Journal of Economic Theory 5 (1): 32-36, 2011
ISSN: 1994-8212

Reviewing the Dynamic Interactions of Foreign Direct Investment, Domestic Investment and Gross Domestic Product on Each Other in Iran (1990-2009)

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Abstract: Investment is one of the key factors to create a steady growth in economy of the developing countries. In today's world, only the countries are considered important that have a production line and technological support to back it up. For this, a great deal of capital is needed and to accumulate it using a foreign source to supplement the domestic resources sounds rational. This also could be a way to import the modern technology in the country. However, it must be born in mind that in order to attract foreign investment, one should find and modify the influencing factors on direct foreign investment. In this study using the VAR model, we reviewed the interaction between foreign direct investment and domestic investment and the economic growth during 1990-2004 in Iran.

Key words: Foreign direct investment, domestic investment, substitution effect, VAR model, import, Iran

INTRODUCTION

Foreign Direct Investment (FDI) is one of the most important channels to transfer the technology. Transferring technology using FDI usually happens when a country signs a contract with a multi-national company in which the capital and the technological skills is transferred over time also marketing and managerial skills are transferred. In this way, the company uses its franchises in the host country to fulfill the contract. It is also notable to mention that multi-national companies can have the maximum, minimum or the full ownership over his franchises in the foreign country. Since, usually these multi-national companies have the technology, they play an essential role in transferring that technology to developing countries. However, they are usually criticized for the lack of accuracy in transferring the technologies. And foreign direct investment is usually on those countries which either have plenty of natural resources or have cheap and expert labor.

The need for foreign investment during the 1960's has been felt in Iran due to lack of modern machinery or technology and inefficiency in investments also the rate of population growth in which was 4% and rebuilding the destructions after war and also competing with the South Easter Asian countries. In the current situation, the need to keep up with the international market and also keeping down the prices and improving the production lines will lead us to attract more and more foreign direct investment which could lead us to enter the international market and export non-petroleum products. In this study, after a quick glance at the history of foreign investment in Iran, the researchers will review the literature of the research and the previous studies after wards the VAR model is introduced and then the correlation between foreign direct investment, domestic investment and gross domestic product during 1990-2009 in Iran.

MATERIALS AND METHODS

Foreign direct investment: Any kind of investment in a foreign country which is done by a private company or a person and not the loans of countries to one another are called Foreign Direct Investment (FDI). In Foreign Direct Investment, the agency is pursuing a series of monitory ambitions which is not possible through the portfolio of foreign investment (Yao and Wei, 2007; Metwally, 2004). Foreign Direct Investment is a long-term contract based upon mutual interest and lasting supervision of personal property in the country were the company's headquarter is. This type of investment consists of a primary exchange between the two parties and the subsequent exchanges between the two. Here, three factors are notable:

- Capital equity: Buying one unit of product from another country
- Reinvested examines: Share of the foreign investor

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- Intra-company loans and Intra-company transactions: Long-term or Short-term loans between the two companies

According to the Research and Development Conference of United Nations, Foreign Direct Investment is a long lasting transaction between the two parties which shows a control over the resources and capital equity of the other country or side.

Those in favor of Foreign Direct Investment would argue that since it has researchers in the western countries it could research in other places as well (Pearce, 1992).

Foreign investment in Iran: Foreign investment started in Iran towards the end of 19th century. Investment started in fishery in the North in search of natural resources and petroleum industry began. During the years of 1881 and 1992 (1258-1331), 27 agreements has been signed between Iranian government and Russian counterparts. These agreements ranged from exploitation of telegraph, fishery in Caspian sea, establishment of the Russian Bank in Iran, transportation and insurance, borrowing from Russia and transition of petrol from Anzaly to Rasht and if we subtract the amount spent on properties and that Iran owed to Russia, we can estimate that Russia's investment in Iran is about 56.99 million rubes which include the 56.99 million for ships and foreign market places and 20 million for the Russian Bank and finally 10 million for Linanazuf's fishery.

The rest of the investment was on the Anzaly's harbour company and Gharache Dagh mines and Belgic railroads shares and also a Greek company's exploration of northern forests with Russian investment.

