The Study of the relationship between foreign direct investment (FDI) and economic freedom on economic growth

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Abstract
In this paper, the main hypothesis is a relationship between foreign direct investment (FDI) and economic freedom with economic growth. Pearson test was used to determine the level of significance among alternative hypotheses. The test indicated that there is a significant relationship between FDI and EG in 99% confidence level and there is no significant relationship between EF and EG. The real test of the regression through the " the reliability of remain sentence test " showed that remain sentence or model error is available at all levels and gather estimation and regression is true. Ryan-Joiner test is used for data fluorescence test. The results indicated a normal distribution of scattering data and their fluorescence. Dicke - Fuller unit root test was used to determine the validity and accuracy of the model (static) and results showed that the variables FDI, EG and EF, were consistent in the first order difference. T-Statistic showed that foreign direct investment (FDI) is effective in Iran's economic development in so far as an increase of one unit in FDI, economic development will increase with the size of 19.16211. R-squared value indicated that about 99 percent of the dependent variable (economic development) is explained by the independent variables model, which indicated the high explanatory power of the model. Durbin - Watson (DW) statistics confirmed the correlations in their default model between model components and high value of F statistics indicated the significant overall regression of the model.
Key words: *Foreign Direct Investment, Economic Freedom, Gross National Product*

Introduction

This paper examines three issues: foreign direct investment (FDI), economic freedom and economic growth. The main purpose of this paper is to examine the significant and thematic relationship of these three economic indicators. Thus, for the same meanings of the indicators in the minds of readers, a brief definition of each issue will be discussed.Foreign investment in developed economies of the world depend on developing transnational companies for improving competitiveness, higher profits, access to cheaper labor markets and the broader consumer market, advantage in several areas, advanced technology, and allowing rapid transfer of capital and foreign trade development. In other words, new capital turns from a second country in order to produce, economic activity, welfare, cultural affairs, etc which is done by the goal of economic will be accepted for defining foreign investment in this article.The word, freedom expression is defined as no obligation, pressure or restriction in choice or action [1], the concept of economic freedom means being free of manipulation, exchange and transfer of personal assets which have gained legally [2]. Heritage Foundation knows economic freedom as a criterion that people are free to produce, distribute and consume of goods and services [3]. Another definition of economic freedom is divided into four main parts.

- Rights associated with assets that have a legitimate business, will provide.
- Participating in voluntary exchanges inside and outside the country is free.
- Government control is not done in compass of people exchanges.
- People’s assets are safe from government confiscated.

In the above definition, economic freedom is absolute economic freedom. It means open the road in front of people in various fields, property, work, production and consumption. In other words, the purpose of economic freedom is employment right, job type (each product or service that wants to produce), location and time period of employment, income and assets ownership, right for increasing the assets from exchange and trade etc, the right for using and operating of income and assets according to the owner's will and tendency, and eventually the right to inherit or to be inherited the properties. Nowadays governments believe some limitations for economic freedom on economic doctrines, ideologies, etc, in respect of the previous experiences and lessons. Easier comment of economic growth is a comparison between increased domestic produce in a determined year with its value in the base year. At macro level, quantitative change in Gross Domestic Product (GDP) in the discussed year to the value scale (GDP) in the base year is economic growth [4]. Foreign Direct Investment will help the national economy in the absence or lack of domestic sources of investment and covers capital resources and national investment gap. This can affect economic growth and increases the pace of economic development. In this regard, countries will develop. On the hand hand, domestic investment funds are faced with leakage, more foreign direct investment will be used from the distant past of international economy and especially in recent years with the growing development of this type of investment resources and move the process of globalized economy, foreign direct investment role has taken a special form in the process of economic development and integration of national economies in the world and has become important and effective issues in international trade and has gained a special place among the countries in the world, especially developing countries [5]. In other words, foreign investment in new world developed economy, the development of transnational companies to improve competitiveness, higher profits, access to cheaper labor markets and the broader consumer's market, inclined to participate in multiple areas which has the advantage, that the problem with the technology level progress can significantly increase the rapid transfer of capital and foreign trade development. Since 1970s till now, foreign direct investment growth has got more speed and has outstripped trade growth so that there is more than double growth in exports of goods and services [6].Studies show that foreign direct investment due to the form that carries, has a significant effect on macroeconomic variables such as interest rates reduction, exchange rates reduction, economic growth, increase government tax revenue, government debt reduction, income distribution improvement, technology transfer, increased employment, exports expansion, reduce imports and positive effects on payments balance. According to foreign direct investment possibility in different countries, one or more utility variables' desirability will not be enough to encourage foreign direct investment, but surveying all variables as a set can lead to a foreign investment. Anyway, attracting foreign direct investment, without a change in attitude among politicians and experts and an appropriate context authorship is not possible and the new law does not do much. So long as the conditions of social, cultural, political, and other does not provide adequately, countries and foreign companies will not show much interest in investing in Iran.

