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INFLATION, UNEMPLOYMENT AND ECONOMIC GROWTH: EVIDENCE FROM THE VAR MODEL APPROACH FOR THE ECONOMY OF IRAQ.

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ABSTRACT: *This study investigates the impact of inflation and unemployment on the economic growth of Iraq. Considering the fact that the majority of the studies on the Phillips Curve have been done in the context of developed economies and on an aggregate level, this study focuses on Iraq, a single developing economy (a disaggregated level) and aims to empirically analyse the impact of Unemployment and inflation on economic growth in the economy of Iraq. The research results indicate that there exist an equilibrium impact between unemployment and inflation in Iraq thereby supporting the validity of the Phillips Curve hypothesis.*

KEYWORDS: Unemployment, Inflation, Economic Growth, Philips Curve, VAR Approach, Iraq.

INTRODUCTION

The economy of Iraq saw a radical decline in growth and development in 1980's following the substantial development in the 1970's (Almsafir, 1993)**.** Since then there's been a number of wars and invasions of several kinds which have contributed to infrastructural disorder, abnormal inflation and poor economic growth amidst high unemployment and poverty.

The nexus of inflation and unemployment has over the last decade attracted hot debate among politicians, economist and the ordinary citizen. The adverse effects of unemployment and inflation on economic growth alike has attracted the attention of government and researchers the world over. One major challenge of policy makers are how to maintain low and stable unemployment level as well as relatively stable prices so as to achieve high economic growth. Several studies have been conducted on the impact of unemployment and inflation on economic growth.

In various insightful studies on the phenomenon, modern econometric models are adopted in examining the nexus with their findings exhibiting interesting and debatable results principally in the area of impact of unemployment and inflation on the overall economic growth.

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LITERATURE REVIEW

The concepts of Unemployment and inflation are two intricately linked economic concepts. Over the years there have been a number of economists trying to interpret the relationship between growth, inflation and unemployment. This relationship can be elaborated in two ways being the long run and the short run. In the short term there is an inverse correlation between the three. As per this relation, when unemployment is low and inflation on the high side, economic growth is expected to be high. The relationship between unemployment and inflation was first of all studied by Phillips (1958). He found an inverse relationship between unemployment and inflation in UK. In the short term the Phillips curve could be a declining curve. The Phillips curve in the long term is separate from the Phillips curve in the short term. It has been observed in the literature that in the longrun unemployment and inflation are not related.

According to (McConnel and Brue, 1996), Okun's (1962) law suggests that in the US, the ratio between and a shift in output is the law through which GDP shift from the trend is enlarged by approximately 3percent if unemployment rate grows by 1percent above its natural rate level. This ratio is better known as Okun's law. In his earlier researches he concluded that this ratio was approximately 3 to 1, but after some later analyses the ratio of 2 or 2.5 to 1 was accepted as the representative one. Okun's law is a reduced version of the Phillips regularity, more precisely, of the segment pertaining to the research of the relation between unemployment and output. Okun's law has been used for specific projections of economic growth. When there are no vacancies for those willing to work, potential output is irrevocably lost. Unrealized output is measured by shift from the long-term tendency of GDP growth and it is called 'GDP gap'. When GDP follows trend line, economy trends can be projected and then there is natural unemployment rate. A higher the unemployment rate propels greater shifts of GDP from its trend Popovic and Popovic, (2009). The Okun's law and the Phillips postulate are the basis for the analysis of the effect of unemployment and inflation on growth as used in this thesis.

Yelwa, M. et al. (2015) investigated the relationship between unemployment, inflation and economic growth in Nigeria. Utilizing secondary data with OLS regression method, their results confirmed that interest rate and total public expenditure bares significant impact on economic growth in the long run whereas on the contrary, inflation and unemployment has inverse effects on growth in the Nigerian economy. They clarify further that this increase is likely due to interruptions in the supply chain of goods both from the domestic and foreign supply outlets other than the suspected aggregate demand pressure. The study concludes with a confirmative note on the existence of a causal linkage between inflation, unemployment and economic growth in the Nigerian economy recommending among others the need for government to improve the macroeconomic policy instruments to the attainment of sustainable and enabling environment in order to propel domestic output.

