates the theoretical principles of sanctions including the concept, objectives and performance; the second section studies the imposed sanctions against Iran and their provisions are analyzed; finally, the third section reviews the effects of sanctions on the macro-economic variables of Iran within the vector autoregressive model (VAR). The results indicate that an increase in the interest rate can enhance the foreign direct investment rate. Furthermore, the dummy variable coefficient is negative which means that the foreign direct investment rate is reduced by imposing the sanctions in a year. Furthermore, the Gross Domestic Product (GDP) will have the negative growth in the current period by enhancing the growth of foreign direct investment rate in the previous period. Moreover, the interest rate has a positive coefficient meaning that an increase in the interest rates will lead to the GDP growth.

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Introduction

The utilization of economic sanctions is one of the most important tools which the actors in international economic laws impose according to the common agreement in the world. Currently, the UN Security Council utilizes the economic sanctions as the primary tools of pressure against several countries. Most of the countries believe that the economic sanctions have coercive aspects, thus they are illegal. However, due to the enhanced application of economic sanctions according to this argument that the threat of sanctions is less than the military war, a few numbers of people in the world talk about the illegal or unfairness aspect of economic sanctions now.

The international community and countries' measures are different in imposing sanctions: Some of the countries act in group and jointly; the sanctions imposed by UN Security Council and the Europe Union sanctions are the samples of group sanctions. Other governments act individually in imposing the sanctions; for instance, the U.S. and UK individually impose sanctions against some of the countries.

However, the individuals and governments around the world have frequently disagree the sanctions issue; for instance, the United States has been encountered with disagreement by most of the countries while taking measures to control the behavior outside its territory or the individuals' behavior other than its own nationals. Some states consider such these actions as violating their own sovereignty.

The economic sanctions against Iran has over half-century history and the first ones date back to the unilateral sanctions against Mossadegh's government and nationalization of oil industry in Iran by the United States and Great Britain during 1951-53. However, perhaps the main economic sanctions are related to the post Islamic Revolution and the widespread economic sanctions have been imposed against Iran due to various reasons (including the military, political, scientific and economic reasons) in this short period.

The main objective of this paper is to investigate whether the sanctions, as claimed, have had the significant impact on Iran's economy?

1. Research Literature

Concept of sanctions

The researchers have proposed different definitions of sanctions. In terms of lexicography, the Encyclopedia Britannica defined the sanctions as follows: In the international law, the sanctions are the tools applied by the collective action of states to ensure the international law and may start with the disparaged and critical judgments of states in the international organizations against another government and end in the economic sanctions or use of military action (britannica.com).

In general, the theories of sanctions are directly related to the utilization of economic power. Some of the researchers have defined the sanctions as the manipulation of economic relations in order to achieve the political goals (Meron, 1990, p.10).

According to some researchers' view, the economic sanctions refer to the coercive economic measures against one or more countries to create changes in its policy or at least reflect a country's opinion about such these policies (Carter, 1998, p.198).

Others consider the economic sanctions as intentional stop or threatening to stop the usual commercial or financial affairs of a state (Hufbauer, 2001, p.17).

As a tool to promote the foreign policy interests of a country, the economic sanctions is put in the middle of a range with one side of the hardest coercive measures including applying the military force, covert actions or threaten to apply the military force and with the other side as the diplomatic strategies, expulsion of diplomats, summoning the ambassador, formal diplomatic protest, and suspending the cultural exchanges. In can be argued that imposing the economic sanctions is put in the middle of this range and often utilized instead of measures above. The political strategies may probably not be efficient, while resorting to military solutions may seem a radical way. In other words, the sanctions sharpen the teeth of international diplomacy (Hufbauer, 1999, p.12)

Several researchers consider the economic sanctions as the parts of diplomatic skills. This impression dates back to the previous centuries. In the status quo, the strategy has the wider purposes than the traditional concept to wage the economic warfare in existing hostilities of modern era. The model of sanctions has been changed particularly after the 1990s, so that the economic sanctions refer to the prior or alternative policy with low cost to the military intervention (Lopez and Cortright, 1995, p.18).