Review of literature

In this section, the theoretical study of the research, the necessity of doing research, the research background, methodology and research findings are presented respectively. Foreign investment is usually done in two ways: the share investment (indirect) and foreign direct investment. Purchase of bonds and shares of companies in exchange trading and deposited bills in foreign banks are stock investments in which the foreign investor has no direct role in production unit and the financial responsibility is not his. The most important feature of stock investments is its volatility. In other words, the foreign investor is able to transfer his assets or properties to his country or another country. But foreign direct investment is an investment type that is used in order to gain a permanent profit in an institution in a country other than the investor's country and the result is effective vote right in managing the country. Foreign investment in any form can have a significant effect on the macro-economic variables and can change economic systems. The following effects can take place on the foreign capital flow. These effects include interest rate reduction, exchange rate reduction, positive balance of payments, economic growth, an increase in tax revenue, debt, an improvement in income distribution, technology transfer, an increase in employment, an improvement in exports and a reduction in imports. A variety of theories have been presented for foreign investment reasons or factors affecting on them. Among these theories, we can name return rates of different investment [7], variation in properties [8], production and market size [9], the reaction of multilateral monopoly [10], product cycle [11], internalize [12], business performance management [13], Cash [14], currency risk and currency realm [15], the international division of labor [16], to avoid tariff barriers

[17], Daning structure [18]. He expressed three general requirements for foreign investors which are the ownership, the place and the inner royalties.

According to studies above, affecting variables and parameters on foreign investment can be divided into nine groups that are listed in Table A.

Table 1. Affecting variables and parameters on foreign investment

Independent variable	Index	Effect
Market size	Population, GDP	+
economic development degree	Per capita income	+
Economic growth	Changes in GDP	+
Labor costs	Wage per efficiency unit	-
Geographical distance	relative distance	-
level of FDI store	Accumulation of FDI entry	+
Degree of economic openness	Trade volume ratio to GDP	+
Human Capital	Higher Education	+
Business environment	overall risk	-
	Political Risk	-
	Financial risk	-
	Economic risk	-

Source: affecting factors on development of foreign investment: lessons for Iran's economy [19]

