

Transitioning the Iraq Economy towards a Market Economy by Using Johnson Transfers for Some Indexes - Period 1994-2013

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This study is about transition mechanics for a market economy. This transition offers solutions for all the countries that suffer from structural imbalances and economic problems, so the study came to confirm the mechanisms and application in practice for the Iraqi economy to get out of the predicament and its integration into the global economy. The deterioration of the Iraqi economy is plagued within the framework of the totalitarian regime market concerned with economic affairs and searching for solutions and treatments to prevent the continuing deterioration and chaos that has swept the country. This has come accompanied with the visions of global institutions at the centre of capitalist ideas and the failure of socialist ideals in production process management. This study confirmed analysis of the Iraqi economy in reality and socially for Iraq by using the descriptive-analytical method. To frame the theoretical side the quantitative method (method of Johnson transfers and multiple linear regression) was used to obtain results, and select a time series for the period of 1994-2013. The study showed that there is a positive relationship between the financial revenues of the oil sector and the size of government spending, especially in recent years, and also showed the contribution of the agricultural and industrial were shy in participation in GDP items. A study result is the recommendation to activate the role of other economic sectors and not to entirely rely on the oil sector; the treatment of unemployment problem through meeting success requirements of the agricultural sector and a decent life for rural residents including guidance, support and encouragement for the exercise of agricultural activity. This comes within a frame of balanced price policies and the imposition of taxes on imports which compete with local agricultural products in the seasons of production. There is no doubt that the provision of satisfactory job opportunities

for young people will contribute significantly to economic stimulation increased member purchasing power to prevent the deterioration of the security situation and therefore its treatment of the economic problem is at the same time a security problem that threatens the country's stability.

Key words: *Economics, Transition, Johnson Transfers.*

Introduction

The transfer to a market economy and international changes have occurred rapidly, especially after the collapse of the Soviet Union at the end of the eighties and early nineties of the last century, and shaped by these changes of economic impact and the greatest role in supporting the economic liberalization processes in preparation for the transition to a market economy (Radas & Božić, 2009). Iraq's economy has suffered previously from wars, economic blockade and today suffers from structural and sects. It also suffers as a result of bad administration and reckless policies and immoral distribution of wealth, the period following the 2003 and destruction operations systematised infrastructure and public facilities of the country led to the collapse of the productive sectors of agriculture and industry imbalances made it dependent on only rentier resource (oil sector). For several reasons, including population growth and migration from the rural areas to the city life and the worsening of the unemployment problem and giving priority to the consumer aspects and neglecting aspects of investment and industries that advance rate of the economy.

It is no secret that to rent the economy and the Iraqi finance the state budget of imports of this sector, the oil sector took over the bulk of the contribution rate in the gross domestic product items, and it is of note that there is a clear relationship between rent-seeking supply and increased government spending. This in turn led to a deficit in the previous budgets. This deficit is due to two reasons: first, the increasing government spending is on the positive relationship with imports rent-seeking sector, and second the decline in global oil prices would widen the budget deficit and the search for other resources to finance the budget and cover the deficit, that one of the economic reform mechanisms is to diversify sources of income and there is a fact that cannot be ignored and that promote the sustainable development of any oil supplier that does not belong only to the current generations is no doubt that future generations share should also be preserved.

Research Problem

The socialist system generated considerable economic problems, including those related to the ownership of the means of production and economic role that could be played by the private sector in free economy. The spree of the Iraqi economy in the period of the Seventies

and eighties to the end of the nineties thought socialist and given the task to the public sector, without economic planning prior and without taking into account economic efficiency, which is considered the norm in the private sector and the transition under of the new system.

The Data

The Researcher has regulated indicators depend on the studied period, which spread from 1994-2013 and varied follow as available data in accordance with the following Table 1 below:

Table 1: Shows the economic indicators for Iraq (millions of dollars, percentage)

Years	GDP (constant 2005 US\$)	(constant 2005 US\$)	Agr. V.A.	Exp. % GDP	Trade. % GDP	Imp. % GDP	FDI % GDP	Money S.S % GDP	Inf. GDP deflator (annual %)	Interest rate (%)
1994	22.0397 5428	8.684 8123 95	7.1183 14053	*	*	*	*	*	396.43 80174	*
1995	22.5070 0181	9.979 3574 57	11.954 02299	*	*	*	*	*	295.36 76671	*
1996	24.9874 5023	10.88 7585 11	7.4041 35428	*	*	*	*	*	- 12.544 13745	*
1997	30.2942 6895	21.95 5960 66	- 8.1030 61156	*	*	*	*	*	91.498 79784	*
1998	40.8539 711	34.64 4578 91	8.2563 25899	*	*	*	*	*	- 15.860 76554	*
1999	48.0370 2497	41.46 2546 77	15.937 07403	*	*	*	*	*	71.148 04492	*