Furthermore, in Shahid, M. (2014) study on the impact of inflation and unemployment on the economic growth of Pakistan via the ARDL model approach found that a long run relationship between the variables existed.

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In line with the above, Mohseni, M. et al (2016) takes into account a re-examination of the role of inflation and unemployment on economic growth using the ARDL regression model. The results showed a long run negative effect of inflation and unemployment on economic growth. In the study of Bakere (2012), the OLS method of regression was adopted in examining the stabilization policy, unemployment crises and economic growth in the Nigerian economy. Their findings showed negative relationship inflation, unemployment and economic growth in Nigeria were negative.

Using OLS, ADF and Granger causality, Aminu and Anono (2012) also studied the effect of inflation on economic growth and development in Nigeria. Even though the results indicated that the coefficient of inflation is statistically insignificant, it was consistence with the theoretical expectation, causation runs from GDP to inflation implying that inflation does not Granger causes GDP but GDP does. In all their study showed that there is a positive relation between inflation and economic growth in the Nigerian economy.

Following the variant of Aminu and Anono (2012), Rafindadi (2012) further investigates the nexus using OLS and Threshold model. He found a negative nonlinear relationship between output and unemployment. The current attempt contributes to the existing literature on the effects of inflation and unemployment on economic growth in Iraq. It will however attempt to answer key questions such as; is there a relationship between inflation and unemployment on economic growth in Iraq? And also is there a trade-off between inflation and unemployment by the Philip based curve analysis in the economy of Iraq? Furthermore the findings of this study are relevant to highlighting new strategies to improve the inflation and unemployment situation in Iraq.

METHODOLOGY

This study adopts multiple regression analysis where the rate of growth (ECGR) serves as the dependent variable, while unemployment rates (UN), inflation rates (INF), serve as the explanatory variables in the formulation of the models which captures the relationship among the variables of interest. This is followed with analysis of data and interpretation of major findings for policy implications. The study employs Vector Autoregressive (VAR) Model Approach using annual time series data spanning from 1990-2014 obtained for the following variables: inflation rate, money supply, Gross Domestic Product (GDP), Unemployment, a percentage of total labour force and interest rate with data obtained from Central Bank of Iraq (CBI) Statistical Bulletin of Iraq, 2015 and World Data Bank (World Economic Indicators).

Model Specification

The study employs a Vector Autoregressive (VAR) models to examine output variability and inflation instrument variability. In the specification of the model, in line with the works of Mordi (2008) and Valle (2002), the VAR models are specified as follows:

$$LINF_t = \alpha 1 + \beta 1 LINF_{t-1} + \delta 1 LM2_{t-1} + \Pi 1 LINT_{t-1} + \lambda 1 LGDP_{t-1} + \rho 1 LUNP_{t-1} + \varepsilon 1 \quad \ldots\ldots 1$$

$$LUNP_t = \alpha 5 + \beta 5 LINF_{t-1} + \delta 5 LM2_{t-1} + \Pi 5 LINT_{t-1} + \lambda 5 LGDP_{t-1} \rho 5 LUNP_{t-1} + \varepsilon 5 \quad \ldots\ldots 2$$

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$LGDPt = \alpha 4 + \beta 4LINFt\text{-}1 + \delta 4LM2t\text{-}1 + \Pi 4LINTt\text{-}1 + \lambda 4LGDPt\text{-}1 + \rho 4LUNPt\text{-}1 + \varepsilon 4$ ……3