According to the sanctions advocates' perspective, the theoretical basis of economic instrument relies on the strong foreign policy. This argument has two basic hypotheses: first, trade relation disruption and economic sanctions: The sanctioned country is excluded from some of the business interests and thus it reduces the welfare. Second, not using the commercial interests can affect the sanctioned country and this can be considered as one of the bases of economic principles. It is assumed that the trade relation disruption will lead to changes in behavior (Bergelljk, 1989, p.404).

The sanctions are classified into two groups in terms of method or in other words, the behavior of government:

1. Primary sanctions: If the sanctions are related to the relation of both countries in a way that a country avoids trading or exchanging the service or any other economic relations with other country, these sanctions are called the primary sanctions which have limited scope.
2. Secondary sanctions: Sometimes, a country may expand the scope of sanctions and avoids establishing the trading, financial and other relations with other countries which have relations with sanctioned country; this type of sanctions is called the secondary sanction. Sometimes, the sanctions-imposing country goes even beyond this case in the secondary sanctions and like the U.S. Damato law against Iran it imposes penalties for countries or companies with financial and other relations with sanctioned country (Kausch, HansG; 1982, p. 74).

In recent decades, imposing the economic sanctions has been severely increased, thus this procedure is applied as the instrument of foreign optional policy for several some countries. In theory, the sanctions have a simple method, so that the sanctioned country (target) incurs costs for some of the limitations by sanctions-imposing country. Therefore, the target countries change their favorable and positive relationship with sanctions-imposing country due to avoiding such these costs. However, this theory is very rarely attained in action. There is a little empirical evidence that the target countries significantly change their behavior in the case of sanctions. The sanctions mainly have a message for the international community and lead to the diversion of some types of behavior (Petrescu, 2008).

During the Cold War, there were a variety of models in imposing the sanctions. During 1945 and 1990, some forms of sanctions against other nations were imposed more than sixty times with the average annual rate of more than a new type of sanctions. In more than three-fourths of these cases, the sanctions were started and continued by the United States. Among this group, more than three fourths of cases were imposed solely by the United States and without participation of other countries (Lopez and Cortright, 1995, p.65).

Sanctions Objectives

The economic sanctions can be applied to various reasons. The main reasons are the states' behavior towards the sanctioned countries, sanctioning governments' future expectations, and international perspectives which are associated with the general international structure or a part of international structure (Barber, 1979, p. 369).

In general, the sanctions-imposing countries pursue the following objectives by economic sanctions against the target countries:

1. Deterrence: The threat of sanctions to prevent the sanctions violations;
2. Following: Changing some aspect of domestic and foreign policy of target country;
3. Punishment: When it is too late to bring about the change or it seems very difficult; the only purpose of sanctions can be to change in the wrong behavior;
4. Instability: This objective is usually obtained by unilateral and in some cases the multilateral sanctions;
5. Limiting the difference: The military sanctions are the instances of sanctions which pursue this objective;
6. Integration: The purpose of some sanctions-imposing countries is the imitation of friendly countries to be able to show their support of these countries through this way;
7. Symbolization: The purpose of this objective is to provide the evidence of sanction-imposers' dissatisfaction as well as the receiver, but it has no serious financial loss;
8. Signaling: The purpose seeks to show the deterministic decision on causing the material damages;
9. Imposing: It refers to the situations in which the target country is put under pressure to do a specific measure to change the status quo such as applying pressure to the head of government to accept the election result;
10. Prevention: The target country is put under pressure in order not to do a specific measure to change the status quo such as using the weapons of mass destruction (Lopez and Cortright, 1995, p. 25-27).

