فصلنامه مدیریت شهری
(ضمیمه لاتین)
Urban management
No.**45** Winter **2016**
153 - 160
Received *23 Apr 2015*; **Accepted** *22 Jun 2016*

Reviewing causative & effect relationships of budget deficit, money offering & inflation rate in Iran

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Abstract

The main goal of this research is studying the causative & effect of deficit budget, money offering and inflation rate in Iran during 1360-1390. The results in long time indicates that the bulk of money has had positive effect & meaning on inflation rate during that time and alteration of budget deficit of the government has also positive effect on inflation but by meaningless impress, in other words this alteration has no independent impress from other alterations and specially form the bulk of money on inflation. Also on the basis of the results of Grenjer causative test, there is a direct relationship or indirect among all the alterations in the model. In regard with the results, money offering is one impressive alteration on inflation and continued increasing in offering the money leads to increasing of inflation. In other hand there is a causative relationship between budget deficit and inflation. Increasing the inflation causes increasing the expenditures and decreasing the revenues therefore by considering that high percentage of budget deficit in Iran to be supplied by central bank that has expansible effect on the total demand & price levels. It is necessary that budget deficit to be supplied from other ways except receiving the loan from bank system such as getting loan from people and selling governmental valuable papers.

Key Words: *Deficit, Inflation, Money Supply, Causality*

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Introduction

Inflation is a phenomenon which appeared in the middle of nineteen century and still its effects have been seen in all the periods. Inflation is an important problem that not only in retarded countries but also in developing contra and even in advanced countries to be seen. Inflation in different levels causes the loss of general structure of the economy. High inflation prevents of long time making decisions and has undesirable effects on social structure and competition. Inevitable prices with declining the inflation at acceptable level will assist to economical growth and removing unfair distribution but it should be reminded that declining the inflation is the meaning of price decreasing, increasing purchase power and increasing the revenue. In challenging with inflation as the most important factor, the source of the inflation should be known, the main factors which cause the inflation are increasing the demands, increasing the expenditures & inflation predictions while increasing of demands to be shaped by increasing of offering the money, increasing the expenditures to be impressed by wages &material price. In the cases that the money offering is gone up by central bank the price and consumption increasing occur. In the cases oft increasing the money offer to be done by central bank, the prices and the consumption will be increased and finally the balance of total demand and the offer to be knocked down and the total offer will not be receptive to total demand.

Consumers, the people who get more money demand more goods and services, Producers for being responsive to the growing demand need of increasing the capacities for production. In this condition the number of workers will be increased and overworking to be done, current tax goes up and new machinery will be demanded therefore these matters mean that extra expenditures will be imposed to producers and they have to increase the prices due to compensation expenditures increasing. Going up the prices in general level leads to inflation.

Another factor of inflation is prediction of inflation rate. Since the prediction is toward increasing of inflation rate, the rate of inflation will be increased, in other words prediction toward inflation increasing leads to demand of labors for increasing the wages, this increasing in expenditures causes increasing the prices of consumption goods and finally inflation occurs. In developing countries the rate of increasing in general expenditures will influence the rate of increasing of revenue sources and result in budget deficit. The relationship of budget deficit, growing money offer and inflation are important subjects in developing countries especially when the high rate of inflation is seen there (Touran, 2014).

The goal of this research is theoretical and experimental study of defining the causative relationship between budget deficit, money offering and inflation rate.

Theoretical basis and the root of the research

Principally the relationship between the budget deficit, money offering and inflation rate (Cash) should be discussed theoretically. Classics method as the basis of inflation reflects in money bulk. They believe that all the changes in money bulk are directly and cause the price changes with the same rate. They also believe that inflation is a monetary phenomenon, the factor of fixing the general prices (Ciogla and etal 2002).

