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Causes of Inflation in the Iranian Economy

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It is clear that in the nearly last four decades inflation is one of the important problems of Iranian economy. In this study, we determine and analyze the effective factors on inflation in the Islamic Republic of Iran. After briefly reviewing the theoretical background, we use econometric method, such as the Ordinary Least Squares (OLS), to study causes of inflation Iran. Our analysis is based on time series annual data from 1961 to 2005 and our results show that import price index, as well as liquidity, do have positively a significant impact on inflation rates in Iran. Additionally, results show that actual GDP has a negative impact on inflation in Iran.

Field of research: Economic and Causes of Inflation in the Iranian Economy

1. Introduction

According to the Samuelson “Inflation denotes a rise in prices”. The persistent inflation and the problems associated with inflation have claimed more attention of the economists than any other macroeconomic problem. The phenomenon of inflation is one of the problems that every system of economic at different time can be faced. Usually, occurring of fast and long run inflation flow causes the damaging of historical economic, social and cultural societies. Because of this reason analysis source of inflation flow is one of the most important problems of development countries. It is well known that double-digit inflation rate is one of major problems in Iranian economy and inflation has been alarming during the last two decades. In the last 2 decades presence of high inflation rate is one of the most important problems of Iran. Hence, control of inflation and balance of economic as the aim of the government that during these years was under consideration. It seems that identifying the effective inflation factor in Iran is the first step that the government is capable to control it. In fact, Results can be effective for the control or eliminating the high inflation rate in Iran.

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The remainder of the study is organized as follows. Section 2 presents background of study and section 3 shows literature review . Section 4 shows hypothesis of research. Section 5 explains about the research methodology including an econometric model, data and estimation method. Section 6 and 7explain about the model for estimation and provides time series analysis and model estimation and final section offers a summary and the conclusion.

Economic growth, inflation control and employment are the three important purposes of macroeconomics. Inflation in is seen as an economic problem in developed countries in the second half of the 20th century. It is clear that in the nearly last four decades inflation is one of the important problems of Iranian economy. Inflation with effects on economic growth, employment, income distribution, and wealth as well as social and political condition of a country can influence the entire dignity of a country. During the last three decade rate of inflation of Iran has been two digits.

For explaining the significance of this research as far as the Average rate of inflation in Iran during the 1960-2005 is almost 15.3 percent, The determinants of inflation rate are extremely important for policy makers, as when the causes of inflation are correctly specified the appropriate policy change can be easily diagnosed and affectively implemented.

The purpose of this study was as follows:

1. It investigates the main determinants of inflation in Iran using the data over the period 1961-2006.
2. It describes the long run behavior of inflation in Iran using the log linear model and econometric method and,

The structure of this paper in answering this question is to present and evaluate different theories of inflation. The theories are important because when one tries to defeat inflation one must first clarify the causes of inflation. The theories present hypothesizes about these causes. The basic microeconomic question is why a firm would raise its price. Costs of input, such as labor (wage), is clearly one part of the answer, but the theories present different models for explaining the phenomena and hence different ways of fighting

2. Background of the study

2.1. Theoretical Background

This essay will discuss how one could defeat inflation. It would be a lie to say that the answers presented are scientifically correct, because the fact is that inflation

is a complex phenomenon which is not yet fully understood. Hence, the answers presented can only be a part of a larger unknown picture.
First of all: What is inflation? The definition of inflation is a general rise in the price level in an area over a certain period of time. The usual approximate measure of this is the Consumer Price Index which weighs the prices of different goods according to importance in a typical budget and then sees how much the prices of these goods have increased. This immediately raises some problems. For example the weighting must change over time. The importance of computers was not measured in the price index 100 years ago. Another problem is the failure of the price index to capture changes in quality. Has the price of a good risen by 10% if the quality at the same time has improved by 20%. The consumer price index says so, but many would disagree. Hence, inflation is not easy to define in practice. This should be kept in mind when discussing how to defeat inflation, The second question one must ask, before one discusses the methods for defeating inflation, is why one would want to reduce inflation. The answer is that inflation has distortion effects because if make planning more difficult. It also changes the income distribution in society in favor of those with much capital and against people with relatively fixed nominal wages. Finally there is a psychological cost. People simply do not like inflation and price increases. So, given that inflation is costly - how should it be defeated?

3. Literature review:

In relationship with inflation in Iran various studies has been conducted. In these studies, the following factors such as liquidity growth, government expenditure growth, budget deficit, cost-push and wages growth, inflation expectation and exchange rate are more important. In this section, we consider few of the important researches have been done.