2. Economic sanctions against Iran

- **Review of Economic sanctions against Iran**

The economy sanctions against Iran can be classified into five main courses which the first one only belongs to post revolution and the rest of them belong to the past Islamic revolution of Iran. The first sanctions are associated with the nationalization of oil industry under which the United States and Britain, that saw their interest in danger, imposed the sanctions against purchasing oil from Iran. These sanctions were intensified by insistence of Mossadegh's government on its position and ultimately led to the 1953 Iranian coup d'état. The next round of economic sanctions occurred immediately after the Islamic revolution and "Conquest of the American Spy Den" during which Carter's government put every kinds of economic pressure including the confiscation of property or sanctions against trading with Iran to free the hostages and regaining the America embassy in Iran; however, all of these sanctions except for blocking the assets were ended after signing the Algiers Accords (1981).

The third round of economic sanctions dates back to the 8-year sacred defense during which the United States started the economic pressure on Iran by accusing Iran of bombing in American military plant in Beirut. Claiming that Iran is a militant, the United States also persuaded other countries to reduce their trade relations with Iran especially in the field of military equipment; however, Iran was not a militant and other countries or international organizations were able to not accept these sanctions according to this fact.

After ending the war and at the beginning of reconstruction era, the American sabotage was continued more or less in the international affairs, but the World Bank and European countries knew that their interest was in the continuance of cooperation with Iran. Thus the United States applied another way and started a new round of unilateral economic sanctions against Iran with the excuse of military power proliferation of Iran in 1993. In this way, Clinton's government sought to justify the sanctions against Iran and convincing the international community by legislating on various laws. Damato plan following by ILSA Act[1], Anti-terrorism and Effective Death Penalty Act, Iran Nonproliferation Act, and the Agricultural Credit Act were only the parts of these actions. Finally, as the result of September 11 attacks, Bush administration extended the sanctions in this period and in some cases intensified them.

The final sanctions round which still continues refers to the nuclear progress of Iran. These sanctions, which began by the United States in 2004 due to Iran's prevention from presence of IAEA inspectors in nuclear facilities, continued with the resolutions of the UN Security Council and eventually were maximized by support of the Europe Union and some other countries. The UN Security Council first prevented Iran from continuing the enrichment activities according to the Resolution, and Iran did not accept and implement this sentence. In response to this reaction and in three next resolutions, the UN Security Council imposed the sanctions against a long list of individuals and

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[1] ILSA: Iran and Libya Sanctions Act of 1996

entities and the United States, Europe Union and some other countries began their sanctions due to this mandatory sentence. Given the high frequency of economic sanctions against Iran, the following table represents the main economic sanctions against Iran according to the mentioned separation.

Table 1. Economic sanctions against Iran

No.	Year/Period	Country/Entity	Economic sanctions against Iran / sanctions tools	Goals / reasons for sanctions
1	1951-53 nationalization of oil industry	- The United States - Britain	British threat of judicial approach to buyers of Iranian oil[2]	- Failure in nationalization of oil industry - Pressure on Mossadegh's government[3]
2	1979-81 Conquest of the American Spy Den	The United States	- Preventing the oil imports from Iran (November 1979) by issued Proclamation No. 4207 Confiscation of $ 12 billion from Iranian Government Assets through the Executive Order No. 12170 - Sanctions against exports to Iran and financial transactions with the Iranian side (1980) through Executive Order No. 12205 - Ban on imports from Iran and American nationals' travel to Iran through Executive Order No. 12211.	- The release of American Embassy hostages - Lack of confiscated America embassy in Iran[4]
3	1981-88 Imposed War	The United States	- America's widespread international movement to stop selling the military equipment to Iran - Prohibiting the exports of military equipment to Iran, controlling the exports of goods with both military and non- military purposes, and cutting off all financial assistance to Iran such as opposing to pay loans by the World Bank, 1986. - Sanctions against imports of American goods and products to Iran, 1987[5]	- Iran's termination of supporting international terrorism (Iran's charge of bombing the America's military plant in Beirut, 1983)[6] - Ending the war with Iraq - Iran's non use of weapons of mass destruction[7]
4	1993-2001 Military proliferation	The United States	- Sanctions against Iran's oil (1993) - Terminating all trade and investment ties with Iran by Clinton's command (April 30, 1995) and signing the operating instructions 12957 for intensifying it (May 6, 1995)	Preventing from the military proliferation of Iran

[2] http://www.snn.ir/NSite/FullStory/News/?id=213943&Serv=8&SGr=124

[3] Hufbauer, G. C. (2007). *Economic sanctions reconsidered*. Washington, DC: Peterson Institute for International Economics: p.21.

