

## **The Assessment of the Effect of Determinants of Private Investment in Iran: an Empirical Analysis (1971-2008)**

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**Abstract:** This article examines the relationship between the private and public sector performance in Iran. In particular we try to determine the roles of both government expenditures as well as revenues in private sector investment in Iran. To do so, we have used a regression model and estimated its parameters based on data for proposed variables during 1971-2008. The results show that as result of a decrease in government capital expenditures the level of private investment increases whereas the impact of GDP on private investment is positive and significance. One of the reasons for the finding impact of government investment on private investment may be due to the privatization processes initiated by implementing the article 44 of the country's constitution. Therefore, it is suggested that government reduces its role for the benefit of higher share for private sector during the country's 5<sup>th</sup> five year economic plan as well in 20 year economic outlook plan in order to achieve the desired goals foreseen in year 2025. Classification: JEL· E22· R24

**Key words:** Private Investment, GDP, Government Expenditures, Iran Economic Outlook.

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### **INTRODUCTION**

Typically it can be said that capital essence and distribution among countries is an important issue, because capital is one of important indexes in development of economics. A country is counted developed that the amount of capital is ample partly. On the contrary, a country is counted as developing that the amount of capital is less. To shift from undeveloped to developed, is possible by increasing the capital. For example, the increase of capital in some countries like Hong, Kong , Taiwan and Korea made they counted as “new industrial countries”. Therefore development process is formed by capital transmitting from developed countries to developing countries. Here in this is reasonable that helpful programs of developing countries and some other companies such as World Bank and developing banks work toward capital transmission from developed to developing countries. In Iran’s economy and in the most scientific studies the relation between monetary policies and economic growth is examined and the relation between monetary policies and private investment is less noticed. However, one of effective factors on monetary policies which will effect economic growth is private investment. Most studies around private investment is about Government’s expenditure effects on private investment. In other words, income resources of Government such as taxes or oil incomes are paid less attention. The relation between public expenditures and government expenditures with private investment is a basic matter in Macroeconomic and Development economic. The results are used to uphold some new economic viewpoints and refuse some others and this is one of the schism factors in macroeconomics. There are two reasons for economist's attendance in recent years:

1. A global acceptance has been created around private part strategy since 1980s decades
2. Some economists have introduced the effectiveness of private investment on macroeconomic academically and soon found some cohorts.

In developed countries the main part of government’s incomes is secured from taxes. The increase of tax incomes leads to increase of production expenditures. It has a negative effect on private investment. But it is something else in developing countries. Most of these countries are primary and crude matters exporter. Oil export is the best example for these countries in this case. The main part of government’s incomes is from crude oil. Therefore the increase of these kinds of incomes has a significant effect on government’s investment and it makes decrease of private investment. Financial policies have been introduced as one of the powerful

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tools to make sways stable and devotion of limited economic sources. In contrast to monetary policies, financial policies capability is intensely impressed by the abeyance financial policies have from determination until performance time. But also it depends on time and the field of macroeconomic. Whereas it might an essential and useful financial policy lose its application due to time lengthen. Therefore financial policies use and the sort of its effects on macro variables is that issue has attracted economists's attention in recent years.

One of the main problems in Iran's economy is the change of financial policies on inexpedient time and this has a negative effect on private investment and economic activities growth process. Investment is counted as one of important elements of national expenditures and consequently total demand. On the other hand, the investment is counted as a factor to make occupation opportunity from the economic policies work frame. So government should pay serious attention to this important parameter which is a basic factor of economic growth in 20 years tile codifying.

## **2. A Study of Growth Indexes During Economic Development Programs:**

Gross domestic production (GDP) and steady economic growth are some of indexes which are counted important for economic performance estimation. Public welfare will increase by higher production growth and suitable distribution of it and also economic place or of country will improve. Economic growth is explanatory of production potential growth of a society in a long time. Totally there are five main factors which combine together and make economic improvement:

1. Effort to improve life's standards.
2. Improvement of macroeconomics policies such as exchange and economic corrections to increase trade and investment.
3. To increase private part economic activities (speed of private part expanse in market synchronizing new law alignment of privatization is the top of economic growth barb by making competition pressures for better using of resources.
5. Improvement of information and connection technology.

In this report, work of GDP's growth supporting indexes during development programs after revolution is examined to create a bed for to exhibits an outlook of fifth macroeconomics development program. Quantity goals of fifth developing program are chosen to secure long time goals of country.