$LM2t = \alpha 2 + \beta 2LINFt\text{-}1 + \delta 2LM2t\text{-}1 + \Pi 2LINTt\text{-}1 + \lambda 2LGDPt\text{-}1 + \rho 2LUNPt\text{-}1 + \varepsilon 2$ ……4

$LINTt = \alpha 3 + \beta 3LNFt\text{-}1 + \delta 3LM2t\text{-}1 + \Pi 3LINTt\text{-}1 + \lambda 3LGDPt\text{-}1 + \rho 3LUNPt\text{-}1 + \varepsilon 3$ ……5

Where LINF is the log of inflation rate, LM2 is the log of broad money supply, LINT is the log of interest rate, LGDP is the log of gross domestic product, and LUNP is the log of unemployment.

Data Analysis and Interpretation of Results and Findings

Ordering of Variables

The selection of the variables is done in order to build multivariate models which can be used to target inflation and as a forecasting instruments. Obviously, one of the basic issues to address when using VAR is the ordering of the variables. In ordering our variables, we assumed that monetary policy variables M2 and INT would transmit into price and GDP through inflation rate while unemployment is the most exogenous variable in the model. For the selection of lag length, a lag length of one is selected based on Schwarz information criteria because it takes into consideration the parsimoniousness of the model and has stringer theoretical backing (Serrato, 2006).

Roots of characteristic Polynomial Test

The result of this test in Table 1 when LINF, LUNP, LGDP, LINT and LM2 are endogenous variables while the constant is the exogenous variable shows that no root lies outside the unit circle. The VAR satisfies the stability condition. The result is shown in table 1.

Table 1:

Table 1: Roots of Characteristic Polynomial

Endogenous variables: INF UNP GDP M2 INT
Exogenous variables: C
Lag specification: 1 1

Root	Modulus
0.760903 - 0.235783i	0.796597
0.760903 + 0.235783i	0.796597
0.528405	0.528405
0.018775 - 0.298203i	0.298794
0.018775 + 0.298203i	0.298794

No root lies outside the unit circle.
VAR satisfies the stability condition.

Block Exogeneity Test

Block exogeneity tests are to determine how these variables enter the model. It has as its null hypothesis that the lags of a set of variables do not enter the equation of the other variables, and, thus, it is exogenous to the model.

The block exogeneity test result in table 1 indicates that none of the variables at lag one should

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enter the equation of LINF as an exogenous variable at 5 percent significant level. The values of their various probabilities are greater than the 5 percent significant level thereby accepting the null hypothesis. There is no indication of LM2, LUNP, LGDP or LINT granger cause LINF. This opposes monetary policy theory.

Table 2: VAR Granger Causality/Block Exogeneity Wald Tests
Sample: 1990 2014
Included observations: 23

Dependent variable: INF

Excluded	Chi-sq	Df	Prob.
UNP	0.009574	1	0.9221
GDP	1.965670	1	0.1609
M2	1.720323	1	0.1897
INT	0.422158	1	0.5159
All	3.868945	4	0.4240

Dependent variable: UNP

Excluded	Chi-sq	Df	Prob.
INF	0.167556	1	0.6823
GDP	3.934843	1	0.0473
M2	2.225179	1	0.1358
INT	2.105163	1	0.1468
All	7.828192	4	0.0981

Dependent variable: GDP

Excluded	Chi-sq	Df	Prob.
INF	0.004448	1	0.9468
UNP	5.102852	1	0.0239
M2	0.829519	1	0.3624
INT	0.402745	1	0.5257
All	5.207120	4	0.2667

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Dependent variable: M2

Excluded	Chi-sq	Df	Prob.
INF	0.051608	1	0.8203
UNP	2.697277	1	0.1005
GDP	0.662585	1	0.4156
INT	1.201999	1	0.2729
All	6.093118	4	0.1923

Dependent variable: INT

Excluded	Chi-sq	Df	Prob.
INF	0.337361	1	0.5614
UNP	0.147217	1	0.7012
GDP	0.203542	1	0.6519
M2	0.791334	1	0.3737
All	1.513316	4	0.8243

The block exogeneity test of unemployment equation indicates that none of the variables at lag one should enter the equation of LUNP as an exogenous variable at 5 percent significant level except LGDP. The values of their various probabilities are greater than the 5 percent significant level thereby accepting the null hypothesis. While the probability value of GDP is less than the 5 percent significant level (0.0473 < 0.05) implying that GDP Granger cause unemployment. This is in line with the famous OKUN's law which states the negative relationship between unemployment and output/GDP.