[4] Hufbauer, G. C. (2007). *Economic sanctions reconsidered*. Washington, DC: Peterson Institute for International Economics: p.26.

[5] http://www.snn.ir/NSite/FullStory/News/?id=213943&Serv=8&SGr=124

[6] Hufbauer, G. C. (2007). *Economic sanctions reconsidered*. Washington, DC: Peterson Institute for International Economics: p.145.

[7] Ibid: p. 27.

			- Damato approval and permitting America to impose sanctions against the non-American companies which provide the oil industry technology for Iran following the adoption of Iran and Libya Sanctions Act (ILSA) (August 5, 1996) in order to impose sanctions and punishment for non-American countries which invest more than $20 million in Iran's oil industry.[8] - Legislation on "Anti-terrorism and Effective Death Penalty Act" (April 1996) and prohibiting any financial transactions with Islamic Republic of Iran and Preventing the financial aids to countries which give Iran the military service and equipment. - Legislation on "Iran Nonproliferation Act" (November 2000) with the aim of preventing the exports of military technology to Iran. - Legislation on "Agricultural Credit Act" (October 2000) to deprive the terrorist countries of receiving the American export letters of guaranty.	
5	2004 Iran's nuclear program	The United States	- Intensifying the previous sanctions due to the Iran's opposition to the International Atomic Energy Agency inspectors' entry and investigation in the late 2004. - State sanctions: Sanctions against Iran's energy industries (Florida, 2006), economic sanctions and prohibiting any economic relations with Iran (New Jersey, 2007) - Imposing sanctions against several Iranian entities and individuals by United States Department of the Treasury (October 25, 2007) - Continuation of economic sanction (March 12, 2009)	Preventing from Iran's nuclear progress
		The UN Security Council	- Resolution 1737 (December 23, 2006): After the resolution 1696 based on investigating the status of Iran's nuclear program, this resolution was approved for forcing Iran to end the uranium enrichment. - Resolution 1747 (March 24, 2007): Urging all countries to limit their nuclear activities with Iran and prohibiting the exports and imports of heavy weapons to Iran and a 60-day deadline for an end to Iran's enrichment program, and providing a list of sanctioned entities and individuals. - Resolution 1803 (March 3, 2008): Re-condemnation of Iran's nuclear program, and increasing the list of sanctioned individuals and	

[8] This Act was valid for 5 years and it was continued after ending by approval of Congress and signing by President George W. Bush on 3rd August 2001, but this act was met with fierce opposition from European Union.

			companies - Resolution 1929 (June 9, 2010): Exacerbating the economic sanctions [9] due to not implementing the Articles of resolution 1696.1737, 1747, 1803, 1835 and 1887 by Iran	
		The European Union	- Compliance with the resolutions of the Security Council (February 27, 2007) - Sanctions against 180 Iranian business companies and individuals due to the International Atomic Energy Agency (2011)	
		Other	- Confiscation of Bank Melli's assets by England (June 2008) and similar actions such as blocking the assets of Bank Saderat and Bank Melli in Barclays Bank of England. - Russia's participation in sanctions of Security Council (May 5, 2008). - Terminating the currency transactions with Iran by Banque Bruxelles Lambert, Deutsch Bank of Germany, Bahrain Banks and State Banks in China in 2008. - Confiscation of properties of 12 Iranian companies in excuse for resolutions by Switzerland (April 2008).	