In this study according to Bafeker (1998) who finds the principle factors of inflation in Iranian economy, Results show that 10 percent liquidity growth in long run lead to 2.7 percent growth in inflation rate of retail sale and 3.2 percent in wholesale. On the other hand, 10 percent increase in product growth rate to decrease of 1.7 percent in inflation rate of retail sale and 2.4 percent reduce in wholesale. Also he shows that with conducting suitable policy can fill about 66 percent from the actual inflation rate gap and equilibrium rate of inflation by the Error Correction Model. Finally, he concludes that inflation is not a monetary phenomenon in the Iran.

Dawoodi (1997) examined the inflation process in Iran in three dimensional times, short run medium run and long run and resulted that, 1 percent change in liquidity growth rate and exchange rate respectively is 0.95 percent and 0.361 percent change in price. Jalali-Naeini (1997) investigated the price trend and rate of inflation in Iranian economy from the year before World War II, and then considered the influence of monetary policy on the basis of macroeconomic variables in Iran such as inflation and output. His study on econometric shows

the liquidity growth is the most principle factors of the increase in general price level.

Kazerouni and Asghari (2002) examined the consistency inflation monetarist model with rational expectation and the characteristic of Iranian economy on the basis of theoretical framework. He found relative money supply growth variables and inflation in Iran. In this study it is resulted that inflation and money growth is convergent and in long run 1 percent increase in money growth lead to 9 percent increase in inflation growth. On the other hand, in this research relation of one-to-one hypothesis between the said variables is un-returnable. It means that inflation in Iran is a monetary phenomenon. Moradi (2001) examined the effective factors on inflation in Iranian economy during the period 1959-1996. In this study he concluded that surplus money supply, exchange rate in free market and price index of foreign goods are effective factors on inflation in long run and also, in short run prices changes of exported oil are effective factor on inflation. In other words, there is two-sided relationship between exchange rate and price. It means that increase in exchange rate lead to increase in prices and increase in price, cause increase in exchange rate. Nazify (1999) during the period 1959-1999 provide a model that is concluded from monetarism theory. She resulted that in Iranian economy is a factor of supply side in creating of inflation is lees effective. On the other hand, the inflation in Iran is intensively a monetary phenomenon and impact of monetary variables on real sectors is less. Nili (1985) argued that influence of monetary policy on Iranian economy during 1959-1983 is investigated and concluded that, direct relation exist between change in liquidity and rate of inflation. So that, 10 percent increase in quantity of money causes 12 percent increase in price level. Olinliyo (1999) described a framework for determination factor influence on inflation of Iran during the period of 1989-1999. He in this study achieves results that inflation in Iranian economy is a monetary phenomenon and 10 percent growth of liquidity causes the increase in inflation is up to 6.7 percent. Oskoee (1995) to achieve inflation factor post- revolution in Iran is researched and with the use of a money inflation model, that with entering variables like exchange rate and import price has expanded it, resulting that inflation in Iran is not a monetary phenomenon and the other factors such as exchange rate and output plays a role in creating inflation. Tbibian and Souri (1997) investigate the determinations of inflation in Iran using co integration techniques. They use an augmented monetarist's model to describe the long run behavior of inflation. Tavakoli and Karimi (1999) investigated the effect of import price on inflation, relationship between government expenditure, import price index, money and price index systematically and is tested with VAR method. They concluded that inflation of import price has the most effect on inflation in Iran.

4. Hypothesis of Research

This study determines the effective factors on inflation in Iran. Therefore, the following Hypothesis will be tested.

1. Increase in import price index has a positive effect on consumer price index (inflation)
2. Increase in liquidity (M2) has a positive effect on consumer price index (inflation).
3. Increase in actual GDP has a negative effect on consumer price index (inflation).

5. Research Methodology

5.1. Model

There are two quite different approaches, view based on monetary economics and the cost-pushed approach, which often verify reasons of inflationary pressures and government budget deficit. However, various approaches can be found between these two extremes. First, there is the monetarist claim that inflation is a purely monetary phenomenon and that in the long run the rate of inflation equals the rate of monetary expansion in excess of the growth of capacity output. This claim is expected to hold for market economics, including both developed and less developed countries. Second, economists based on the cost-pushed believe that sources of inflationary pressures are basically non-economics. According to them, social and political as well as worker units can temporarily impact the price level. Most countries, particularly developing countries, have experienced widely economic problems such as the increasing rate of inflation and ample budget deficit in recent decades. This had led, of course, to a broad range of researches finding out causes and effects of these problems.

According to the basis of theory and research, there are different models to explain causes of inflation.

$LCPI_t = F(LYA, LPm, LM2)_t$ $\quad t = 1961 - 2006$

Where,

LCPI = logarithm of Consumer Price Index (CPI)
LYA = logarithm of actual GDP
LPm = logarithm of Import Price Index
LM2 = logarithm of Liquidity.