On the basis of Kenzins approach, the main reason of inflation is over extent demand that under this hypothesis economy will be appeared in the condition of Perfect occupation. Enlarged demand at the occupation level leads to more profits for producers while the wages are stable. In other hand for respond to growing demand, the demand for labor will be increased and in result the wages go up and this affair causes the general level of the prices increases and inflation occur (Kotwal, 1987). In respect with monetarism approach, increasing of budget deficit causes increasing of money offer and finally the inflation will be

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increased (Serban 2002).

Monetarism believes that the main factor of defining of total demand and therefore occupation and inflation is changing in money offering. (Fridmanin 1968) proved that by control of money offering in long time, the inflation rate could be decreased (Oktayer. 2010). Therefore, by considering the oldness, extent and the dimensions of budget deficit in Iran and the effect of final supply manner on economical changes, it will be tried to survey the causative & offer relationship with budget deficit and inflation rate and money offering (bulk of money) and also the effect of budget deficit on inflation.

Komeijani & Warhami (2010) studied the roles of impressive factors on budget deficit; the results indicated the negative oil revenues effect, tax incomes and economical growth on budget deficit & the positive impressing of Yarane and general expenditures of the government on budget deficit.

Zavarian koocho Mesghali (2010) in an study of relationship between budget deficit of the government and current account deficit in the period of 1960-2005 proved that in long time there is an assembling relationship between budget deficit and current account deficit, also one two sides causative relationship between budget deficit and current account deficit in long time to be confirmed but in short time causative relations only to be confirmed from budget deficit toward current account deficit.

Abd Rahman (2012) through an article surveyed the relationship between budget deficit and Malaysian economical growth during 2000-2012. In this article the model of ARDL was used for analyzing of short and long time effects of budget deficit and economical growth, the result indicated that budget deficit has had negative & meaningful effect on Malaysian economical growth in short & long time. Sobhani (2012) used of the model of error correction about Pakistan and by using of the data of the years 1995 up to 2011 , he concluded that increasing of tax rate would not be a good selection for challenging with budget deficit in Pakistan.

Altinas and et al. (2008) through an research surveyed the relationship among budget deficit, money offering and inflation in Turkey in the period of 1992- 2006, the results indicated that both in long time or short time there is an positive and meaningful relationship between money offering and the inflation but there is not any relation between budget deficit and inflation in long time or short time.

Research Method

In respect with theoretical basis and experimental studies , the considered model for surveying causative and effect relationship of budget deficit, money offering and inflation rate will be submitted and then on the basis of statistic & data of Iran economy the model to be estimated by using of economic measuring methods and the impressive factors of Iran's inflation will be analyzed. The most important factors which are impressive in Iran's economy are cash bulk, the amount of imports, the volume of government's expenditures & budget deficit and oil revenues.

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Variant	Position from origin & procedure	ADF statistic	crisis value at the level of 95%	balanced phase
I(1)	-2.967767	-2.999163	Intercept and process	$(Lninfi_i)$
I(1)	-2.967767	-4.093535	Intercept and process	$D(Lnm2_i)$
I(0)	-3.259808	-4.321142	Intercept and process	$(Lnbudjet_i)$

Table 1. the results of variants balance test (generalized test of Foller)

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In this article it has been tried that causative and the effect relationship among government budget deficit, money offering and the rate of inflation will be analyzed.

This model includes budget deficit and money offering as the factors which cause the inflation and it has defined as following:

$$inft=a_0+a_1budget_t+a_2m2_t+u_t \quad (1)$$

inf = is the index of consumer price (inflation rate), = budget shows budget deficit =m2 is money bulk (cash), a1& a2 are the coefficient of the model, the parameters which show the relationship among budget deficit, money offering and inflation.

In respect of the time the research has been done by the statistic and the figures related to the period of 1980- 2011 and the place is related to Iran also the subject of the study and the model will be submitted for surveying causative and the effect relationship of budget deficit, money offer and inflation rate and then due to the data the model will be estimated by using of measuring the economy methods and impressive factors on the inflation in Iran will be analyzed.

