Trade, Foreign Direct Investments (FDI) and Integration: Empirical Evidence from Islamic Republic of Iran

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Abstract: Regional economic integration is a phenomenon that gradually led to the formation of a global economic environment. Today, many developing countries have entered a new regional integration agreement with developed countries and other countries, in other words, opened their markets to foreign direct investment. this study examines the interaction between trade integration and Foreign Direct Investment (FDI) in Iran. We consider Iran trade integration with selected groups of countries, including EU Member, the Union of South-East Asia (ASEAN), Economic Cooperation Organization (ECO) and D8 Organization. estimated results indicated that the trade flows and foreign direct investment has a direct and significant relationship to each other so, increasing trade flows resulted in an increase in foreign direct investment.

Key words: Foreign direct investment, trade flows, economic integration, economic, similarity, (ECO)

INTRODUCTION

Traditional theories consider foreign direct investment and trade as a succession for each other and believe that if, for some reasons, trade is not feasible or affordable in international markets, countries use foreign direct investment to be active in foreign countries. New theories consider foreign direct investment as a complement to trade and believe that foreign direct investment can greatly increase trade. This is because foreign affiliated companies tend to have relatively high levels of trade with the parent company and their main branches (Dunning, 2000).

Despite the traditional theories that consider an inverse relationship between foreign direct investment and trade and some new economic theories that assume a positive relationship between the two but the relationship between these two important economic variables in reality is somewhat ambiguous. Foreign direct investment can act as an alternative or complement to trade which is one of the objectives of this study. In this study, the relationship between trade flows and foreign direct investment in Iran and in the framework of the system of simultaneous equations is discussed. Thus, required definitions and concepts are proposed in the next section. In the third part of the study, theories related to investment and in the fourth part, the proposed model are presented. After estimating the proposed model, results of the estimation are discussed and analyzed.

The relationship between foreign direct investment and international trade: The relationship between foreign direct investment and trade can be investigated as a succession relationship and as a complementary relationship.

Succession relationship between trade flows and foreign direct investment: In macro-economic issues, succession relationship between these two variables is often known with Heckscher Ohlin Model. This model is an analysis of the impact of production factors on trade flows between countries. In Heckscher-Ohlin Model, trade arises because of differences in the inventory of production factors and capital mobility can be a substitute for commodity trading. vernon sees foreign investment as a result of the production cycle. According to this theory, even if technical knowledge is the same between countries, the application and use of technical knowledge for production of goods is not the same in all countries. Primary production is first done in the innovative and creative country. After the product is supplied in the domestic market of the innovative country, production of new products is gradually increased and exported to other countries. With the increase of exports in some countries, production is more cost-efficient than export for the producer. Many of the theories that consider a succession relationship between trade flows and FDI are not able to explain the business model of the modern world. Many theories have shown that if unrealistic assumptions of Heckscher-Ohlin theory are put aside, a complementary relationship arises between trade flows and capital flows.

Complementary relationship between trade flows and foreign direct investment: If the Heckscher-Ohlin Model is considered with the assumption of different

manufacturing technologies in the two countries, the m obility of production factors will not be a substitute for trade. Markusen (1995) have studied the case in which the country A uses the capital factor more efficiently to produce the capital-intensive good X but the production technology of labor-intensive good Y is the same in the two country. In this case, the maximum production of good Y is equal in both countries but the country A produces the maximum amount of X because of superior technology in the production of capital-intensive good. In this case, the price of production factors in country A is less than country B because of differences in the final production of good X. In this case, a strong motivation arises to develop trade in the capital. If mobility of production factors is free, country A will have capital entrance and labor outgo (the reverse is true for country

The mobility of capital causes imbalance of the inventory of production factors between the two countries and based on Hechscher-Ohlin Model, more trade is done in goods as a result of difference in the inventory of production factors. In conclusion with the assumption of difference in manufacturing technologies of countries, mobility of capital can lead to increased trade in goods and a complementary relationship is created between foreign investment and trade.