5.2. Data collection

In this study on the basis of theories of inflation a suitable econometric model will consider to determine effective factors on inflation in Iran. We will use annual data in analysis. The annual variables are consolidated consumer price index (CPI), Import price index, real GDP and liquidity its information is according to

time series and duration of this study was in 1961 – 2006[1]. The main source that is used for the data related to model variables is planning data system (PDS), of institute for research on planning and development in Iran.

5.3. Estimation Method

In this study determination of effective factors on inflation in Iran econometric method is taken under consideration. We used the single-equation method to identify effective factors on inflation in Iran.

This study computes the ordinary least squares (OLS) estimates of the regression coefficients together with the corresponding standard errors, t-ratios, and probability values. The probability values refer to the probability of the null hypothesis of zero restrictions on the regression coefficients, and are computed on the assumption that the underlying model is correctly specified. This study also computes a number of summary statistics and diagnostic test statistics (with probability values) aimed at checking for possible deviations from the classical assumptions. The summary statistics include R-squares and R-bar-squares, residual sum of squares, standard error of regression. Other statistics computed under this option include the maximized value of the log-likelihood function Akaike information and Schwarz Bsyesian criteria for model selection.

6. The Model for Estimation

In this section, the relationship between price level and its explanatory variables are tested and estimated using the ordinary least squares (OLS). We commence with the estimation of the price equation where CPI is a function of actual GDP, liquidity and import price index. Results from the OLS estimator confirm the existence of a relationship between them. Estimates show that prices are directly related to actual GDP, liquidity and import price index and the coefficients of all the regressors have expected signs and are statistically significant. The long run coefficients are shown in Table 1.

Table 1

Estimated long-run coefficients the OLS approach

Dependent Variable: LCPI
Method: Least Squares
Date: 02/28/08 Time: 15:09
Sample(adjusted): 1340 1384
Included observations: 45 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.171344	0.576294	5.502996	0.0000
LYA	-0.484819	0.067094	-7.225960	0.0000
LM2	0.416575	0.035381	11.77389	0.0000
LPM	0.564891	0.033684	16.77008	0.0000

R-squared	0.998435	Mean dependent var	2.148035
Adjusted R-squared	0.998320	S.D. dependent var	2.003407
S.E. of regression	0.082106	Akaike info criterion	-2.076927
Sum squared resid	0.276396	Schwarz criterion	-1.916334
Log likelihood	50.73085	F-statistic	8718.483
Durbin-Watson stat	0.691641	Prob(F-statistic)	0.000000

The results of a few diagnostic tests in table 1 indicate that there is no error autocorrelation and conditional heteroskedasticity, and that the errors are normally distributed. This evidence indicates that the relationship between variables in the long run is verified. Moreover, Figure 5 shows plot of actual and fitted values. This option enables us to display the plot of the actual and fitted values obtained from our regression on the screen.

In section 7, we have provided three hypotheses for this study. Now, we should test these hypotheses. Long run coefficients of price equation in current study with Ordinary Least Squares (OLS) are presented in Table 1.

According to our theoretical model, we would expect the liquidity (M2) and import price index have a positive influence on the price level. Based on our estimation result, the liquidity (M2) and import price index have positive impact on the price level. Thus, we can not reject hypotheses 1 and 2 in this study.

According to our theoretical model, we would expect actual GDP has a negative influence on the price level. Based on our estimation result, actual GDP has a negative impact on the price level. Thus, we can not reject hypotheses 3 in this study.

7. Conclusion

In the recent decades Iran has experienced several important events in the economic and political fields. These included the three oil shocks of 1972, 1979 and 1986; the Islamic revolution in 1978 which was followed by nationalization of major sectors of the economy; the eight-year war with Iraq during 1980-1988; and the economic reform programme generally implemented over the period 1989-1993. The effects of the oil shocks were particularly profound due to the dependence of the economy and of the macroeconomic policies on oil revenue.
After the war the economic reform programme also had major effects through the removal of price controls and government subsidies, currency devaluation, and the deregulation of trade and tariffs.

There are several measures to examine domestic inflation. These measures include consumer price index (CPI) and GDP deflator. The sample period may be spilt into two inflation regimes as follows:

- 1961-1972: relatively low and stable inflation
- 1973-2006: higher and more variable inflation