[9] Imposing the sanctions against 22 companies and institutes accused of relations with nuclear and missile activities such as Malek-Ashtar University of Technology in Tehran, Amin industry in Mashhad, Kaveh Cutting Tools Company in Tehran, First East Export Bank in Malaysia (Controlled by Bank Mellat), Shahid Kharazi Industries, and Nuclear Research Center for Agriculture and Medicine, Karaj in addition to 15 affiliated companies and institutes of Iranian Revolutionary Guards such as Khatam Al-Anbia Construction headquarters, Omran Sahel company, Rah Sahel, Sepanir and 3 subset institutes of Iran Shipping Lines such as IRISL Benelux in Belgium and South Shipping Line Iran,…

The tables above indicate the following points:

- The economic sanctions against Iran has an increasing and exponentially growth, so that after the Islamic Revolution in February 1979 these sanctions emerged with different types and reached from a few minor sanctions before the revolution to the widespread current sanctions. The banks, trading companies, oil industries, nuclear industries, assembly industry, and in general most of the economic businesses including the financial and trading activities are not involved in the sanctions.
- The United States plays a key role in all of these sanctions, so that it has directly declared and imposed sanctions or played the important role in imposing the sanctions (like the resolutions). On the other hand, the United States has independently imposed the sanctions against Iran for several years to show that the United States utilizes any opportunity to impose sanctions against Iran.
- During these sanctions, the countries other than America, such as the European Union countries (and Asian countries in recent years) have usually joined the process of sanctions with delay because Iran brings numerous business advantages for them either as the producer of oil and underground products as well as the market for industrial products if mentioned countries. For instance, the European Union forbade the European companies to obey the act of sanctions during ILSA act (Iran and Libya Sanctions Act) and undertook the compensation for contingent costs.
- In general, the intensity of economic sanctions after the revolution and the special effort of America indicate that despite the fact that there are a variety of purposes for these sanctions, the main purpose of all these sanctions is to change the Iranian regime and make it consistent with the West especially the United States. Numerous cases can be cited to support this

claim according to which the pressures and sanctions still remain despite achieving the objectives of sanctions by sanctioning countries especially the United States.

- **Sanctioning countries' tools in economic sanctions against Iran**

Given the review of economic sanctions against Iran, the following tools, which have been utilized in line with the economic pressure against Iran by sanctioning countries, have been utilized:

- Limitation of oil exports oil: The Iranian economy has always been dependent on the oil after exploring and extracting it. According to this fact, the sanctioning countries have utilized the easiest and most effective way of pressure and economic sanctions against Iran as the obstruction of oil exports and sales, so far. It should be noted that due to the limited supply of oil in the world, this policy has had benefits for Iran in some periods of time due to the increase in oil prices, but restricting the Iranian oil exports can be considered as the most frequent economic sanctions against Iran.
- Limitation of imports (especially the capital and intermediate goods): The Iranian industries are largely dependent on the capital and intermediate goods due to the strategy of import substitution after the revolution. Therefore, the economic sanctions against Iran have ended in discontinuation of industrial partners particularly the automotive, military, petrochemical, and medical industries. However, these types of sanctions have less impact than before due to the industrial progress of Iran during the past two decades, despite the fact that some of the cases such as the automotive industry, cutting and assembly industries are still the sectors under the sanctions in Iran.
- Banking and financial constraints: Due to the strengthening of Iran's trade with The Eastern Bloc particularly China and Russia, the West and especially the United States found that two previous instruments of sanctions had no sufficient efficiency. Thus, according to the much dependency of banking network in the world to the United States, another tool, banking and financial sanctions, have been applied in recent years. These sanctions range from financial prohibitions from micro level such as opening the Letter of Credit (LC) to macro level such as banking and financial prohibitions of Central Bank of Iran.

- **Effects of sanctions**

The effects of sanctions on different countries can be considered from two aspects; first, its effects on sanctioned countries, and then the effects of these sanctions on sanctioning countries. The comprehensiveness of any analysis requires investigating both aspects; in fact, it means that the sanctions have dual effects. The volume of trade between sanctioning and sanctioned countries is one of the key variables with dual effects. Hufbauer et al (2007, pp. 208-209) have indicated that on the one hand, the United States's trade volume has been relatively reduced with sanctioned countries where have been under the unilateral sanctions by the US., and on the other hand, all trade partners of sanctioned countries have been encountered with reduced volume of trade and losses.

