The Impact of Inflation on Private Investment in The Agricultural Sector in Iran

Nasim Masoudi

ABSTRACT: Investment and capital accumulation resulting from it, is the key to economic growth in any country. Private sector investment is not only a component of aggregate demand, but also more importantly it is a source of growth and employment opportunities in the future. The agricultural sector is one of the most important economic sectors of the country; therefore investment in this sector is of particular importance. In this regard, it should be noted that private sector investment is an important parameter in the development of the agricultural sector. One of the important variables affecting private investment is inflation. In this paper, we are investigating the impact of inflation on private investment in agriculture of Iran. For this purpose, using time series data (2012-1972) and using Self-explanatory with extensive Lag (ARDL), we discussed estimating the private investment function in agriculture. The results showed that growth of value-added has a positive relationship with inflation of agricultural products which suggests that in inflationary conditions of investment in agricultural sector, prices will increase by taking advantage of this increase in gains. Thus, the increase of wholesale prices of agricultural products compared to wholesale price of all goods is an incentive for agricultural investment rather than a limitation. Change in the balance of the banks has a positive relationship which shows that banks performance was in line with the injection of resources towards productive activities and the real exchange rate had a negative relationship with investment.

KEYWORDS: Inflation, Private investment, Agricultural sector, ARDL method.

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1. INTRODUCTION

A considerable amount of macro-economic and development theories are allocated to the importance of investment and its role in economic growth. In most of these discussions, investment, especially private investment is considered as an engine of economic growth of societies and has a significant impact on growth and improvement of the country's economy (Sameti 2004). Investment is a key component of aggregate demand that plays decisive role in economic fluctuations and economic growth of any country. The investment behavior has been the focus of economists and economic policy makers. Accordingly, the long theorists have tried to provide a model to explain investment behaviour and identify important factors affecting it. (Armen and Mirabzadeh, 2012). The need for investment in agriculture is obvious, because increased investment in the agricultural sector increases farmers’ income and in this way reduces their migration to the cities and also improves income distribution (Sameti 2004). One of the most important variables affecting private investment is the investment cost that is shown by interest rate. Iran's economy has both formal and informal money market. So it cannot be determine certain rate of interest as the outcome or the weighted average comparison. In this case, the variables that can be considered as alternative investment opportunity cost, is rate of inflation. Inflation is one of the most fundamental problems of the economy during the economic life of every country. The economic literature on this subject is so large and wide that perhaps no other subject in economy can be compared to it. Inflation is continuous rise in general prices or continuous decrease in purchasing power of the country’s money and basically is an undesirable phenomenon in the economy that poses serious costs on the society. This phenomenon in macro level not only can disrupt prices, but also will give rise to several issues such as reduction of savings, loss of investment incentives, triggering capital flight from the manufacturing sector to the activities of Promissory and ultimately slowing economic growth. Inflation and its huge changes can cause uncertainty and therefore removing the incentive and delay in investment decision makings. It also makes the information available in relative prices be reduced, resource allocation be inefficient, redistribution of income and wealth be established and real return on investment in the capital market be reduced. From other view, inflation can have a positive effect on economic growth. This effect includes encouraging accumulation of capital versus maintenance of money, increasing price flexibility, decreasing government’s actual debts and thus reducing the real value of paid taxes to offset debts (Armen and Mirabizade, 2012). According to what was said, One of the important variables affecting private investment in agriculture is the inflations of products but how it affects the investment is ambiguous and depends on whether increase in general price level was a result of aggregate demand or increased production costs. (Gorji, 2003)

So in this article, by using Time series data (1972-2011) and self-explanatory method with extensive Lags, we are trying to find out the impact of inflation on private investment in the agricultural sector.