The inflation rates were in single figures from 1961 to 1972. After 1972, with the oil price and the quantity of oil exports increasing, the rates of inflation rose sharply and exhibited large fluctuations. The annual average rate of the GDP deflator and CPI inflation was 22.9 and 14.7 percent, respectively, during the period 1973-1978. A spike for the GDP deflator inflation appeared in 1974 with a rate of 57.4 percent. Indeed, the oil value added is one of the main components of GDP and, through the definition of the GDP deflator (calculated using the ratio of nominal GDP over real GDP), has strongly affected the GDP deflator in 1974. The rates of inflation accelerated to an annual average of 17.0 and 18.9 percent, respectively, over the period 1979-1988. This period was particularly rich of events that are sources of inflation pressure, since the revolution, second oil boom, the war, third oil crisis, and the economic embargo took place. Over the period of 1989-1993, when the economic reform programme was implemented, the average rates of the GDP deflator was 24.9 while the CPI inflation was exactly the same as in the pervious sub-period. The rates of inflation increased further over the period following the structural adjustment programme. The GDP deflator and CPI inflation rates were 31.7 and 35.9 percent, respectively, over the period 1994-1996. The CPI inflation rate reached a peak of 49.5 percent in 1995.
The main purpose of this study, has been determined the effective factors on inflation in Iran. We have used an econometric model to identify causes inflation in Iran. In this study, an attempt has been made to estimate the long run coefficients of prices equation with the univariate methods such as the ordinary least squares (OLS). The main results are as follows:

First, quantitative evidence indicates that long run changes in the availability of real GDP, liquidity and import price index significantly explain behavior of prices during the period under investigation in Iran.

Second, empirical estimates show that liquidity and import price index have positive effect on prices in the long run in Iran. Findings also demonstrate that actual GDP has negative effect on inflation in long run in Iran. This result seems to support the conclusion of Alavi Rad (2002) that the liquidity and play a remarkable role on inflation in Iran. Finally, the results reported in this study show that with fluctuation of liquidity, actual GDP and import price index, consumer price index (CPI) will fluctuate in long run. In fact, these three variables are sources of inflation rate in Iran over the period 1961-2006

End-notes:

1. The Iranian Calendar year starts on March 21 each year and ends March 21 the following year. By adding 621 to the Iranian year, we convert it to Gregorian calendar. Thus, the Iranian year 1379 for instance, is equated with 2000.

References

Alavi Rad, A., 2006. The budget deficit and inflationary process in Iran: apply VAR method. Journal of Political and Economic Ettela'at 20, 258-267.

Alavi Rad, A., 2003. The effect of inflation on government revenue and expenditure: the case of the Islamic republic of Iran. OPEC Review, No.4.

Alavi Rad, A., 2002. The relationship between liquidity and inflation in Iran's economy: (1963 –1998). Journal of Political and Economic Ettela'at 17, 181-182.

Bafekr, A., 1998. Investigation about causes of inflation in Iran with cointegration method. Economic Department of Shahid Beheshti University. Tehran. Iran..

Bahmani-Oskooee, M., 1995. Source of Inflation in Post-Revolutionary Iran. International Economic Journal 9, 61-72.

Central Bank of Iran, the Economic Data Institute. Annual Economic Reports of Iran. Various Issues.

Dawoodi, P., 1997. Economic stabilization policy and estimating dynamic inflation model in Iran. Research publication and economic policy. Tehran, Iran.

Dadkhah, K., 1985. The inflationary process of Iranian economy. International Journal of Middle East Study 17, 374-377.

Dornbusch, R., Fischer,S., 2004.Macroeconomics, 9th Edn, McGraw-Hill.

Jalali-Naeini, S. A., 1997. The Analysis of Inflation, Monetary, Credit and Fiscal Policies. Higher Research Institute of Planning and Development, Tehran, Iran.

Moradi, M., 2002. Nonlinear modeling of inflation in Iran. At site ecomode.net.

Nili, M., 1985. Inflation in Iran. Quarterly Journal of Planning and Development, Plan and Budget Organisation of Iran. Tehran, Iran.

Tavakkoli, A., Karimi, F., 1999. The Survey and Determination of Effective Factors on Inflation in Iran. Proceedings of 9th Conference on Monetary and Banking Policies, Central Bank of Iran, Tehran Iran.

Tabatabaee-Yazdi,R., 1991. Consideration of Inflation in Iran: a Simultaneous Method with an Emphasis on Expectation of Inflation. University of Tehran, (Unpublished MA Dissertation).

Tabibian, M., Souri, D., 1995. The Cause of Inflation in Iran. Higher Research Institute of Planning and Development, Tehran, Iran.

Tabibian, M., Souri, D., 1997. The Underling Cause of Inflation in Iran. Iranian Journal of Trade Studies Quarterly 1, 37-43.

Tabibian, M., Souri, D., 1997. The Underling Cause of Inflation in Iran. Iranian Journal of Trade Studies Quarterly 1, 37-43.

Taiebinia,A., 1995. Theories of Inflation with an Overview of Inflationary Process in Iran. Tehran University, Tehran, Iran.