From the perspective of Hufbauer et al (p. 158), at least 34% of cases, the sanctions have been efficient. Nevertheless, the success rate significantly depends on the type of policy-making and government changes. The minor and more limited objectives such as releasing the political prisoners have been obtained in about 50% of cases. The objectives based on the change of regime and governance structure have been obtained in about 30% of cases. The following table summarizes the effect of sanctions:

Table 2. Effectiveness of sanctions

Policy making Purpose	Success cases	Failure cases	All cases	Success rates
Moderate changes in policy	22	21	43	51
Regime change	25	25	50	31
Disruption of military adventures	4	15	19	21
Military impairment	9	20	29	31
Other policy changes	10	23	33	30
All cases	**70**	**134**	**204**	**34**

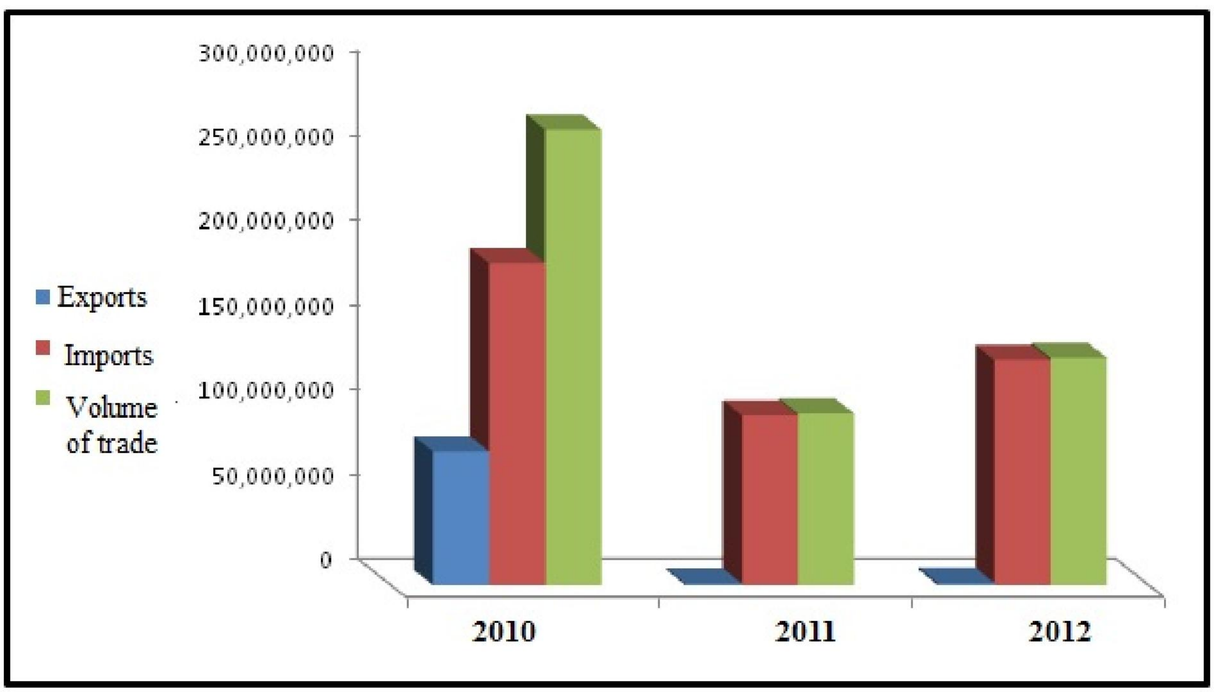
For the impact of sanctions on the Iranian economy, the following table indicates that not only the trade volume of Iran with the U.S. as the sanctioning country and all trading partners have not been decreased during the past three years, but also it has had the growing rate.