The block exogeneity test of LGDP equation indicates that none of the variables at lag one should enter the equation of LGDP as an exogenous variable at 5 percent significant level except LUNP. The values of their various probabilities are greater than the 5 percent significant level thereby accepting the null hypothesis. However, the probability value of LUNP is less than the 5 percent significant level (0.0239 < 0.05) implying that LUNP Granger cause LGDP. This is in line with the famous OKUN's law which states the negative relationship between unemployment and output/GDP.

The block exogeneity test of LINT and LM2 equations indicate that none of the variables at lag one should enter the equation of LINT and LM2 as an exogenous variable at 5 percent significant level except LGDP. The values of their various probabilities are greater than the 5 percent significant level thereby accepting the null hypothesis.

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VAR Lag Order Criteria

To determine the optimum lag length, we begin with a lag of twenty but finally selected an optimum lag of one. We employed the sequential modified LR test, the final prediction error (FPE) test, Akaike information criterion (AIC) test, Schwarz information criterion (SIC) test and Hannan Quinn (HQ) information criterion at 5 percent level of significance to carry out the selection. All the test results in Table 3 indicate a lag order of one.

Table 3:VAR Lag Order Selection Criteria

Endogenous variables: INF UNP GDP M2 INT
Exogenous variables: C
Sample: 1990 2014
Included observations: 23

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-415.9632	NA	5.44e+09	36.60550	36.95235	36.66758
1	-377.9644	56.17216*	1.87e+09*	35.47517*	36.86625*	35.84766*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterio

Unrestricted VAR Results

The results of the VAR analysis in table at lag one indicates that the variables are dynamically interacted. Starting with the equation of inflation (equation 1), a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.567% increase, 0.468% increase, 0.054% decrease, 5 .643% decrease and 8.195% decrease in current inflation respectively. The plausibility of the results lie with the negative relationship between unemployment and inflation, a phenomenon known as the Phillips curve. The result is consistent with the famous Phillips curve.

Followed by the equation of unemployment (equation 2), a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.002% decrease, 0.589% decrease, 1.304% decrease, 0.187% decrease and 0.535% decrease in current unemployment respectively. Here again the relationship between unemployment and inflation is negative obeying the Phillips curve. The result also shows that previous unemployment also contributes to current unemployment.

Table 4: Vector Autoregression Estimates

Sample (adjusted): 1992 2014
Included observations: 23 after adjustments
Standard errors in ( ) & t-statistics in [ ]