During the years of 1862-1913, about 217 economic agreements between Iranian government and its English counterpart has been signed. These were about establishment and exploitation of telegraph lines, roads and banks and the licence of publication of bills, exploitation of mines plus giving the franchise of petroleum industry plus Iran's borrowing from Britain and the railroad between Mahmare (KhoramShar) Khoram, Abad and Brojerd. In this period, the overall investment entered Iran was 68.9 million Lear and by subtracting the debts and the loans, we would come to 8.11 million Lear. One of the most important of the contracts was Reuter (25 July, 1872) and Darcy (28 May, 1901) which ended in establishment of petroleum company.

During 1332-57, the investment grew more and more because it was supported by the law (1334), it reached its peak during (1352-57). Most of the investments were on industrial machinery. For example, 150 times during 1350-56 were done on industrial tools and electronic machinery. Considering the effect of investment on technology, one should say that transformation of technology during 1345-56 is 28% of foreign investment which has been accompanied by 26.9% of times giving license, 14.9% of times foreign investment to establish industrial structures, 13.8% of times franchises were given, 9.7% were with technical support and only 6.7% of times a technical team were associated to Iran.

After the revolution, investors emigrated from Iran and with them a large amount of capital left the country, alongside with the post revolution crises many banks had difficulty getting back the money, there were problems between the workers and employers in the companies. So, the government had no choice but to unify or nationalize banks and economic infra-structures. Thus, the Foreign Direct Investments were limited.

If we take a quick look at the first economic, cultural, social and political plans, we would notice that there is no place there for foreign investment. And there were only numbers of credits which were never fulfilled. With the 2nd plan in 1372 and the admission of foreign investment and the establishment of a law on how to manage the free industrial economic areas of Islamic Republic after 15 years of silence foreign investment came under observation but it was poorly conducted thus we were unable to attract foreign investment. We can judge about the low amount of capital entering Iran only when we compare it to other developing or developed countries. Table 1 shows the amount of import and export of capital in Iran, China and Korea during the 5 years.

If just throw a quick glance at the numbers we would find out that Iran is not able to compete with them. And even this very small amount of investment in Iran has been fluctuating which could be traced back into the lack of the trust of the investors.

Model: In early 1980's, foreign investment started to rise both in developed and developing countries. Willing to attract most of FDI both groups started to compete. Most of the FDI was attracted by developed countries and in s earch of necessarily technology to develop; developing countries were keener on inserting the needed technology via FDI. Based on marketing schemes, we conclude that there are two ways of FDI affecting economic growth (Baharumshah and Thanoon, 2006; Seo and Suh, 2006).

Accumulation of capital in the host country: By increasing the capital, it will help the economic growth of the country. In this case, the accumulation of capital can temporarily help the growth by entering the new technology and replacing the inadequate DI. However if it is not replaced by DI, it could lead to a decrease in the growth.

Table 1: Foreign direct investments

Countries	2001	2002	2003	2004	2005
Iran	610000000	548000000	482000000	99600000	300000000
Korea	3527600000	2345980000	3525300000	9265700000	4336500000
China	4312231221	49553465360	470687685680	5433325668	79342323525

Increased knowledge and human resources in the host country: By improving the knowledge the costs of innovations will decrease in a country. Based on what has been said and the importance of FDI, this study is to review the interrelations between the GDP, DI and FDI. And based on his module, VAR tries to explain them. According to Sims, there is a dynamic simultaneous equivalence. The module is as follows:

$$\Delta FDI_t = b_{01} + b_{11}FDI_t + \sum_{i=1}^{p}\gamma_{fy,i}\Delta Y_{t-i} +$$

$$\sum_{i=1}^{p}\gamma_{ff,i}\Delta FDI_{t-i} + \sum_{i=1}^{p}\gamma_{fd,i}\Delta DI_{t-i} + \varepsilon_{1t}$$

$$\Delta DI_t = b_{20} + b_{21}DI_t + \sum_{i=1}^{p}\gamma_{dy,i}\Delta Y_{t-i} +$$

$$\sum_{i=1}^{p}\gamma_{df,i}\Delta FDI_{t-i} + \sum_{i=1}^{p}\gamma_{dd,i}\Delta DI_{t-i} + \varepsilon_{2t}$$

$$\Delta Y_t = b_{30} + b_{31}Y_t + \sum_{i=1}^{p}\gamma_{yy,i}\Delta Y_{t-i} +$$

$$\sum_{i=1}^{p}\gamma_{yf,i}\Delta FDI_{t-i} + \sum_{i=1}^{p}\gamma_{yd,i}\Delta DI_{t-i} + \varepsilon_{3t}$$

Where:
FDI = Foreign direct investment
DI = Domestic investment
Y = Gross domestic product

The period is between the years of 1974-2009 and the data is gathered from the National Investments Organization, Central Bank of Iran and statistics websites Penn World Table and World Bank. These equations were done by Eviews software.