Table 3. Iran exports and Imports

	2010	2011	2012
U.S.	79,028,224	1,036,777	1,421,139
All trading partners	26,550,834,675	33,818,641,203	32,453,574,578
Import			
	2010	2011	2012
U.S.	190,222,146	100,420,740	133,035,885
All trading partners	64,449,803,140	61,808,190,007	53,348,327,197

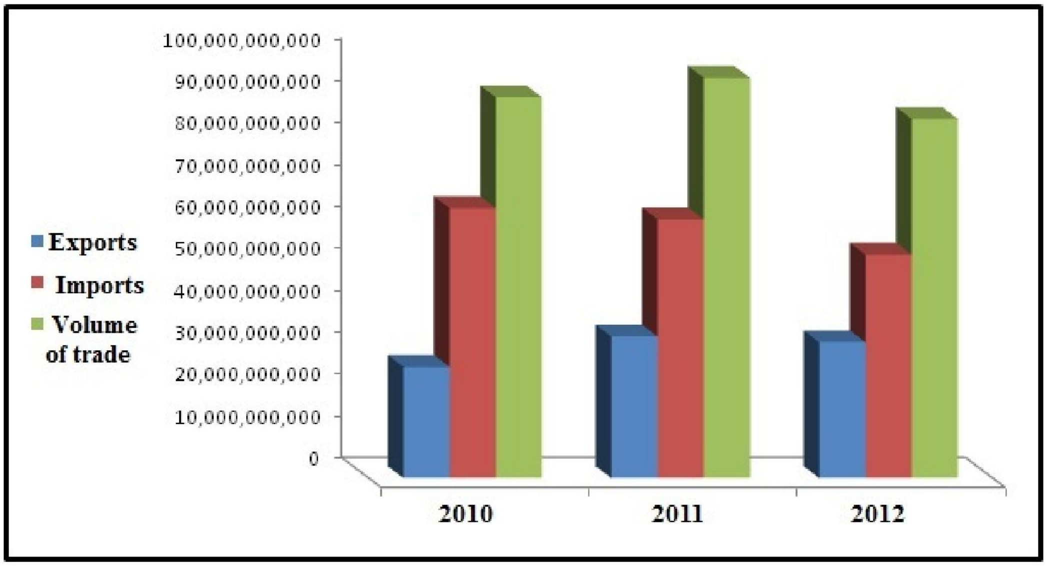
Table 4. Volume of Iranian trade

	2010	**2011**	**2012**
U.S.	269,250,370	101,457,517	134,457,024
All trading partners	91,000,637,815	95,626,831,211	85,801,901,776



Millions of dollars **Iran's trade with the United States**

Diagram 1. Iran's trade with the United States



Millions of dollars **Iran's trade with trading partners**

Diagram 2. Iran's trade with trading partners

4. Materials and Methods:

According to the previous articles in the field of economic impact of sanctions, the following variables will be applied in the model:

1. Foreign direct investment (FDI): In most of articles, the foreign direct investment variable is a country's index and rate of being affected by sanctions and its reduction during the sanction year indicates the effectiveness of sanctions.
2. Gross Domestic Product (GDP): With this logic that the sanctions can in general lead to the reduced annual product of a country, the GDP variable is utilized as an index for analyzing the status of sanctions.
3. Interest rate (R): As the cost of Investment, the Interest rate can be influenced by sanctions. So that as the result of imposing the sanctions by sanctioning country, the capital entry to the country is stopped and the interest rate is increased by enhancing the excess investment demand.
4. Inflation rate (Inf): As the index, indicating the status of national currency value, the inflation rate can indicate the effect of sanctions on a country.

The following table shows the status of these variables in Iran from 1998 to 2012.