2. LITERATURE REVIEW

Since studies show that there are no new researches in the field of factors affecting private investment in agriculture in foreign countries, some investigations include the following. Nassem et al (2010) examined basic functions to promote the growth of agricultural sector in developing countries. They concluded that government investment in research and development in the agricultural sector is due to technical changes in the agricultural sector and the conclusion that in the future private sector plays a more important role. They examined factors affecting private investment in agricultural sector in developing countries, market and financial constraints that limit the growth of investment, and incentives that could encourage the growth of investment in this sector. Ang (2009) reviewed private investment in India and Malaysia. The results show that controlling interest rates has a positive impact on investment in India and has a
greater impact in Malaysia. Also, high liquidity and reserves has negative effect on private investment in India and has a positive effect in Malaysia. Mlambo and Oshikoya (2001) conducted a large investigation in 40 developing countries and used panel data of these countries during 1970-96 in order to determine the impact of three groups of common variables of Marco-economic like GDP and GDP per capita, fiscal and monetary policy and uncertainty in the economy on private investment. In this study, inflation variables, exchange rate, a measure of inflation and the coefficient of variation of the exchange rate are considered as indicators of the instability of the economy. The results show the positive effects of GDP growth, public investment, credit and liquidity variable on private investment in these countries. In addition, inflation and exchange rates as factors of uncertainty in the economy have had a negative impact on private investment, but the influence of other indicators of uncertainty in the economy like the standard deviation of inflation and exchange rate changes although negative was not significant. Mahmoud Gardi and colleagues 2011 examine the factors affecting private investment in agriculture with emphasis on the real exchange rate and its uncertainty by using time series data for the years 1959-2009. First, using generalized autoregressive conditional heteroskedasticity model (GARCH), they obtained the uncertainty of the real exchange rate and then by using ARDL, relationships were estimated. The results showed that the real exchange rate and its uncertainty in the long-term and short-term have a negative impact on investment in agriculture. Reviewing other factors also suggests that the increase in credit and the growth of prices of agricultural products has led to spread and encouragement of private investment. Accordingly, fixating real exchange rate, reasonable pricing and increasing the share of the agricultural sector of the granted facilities is recommended. Armen and Mirabizadeh (2012) addressed the effect of inflation on real investments in Iran in their study. By using 1338-88 data and Threshold regression model, the results show that real GDP and trade openness index and inflation rate can affect investment. The results indicate that the effect of inflation on the investment follows an asymmetric adjustment process. Inflation threshold level is evaluated 11.9 percent. If inflation remains below this level, not only the negative effect disappears, but rather increasing prices can increase the level of investment. Hooshmand et al (2014) examined factors affecting private investment in agricultural sector in Iran. Given the role of government in the economy and the need for private sector investment in economy, they examined the impact of GDP, government infrastructure spending, government consumption expenditure, interest rates, inflation and uncertainty about private investment in the agricultural sector. For this purpose, they used time series data over the period (2008-1971) and the method of Johansen - Juselius (1990). Their results showed that Government infrastructure spending and economic growth have a significant positive impact on private investment in the agricultural sector. On the other hand, uncertainty and interest rate of private investment in agricultural sector gave a significant negative impact.

3. THEORETICAL FRAMEWORK

3.1. Income level
This variable is derived from theoretical discussions about investments and changes in income levels can also be examined. With increasing levels of production (GDP) or income, investment also increases (Keshavarzian peyvasti and Ziaee Bigdeli, 2006). According to classical and neoclassical theories, investment is a function of the growth rate which based on research conducted in recent years the relationship between the two variables is approved. (keshish banoosi 1999).

3.2. Bank credits
There is no doubt in the case of bank credits in the form of monetary policy theories of macroeconomic on private investment. The role of monetary policy is important in encouraging private investment. For this purpose, monetary and banking authorities increase investment in
economy by creating necessary facilities to increase the volume of money and reduce the cost of investment (Sameti and Faramarzpour, 2004). One of the important features of the facilities granted by banks in the money market of the country is its flexibility; that is, by changing this variable we can easily increase or decrease private sector investment, while other variables do not have this feature (Keshavarzian peyvasti and Ziaee Bigdeli, 2006).

3.3. Exchange rate
The theoretical discussion on the impact of exchange rate changes on private investment in macroeconomic does not exist in developed countries, but in Third World countries like Iran that buys most of its capital goods from abroad, exchange rate and its changes is of particular importance. Therefore, exchange rate and its changes is one of the factors affecting private investment (Keshavarzian peyvasti and Ziaee Bigdeli, 2006).

Changes in the exchange rate affect investment in two ways: 1. through exports: increased exchange rate (devaluation of national currency) increases net exports and thus aggregate demand and increases profit margin and leads to increased investment; the other way is the price of imported capital goods and raw materials: an increase in the exchange rate would lead to more expensive capital goods and imported raw materials. Since there is no possibility of producing capital goods inside (due to the high technology required to produce them), production costs increase and with reduced profit it reduces investment. Accordingly it can be concluded that changes in exchange rate gas dual effects on investment and regarding how much that sector is dependent on importing raw material and capital goods or exporting goods and services, the effect will be different (Saniei and Noferesti, 2003).