RESULTS AND DISCUSSION

The results of variance of the expected error for variables of DI in Iran have been categorized in a 10 years period. Table 2 shows that DI is explained in the 1st part by the momentum of DI itself. In the long term, FDI reaches 26% and DI hits 60% and GDP is 13%. Table 2 is the results of variance of the expected error for FDI have been categorized. It also shows that in a short period, 97% of the FDI's fluctuation is based on itself and only <3% is due to the two other variables. In the long term, though it is influenced more till it is about 6% and

Table 2: Variance decomposition for DI

Period	FDI	DI	GDP
1	0.000000	100.00000	0.000000
2	2.828272	83.91785	13.253880
3	10.125190	73.85720	16.017610
4	13.405350	71.21428	15.380370
5	16.955660	68.24597	14.798370
6	19.911780	65.82278	14.265440
7	22.030990	64.01819	13.950820
8	23.809620	62.47305	13.717330
9	25.237940	61.23926	13.522800
10	26.385920	60.22361	13.390470

Table 3: Variance decomposition for GDP

Period	FDI	DI	GDP
1	0.000000	6.360178	93.63982
2	6.176019	14.484110	79.33987
3	12.244710	15.797560	71.95773
4	17.242650	14.988800	67.76855
5	21.358620	14.296650	64.34473
6	24.583770	13.704760	61.71147
7	26.991580	13.285700	59.72271
8	28.825890	12.984140	58.18997
9	30.261600	12.762090	56.97631
10	31.408430	12.591300	56.00027

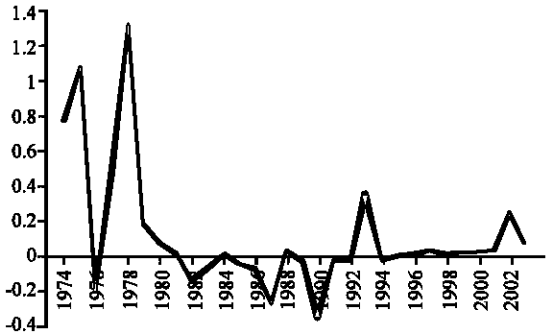

Fig. 1: Foreign direct investment, net inflows (GDP (%)) of Iran

FDI is due to GDP's changes and about 3% is because of DI (Table 3). They also show that in long term GDP and DI's influence on FDI is insignificant. In this part, the dynamic interaction of the variables for the next two periods is shown and Fig. 1 shows the reactionary function of FDI, DI and GDP against the structural momentum of FDI which equals one unit of standard deviation (Table 4). The 1st chart shows that in long term FDI in a long and slow process is minimized. In the Fig. 2, the results show a standard deviation in FDI and its influence on DI which after the 2nd period is considered positive on DI and in third till tenth period is consistently decreasing and is regarded as positive. Figure 3 shows the

Table 4: Variance decomposition for FDI

Period	FDI	DI	GDP
1	97.98414	0.357127	1.658732
2	96.87680	0.719509	2.403695
3	94.84393	1.659949	3.496118
4	93.19967	2.253958	4.546372
5	92.31775	2.595213	5.087034
6	91.81523	2.816231	5.368538
7	91.53534	2.941722	5.522939
8	91.38084	3.019550	5.599614
9	91.28560	3.072424	5.641973
10	91.22290	3.109299	5.667798