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	INF	UNP	GDP	M_2	INT
INF(-1)	0.567825	-0.002160	-0.002012	0.001723	0.001611
	(0.18033)	(0.00528)	(0.03016)	(0.00759)	(0.00277)
	[3.14887]	[-0.40934]	[-0.06669]	[0.22717]	[0.58083]
UNP(-1)	-0.589142	0.468929	2.275095	-0.416020	-0.035526
	(6.02107)	(0.17622)	(1.00715)	(0.25331)	(0.09259)
	[-0.09785]	[2.66100]	[2.25895]	[-1.64234]	[-0.38369]
GDP(-1)	1.304798	-0.054031	-0.185551	-0.031870	0.006457
	(0.93065)	(0.02724)	(0.15567)	(0.03915)	(0.01431)
	[1.40202]	[-1.98364]	[-1.19194]	[-0.81399]	[0.45116]
M_2(-1)	-5.643869	-0.187863	0.655548	0.635132	-0.058864
	(4.30301)	(0.12594)	(0.71977)	(0.18103)	(0.06617)
	[-1.31161]	[-1.49170]	[0.91078]	[3.50844]	[-0.88957]
INT(-1)	-8.195837	-0.535656	1.339030	0.581816	0.601425
	(12.6141)	(0.36918)	(2.10997)	(0.53068)	(0.19398)
	[-0.64974]	[-1.45092]	[0.63462]	[1.09636]	[3.10049]
C	286.8048	22.85916	-67.10819	9.647009	7.776608
	(290.837)	(8.51211)	(48.6485)	(12.2357)	(4.47244)
	[0.98614]	[2.68549]	[-1.37945]	[0.78843]	[1.73878]
R-squared	0.494061	0.550325	0.277151	0.565084	0.428858
Adj. R-squared	0.345256	0.418068	0.064548	0.437168	0.260875
Sum sq. resids	165256.0	141.5573	4623.771	292.4916	39.07937
S.E. equation	98.59483	2.885637	16.49201	4.147938	1.516175
F-statistic	3.320180	4.161018	1.303610	4.417606	2.552982
Log likelihood	-134.7528	-53.53350	-93.62551	-61.87941	-38.73174
Akaike AIC	12.23937	5.176826	8.663088	5.902558	3.889717
Schwarz SC	12.53559	5.473042	8.959304	6.198774	4.185932
Mean dependent	60.05228	18.52174	10.05680	26.58084	14.35542
S.D. dependent	121.8480	3.782731	17.05152	5.528951	1.763560

Determinant resid covariance (dof adj.)	5.86E+08
Determinant resid covariance	1.29E+08
Log likelihood	-377.9644
Akaike information criterion	35.47517
Schwarz criterion	36.95625

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On the equation of GDP (equation 3), a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.002% decrease, 2.275% increase, 0.185% decrease, 0.655% increase and 0.133% increase in current GDP respectively. Here, GDP and money are positively related.

The equation of money supply (equation 4) shows that a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.001% increase, 0.416% decrease, 0.031% decrease, 0.635% increase and 0.581% increase in current money supply respectively. The result is consistent with monetary policy given that the relationship between money supply and inflation. A situation known as demand pull inflation or too much money pursuing too few goods and the result is inflation.

The equation of interest rate (equation 5) shows that a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.001% increase, 0.035% decrease, 0.006% increase, 0.058% decrease and 0.601% increase in current interest rate respectively.

The overall goodness of fit shows that 49.4% variation in inflation is caused by the variations in the previous values of inflation inertia, unemployment, GDP, money supply and interest rate. While 55.0% variation in unemployment is caused by the joint variation in the previous values of inflation inertia, unemployment, GDP, money supply and interest rate. The equation of GDP indicates that 27.7% variation in GDP is caused by the joint variation in the previous values of inflation inertia, unemployment, GDP, money supply and interest rate. While 56.5% variation in money supply is caused by the joint variation in the previous values of inflation inertia, unemployment, GDP, money supply and interest rate. And 42.8% variation in interest rate is caused by the joint variation in the previous values of inflation inertia, unemployment, GDP, money supply and interest rate.

Variance Decomposition

This section has to do with assessing the relative contribution of the variables to the fluctuation in in inflation, unemployment, GDP, money supply and interest rate. This is done by decomposing the forecast variance of the inflation rate and unemployment over different horizons. The statistics in Table 5 and 6 indicate the percentage contribution of innovations in each of the variables to the variance decomposition of inflation and unemployment.