The most important factors in Iran economy are cash bulk, the rate of imports, the volume of government expenditures, budget deficit and oil revenues. All statistics and required data for this research are drawn out from economical report and balance sheet of central bank in the period of 1980-2011 and since the secret information and data has been submitted by central bank, therefore for coordinating the data, this official statistical source will be used.

Findings of Research

In this section the results and the calculations to be rendered on the basis of

the model, so firstly by considering to the studies, the related model has been specified and by using of econometrics approach VAR and VECM, the long & short time relationship among budget deficit, money offer and inflation rate have been surveyed then the period of time 1360-1390 has been considered and Grenjery causative test has been applied. The results of variants' balance by using of Digi Foller test were generalized in the table 1. As it has been shown the variant of government budget deficit in the level & variants of consumer's price index and money bulk is stable by the level of 95%.

By regarding of the results in table 1, in the next phase for surveying being or the lack of long time relationship among the model's variations, the method of co – repletion (Joe hanson) to be used which this method considers more than one vector among the model's variants and in the case of applying this method, estimators will have asymptotic efficiency. The estimation of long time relationship will be done during four phases: in the first phase it is necessary the VAR to be used , self explanation of the best pattern to be used with the specified fixing standard then in the second phase the long time relationship among model's variants to be esteemed and in the third phase the statistics of Matrix test and the Maximum Eigen Value , the numbers of vector or co- repletion among the model's variants to be specified, in the fourth phase also for surveying the adjustment speed of error balance in short & long time & the model of VECM (Vector error correction model) to be investigated.

Fixing the best rank of the model

By considering that studied period of time in this research is 30 years , for the best pause fixing Schwartz standard has been applied which propose lesser pauses. The results of best pause fixing have been shown in table 2.

Fixing the number of co- repletion of vectors

The table 3 and 4 show the obtained results from Matrix tests and the Max. Eigen value for fixing the co- repletion vectors

With regarding of tables 2 & 3, on the basis of two matrix trace test and the maximum Eigen value at the level of 5% the hypothesis based on the lack of co- repletion vector with the long time relationship among the model's

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The number of pauses	4	3	2	1
The amount of Schwartz 's statistic	-2.68	-2.32	-2.18	-2.63

Table 2. Fixing the best ceases of the model

Zero hypothesis	**Opposing hypothesis**	**The value of test statistic**	**Crisis value at the level of 95%**	**Probability of value in level of 95%**
r = 0	*r ≥ 1*	109.65	79.21	0.00
*r ≤ 1 **	*r ≥ 2*	66.75	32.23	0.00
r ≤ 2	*r ≥ 3*	32.5	21.56	0.12

Table 3. Matrix test Trace

Zero hypothesis	Opposing hypothesis	The value of test statistic	Crisis value at the level of 95%	Cost of Probability at the level of 95%
r = 0	*r ≥ 1*	54.32	29.55	0.00
*r ≤ 1 **	*r ≥ 2*	23.12	19.67	0.00
r ≤ 2	*r ≥ 3*	11.78	9.98	0.32

Table 4. Test of maximum Eigen value

variants to be rejected and the opposing hypothesis, being of 2 vectors among the variants will not be rejected, in other words, the number of vectors in both Maximum Eigne Value & Matrix trace test are equal with two.

The estimation of long time relationship among the variants of the model

The third phase the method of Yuhans for fixing the long time relationship among the model's variants to be estimated and the normal vector is allocated in ratio to the inside variant, it is necessary to mention that for selecting the long time vector among the variants of the model should care. It should be noted that the vector in ratio to inside variant from the respect of coefficients to be right with the economical theories and also the coefficients of vector should be meaningful by the statistic. The value of selected best vector coefficient in this survey has been described as below:

$$Lninf_t = -133 + 0.045\ Lnbudget_t + 0.22\ Lnm2\ t_t$$
$$(1.12) \qquad (2.72)$$

According to the above equal money bulk has positive and implicative impress on inflation rate during this period of time.

Budget deficit variant also has positive impress on inflation but as it is seen this impressing does not sense.