Appendix:

Figure 1

Consumer Price Index (CPI)

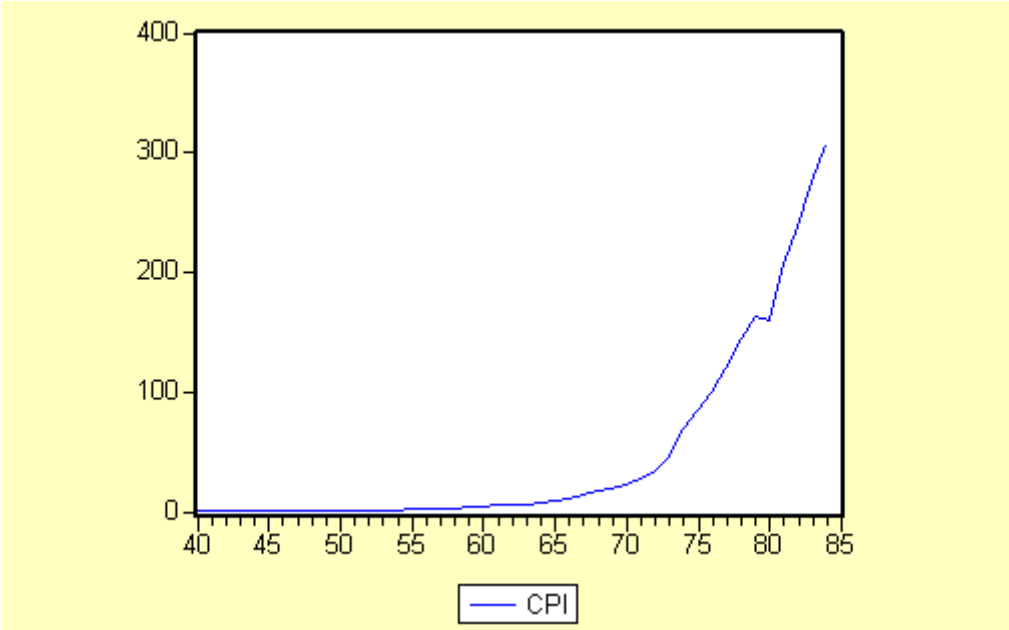


Figure 2

Liquidity (M2) in Iran

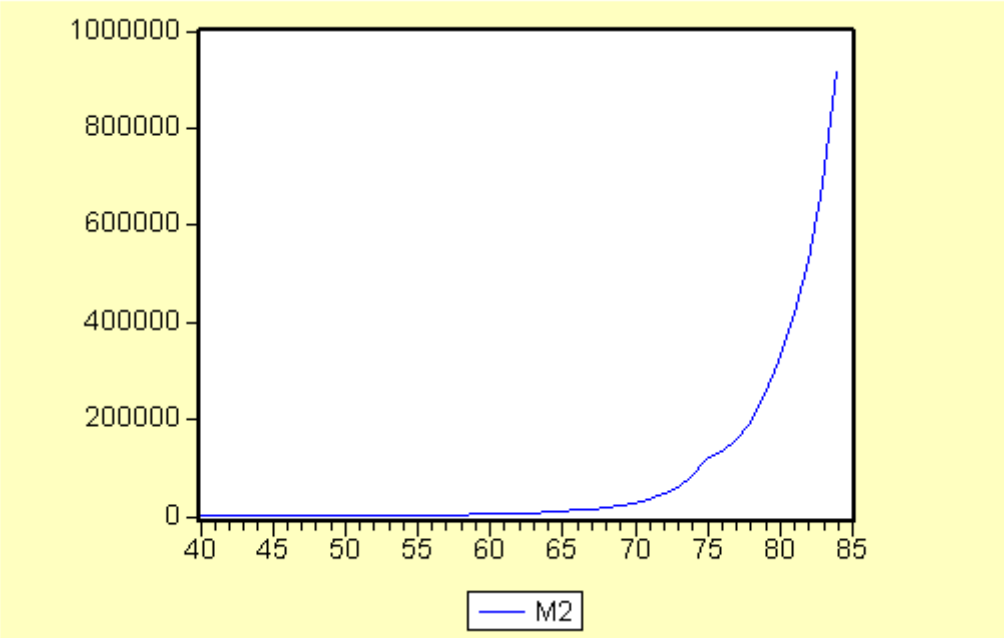


Figure 3

Real GDP in Iran