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Table 5: Variance Decomposition of Inflation

D	S.E.	INF	UNP	GDP	M2	INT
1	98.59483	100.0000	0.000000	0.000000	0.000000	0.000000
2	120.0677	91.61580	1.417609	3.248314	2.809428	0.908854
3	127.6780	88.00204	1.481462	3.789007	4.527088	2.200400
4	132.1491	84.02485	2.466584	3.640559	5.673039	4.194966
5	135.5348	80.30149	3.453885	3.470588	6.234187	6.539855
6	138.0903	77.41265	4.244284	3.343382	6.344754	8.654926
7	139.8769	75.44774	4.787708	3.263590	6.264218	10.23674
8	141.0020	74.26198	5.096958	3.221343	6.167845	11.25188
9	141.6333	73.62848	5.238715	3.202605	6.122467	11.80774
10	141.9480	73.33103	5.285854	3.196043	6.130195	12.05688

Variance decomposition to inflation shows that shocks to inflation inertia are important source of variation in inflation accounting for 73.33 percent shocks in prices after 10 periods, while interest rate shocks explained 12.05 percent. Unemployment and money supply accounted for just 5.28 and 6.13 percent respectively. This is in line with the Philips curve paradigm that unemployment shocks affect forecast of future inflation. The result is also in line with monetary assertion that money supply causes inflation when it is not supported by growth in output. Not much can be said of interest rate which is inconsistent with the use of monetary aggregates as intermediate monetary targets. It is also not in line with the monetary precepts which states that the expansion of bank lending and hence of the money supply leads to an increase in expenditure that in turn puts further pressure on prices in an open-ended process that epitomized the inherent instability of credit.

Table 6: Variance Decomposition of Unemployment

D	S.E.	INF	UNP	GDP	M2	INT
1	2.885637	0.386761	99.61324	0.000000	0.000000	0.000000
2	3.471217	0.300094	87.64135	4.414347	2.999387	4.644817
3	3.708089	0.305604	78.79951	3.928759	5.184408	11.78172
4	3.864574	0.370595	74.26254	3.620537	5.250796	16.49553
5	3.966000	0.491894	71.84356	3.481549	5.003492	19.17951
6	4.022574	0.624942	70.45700	3.429916	4.888757	20.59938
7	4.050311	0.737161	69.71036	3.411431	4.925899	21.21515
8	4.062734	0.816218	69.33376	3.406658	5.050999	21.39237
9	4.068299	0.862964	69.14620	3.405264	5.192840	21.39273
10	4.071451	0.885382	69.04452	3.403010	5.307125	21.35996

Variance decomposition of unemployment reveals that apart from itself which accounted for 69.04 percent, interest rate and money supply are major sources of fluctuation in unemployment accounting for 21.35 and 5.30 percent respectively. This is also in line with the monetary policy

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paradigm and economic theory of interest rate, money supply and growth. Not much can be attributed to inflation and GDP.

Table 6: Variance Decomposition of GDP

Period	S.E.	INF	UNP	GDP	M2
1	16.49201	0.984326	11.04377	87.97190	0.000000
2	18.88696	0.793244	27.01106	69.81321	1.402055
3	19.01571	0.811325	27.11897	69.53816	1.526774
4	19.04859	0.811352	27.03309	69.30533	1.675289
5	19.06422	0.812575	27.01905	69.19341	1.691145
6	19.07623	0.815453	27.02803	69.10798	1.690433
7	19.08322	0.818703	27.02647	69.05887	1.689214
8	19.08680	0.821501	27.02298	69.03369	1.689838
9	19.08848	0.823566	27.02023	69.02195	1.692344
10	19.08922	0.824865	27.01839	69.01680	1.695505

Variance decomposition of GDP reveals that apart from itself which accounted for 69.01 percent, unemployment and money supply are major sources of fluctuation in GDP accounting for 27.01 and 1.69 percent respectively. This is also in line with the monetary policy paradigm and economic theory of interest rate, money supply and growth. Not much can be attributed to inflation.