There are three resources for supporting GDP's growth:

1. The increase of employment.
2. The increase of physical capital.
3. Improvement of total factors applications.

### **2.1. First Development Program Performance:**

The first program as the primary developing program after Islamic revolution and the end of Iran-Iraq war and economic embargo to set economic free has been enacted by Islamic parliament in 1368. The main goal of this program was to rebuild war damages and peak usage of existing potentials to change negative economic process to economic growth in country and to prepare a suitable field for continuous growth in future. Thus economic growth was counted as one of the basic needs of national development and those policies have attracted attentions which are effective on increasing of dynamic employment by finishing undone investments, capital and intermediate production growth, increasing of peak usage of existing potentials and supplementary investments, to lead private part toward productive and investments activities. The table NO.1 shows the first program performance.

At the beginning of the program, economic growth was salient but growth process fell down during last year's. Economic growth was 14.1% and 12.1% in 1990 and 1991 but it became 4% and 1.5% in 1992 and 1993. This shows that the program could not form the positive and continuous economic process. High growth of the beginning is not a submission of planning policies of programmers but impressed by oil incomes increase, external loans and After protrude war, unused potential of sources and production factors could prepare a suitable field for higher production growth. Application growth of total factors is salient in the first years of program due to using entire sources which were in its top 9.1% in 1361. In this year labor application growth was 8.5% and capital application growth was 10.5%. Average of all factors application growth was 3.69% and the average of capital application growth and labor application growth in sequence are 3.12% and 4.44%. In this program the average of investment growth was 10.77%. Studying of the process of private investment and government's investment in total investigation shows that these two factors had many undulations in the capital formation progress. According to the table No.6 the private investment amount was more than government investment in the most first years of program. By new policies of government and

admitting more activities to private part this variable progress was increasing until 1991 and then by changing economic policies became decreasing and down to its minimum in 1994. Average amount of private investment and government investment in total investigation in sequence was 68% and 39% in the first program. Studying of formation process of capital shows that service part with 65.8% of total investment has the most amount of investigation and agricultural part with 4.6% of total investment has the lowest amount of investigation. Growth and formation of investment in industry part was more than agriculture part too because of less limitation –especially in making the prices- and had more grants.

Employment: hard decreasing of production investment and other defects of factors led to obvious and hidden unemployment in national economic. Fast population growth made fast growth of labor supply. The first program in edition of juice up in economic activities in the beginning of the program was success in employment's growth. Total employment of the country increased from 12 million persons in 1989 to 13.5 million persons in 1993. Hence in this 5 years period 1.5 million persons added to employees. Unemployment rate fall down from 14.5% in 1999 to 12% in 1993.

## **2.2. The Performance of Second Development Program:**

Second development program was not different from first program naturally and it was according to notified goals and policies in second documents based on privatization. Second program was a demonstrated economic program which paid attention to economic growth and development as one of the main goals and emphasized on growth stability. According to this GDP has defined 5.1% in the second program. But during second program performance it had changed because of excessive credit policies and loss balances, debit pressure of first program and unexpected reduction of oil prices. The average of GDP in second development program was 3.3%. Capital application growth and labor application growth was less than first program significantly. In second program, average of total factors application was 0.14%, average growth of capital application was -0.32% and average growth of labor application was 0.36%. In this program application had an unimportant roll in production growth and the production growth has been protected by only more use of resources.

Gross domestic investment was 8.4% in second development program. Deduction of investment in 1998 was because of deduction of government investment in this part due to world crisis in oil price. In this program 27.2% of GDP was dedicated for investment which had decreasing progress in comparison with first program. Gross national saving (GNS) which was defined as the main source of capital protection had 37.7% of GDP and an increasing progress in comparison with first program. The increase of differences between GNS share in GDP and formation of constant gross investment in GDP shows the unrighteous saving transformation wok to investment in this program. One of the other important variables which is assessable in investment issues, is depreciation of constant capitals. The amount of depreciation of constant capital in investigation had an increasing progress after Islamic revolution. As this figure which has included 31% of capital in 1356, has reached the highest amount 85.7% in 1988. (The damages of the war had its effects on it for sure). The average of this share was 62% in first program and 60% in second program. The numbers of employees has been estimated 13.6 million persons in 1994 that with 2.8% average growth; it reached 15.7 million persons in the end of last year of second program. The average rate of unemployment is 10.7% in second program years. The process of 1995 and 1996 show a relative access to second program's goals. Some basic problems in first and second developing program led to making a correction program for structure of economic by an innate method in third developing program. According to this, third developing program has designed and codified toward competitive economic improvement by moving to extricating economic system and legal corrections and monopolies canceling to prepare partnership field for private part and decreasing of government depending. Some topics of price system correction are equalization of exchanging, trade extricating, un tariff dikes deleting, competitive devotion of bank resources, energy subsists deleting which they had been noticed in this program. In the third program the goals of GSP growth has reached because of increasing of oil price, making a stable space by exchange store account, and performance of economic policies based on production roots and investment due to structural corrections. The third program application shows 5.5% for GDP growth, which it had 100% growth in comparison with second program.