With a glance at the countries in the world, we can come to this conclusion that some countries have positive economic growth and some have steady economic growth and some are faced with negative economic growth. Regarding the economic growth theory, foreign direct investment is considered to be as one of the main tools of transferring modern technology in developed countries to developing countries as far as technology is concerned. Lack of necessary infrastructure is like an educated population, free markets, economic and social stability. Other beneficial effects of foreign direct investment can be exporting raw materials in the host country which improves transportation and communication networks and the rise of human capital and improve the quality of technical and managerial skills. Further, De Mello (1999) has seen positive effects of the host country's economic growth based on his studies. There are some benefits for host countries to meet certain needs that can be human capital, economic and political stability, the liberalization of markets and adequate infrastructure.(Abramovitz-1986). Benhabib and Spiegel believe that the ability of a developing country in the uptake and correct use of foreign capital flows is influenced by the level of human capital growth rate. There are some determining factors in attracting foreign direct investment, which Marr in 1997 divided them as the host country' market size and its economic policy. These factors include taxes, macroeconomic stability, openness of the economy to attract foreign direct investment, economic conditions, degree of economic freedom and lack of rules in markets. In addition, the amount of investment in the host country and an effective human investment can lead to attract more foreign investment and the role of these two factors can be positive (Noorbakhsh-2001). Generally the key factors and the key determinants of foreign direct investment can include market size, economic conditions and investment amount in the host country, stability and economic freedom. One of the important principles of the economic development in countries is economic freedom. Adam Smith, father of economics, believed that free markets with protecting private property rights and minimal government presence, leads to an economic development and growth and eventually development in those countries. The Smith thought, still dominates the world economy and moving towards a freer economy is a step toward the development. Annually authoritative institutions in the world measure the index of economic freedom states. One of the most experienced and reputable institution in this regard is Heritage Foundation. Heritage Foundation has started its activities since 1973 and with data collection and its analysis, has had a significant impact on countries public policies. This foundation has published the economic freedom index annually since 1995. According to statistics published in 2010, Iran's economic freedom ranking index of economic freedom among 179 countries is ranking 168. UNCTAD's 2005 report shows that Iran's ranking in attracting foreign direct investment among 130 countries is 140 which uncertainty and instability in politics and economy of Iran can be one of the main reasons of failure in absorbing investment. Thus, research on the affecting factors on meaningful relationship in increasing the foreign investment can solve the basic problem of lack of attracted investment to markets in economic sector.

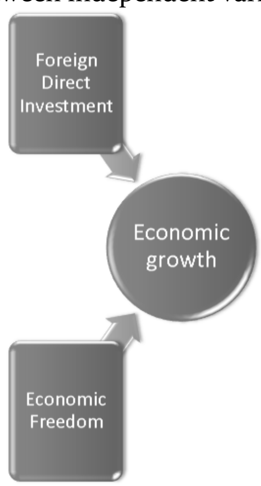
Results and Discussion

Research methodology in this paper from the viewpoint of purpose is experimental and in terms of data and information collection is descriptive and it is Delphi correlation, which its purpose is gaining consensus from well-known experts about the topic.In this article, the first plan is collection of literature with regard to small and medium companies in the first place and the fundamentals of economic development in the second place. By designing the proposed conceptual model from reputable sources, needed data has been collected for the purpose of calculation. The article ends with the result based on data analysis and finally the conclusion and recommendations will be discussed. Major tasks and activities carried out in this article include the article hypothesis determination, statistics collection, data analysis and hypothesis testing. In the following, we discuss the definitions and procedures for performing them. Dependent variable in this paper is the economic growth and independent variables defined in this article are foreign investment and economic freedom. The main hypotheses:

- There is a significant relationship between foreign investment and economic growth.
- There is a significant relationship between economic freedom and economic growth.

In the main hypothesis, the reliability between economic growth as dependent variable with foreign investment and economic freedom as independent variables has been done by EViews software.

Figure 1: The relationship between independent variables and dependent variable



The findings of the research are used to prove the main hypothesis with correlation coefficient Pearson test. SPSS software is performed to calculate.

- **Ho1**: There is a significant relationship between foreign investment and economic growth.
- **H1**: There is no significant relationship between foreign investment and economic growth.
- **Ho2**: There is a significant relationship between economic freedom and economic growth.
- **H2**: There is no significant relationship between economic freedom and economic growth.

In the following table, the main hypothesis test results of research are presented.

Table 2. The correlation test

Test Results	Sig	The correlation coefficient	
There was a significant relationship (direct)	0.003	0.516	**FDI**
No significant relationship	0.098	-0.298	**EF**

The correlation coefficient of FDI equals 0.516 and its significance level is equal 0.003 and less than 5%. This suggests that there is a significant relationship between FDI and EG in confidence level of 99%. On the other side, the correlations coefficient EF equals -0.298 and its significance level is equal to 0.098 and greater than 5%. This suggests that there is no significant relationship between EF and EG. Thus, Ho1 and H12 hypothesis is confirmed.