DISCUSSION

Several reasons account to why governments might want to achieve low inflation, perhaps the most compelling being the potential for faster output growth. Indeed, among the factors that are likely to affect growth, perhaps none is as readily changed in the short run as the inflation rate. Few would doubt the negative growth effects of high inflation for about 40 percent per year but there has been much less consensus on the effect of less severe inflation. Yet from a policy perspective it is the moderate or intermediate inflation range perhaps 5 to 30 percent per year—that is of greatest interest.

The results presented here suggest a negative relationship between Unemployment and Inflation and its impact on growth in the economy of Iraq which is statistically and economically significant. The relationship is non-linear, in two senses:

First, at very low inflation rates, the relationship is positive; second, at all other inflation rates, the apparent marginal effect of inflation on growth becomes less important as higher inflation rates are considered. Failure to take account of both these non-linearities can seriously bias results toward finding only a slight marginal effect, giving the misleading impression that inflation must become quite high before its cumulative effect becomes important.

The study additionally tried to find the impact of inflation and unemployment on economic growth and also, test for evidence of Philips curve in Iraq using the New Keynesian Philips curve model,

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analysis from the VAR approach. For the selection of lag length, a lag length of one is selected based on Schwarz information criteria because it takes into consideration the parsimoniousness of the model and has stringer theoretical backing (Serrate, 2006). Under the Roots of characteristic Polynomial Test, results shows that no root lies outside the unit circle and hence the VAR satisfies the stability condition.

In sum, the entire test results of the VAR analysis in table at lag one indicates that the variables are dynamically interacted. Starting with the equation of inflation (equation 1), a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.567% increase, 0.468% increase, 0.054% decrease, 5 .643% decrease and 8.195% decrease in current inflation respectively. The plausibility of the results lies with the negative relationship between unemployment and inflation, a phenomenon known as the Phillips curve. The result is consistent with the famous Phillips curve.

Followed by the equation of unemployment (equation 2), a 1% increase in the previous values of inflation, unemployment, GDP, money supply and interest lead to a 0.002% decrease, 0.589% decrease, 1.304% decrease, 0.187% decrease and 0.535% decrease in current unemployment respectively. Here again the relationship between unemployment and inflation is negative obeying the Phillips curve. The result also shows that previous unemployment also contributes to current unemployment.

Using the impulse response to measure unemployment, it is realized that as unemployment increases, inflation decreases initially, increases and later decreases. This phenomenon depicts the non-accelerated inflation rate of unemployment (NAIRU) postulated by Milton Friedman who said "the Phillips curve is to the best of knowledge a short run phenomenon where as in the long run, it does not exist".

The result shows clearly that there is a sure impact of inflation and unemployment on economic growth in the economy of Iraq.

CONCLUSION

With regards and emphasis on the above data analysis and summary, this manuscript concludes that the nature of inflation in the country was cost-push attributed to the method of technology adopted and the level of unemployment in the country. This will make it possible for inflation rates if regressed along to behave abnormally to growth rates of output in Iraq. A historical analysis of monetary policy in Iraq within this framework suggests that monetary conditions might have been less accommodative and, hence, inflation in Iraq might have been lower and less volatile than what was observed in recent past had Iraq followed prescriptions based on a rule consistent with price stability. In conclusion therefore, fight against unemployment and inflation in Iraq is not going to be easy or a short run affair, this was because what brought about high unemployment rates also brought about reduction in the growth rates of output in the country and what brought about high inflation rates also brought about improvement in the growth rates of output in Iraq. This study concludes by saying that combating the challenges of the rising inflation and unemployment level in Iraq is not a small task for policy makers and economic managers in Iraq. The consequences of

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a growing inflation and unemployment phenomenon are so damning that Iraq cannot afford them. Such implications are glaring in the economy of Iraq where many negative developments were traceable to the non-availability of jobs for the teaming population of energetic youths with a frequent rise in general price level coupled with frequent violence and wars. Therefore, the need to aptly address this ugly development becomes paramount.

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