Total factors application: however application index as one of the economic growth protectors has improved during third developing program in comparison of second program, but it had a slow process. The average growth of total application, Labor, and capital has reached 0.14%, 1.64% and 0.14%.

Investment: the average of investment growth in this program was 9.62%. The amount of private investigation toward total investigation has increased in comparison with second program and reached 67%. In the other side governmental investigation share in total investment was 33%. Average share of GNS (gross

national store) in GDP had not a significant difference in comparison with second program, but the number of I/GDP from 27.2% in second program reached 33.7% in third program.

Employment: unemployment and employment were under special attention in third program, as in this program some factors like investment and stable occupation opportunities expansion, decreasing the cost of labor usage policies, educational policies, and structural corrections in laws had been noticed as important factors about the employment.

### **2.3. The Performance of Third Developing Program:**

However, we had 2.5 million person employees in these program years but unemployment program and loss of job market balance didn't solve due to cooperation shortage in other markets. The application of three first years of fourth developing program: the fourth program had predicted 8% economic growth to exit of slow process of investment and decreasing unemployment to 8.4%. to gain this that was necessary to increase gross domestic investment growth 12.2% per year which is possible by more cooperation of private part and using of foreign resources and improving the application of total factors by basic solstice in economic management. Total factors application: it shows 1.3% growth in three first years of this program which had 10% growth in comparison of third program. Labor application growth was 2.3% during the years of this program. One with the most important of increase above index in comparison with third program is increasing of per capita capital level. However the increase of investment in research and development also were effective in labor application increase.

### **2.4. The Performance Of Fourth Developing Program:**

Capital application during three years of fourth developing program had 10.6% growth and it has reached from 1.2% negative growth in 2004 to 1.6 % in 2007. The average growth of gross investment in this career was 4.8%. Gross fix capital formation had 6% growth in 2007 which is 2.7% unit more than 2006. Gross fix capital in building part has increased 12.8% due to increase of private part investment in building part. And gross fix capital formation of machine also has increased 2.1%. Employment growth rate shows the figures 3.5% and 4% in 2005 and 2006. During two first years of fourth program 785,000 persons had added to employees. The country faced unemployment rate more than 13% in the first year of fourth program but it reduced to 12% in 2007 (third year of program). According to overview title of Islamic Republic of Iran until 2025, Iranian society will be in perfect employment situation. In addition to this equal opportunities of employment and more human forces in national production are noticed in this title. To reach the title's goals some factors are paid more attention in fourth developing program such as: making reproductive employment and decreasing unemployment rate, supporting technical talents, trying to get varied economy which be relied on knowledge, human forces and modern technology, making a stable space for investors and economical managers by competitive profits and protecting ownership and its rights, increasing the power of private and cooperation parts, applied present of government in the 44 institution of basic laws frame work, communion of all people in economic activities, reclamation villages and employment. On employment development title and fourth developing program there are a complete collection of active policies and administration ways to affect Macroeconomic of country.

### **3. Offer An Economic Model:**

Economic growth and development is one of the Macroeconomics goals. Based on this, economic growth is a goal that all governments and economics planning emphasize on. On the other hand, capital is counted as motive factor of economic growth in all growth patterns and theories. In other words, to reach Macroeconomics goals (growth), it is necessary to collect enough capital to protect needed financial sources. Primitive economic model in this article is followed:

$$IP = f(CPI, GDP, DB, MT, OIR) \quad (1)$$

IP, private investment in 1376 prices

CPI, price index (inflation rate)

GDP, gross domestic real production

OIR, oil incomes

TX, tax incomes

Using prices index in economic models is a reason for portion rate of capital. Since Portion rate is determined by financial directorate in Iran and some other developing countries, economy have two portion

rates in these countries: one, formal portion rate which is given in special conditions and the other, capital portion rate in free market. In the above model it is as a mid log function as followed:

$$LIP = \alpha_1 + \alpha_2 LCPI + \alpha_3 LGDP + \alpha_4 LTX + \alpha_5 LMT \quad (2)$$