This test is done in two ways. First "test the reliability of waste" and then "Integrated regression Durbin-Watson test [(*CRDW*) [1]" (D.Begg,2003)]. In this paper the first method was used for the reality of regression. EViews software has been performed for this test.The results of this test are presented in the table below.

Table 3. Reliability test Dickey-Fuller Unit Root Test

Dickey-Fuller Unit Root Test on D(RESID)			
Null Hypothesis: D(RESID) has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.651477	0.0001
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	
*MacKinnon (1996) one-sided p-values.			

With respect to this point that Dicke-Fuller statistics value (-5.651477) is less than the maximum critical value (-3.670170), it can be concluded that the waste sentence or model error at all levels is fixed and regression and integration estimation is real.Normality test via Ryan-Juiner shows the value of RJ equals 0.947 and closes to 1 and P-Value is less than 0.01, which indicates the normal distribution of data and therefore, data normality is confirmed. The test has been performed with Minitab software.

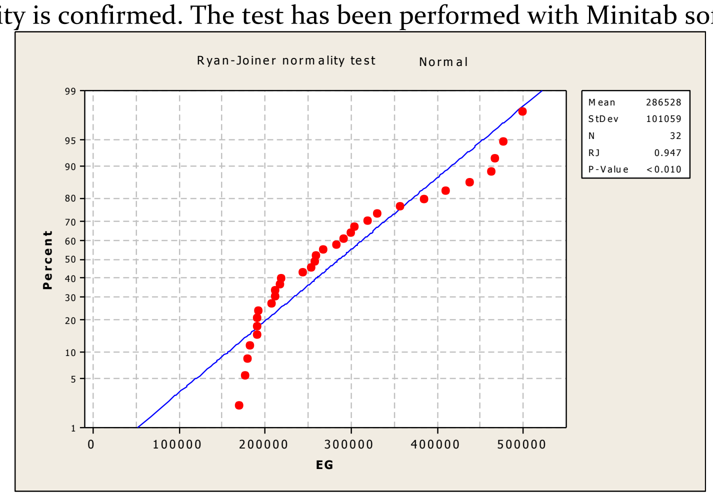


Figure 2. Data Normality Test

The studied surveys show that in many economic time series, variables are inconsistent. Therefore, in accordance with cooperation theory in modern econometric, it is necessary to study the reliability or unreliability. Unit root test Dicke - Fuller, is one of the most appropriate test. Dicke and Fuller under the null hypothesis p = 1 means that it is accepted if the time series has a unit root and be unreliable with the assumption that the actual process of production data is without intercept. Now, if we assume that statistics calculated quantity is more than offered critical quantity (by Dicke and Fuller) (Mackinnon quantity), null hypothesis is rejected in favor of opposite hypothesis and we have non-stationary time series. In other words, we compare ADF test statistics or delay variable calculated t with Mackinnon critical values. If the obtained t value was smaller than the critical values, we conclude that the desired variable is static. To make a long story short, the process of doing this test is explained for one of these variables by EViews software and the results are taken into account for other variables. Static test was performed by using Dicke - Fuller unit root test for the variable GDP and the results are shown in the table below. This test has been done by EViews software.

[1] Cointegration Regression Durbin-watson test

Table 4. Static test results using the Dicke - Fuller unit root for EG in surface

Null Hypothesis: EG has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		1.269979	0.9979
Test critical values:	1% level	-3.661661	
	5% level	-2.960411	
	10% level	-2.619160	
*MacKinnon (1996) one-sided p-values.			

Calculated statistic value (1.269979) is higher than estimated critical value (one percent, five percent and ten percent at all levels). It can be concluded that this variable is not static at surface. The reliability of this variable is measured in the first order difference.