Table 2. Variables of model

Year	FDI	GDP	r	inf	Dum
1998	24,000,000	97,869,000,000	85.8	18.132	0
1999	35,000,000	104,656,000,000	71.1	20	0
2000	39,000,000	96,440,000,000	77.9	12.791	0
2001	1,084,475,000	115,435,000,000	90.3	11.34	0
2002	3,657,067,000	116,019,000,000	97.9	15.741	1
2003	2,697,865,000	137,435,000,000	96.9	15.6	0
2004	2,863,388,000	168,481,000,000	96.4	15.34	0
2005	3,135,585,000	202,940,000,000	100	10.4	0
2006	1,646,568,000	241,697,000,000	103.4	11.866	1
2007	2,005,100,000	307,355,000,000	109.8	18.394	1
2008	1,909,200,000	350,588,000,000	124.8	25.368	1
2009	3,047,600,000	360,625,000,000	141.7	10.756	1
2010	3,647,500,000	419,118,000,000	145.9	12.396	1
2011	4,150,000,000	495,884,000,000	159.5	21.48	1
2012	5,000,000,000	548,895,000,000	179.5	30.6	1

Source: International Monetary Fund Data

It should be noted that dummy variable (Dum), which takes two values of zero and one, is also entered to the model and the number 1 indicates the year of imposing the sanctions. While modeling, this variable can highlight the role of years of sanctions in changing the variables.

5. Results

Given the variables above, the Vector Auto Regression (VAR) functions can be estimated by STATA software; the following table of shows its results:

Table 3. Results of model

```
var fdig gdpg, lags( 1/1 ) exog(rg inf dum)
```

Vector autoregression

Sample:	2000-2012	No. of obs	= 13
Log likelihood	= -10.29921	AIC	= 3.430648
FPE	= 0.1231685	HQIC	= 3.323458
Det(Sigma_ml)	= 0.0167182	SBIC	= 3.95214

Equation	Parms	RMSE	R-sq	chi2	P>chi2
fdig	6	5.48722	0.6786	27.44657	0.0000
gdpg	6	0.103631	0.3657	7.494305	0.1864

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
fdig						
fdig L10	0.0955762	0.1625818	0.59	0.557	-0.2230783	0.4142308
gdpg L10	-33.22264	13.93338	-2.38	0.017	-60.53157	-5.913715
rg	76.49865	23.19229	3.30	0.001	31.0426	121.9547
inf	-0.1363658	0.2264838	-0.60	0.547	-0.5802658	0.3075342
dum	-3.962154	2.862408	-1.38	0.166	-9.57237	1.648063
_cons	5.561688	3.412389	1.63	0.103	-1.126472	12.24985
gdpg						
fdig L 10	-0.0057202	0.0030705	-1.86	0.062	-0.0117383	0.0002979
gdpg L10	-0.0223772	0.2631452	-0.09	0.932	-0.5381323	0.4933779
rg	-0.8448157	0.4380086	-1.93	0.054	-1.703297	0.0136653
inf	0.0022594	0.0042774	0.53	0.597	-0.0061241	0.0106428
dum	0.0234114	0.0540593	0.43	0.665	-0.0825429	0.1293657
_cons	0.1688351	0.0644462	2.62	0.009	0.0425228	0.2951474

Prior to the interpretation of coefficients, it should be noted that the growth rate of the time series variables, FDI, GDP and r, are utilized to make them stable. Furthermore, due to the small number of variables, the first interval of variables was sufficient in the VAR. The stability test also confirms the total stability of model and its table can be seen below:

```
varstable

 Eigenvalue stability condition
+----------------------------------------+
|        Eigenvalue          |  Modulus  |
|----------------------------+-----------|
|     0.476507               |  0.476507 |
|    -0.403308               |  0.403308 |
+----------------------------------------+
 All the eigenvalues lie inside the unit circle.
 VAR satisfies stability condition.
```

An interpretation of regression coefficients is presented according to the above cases. In the first equation, the interval coefficient of GDP, interest rate, and dummy variable are significant at the level of 5%. The interest rate has a positive coefficient meaning that as expected the higher interest rate enhances the FDI growth rate. Furthermore, the dummy variable coefficient is negative. In other words, in the case of imposing the in a year, the FDI growth rate will be decreased.

In the second equation, only the coefficients of foreign direct investment variable and the interest rate are significant. The coefficient of FDI is negative which means that increasing the FDI growth in the previous period will lead to the negative GDP growth during this period. Moreover, the coefficient of interest rate variable is positive which means that an increase in the interest rate will increase the GDP growth (the results of model tests are appended).

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