Literature review: Globerman (2002) studied the relationship between economic integration and foreign direct investment in North America and Europe. His studies show that there is no affinity between trade flows and foreign direct investment in North America while trade and foreign direct investment are complementary in Europe. the results by Blomstrom and Kokko (1997) suggest that the impact of trade integration agreements depends on the environmental changes made through this agreement and regional advantages of countries. The results of their study have shown that the greatest positive effect on foreign direct investment is created when the trade agreements are associated with macroeconomic stabilization and domestic liberalization of countries. Gokhale and Raju (2012) investigated the relationship between trade, liberalization of foreign exchange rates and foreign direct investment. The researchers believe that the weakness is because of the traditional introversion view of import succession in these countries. That is why a number of developing countries have voluntarily undertaken economic reforms such as reducing trade restrictions, privatization and currency reforms. The researchers have concluded that the greater commercial freedom in a society is 3the greater investment attraction in the community will be. According to the WTO, foreign direct investment and international trade generally support each other. Opening markets to international trade, foreign direct investment and technology flows creates expanded market for final, intermediate and services goods and enable multinational companies to have better access to national, regional and international markets. Free trade leads to the formation of production based on comparative advantage. In such a case, countries can earn more competitive power and thus have greater share in foreign markets. In addition, foreign trade volume is increased as a result of these interactions and is a factor for greater economic cohesion and integration.

MATERIALS AND METHODS

Model presentation: investigating the relationship between FDI and trade flows in Iran: Foreign direct investment equation is designed with explanatory variables of exchange rates (LExch), gross domestic production(lgdp), inflation(linf), volume of domestic capital accumulation (lcap) and long-term interest rates (lint) and the variable of trade flow (ltrade) is added as endogenous explanatory variable in the equation in order to achieve the main goal of the study. Also, the variable of economic similarity (llin) between Iran and the member states of the selected blocks is used to investigate the role of economic blocks on attracting foreign direct investment. The best variable to show the economic similarity between countries is per capita income. The variable of economic similarity is the squared differences between per capita income in Iran and its average in each selected block. In the pattern of trade flows in Iran, the variables of exchange rates, inflation, gross domestic production, economic similarity and economic openness are taken into account and foreign direct investment variable is added into the equation as an explanatory endogenous variable in order to investigate the interaction between foreign direct investment and trade flows. the models are first identified and after ensuring that ranking and rating conditions are met, the G2SLS method is used to estimate for time series. The results of investment and trade flows in Iran are presented in Table 1 and 2. The results presented in tables show that there is a positive significant relationship between trade flow and foreign direct investment in Iran which indicates the presence of a complementary relationship between these two important variables in international trading. The obtained coefficients indicated that the effect of trade flow on foreign direct investment is much larger than the effect of foreign direct investment on trade flows in the country. In other words, foreign direct investment attraction is increased about 2.2% per 1% increase in trade flows in the country in economic similarity with EU model. This shows that by expanding trade ties between Iran and other countries, investment ties are also improved and Iran's ability to attract foreign investment is increased.

Table 1: FDI regression

Variables	Ltrade	LExch	LInt	LCap	LInf	LLin	Lgdp
Economic similarity with EU	2.2	-1.5	-2	1.73	-1.01	-3.06	1.11
	(-1.9)	(-2.2)	(-1.22)	(-1.6)	(-1.9)	(-2.2)	(-2.7)
Economic similarity with ASEAN	2.02	-2.07	0.03	2.24	-1.28	-2.71	1.14
	(-1.7)	(-2.7)	(-0.01)	(-2.2)	(-2.4)	(-2.4)	(-2.8)
Economic similarity with ECO	2.53	-1.9	-3.7	1.7	-1.25	-1.3	1.9
	(-2.08)	(-2.5)	(-2.8)	(-1.7)	(-2.3)	(-1.9)	(-2.6)
Economic similarity with D8	2.23	-1.52	-1.7	1.64	-970	-3.3	940
	(-1.9)	(-2.5)	(-1.01)	(-1.5)	(-1.9)	(-2.4)	(-2.3)

Table 2: Trade regression

Variable	Lgdp	Llinder	Linf	Lopen	Lexch	LFDI
Economic similarity with EU	0.70	0.15	0.6	100	-460	0.55
	(-3.07)	(-3.11)	(-9.3)	(-2.4)	(-3.98)	(-4.4)
Economic similarity with ASEAN	0.08	0.22	0.57	0.16	-280	0.55
	(-2.80)	(-2.80)	(-6.81)	(-2.6)	(-3.3)	(-3.7)
Economic similarity with ECO	0.03	0.14	0.69	80	0.18	0.71
	(-2.01)	(-3.30)	(-15.08)	(-2.2)	(-4.3)	(-8.4)
Economic similarity with D8	0.07	0.16	0.59	0.1	0.45	0.53
	(-3.11)	(-3.14)	(-808)	(-2.3)	(-3.9)	(-4.1)

The results summarized in Table 2 show that foreign diret investment in Iran is partly to promote exports and has a positive effect on trade flows in this country, in such a way that a one percent increase in the inflow of foreign direct investment into the country increases trade flow by about 0.06% in economic similarity with EU Model. Our result supported by Iqbal *et al.* (2010). The impact of inflation on Iran's foreign direct investment was negative in all cases. Permanent increase in prices prompted a reduction in domestic assets in the country and thus, people prefer to change the optimum combination of their assets in favor of foreign assets. This also applies to foreign investors. Because price increase acts as a factor reducing asset's value and net return on investment. Therefore, high rates of inflation increase the risk of long-term projects and adversely affects activities of domestic and foreign investors.