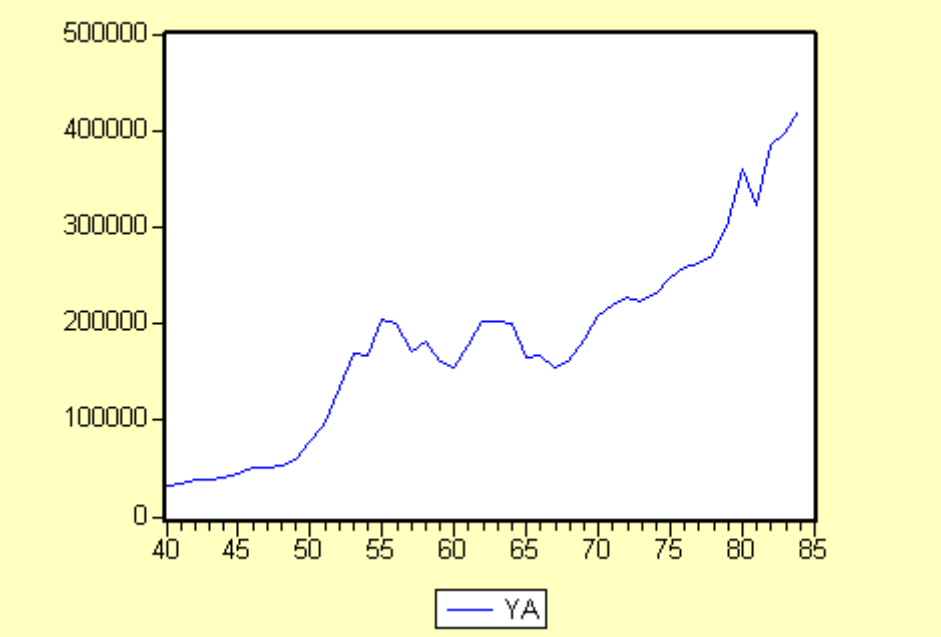


Figure 4

Import Price Index in Iran

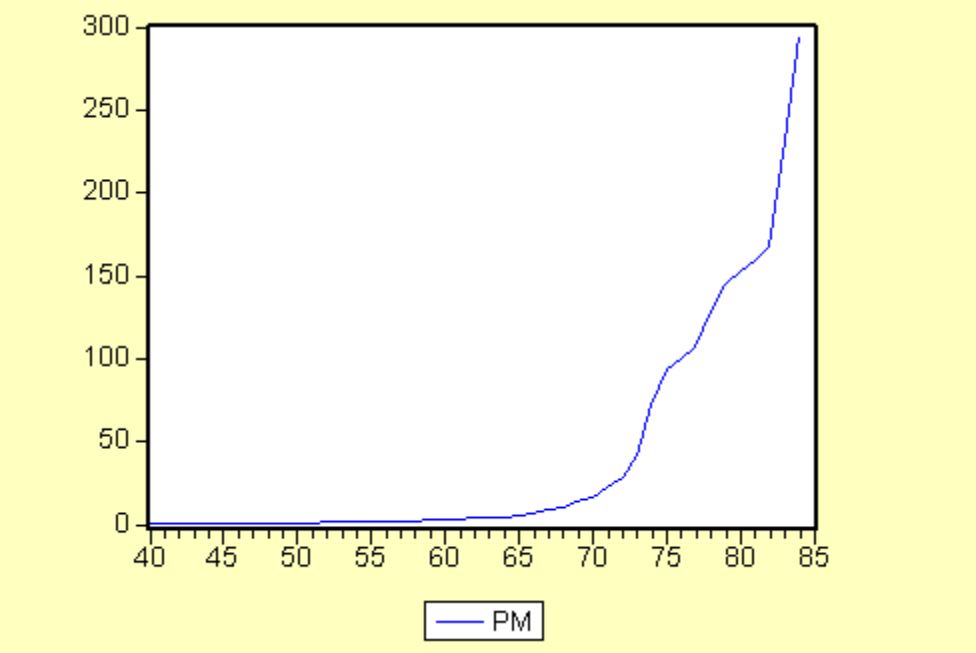


Figure 5
Actual, Fitted, Residual Graph

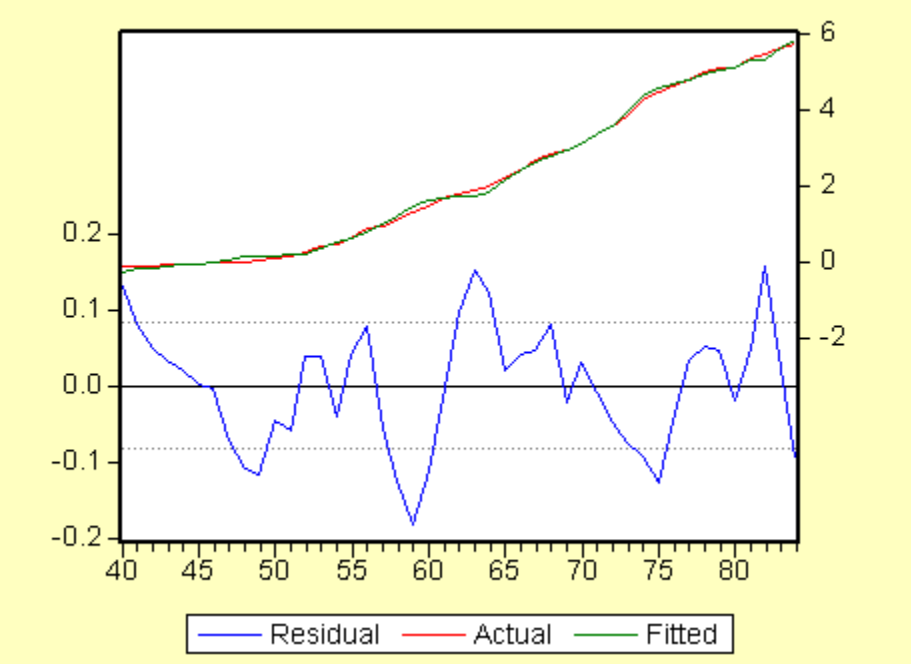