**4.1. Information Collection, Economics Patterns Results:**

It is used of central bank of Islamic republic of Iran’s reports and statics to collecting data. To analyze data in this article, the relation between private investment amount and rest of Macroeconomics variables are studied. In present article it is tried to explain coefficient of variables, study effective factors on private investment amount in Iran by estimating economic patterns. We used different variables I log functions in addition to relative theories of growth increase and done research on the reasons of increasing investment growth in Iran. In other words we have noticed other effective factors on growth amount in addition to determined effective factors on private investment. Time period of this article is relative to between 1989-2007 years. To estimate economic pattern, Eviews software and “Ordinary Least Square Method” are used. In this part we are going to study experimental importance of this topic. And we are going to give different economical patterns about investment growth reasons and expound results.

**4. Economical Pattern’s Results:**

There are lots of patterns to survey relation between government expenditures and incomes and its effect on private investment but with our information followed pattern is final pattern in this article:

$$LIP = \beta_0 + \beta_1 LTX + \beta_2 LCPI + \beta_3 OIRG + \beta_4 LGDPR + LMT + U_i$$

Quantity results in final pattern are followed:

$$LIP = -48.83 + 0.306LGDP_r + 5.23LCPI - 0.77LG2$$

(-7.29)
(1.923)
(8.77)
(-5.79)

$R^2 = 0.94$   $D.W = 1.92$

**In this Pattern:**

- $GDP_r$  real gross domestic production
- CPI customer price index (Which is a symbol of changes in public level of prices (inflation))
- TX tax incomes
- MT liquidity amount
- IP private investment in national economic
- G2 structural expenditures

The results of economical patterns show that the relation between inflation amount and private investment economic was negative during study period. We can say that one of negative factors in Iran’s economy is increasing price index. To study stability or instability of used factors in economic patterns Augmented Dickey -Fuller Test Equation is used.

**5. Unit Root Test:**

In this part we are going to consider how long financial policies affected private investment in Iran’s economy during 1989-2007 years. Whereas most time series are un stationary in Macroeconomic and inefficiency of traditional methods to estimate, there is an uncertainly about unit root test performance to recognize economic parameter’s stationary or un stationary. Economic meaning of convergence: “when several time series are related together by theories based to form a long term relationship, although it may they have a random relation (be unstable), they follow each other during the time very well as their difference will be stationary. Therefore convergence implication is a long time balance relation which an economic system has moved toward it during the time. To do this we use Augmented Dickey –Fuller Test Equation (ADF) on error sentences of all equations which is known by generalized Angle-Grenjer method. The generalized Angle-Grenjer convergence method estimates patterns by OLS method at first, then it uses Unit root test for each error sentence of equation. Then if error sentence of all equations is in stationary level, it shows lack of



regression and it can be aimed that estimated equation can be stable in long time and there is a long term balance relation between dependent variables and independent variables. In this article we used Augmented Dickey –Fuller Test Equation method and the results are following in table No.1: The results of Unit root are given for 4 variables: GDP, price index, tax incomes, and liquidity volume in Iran’s economy into above table. To estimate test, difference is used that results show that all variables are in 1% and 5% of stationary.

**Table 1:** Study generalized Angle-Granjer method for convergence and recognizing stationary.

Variable name	ADF	Crisis figures of Makinon		
		1%	5%	10%
D (GDP) Gross domestic production	3.195	3.64	2.953	2.6148
D (LCPI) Customer price index	3.65	4.26	3.25	3.21
D(LTX) Tax incomes	3.517	3.64	2.95	2.1648
D(LMT) Liquidity volume	6.40	4.26	3.55	3.21

Reference: researcher estimation, 2008

**Table 1:** Study of average of growth indexes process in 1<sup>st</sup> economic development program to 4<sup>th</sup> in Iran

Index	1 <sup>st</sup> program average	2 <sup>nd</sup> program average	3 <sup>rd</sup> program average	4 <sup>th</sup> program average
GDP’s growth	5.39%	3.26%	5.5%	6.3%
Investment’s growth	10.77%	8.4%	9.62%	4.8%
Employment growth	3.93%	2.86%	3.8%	3.8%
Total factors performance’s growth	3.69%	0.14%	0.14%	1.3%
Human force performance’s growth	4.44%	0.36%	1.63%	2.3%
Capital performance’s growth	3.12%	-0.32%	0.14%	0.6%

Reference: programming assistant of presidential 1387

**Table 2:** A comparison of goals and applications of third economic, social and cultural development program in Macroeconomic indexes during 2000-2004 (Figures in %)