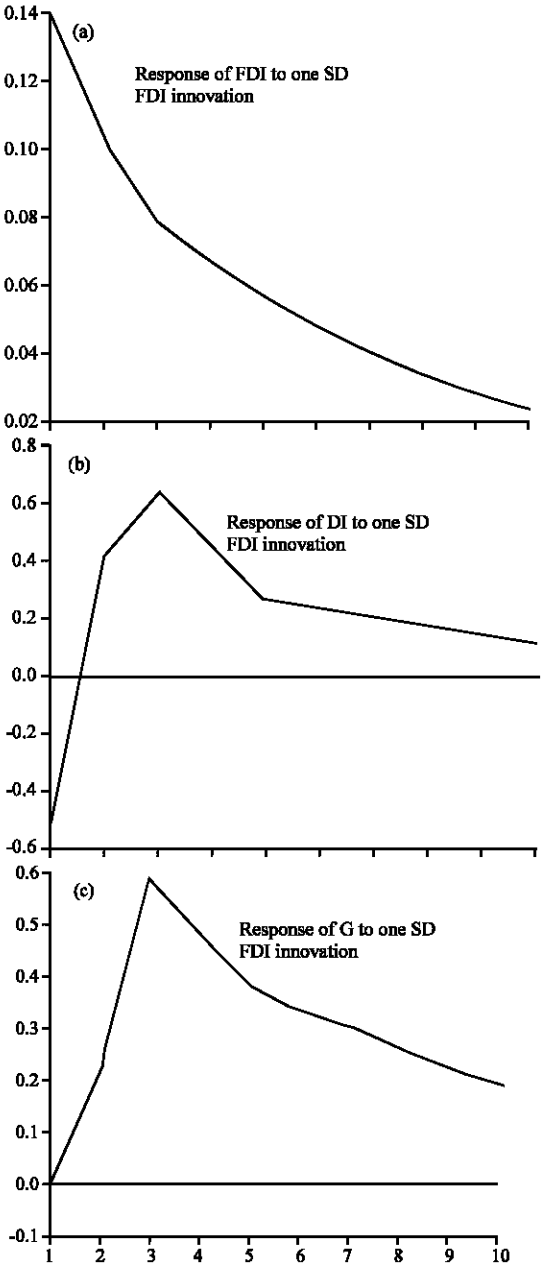

Fig. 2: The standard deviation in FDI and its influence on DI

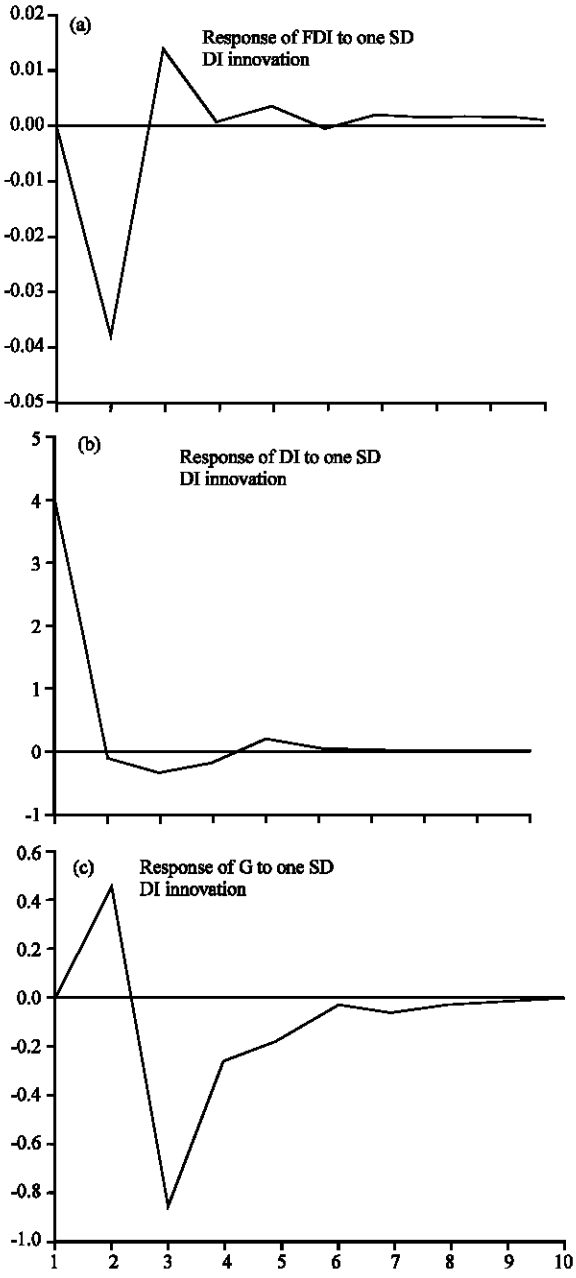

Fig. 3: The response of FDI to DI innovation

effect of FDI's shock is one unit of standard deviation and the effect of this on GDP in 3 periods is increasing rapidly and then decreases in the long-term. Figure 2a-c shows a standard deviation in FDI, DI and GDP, respectively. According to the Fig. 2a, one can see that the effect of DI in FDI during two periods has decreased. And then from the 3rd to the 6th, the changes has been positive and after that they went to zero. Figure 2b shows that the shock of FDI does not influence DI in the long-term. In a way that after the second period, there is equilibrium in the variable.