In other words this variant does not independent impress of other variants and especially from money bulk. Because budget deficit of the government in Iran will be supplied by creating the money and this effecting has been perfectly clarified with the variant of money bulk as by increasing the budget deficit will be supplied by bank system, this matter leads to increasing money bulk and finally causes increasing the inflation.

Estimation of the co – repletion equal and the pattern of error correction of vector for surveying adjustment speed the error in short time toward balanced value among the variants and long time for relating with long time balanced relationship among the variants of short time variation of vector error correction is as following:

$$D(Lninf_t) = -0.79[-1.33 + 0.045 Lnbudget_t + 0.221 Lnm2_t]\ -1.98\ D(Lninf(-1))$$
$$(1.97)$$
$$-0.12\ D(Lnbudger\ (-1)) - 0.017\ D(Lnm2(-1))$$
$$(3.10) \qquad (1.58)$$

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Hypothesis	Probability Level	Concluding
The inflation is not the cause of budget deficit	0.0158	Inflation is the cause of budget deficit
Budget deficit is not the cause of inflation	0.0158	Budget deficit is the cause of inflation
Bulk money is not the cause of budget deficit	0.425	
Budget deficit is not cause of bulk money	0.0235	Budget deficit is the cause of money bulk
Bulk money is not the cause of inflation	0.011	Money bulk is the cause of inflation.
Inflation is not the cause of money bulk	0.347	

Table 5. The results of Grenjr Causative Test

ECM coefficient in this study is negative and its absolute value is smaller than one and the system in short time will be balanced. This coefficient shows the speed of adjustment and indicator of long time correlation. The value is 79% or 0.79 and since this value is below, the procedure of adjustment is slow but it could trust to speed procedure. This pattern of short time variation of variants to be related to balanced value in long time.

Grenjry Causative Test

Grenjer causative test with the logical hypothesis that the future could not be the reason of the past will start, it means that if the current values(Yt) by using of previous values (Xt) would predict by more care as the way they are not used, in this case (Xt) to be called Grenjry cause. (yt) but as Grenjr believe in the case of one co- impletion relationship between two variants, the causative at least there will be in one or two sides. However if the this test to specify the relationship or lack of it but it can not specify the direction of causative relationship, therefore Angle & Grenjer (1987) mention that if two variants have impletion , there will be one vector error correction between them. As result for surveying the causative relationship between the variants this pattern will be used. In this test zero hypothesis in each regression is that the first variant of Grenjer causative not to be second variant

By regarding to results of this test which has been shown in table 5, there is a direct relation or indirect relation among all the variants that exist in the model. In this respect money offering is an efficient variant on continuous inflation that leads to increasing of inflation. On other side there is an causative relationship between budget deficit and inflation. Increasing of inflation causes increasing of expenditures & decreasing of revenues therefore budget deficit will be remained continuously , in this situation government for compensation of budget deficit in countries like Iran receive a loan from bank system which leads to growing of money offer, increasing of money offer causes demand increasing & consumption and leads to increasing of inflation. There fore we see that budget deficit in the country as a defected circulation impress the cash rate and inflation increasing. If the goal of the government is decreasing of the inflation, it is necessary that the government to supply the budget deficit form other ways exception of getting loan from bank system and to take out budget relationship circle, cash rate and inflation.

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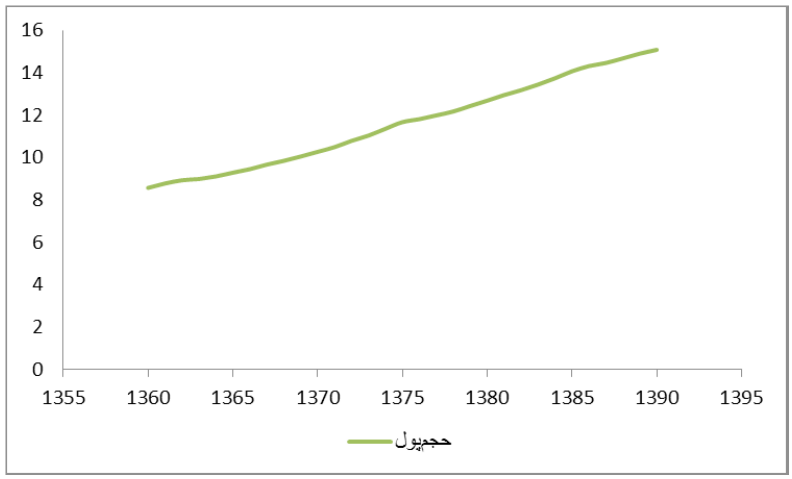