Figure 6
Natural Logarithm of Consumer Price Index (CPI) and Liquidity (M2)

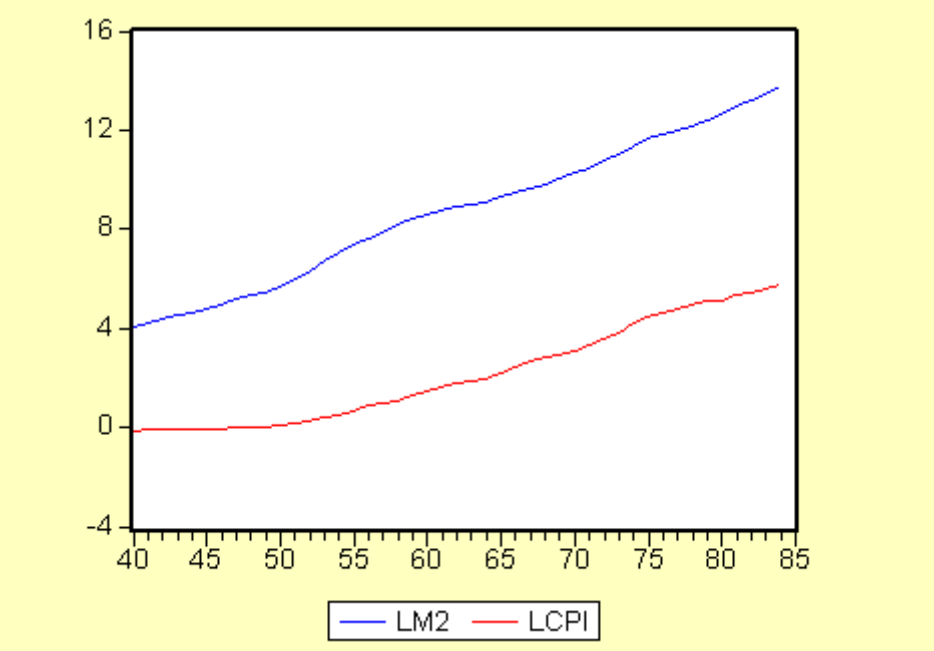
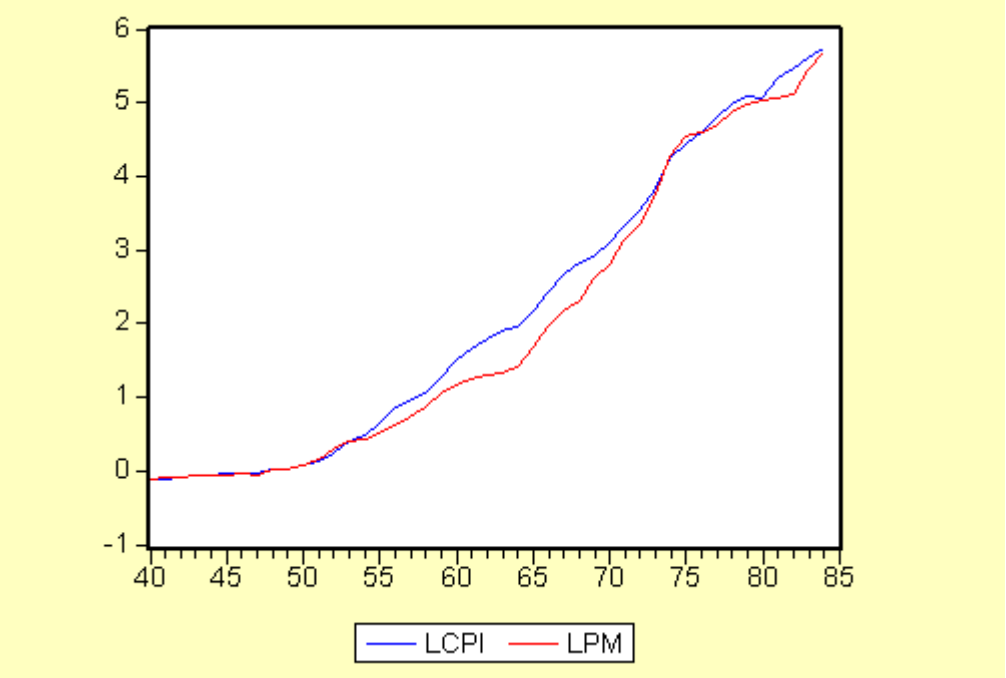
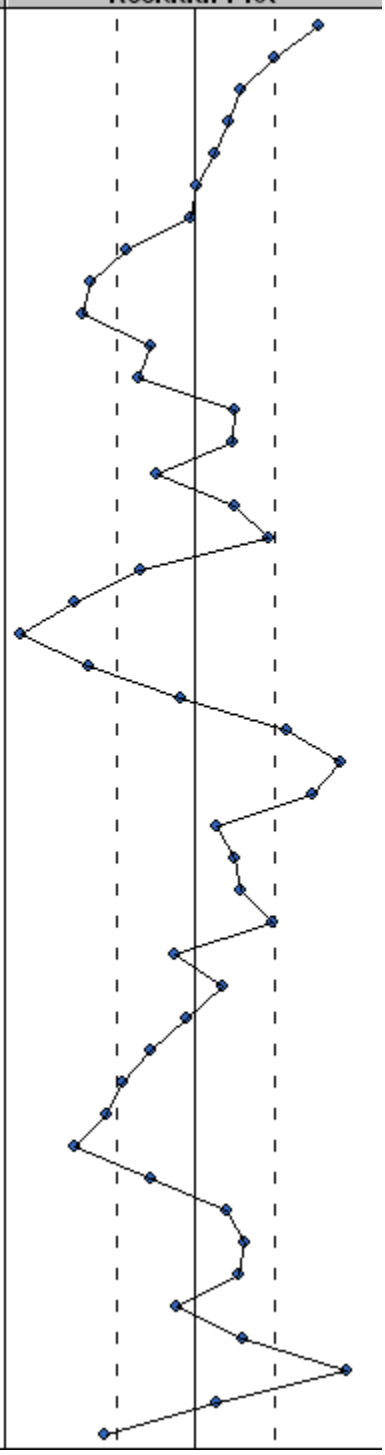


