Study about coincide effect of income oil and macro economic policies with variables in agricultural sectors in IRAN

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Abstract— **In this study we want to analyze effects of change in income oil , monetary policies, degree of openness trade and exchange rates on the export and product prices in agricultural sectors. The method which has been used in this study is based on cointegration method and vector autoregressive method. In this study first the long-term relationships between variables are determined and then the short-term relationship between variables will be determined according to Impulse response functions .The results show that changes in macro economic variables affect on major agricultural sectors, While there were no effects from major agricultural variables on macro economical variables.**

Keywords-component; Macro Economical Policies, Agricultural Sector, Impulse response functions, cointegration

I. INTRODUCTION

Macro economical variables have major impacts on activities of many economical sections on many ways. Macro economical policies include monetary, currency and commercial policies. Mutual interactions between major economical variables such as; exchange rates, price levels,Income Oil, interest rates ,liquidity, money supply, investment , credits and agricultural section's variables are still on top of debate between economists. In fact how this policy affects the practical side of economy is a major agenda and has been a main debate among different economical schools. Monetary and currency policies gained a lot of importance after recently economical growth and economical merges.

After Uruguay round of negotiations and foundation of world trade organization, new world order and changes in world to become a global village are some of the conditions that show us the importance of political and commercial policies in agricultural sectors. How ever in the process of economical development they are less significant than before but still are a major player in gross national production employment and non-oil international trades. Considering the macro economical policies and importance of agricultural section this research is about to determine and analyze the effects of above-mentioned policies on Iran's agricultural sector.

In general macro economical policies, especially monetary and trades are administrated to affect the production rate in different economical sectors of country. For instance the strategic side of agriculture which mainly after reduction of production in industrial sectors and reduction of their share in gross national production is the most important one in economical and political side as in governmental development policies priority is with them and considered to be the main axis of economical development. So accessing the role and rate of assistance by main economical policies on agricultural sector is very important.

About this issue Divados (1990) has studied the relationship between general economy and agriculture. He has researched the effect of monetary policies on agricultural sectors in the US between 1950-1982 and the results showed that expansion monetary policies promotes export and income in agricultural sector and contractive monetary policies has negative impact on economy.

Bin Lon Chen (2001) in a research named efficiency in agricultural sectors, governmental expanses and economical growth have studied the relationship between growths in agricultural sectors and growth in industrial sectors and the whole economy from improving efficiency in agricultural sectors and by creating new comparative advantage which leads to more economical growth.

Fetros(1990) has studied the effect of monetary and financial policies on main agricultural sectors in the period (1970-90) by OLS method. According to the results financial policies have positive impact and monetary policies with reducing rates has positive aspects too the production in this sector. And also these policies have positive impacts on investment rate on agricultural sectors. in this research we will study the bilateral effects of changes in Income oil , monetary and commercial policies on agricultural sectors variables.

II. MATERIALS AND METHODS

VAR model is one of the methods which have been widely used for analyzing the relationship between macro economical variables and agricultural sectors. When studying the behaviors of multi time series variable, we must consider the bilateral relationship between these variables in a equilibrium system of patterns. If these patterns are containing variable lag we use the term of Dynamic simultaneous equations for them.

III. STATIONARY TEST

In order to investigate stationary time series test using generalized Dickey Fuller and first order difference. The results show that the series supply of money, interest rate, and price index of agricultural products, agricultural exports and the degree of openness trade is stationary by the first order difference series and exchange rate is stationary by the second difference.

IV. ANALYSIS OF COINTEGRATION

Economical definition of cointegration is that when two or more than two series of time series get related to each other theoretically to show a long-term relationship. although if these time series have accidental patterns(nonstationary) but in the coming time they follow each other as the minus between them gets stable(stationary) so it shows a cointegration between time series. Thus, there are cointegration among time series related to long-term associate. Since the time series of order have different accumulation if the results of ordinary least squares regression to estimate true that there will be cointegration relationship between the variables that exist in this case there is no false regression statistics T, F is meaningful.

cointegration test based on the maximum test values and special effects test method is Johansson. On the basis of test when the test statistics calculated from the critical value and Johansson presented Jesilius less vector r, i.e. the hypothesis of zero mass is accepted. Therefore the results obtained tree cointegration vector can be seen because the quantity of the test statistics, ie 28 / 7 from its critical value at 95 percent is less than 29/69 that.

TABLE I. RESULT OF COINTEGRATION TEST

95 critical persent	statistic	hypothesis opposite	Zero hypothesis
94/15	127/69	1 =r	=0r
68/52	89/09	2 =r	1≤ r
47/21	54/69	3 =r	2≤ r
29/69	28/7	4 =r	3≤ r

Source: research foundations

According to variable models and economical theories the most important relations which can be introduced is as below:

1 .Money demand equation which in it the supply of money is affected by the gross national production variables, inflation and Interest rate which has been shown as interest rate will be:

$$M_t = 19/8 - 1/41GDP + 3/17P - /81IR \qquad (1$$

1/75)   (7/13)   19/8

If B1=1 is then the equation is according to the theory of quantity of the money and when B1=2 means non-participation of inflation according to money demand. As it is known from equation 1 each increase in of unit of inflation the demand for money increases by 3.1 percent which shows

the effect of inflation on money demand in the country is great.

2. Agricultural price indices which are according to expectations are affected by supply of money, gross national production, distributing the agricultural factors.