Index		1379	1380	1381	1382	1383	Annual average according to the third program predicting
Economic growth rate	Goals	4.5	5.5	6.5	6.7	6.8	6.0
	Application	5.0	3.3	7.6	6.8	4.8	5.5
Inflation rate	Goals	19.9	17.4	15.3	14.0	13.0	15.9
	Application	12.6	11.4	15.8	15.6	15.2	14.1
Unemployment rate	Goals	15.2	14.5	13.8	13.1	12.5	14.0
	Application	14.0	14.7	13.8	12.9	12.3	13.6
Budget shortage/GDP (%)	Goals	0.18	0.22	0.20	0.20	0.17	0.19
	Application	0.07	-0.03	4.05	4.05	3.55	2.34

Reference: Central bank of Islamic republic of Iran, 2004, planning and managing department of country, 2000.

**Table 2:** Continue. A comparison of goals and applications of third economic, social and cultural development program in Macroeconomic indexes during 2000-2004

Tools variables		2000	2001	2002	2003	2004	Average annual growth rate according to second program	
Current expenditures of government	Goals	Value	85082.3	98488.5	114907.7	136083.2	156481.2	18.8
		Growth rate	28.8	15.8	16.6	18.4	15	
	Application	value	82605.8	100918.2	147572.3	178255.2	231923.1	28.2
		Growth rate	22	22.2	46.2	30.8	30.1	
Structural expenditures of government	Goals	Value	25906.3	31296.3	39123.3	49587.9	67123	21.4
		Growth rate	19.6	20.8	25	26.7	35.4	
	Application	Value	22443.4	24979.5	54753	73799.7	72306.3	31.1
		Growth rate	-10.3	8.6	24.6	34.8	-2	
Government’s Expenditures	Goals	Value	110988.6	129784.8	154031	185671.1	223604.2	19.6
	Growth rate	21.3	16.9	18.7	20.5	20.4		
Application	Value	105049.2	125297.7	202325.3	252054.9	304229.4	27.9	
	Growth rate	13.2	19.3	21.5	24.6	20.7		
Tax incomes of Government	Goals	Value	32204.2	40060.3	49386.6	60130.1	72718.8	23.2
		Growth rate	25.8	24.4	23.3	21.8	20.9	
	Application	Value	36585.2	41786.1	50141.1	65099	84421.1	27.1
		Growth rate	41.6	14.2	20.0	29.8	29.7	

Reference: Central bank of Islamic republic of Iran, 2005

**6. Summary, Deduction and Politic Suggestions:**

Saging that economic growth is not the only goal of societies to reach economic development, however getting other good goals is not possible without a suitable growth. Economic growth in a simple definition is quantity increase in net domestic production of a society in a determined period in comparison with last period. Among effective factors on economic growth some have more importance such as: protecting needed monetary

resource for investigation, increasing I/P (I: investment, P: production) which is possible by structural expenditures of government. Since in developing countries, main part of incomes and sources of government are spent for current expenditures, saving is a little and most of these countries suffer from loss of active private part. Therefore, shortage of domestic investment problem in these countries can be solved by preparing suit bed to apply investigations of private parts into a country. The relation between public part application and private part application is a deep relation in Macroeconomic issues. There are a lot of theories and studies in this field. Researchers have tried in this article to study effective factors on private investment which are called public part variables or financial policies.

These factors are government's incomes, government's expenditures and also the difference of them. In fact the main goal of this article is to know quantity and quality of effectiveness of government's incomes and expenditures on Iran's Macroeconomic application about private investment. The results show that budget shortage will make encouragement to private investment. The other result is government's incomes individually have negative effect and government's expenditures have positive effect on private investment. However, the effectiveness kind is different in incomes and expenditures submits. The results show that increase oil incomes in Iran has led to increase of structural expenditures and increasing of structural expenditures had negative effect on private investment. The results also show that the effectiveness of financial policies on private investment is not unceasing. In this article, the effects of financial policies on private investment are tested by self-turning method with distribution gaps and mid-log model.

***Experimental Results of this Article Resume as Followed:***

Budget surplus has a meaningful negative effect on private investment. In other words, whenever a government faces budget shortage, private investment is encouraged. Total expenditures of government have a positive effect on private investment. Among government's expenditures, defensive, economic and social expenditures have negative effect and public expenditures have positive effect on private investment, as totally could have positive effects. Total incomes of government have negative effects on private investment. Among government's incomes, tax incomes have negative effect and oil incomes and the other incomes have positive effect on private investment. These effects are unceasing.

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