Diagram 1. Bulk money changes

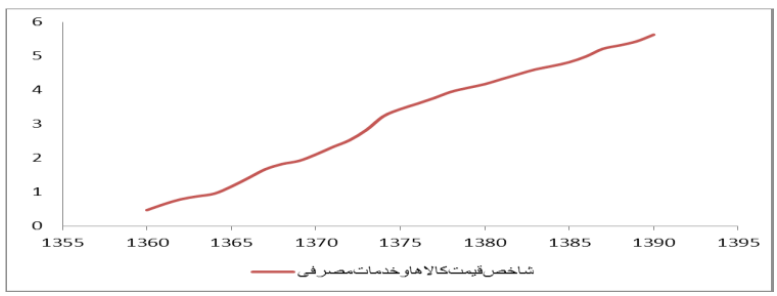


Diagram 2. Changes of goods prices index and consumption services

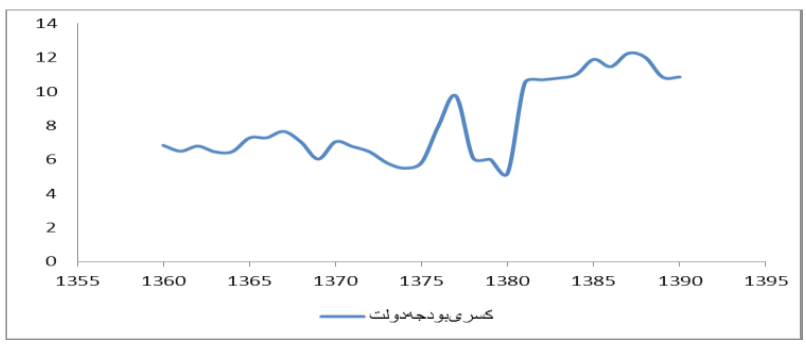


Diagram 3. The changes of government budget deficit

Reviewing of response function

In the current research in order to review the relationship among the variants in short time the tool of impulse response function has been used that Simenz has applied, in fact one of criterions of VAR function response trace application is the variants following a shock in each of them, functions specify the trace of prices index of goods and consumption services in response to one shock in each of system variants to the extent of a criteria deviation.

The diagrams related to response function towards impulse criteria deviation of cash bulk variants & budget deficit of the government and response function of money bulk to budge deficit has been shown.

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In this two diagrams the impression of bulk money logarithm variants impulses& budget deficit in the extent of a deviation criterion on inflation in 10 period of time has been shown, as it indicates budget deficit impulse on inflation till two periods is justified and from second period has decreasing process, also the bulk money impulse has impression on inflation till 10 periods. For more studying among budget deficit, cash rate and inflation below diagram indicates the changing of each variants in the period time of 1980- 2011.

Conclusion

As the above diagrams indicate in the period of time which has been surveyed the bulk of money and goods prices index and consumption services (which in this study specified as inflation index) have increase in same direction that it shows in Iran there is an direct relationship between money bulk and inflation, in other side the procedure of budget deficit variant shows that the variant in the mentioned years has been vacillated by decreasing and or increasing. As procedure surveying we could conclude if the government to compensate the budget deficit by receiving the loan from central bank and printing note (money paper), this subject causes increasing cash bulk and money bulk in the society and in the following total differential increases that this matter has dissatisfactory economical effects as like increasing of inflation. These obtained results are confirmed by Grenjery causative test.

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