3.4. The cost of capital or wholesale price index of agricultural products to the wholesale price index of goods
According to neoclassical theory, one of the important factors affecting private investment is cost of capital. Gorji states that in developing countries, especially our country due to the absence of efficient capital market, determining cost of capital in balance is not possible. Therefore, he considers wholesale prices as the best successor and rival of money and savings. On the other hand, in investment in agricultural sector, since changes in wholesale price of goods in this sector is not disconnected from the change in wholesale prices in other sectors, wholesale price index of agricultural products to the wholesale price index of commodities is used as alternative variable for cost of capital (Gorji, 2003; Wagle, 1994). This index also shows the inflation of agricultural goods which has unclear effect on investment and it depends on whether increase in general price level is due to aggregate demand or increased production costs.

Classical School is the first school to address this issue. This school was raised in 1776 in England by Adam Smith. Classical economists address economic issues by using macroeconomic method. In their view, the demand for investment is an indirect function of interest rates. Investors and savers are a united group and make decisions based on interest rate. In classical theory, capital market determines interest rates. Acceleration principle before being a complete investment theory is an explanation of business cycles. Harrod especially analyzed business cycles and Samuelson analysed the interaction between the accelerate principle and concept of the multiplier. Neoclassical theory of investment which was introduced by Jorgenson in 1960s was looking for explaining investment behaviour with conventional optimization theory in microeconomic. In addition, it is more complete than acceleration and Keynes's theory. The basis of this neoclassical theory is that in order to determine the optimal investment inventory, there is no need to use unrealistic assumptions like the constant ratio of capital to production, rather optimal investment inventory can be derived using principles on optimizing production in microeconomic (Jorgenson, 1968).

In 1926, a theory was proposed for the analysis of investments by James Tobin which is mainly focused on the stock market and pricing stock. This theory offers a view about investment
decisions on the selection of investment projects which seems more rational compared to original acceleration model. It means that this theory outlines three forgotten aspects of acceleration principle. One of these aspects is intervals and adjustment costs which should be considered when investigating. The second aspect relates to the formation of expectations about future costs and receipts. Finally, the third aspect monitors risk and its valuation by the market (Pazouyan and Khosravi, 2012).

In modern investment theory, the level of investment depends on: in which is expectations about future conditions, r is financial limitations of the company, q is the value of the company on the stock market and μ is economic uncertainty (Mlambo and Oshikoya, 2001).

Wagle (1994) has offered a partial adjustment model in a form of logarithm to analyze the determinants of private sector investment in agriculture in India. In this model, the private sector investment in agriculture is considered as a function of public investment in the current year, private investment with one year lag and wholesale price index of agricultural products to the wholesale price index of goods. The result of this analysis indicated that public investment, private investment with one year lag and the wholesale price index of agricultural products to the wholesale price index of goods has a significant positive effect on investment.

4. RESEARCH METHODOLOGY

In proposing a model for private investment in the agricultural sector, a theoretical base and empirical studies in developing countries with special emphasis on especial economic features is used. According to the neoclassical model and the lack of access to some time series affecting investment and also by taking into account the structure and economic conditions of Iran, experimental model of private investment in the agricultural sector is obtained as follows:

\[ I = f(GY, GC, DPDC, RER, T) \]

In which

I: private investment in the agricultural sector with fixed prices in 1383.
GY: growth in agricultural production in constant prices in 1383.
GC: the growth of the real cost of capital.
DPDC: changes in banking system real credit remains to the agricultural sector
RER: real exchange rate and
T: trend variable

4.1. The structure of variables

Private investment in agriculture (I)

Since the data related to private investment in agriculture has not been provided by the statistical agencies of individual countries, in order to study private investment in the agricultural sector, public investment in agriculture is deducted from the total investment in the agricultural sector and the remain is the best variable to represent private investment in agriculture (Shakeri, 2002).

Growth in agricultural production (GY)
Since we are investigating private investment in the agricultural sector, in order to calculate the growth of production, we use the growth of value-added of agricultural sector. Value-added of the agriculture sector consists of the difference between the sale price of manufactured products in agricultural sector and the price of materials used in the manufacture of these products.