Table 5. Static test results using the Dicke - Fuller unit root for EG in the first order difference

Null Hypothesis: D(EG) has a unit root			
Exogenous: Constant			
Lag Length: 0 (Automatic based on SIC, MAXLAG=7)			
		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.705886	0.0007
Test critical values:	1% level	-3.670170	
	5% level	-2.963972	
	10% level	-2.621007	
*MacKinnon (1996) one-sided p-values.			

As it can be seen, the calculated statistic value (-4.705886) is less than the estimated critical values (at all levels). It can be concluded that this variable (in first difference) is steady. Summary of mentioned test results in the first order difference time series model for all model variables, are presented in the table below.

Table 6. Dicke Fuller test results for time series data of research variables

Variable	degree	Dickey-Fuller test	MacKinnon critical amount	Result
EG	I(1)	1.269979	-3.661661	Unstable
D(EG)		-4.705902	-3.670170	Stable
FDI	I(1)	-1.106889	-3.679322	Unstable
D(FDI)		-5.620649	-3.679322	Stable
EF	I(1)	-2.453284	-3.670170	Unstable
D(EF)		-4.886780	-3.670170	Stable

Source : The research findings

In the table above, represents the first order difference variables. EG and FDI and EF variables are steady in the first order difference. The stability of final tests shows that research variables become stable at the level or in first degree of difference. Therefore, by finding the degree of stability variables, we can determine the fitness of the related models and there are no problems for any of these models. Full estimated model details are shown in the table below. EViews software testing has been done.

Table 7. econometric model estimate using least ordinary squares

Dependent Variable: Economic Growth				
Method: Least Squares				
Sample (adjusted): 1359 1388				
Included observations: 30 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	19.16211	10.29499	2.161304	0.0005
EF	192596.0	44173.87	4.359954	0.0002
C	2702339.	13157819	0.205379	0.8389
R-squared	0.988515	Durbin-Watson stat		1.618431
F-statistic	537.9493			
Inverted AR Roots	1.00	.05		

Model coefficients are calculated by using table 7.
Estimation Equation:
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EG = C + α * FDI + β * EF
Substituted Coefficients
=========================
EG = 2702339 + 19.16211 FDI + 192596.0 EF
(0. 205379) (3.83) (0.39)

F-statistic = 537.9493 D.W = 1.618431 R^2 = 0.988515

Conclusion

Therefore, according to the results of the performed tests, we can say that the significance level (probability) and the estimated coefficients of each model show that:

1 - T-Statistic shows that foreign direct investment (FDI) influences in economic development of Iran's (t = 2.161304 > 1.96, p-value = 0.0005), as increase one unit in FDI, economic development will increase the size of 19.16211.

2 - EF economic freedom does not affect the level of economic development and the relationship is not significant.

3 - R-squared value is equal to 0.988515. This value indicates that about 99 percent of the dependent variable (economic development) is explained by the model independent variables and this issue indicates the high explanatory power of the model.

4 - Dourbeen - Watson (DW) statistic in the model is equal to 1.618431, confirms correlationship assumption between the model components.

5 - High models F statistic (537.9493), shows significance of the overall regression.

According to the collected data and the source validation which show economic performance in past years, it can be trusted to results with very high accuracy. What can be analyzed via results is that if the government decides to add a further acceleration in economic growth and development as a target, governmental policies should be developed towards attracting foreign capital , in addition to expanding other platforms, the country gets benefits of this growth route. These policies are not confined only to executive branch. Other legal and legislative branches should also encourage their following categories to facilitate the trend and abstract of foreign investors. If the investment stimulus is limited to economic security, social security, culture and communication, the work will be shown in very broad range and infrastructure in this field. This paper aims to determine the effect of foreign investment factors and economic freedom in economic growth and development. This aim states the current state and desired state of the economy with implementing the method mentioned in the article. Proposals expressed in continue allocate to develop in the scientific process method.

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