Figure 7

Natural Logarithm of Consumer Price Index (CPI) and Import Price (PM)



obs	Actual	Fitted	Residual	Residual Plot
1340	-0.11862	-0.24863	0.13001	
1341	-0.10821	-0.19004	0.08183	
1342	-0.09791	-0.14682	0.04890	
1343	-0.05578	-0.08942	0.03363	
1344	-0.05382	-0.07370	0.01988	
1345	-0.04601	-0.04833	0.00232	
1346	-0.03633	-0.03198	-0.00435	
1347	-0.02103	0.05097	-0.07200	
1348	0.01439	0.12322	-0.10883	
1349	0.02893	0.14528	-0.11635	
1350	0.08167	0.12609	-0.04442	
1351	0.14310	0.20036	-0.05726	
1352	0.24846	0.20873	0.03974	
1353	0.39262	0.35294	0.03968	
1354	0.48714	0.52763	-0.04049	
1355	0.64031	0.59939	0.04092	
1356	0.86326	0.78622	0.07704	
1357	0.95098	1.00740	-0.05641	
1358	1.06677	1.19123	-0.12446	
1359	1.27808	1.45952	-0.18143	
1360	1.48368	1.59370	-0.11002	
1361	1.65980	1.67556	-0.01575	
1362	1.79818	1.70208	0.09610	
1363	1.89768	1.74700	0.15068	
1364	1.96500	1.84138	0.12361	
1365	2.17767	2.15638	0.02129	
1366	2.42123	2.37969	0.04155	
1367	2.67621	2.62912	0.04709	
1368	2.83655	2.75558	0.08097	
1369	2.92211	2.94442	-0.02231	
1370	3.11025	3.08024	0.03001	
1371	3.32824	3.33589	-0.00764	
1372	3.53405	3.58105	-0.04700	
1373	3.83560	3.91111	-0.07551	
1374	4.23691	4.32949	-0.09258	
1375	4.44555	4.57121	-0.12565	
1376	4.60517	4.65027	-0.04510	
1377	4.78712	4.75422	0.03290	
1378	4.97289	4.92207	0.05083	
1379	5.09162	5.04625	0.04537	
1380	5.07330	5.09266	-0.01937	
1381	5.32788	5.27853	0.04935	
1382	5.47311	5.31640	0.15671	
1383	5.61495	5.59269	0.02227	
1384	5.72880	5.82455	-0.09575	