RESULTS AND DISCUSSION

The impact of gross domestic production on attracting foreign direct investment is positive. These coefficients show that by increasing domestic demand for goods and services and expanding the market, more foreign investment has been absorbed in the country. This result is similar to Umoh *et al.* (2012), Javed *et al.* (2012), Chakraborty and Mukherjee (2012). The sign of the exchange rate is negative. Changes in exchange rates and its multi-rate in Iran during the study period was associated with economic instability and has led to the divergence of foreign investment. This conclusion is supported by Azhar *et al.* (2015), Gokhale and Raju (2012). The variable of Cap represents the capital stock in the country and has a positive and significant effect on foreign direct investment attraction. In other words,

internal capitals are supplement for foreign capital and their increase encourages foreign direct investment. This result is similar to Shawa and Amoro. The variable of Linder shows the economic similarity of Iran and partner countries of foreign direct investment. The negative coefficient obtained in all cases indicate that the similarity of Iran's economy to other member states of the selected blocks leads to an increase in foreign direct investment attraction in Iran. The greatest effect of this variable is related to the similarity of Iran's economy to the Europe Union and D8. finally, long-term bank deposit interest rate that represents the country's interest rates, generally has a negative coefficient on foreign direct investment in Iran. Increased interest rate increases the cost of investment use in the country and therefore, foreign investment attraction reduces as a result of an increase in interest rate. Similar results can be observed in estimated results of Iran's trade flow presented in Table 2 show that gross domestic production of Iran has been able to increase the volume of foreign trade by expanding productive capacities and boosting the country's economic power. However, it is on the contrary to the common expectations because a country with a high population targets the domestic market and its willingness to foreign trade is decreased. However, given that exchangeable productions of Iran are mostly labor-intensive, it can be noted that population growth causes internal labor-intensive productions to be more cost-effective and increases production capacity and exports. Increase in the general level of prices and inflation has also helped to increase the volume of trade flows in the country. With the rise of prices in Iran, imports will be affordable but the export volume will be decreased and the overall result depends on the outcome of changes in these two variables. The trade flow equation shows that domestic

price's growth leads to increased trade volume. The variable open is the degree of openness of the Iranian economy and has a significant positive effect on the country's trade flows. This coefficient is logical and consistent with theoretical expectations. Increasing openness of the economy is associated with a reduction in tariff and non-tariff barriers and assists expanding trade flows in the country. changes in exchange rates have a significant positive effect on increasing trade flows in the country. Obtained positive coefficient for the exchange rate in this equation shows that by increasing exchange rate or in other words, devaluations, exporter's income is increased which encourages exports. Increased exports could compensate decline in imports that has occurred as a result of reduction in importer's gains due to increased exchange rate and increase the country's total trade flows. the variable of Linder: the results of trade flows equation in Iran also confirmed this issue in such a way that the coefficient of this variable in the equation of trade flows in all cases is negative.

CONCLUSION

The main objective of this study was to examine the relationship between trade flows of Iran and its foreign direct investment. The two equations of merchandise exports and foreign direct investment were formulated and estimated to meet the abovementioned objective. The results showed that in addition to common explanatory variables such as GDP, exchange rate, GDP growth and inflation, the two variables of trade flows and foreign direct investment affect each other. Obtained positive relationship between these two variables in both equations represents a complementary relationship between them. This complementary relationship is very important in international trade literature because the expansion of trade flows, particularly through economic integration between different countries, this question rises that doesn't economic integration and unity lead to reduced motivation and thus, reduced level of foreign investment in member states? The results obtained in this study not only do not demonstrate a decrease in foreign investment as a result of increased trade flows but also prove the opposite. overall, flows of foreign investment and international trade are among the decisive factors in the economic development of countries in the process of economic globalization that speed up this transformation through affecting each other. Presence of dynamic and stable patterns of trade and foreign investment that were emphasized in the study can also support the development of Iran's economy.

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