The growth of the real cost of capital (GC)

Gorji states that in developing countries, especially our country, determining the cost of capital in balance is not possible due to lack of efficient capital market. Accordingly, he recognizes the wholesale prices of commodities as the best successor and rival for money and savings. Change in the price of wholesale goods in this section is not separate from changes in wholesale prices in other sectors. Here, the wholesale price index of agricultural products to the wholesale price index of commodities is used as alternative cost of capital variable (Gorji, 1382; Wagle, 1994).

Changes in the banking network real remaining credit to the agricultural sector (DPDC)

Since national accounts figures like a flow over a year but the figures of facilities granted by banks is as stock, in order to coordinate facilities figures, they are used as change in the residual (difference) (Keshish Banoosi, 1979).

Real exchange rate (RER)

$$RER = E \cdot \frac{WPI}{CPI}$$

In order to determine the real exchange rate, equation is used, in which WPI is American wholesale price index, CPI is internal consumer price index and E is informal market exchange rate in dollar, which is considered as the nominal exchange rate. The reason to use informal exchange rate is its proximity to the balance obtained by collision between supply and demand of exchange in the market.

4. Results

Now we use time series data (92-1352) with the fixed price of 83 and self-explanatory method with long lags (ARDL) to estimate the model. ARDL co-integration method was proposed by Pesaran and colleagues (2001). This method can simultaneously estimate long-term and short-term coefficients of patterns and between variables of the model. Also, its estimations are efficient and unbiased due to avoidance of problems such as autocorrelation and endogeneity. In addition, by using the dynamic model, in addition to existence or absence, long-term relationship between the dependent variable and independent variables of the short-term pattern is also checked. One of the advantages of this approach is that regardless of the variables in the model being I (0) or I (1), they are usable. Another reason is that this method has a slightly higher efficiency compared to other methods in small or limited samples. In order to estimate such pattern, first the relationship should be estimated by ordinary least squares method for all possible combinations based on different lags of variables. The maximum number of lags is determined by observation and in the next step, from the estimated regressions one is selected based on Akaike, Schwartz-Bayesian, Hanan- Queen and R2. In the last step, coefficients corresponding to the selected ARDL model are presented. In this model, in addition to long-term relationships, short-term error correction model (ECM) is also provided (Tashkini, 2001). Microfit software chose ARDL (1, 1, 0, 1, 2) regression among various regressions and a maximum of two lags on the basis of Schwartz-Bayesian. It should be noted that typically in samples of less than 100, the Schwarz-Bayesian criterion is used to avoid missing a large degree
of freedom. Now we estimate the short-term private investment function in agricultural sector for the period in question.

### Table 1. The estimation of short-term model using Schwarz-Bayesian criterion

<table>
<thead>
<tr>
<th>variable</th>
<th>coefficients</th>
<th>Standard error</th>
<th>T statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I(-1)</td>
<td>0.38</td>
<td>0.14</td>
<td>2.70</td>
</tr>
<tr>
<td>GY</td>
<td>0.008</td>
<td>0.60</td>
<td>0.13</td>
</tr>
<tr>
<td>(-1)GY</td>
<td>0.15</td>
<td>0.065</td>
<td>2.40</td>
</tr>
<tr>
<td>GC</td>
<td>1.27</td>
<td>0.35</td>
<td>3.61</td>
</tr>
<tr>
<td>DPDC</td>
<td>0.17</td>
<td>0.080</td>
<td>2.15</td>
</tr>
<tr>
<td>DPDC(-1)</td>
<td>0.20</td>
<td>0.090</td>
<td>2.22</td>
</tr>
<tr>
<td>RER</td>
<td>-0.24</td>
<td>0.10</td>
<td>-2.41</td>
</tr>
<tr>
<td>RER(-1)</td>
<td>-0.07</td>
<td>0.096</td>
<td>-0.80</td>
</tr>
<tr>
<td>RER(-2)</td>
<td>-0.18</td>
<td>0.092</td>
<td>-1.96</td>
</tr>
<tr>
<td>INPT</td>
<td>-2.87</td>
<td>0.90</td>
<td>-3.20</td>
</tr>
<tr>
<td>T</td>
<td>0.53</td>
<td>0.11</td>
<td>4.75</td>
</tr>
</tbody>
</table>

R² = 0.91  DW = 2.44  F = 23.58

As the results show, all variables are significant at the 95% level, except intercept variable that was significant at 90% probability level and agricultural value added variable in the current period and the real exchange rate with a lag period is statistically meaningless. There is a significant positive relationship between private investment in agriculture and private investment in agriculture in the last period there.