2)   (2/5   2/95))   2/03)   1/97

As it is noticed from equation 2 with increase in distribution in agricultural factors we can control the increase in the agricultural products prices while inflation and volume of money have positive impact on agricultural prices.

3. In a long-term relation added value in agricultural products have shown relationship with economical openness degree, export and distributing the agricultural factors. The important point in this issue in the negative effect of exchange rates on added value which it's most reason is the

$$VA = -110/07 + 31/6P - 21/4DOP + 9/6EX + 9/69DN + 2/15IO - 3/36RE$$

V. ESTIMATING THE VAR AND IMPULSE RESPONSE FUNCTIONS

Impulse response function (IRF) shows every response's reaction in a system as a shock in other variables. The effect of shock on macro economical variables on main agricultural factors are studied and researched. In total most of the reactions despite the meaningful signs are not meaningful.
1)In figure 1 it shows any change in shock on money supply on other variables. If a shock implies to money supply its effect on agricultural products prices indices will increase and this increasing effect will remain for the rest of the period.

And the effect of this shock on added value of agricultural sector will be increasingly until the end of the period and after that will be constant for till the end of the period. The reaction to this shock from the exportation of agricultural products to this shock won't be constant but will be positive and will ups and downs in the total period.

Figure1) Variables Response to money supply shock

2. Reaction of main economical variables like inflation, Income Oil, interest rates and currency rates and its effect on main agricultural sectors are shown in figure 2.
if a shock comes to inflation then its effect on agricultural products added value will be increasing till the end of the period. And if a shock comes to the Income Oil equilibrium its effect on agricultural Value Added will be increasing till the end of the period.

The effect of the interest rate on agricultural products price indices in all the period will be increasing and in fact any increase in interest rates will increase agricultural products prices.

Figure 2) agricultural variable response to macroeconomic shock

VI. CONCLUSION

The main objective of this study is to implying new economical evaluating methods to and time series in analyzing the relationship between main economical factors and variables in agricultural variables. In this study the long-term analyses are separated from short-term analyses. Long-

term analyses are usually related to the structural relations and theoretical limitations in this field are evaluated. Short-term analyses are essential for policy-making studying the reaction of economical variables and departing from long-term relationships is essential. Results show that changes in variables in agricultural sectors don't have any significant effects on monetary policies and only shock from price indices has meaningful effect on interest rate.

The reaction of the agricultural variables (mostly value added, export and price indices) is from changes in monetary policies and especially money supply.

The main shock on agricultural products indices comes from main economical policies from changes in the Income Oil and interest rate. And also the most reaction to the agricultural export variables is affected by changes in currency rate and will change the export harshly.

In this field the shock from currency rate doesn't have any effect on agricultural sector and the reaction in this field in mostly from changes in price indices and inflation rate.

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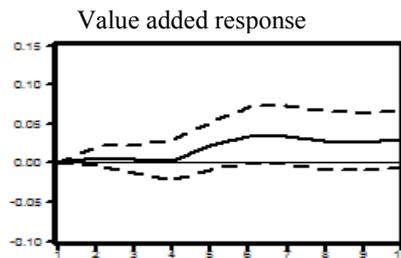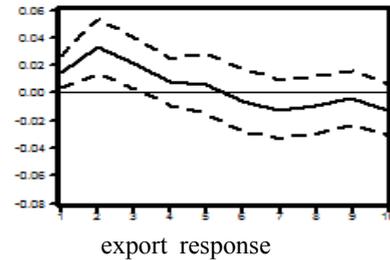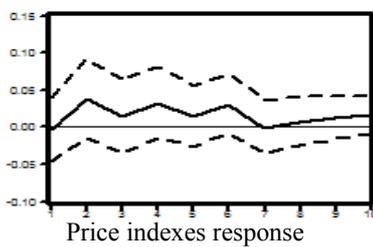
Price indexes response
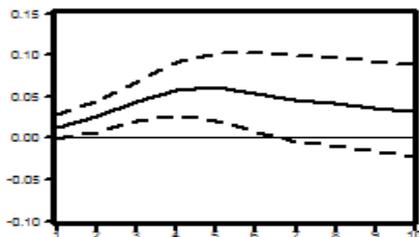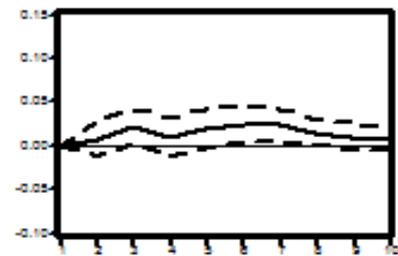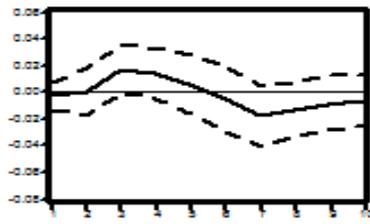

export response

Value added response

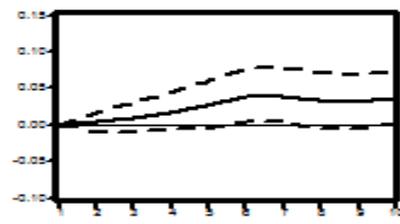Figure 1. Figure1) Variables Response to money supply shock

Agricultural exports response to exchange rate shock

Agricultural prices response to interest rate shock

Agricultural price indices response to Gdp shock

Value added response to IO shock

Figure 2.   agricultural variable response to macroeconomic shock