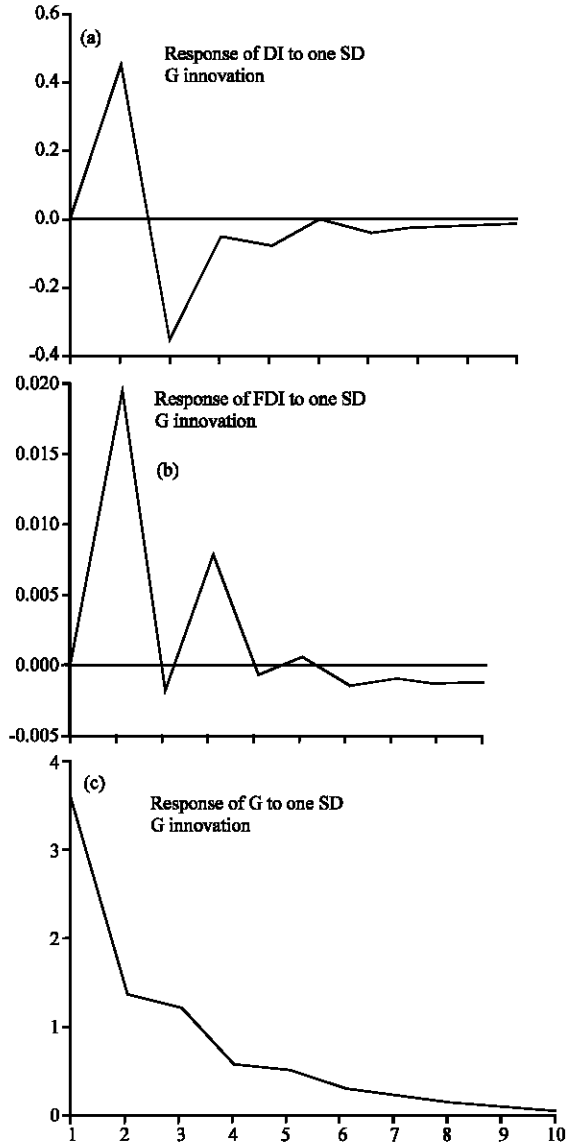

Fig. 4: Momentum in standard deviation in GDP

In Fig. 2c, the interesting point is that the effect of DI's shock in the changes of GDP in the 2nd period is negative which shows a decreasing inflation in Iran which brings about the King's parsimony puzzle. Using an analytic framework, Keynes in is parsimony puzzle shows that the increase in capital under any situation is not profitable. And if in the depression, one tends to accumulate more capital it would have negative effect. Keynes tries to show that if in depression people decide to save their money and since saving more means buying less the demand for products decreases and thus, the national wealth decrease which in turn decrease the savings themselves. Figure 4 shows that DI increases for the 1st 2 years but in the 3rd year it began to decrease and after that will go back to normal. Figure 4 shows the reaction of DFI in GDP which is one standard deviation unit. Figure 4 shows that at first, DFI increases rapidly but after that since the investors were not satisfied and thus decreasing the growth process. And this fluctuating change continues until it goes back to it place before the shock. Figure 4 shows the reaction of GDP to a shock which is one unit of standard deviation in GDP. According to the chart, one can see that after the shock GDP is decreasing but in the long-term it goes back to its previous state.

CONCLUSION

The results show a short-term supplementary effect between the two investments. This effect however, does not have a long-term effect. Moreover, the results show the existence of inaction inflation and they prove parsimony puzzle in Iran.

REFERENCES

Baharumshah, A.Z. and M.A.M. Thanoon, 2006. Foreign capital flow and economic growth in East Asian countries. China Econ. Rev., 7: 70-83.

Metwally, M.M., 2004. Impact of EU FDI on economic growth in Middle Eastern countries. Eur. Bus. Rev., 16: 381-389.

Pearce, D.W., 1992. Macmillan Dictionary of Modern Economics. 4th Edn., Macmillan, London.

Seo, J.S. and C.S. Suh, 2006. An analysis of home country trade effects of outward foreign direct investment. ASEAN Econ. Bull., 23: 160-170.

Yao, S. and K. Wei, 2007. Economic growth in the presence of FDI: The perspective of newly industrialising economies. J. Comp. Econ., 35: 211-234.