The growth of agricultural sector’s added value in the current period doesn’t have a significant relationship with private investment in the agricultural sector, but the growth of agricultural sector’s added value with one lag period has a positive and significant relationship with private investment in the agricultural sector. That is, because of the severe adherence of agricultural sector of external conditions such as weather, farmers’ behavior is based on income that has been achieved in the previous period. Years which are in favor of agriculture lead to increase in added value, tendency to increase investment also increases in the following year and in weather conditions and other adverse conditions it will extend its effect on the decisions of the next year.

The positive growth rate of agricultural added value indicates that growth in agricultural added value increases private investment in the agricultural sector. This shows that growth of agricultural added value can be the determinant of private investment in agriculture which is similar to results of Mlambo and Oshikoya (2001). Investment itself is a key factor that plays a role in the growth of added value.

The wholesale price index of agricultural products to the wholesale price index of goods on the contrary has a positive and significant relationship with private investment in the agricultural sector. The positive ratio of wholesale price index of agricultural products to the wholesale price index for all commodities is due to the fact that with increased prices of agricultural products, the prices of other goods rise less than the price of agricultural products. In other words, since the cost of agricultural production is highly dependent on the prices of other goods, less increase in price of these goods makes the coefficient to look positive. In fact, in inflationary conditions, private investment in the agricultural sector will increase to take advantage of increased prices. As a result, increased wholesale prices of agricultural products compared to wholesale price of all goods, before being a restriction for investor, is a motivation.
Change in real credit remaining of bank system in the current period and period with a lag has a positive and significant relationship with private investment in the agricultural sector. Positive coefficient of bank credit is consistent with theoretical discussions and indicates that bank performance in order to inject and push resources and credits has been towards productive activities and not quick return and services investment.

The real exchange rate has a negative and significant relationship with private investment in agriculture in the current period and a period with two lags and it could be justified as follows: since in agriculture the ratio of export goods to import inputs and raw materials is less than one (that is, export is less than imports of inputs and capital and intermediate goods), with increase in exchange rate, revenue from exports of goods increases less than import costs. Therefore, agricultural investment profit margin decreases and leads to decrease in private investment in this sector.

Intercept variable has a negative relationship with private investment in the agricultural sector and process variable has a significant positive relationship with it. \( R^2 \) statistics shows that variables in the model can explain 91 percent of variability in private investment in agricultural sector. Durbin-Watson statistics shows the lack of autocorrelation between the residuals. F statistics shows credibility of the total regression. Diagnostic Tests are all acceptable in terms of econometrics. In order to test autocorrelation problem, Lagrange Multiplier Test was used and its results showed that there is no autocorrelation in the model. In order to test Functional Form of the model, Ramsey Test was used. To determine the normal distribution of residuals from, test of Skewness and Kurtosis of Residuals was used, and by taking into account 5% error level and comparing it to minimum level of significance, normal distribution of residuals is accepted. Heteroscedasticity test also shows the consistency of the model.

Now in order to test the validity of the long-term relationship obtained in this method, we test the following hypotheses:

\[
H_0 : \sum_{i=1}^{P} \phi_i - 1 \geq 0, \quad H_a : \sum_{i=1}^{P} \phi_i - 1 < 0
\]

The null hypothesis is the lack of co-integration or long-term relationship, because if the short-term relationship wants to go towards a long-run equilibrium, the sum of coefficients with variable lag should be less than one. In order to perform this test, one should be deducted from the sum of coefficients with variable lag and divided to the sum of coefficients standard deviation (Tashkini, 1384: 147).

\[
(5) \quad \frac{\sum_{i=1}^{P} \phi_i - 1}{\sum_{i=1}^{P} S_{\phi_i}} = \frac{O/38 - 1}{O/14} = -4.43
\]

Since the obtained absolute value of t is larger than the absolute value of critical value provided by Banerjee, Dolado and Master (-4.04), the null hypothesis is rejected and a long-term relationship between the parts of the model is accepted. Therefore, long-term relationship of the model is not false. The results of long-term model is shown in table 2.

<table>
<thead>
<tr>
<th>Table 2. Estimation of the long-term model</th>
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<tbody>
<tr>
<td>variable</td>
</tr>
<tr>
<td>----------</td>
</tr>
<tr>
<td>GY</td>
</tr>
<tr>
<td>GC</td>
</tr>
<tr>
<td>DPDC</td>
</tr>
</tbody>
</table>
In long term, the value added growth of agricultural sector compared to wholesale price index of agricultural products to the wholesale price index for all commodities, changes in the real credit remains of banking system to the agricultural sector has a positive relationship and real exchange rate has a significant negative relationship with private investment in the agricultural sector. Therefore, the hypothesis of this research about the positive relationship between inflation and private sector investment in agriculture is accepted.

In addition, co-integration between a set of economic variables is a statistic base for using error correction models. The main reason why these models are popular in that they relate short-term volatilities to their long-term equilibrium values (Tashkini, 2001). The error correction factor is the indicator of error correction speed and desire to long term balance and based on results in table 3, the ECM(-1) coefficient is -0.62. It shows that in each period, 62 percent of imbalance in private investment in agriculture is adjusted and gets close to the long-term relationship.

<table>
<thead>
<tr>
<th>variable</th>
<th>coefficient</th>
<th>t statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECM(-1)</td>
<td>-0.62</td>
<td>-4.46</td>
</tr>
</tbody>
</table>

Reference: computations of the research

### 5. CONCLUSION AND DISCUSSION

A considerable amount of macro-economic and development theories are allocated to the importance of investment and its role in economic growth. In most of these discussions, investment, especially private investment is considered as an engine of economic growth of societies and the need for investment in agriculture is obvious. One of the important variables affecting private investment in agriculture is the inflations of products but how it affects the investment is ambiguous and depends on whether increase in general price level was a result of aggregate demand or increased production costs. So in this article, by using Time series data (2011-1971) and self-explanatory method with extensive Lags, we are trying to find out the impact of inflation on private investment in the agricultural sector. The results showed that growth of value-added has a positive relationship with inflation of agricultural products which was confirmed in Kishbanousi’s research and also Sameti and Faramarzpour’s.

It suggests that in inflationary conditions of investment in agricultural sector, prices will increase by taking advantage of this increase in gains. Thus, the increase of wholesale prices of agricultural products compared to wholesale price of all goods is an incentive for agricultural investment rather than a limitation. Change in the balance of the banks has a positive relationship which shows that banks performance was in line with the injection of resources towards productive activities, in some researches the positive relation of these two variables with investment, and in some like Sameti and Faramarzpour the negative relation is obtained.

The real exchange rate had a negative relationship with investment.

### 6. PRACTICAL SUGGESTIONS

#### 6.1 The main recommendations

According to the results of the following suggestions are given:

Therefore, we can suggest that the difference between prices of agricultural products in the market and very high government guaranteed purchase rate and increased government guaranteed purchase rate for agricultural products (per year compared to the year before) is negligible compared to real increase of these products’ prices in the market. Hence, the
government should adopt the following approach: the guaranteed purchase price of agricultural products should contain all the costs that the farmer has bear during one year from harvesting the product, take into account the farmer’s interests and this guaranteed purchase price should be close to market price. It can take a part of the difference between the purchase price and the actual price of the market and use it for the costs in this production cycle, which leads to job creation in this cycle and the rest of it can be used for modernization of the agricultural sector. With this approach, the farmer is benefited; dealers are limited and consumers pay lower prices for agricultural products.

6.2. Secondary suggestions
1. According to the Bank’s role in private investment, it should be given more attention in policy making and strategic planning in the country. This is so vital for prosperity of the country that decisions should be made regarding changes in interest rates and extended facilities.
2. In order to enhance and direct the exportations of agricultural sector and thus increasing private investment in this sector, state budget should give awards and incentives for export.

6.3. Suggestions for future studies
1. Examining macroeconomic instability variables on private investment in agriculture
2. Using seasonal and monthly data in order to achieve more accurate results and estimates
RESOURCES:


The Central Bank of the Islamic Republic of Iran, Economic time series analysis database administration and economic policies of different times.

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