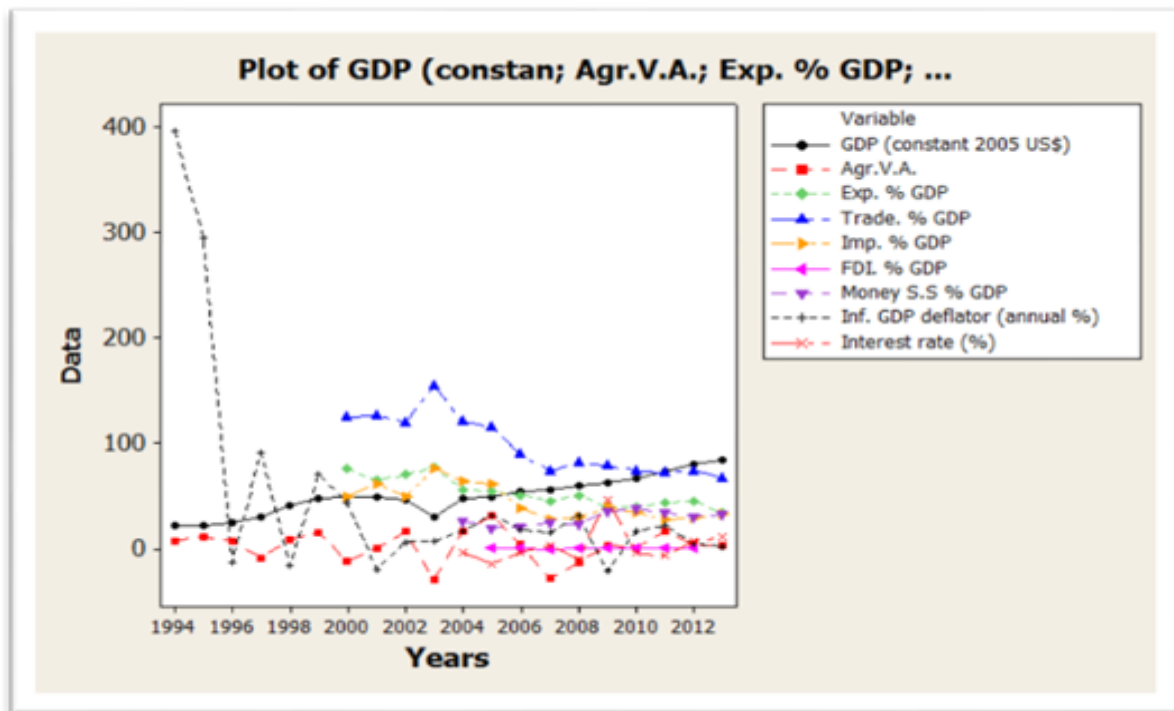
2000	48.7126 5363	42.21 7774 41	- 11.550 98973	75.70 3774 22	125.3 3659 56	49.63 28214 2	*	*	43.678 13985	*
2001	49.8356 3471	42.15 9139 67	1.1985 18196	65.27 3391 39	126.7 8025 6	61.50 68645 8	*	*	- 19.576 53265	*
2002	46.3968 861	36.43 7977 32	16.981 05082	70.57 0051 52	119.7 6204 77	49.19 19962 3	*	*	6.6533 71038	*
2003	31.0391 2798	23.16 9730 26	- 29.126 01701	77.39 2718 88	154.2 3452 53	76.84 18064 1	*	*	7.8042 35421	*
2004	47.8492 2896	31.76 6743 24	17.440 19946	56.27 0908 53	120.2 3397 71	63.96 30685 9	*	26.96 6878 39	16.721 69956	- 2.945 06754 9
2005	49.9548 9035	29.55 1754 96	31.354 77022	54.34 7870 58	115.7 4254 03	61.39 46697 3	0.177 56019 4	20.24 6565 82	32.306 92297	- 14.09 9985
2006	55.0294 0782	31.25 0177 31	4.3151 05394	51.03 1942 99	89.65 0519 86	38.61 85768 7	0.468 21485 1	20.83 9720 91	18.005 03017	- 2.984 36162 7
2007	55.7874 9192	33.57 3884 17	- 27.698 96222	45.89 9839 17	74.09 2853 11	28.19 30139 3	0.008 89261 8	24.50 4536 97	15.015 81429	3.869 77426 1
2008	59.4744 1187	37.60 5480 45	- 13.186 15086	50.32 8307 22	81.05 5543 27	30.72 72360 5	0.025 52962 2	23.51 8118 98	32.152 59434	- 9.578 01426 8
2009	62.9297 2057	39.12 4639 31	3.3864 74672	39.40 0110 26	78.68 7378 82	39.28 72685 6	0.064 39141 1	35.81 6059 97	- 21.369 79183	47.05 33221 6
2010	66.4146 9943	39.63 0058 54	1.0694 65516	39.95 7991 31	74.03 8641 72	34.08 06504 1	0.090 16961 8	37.88 1847 78	17.541 93885	- 3.586 89465 4

2011	73.1983 5615	44.80 5337 59	16.635 08625	44.41 7523 04	72.17 1328 22	27.75 38051 8	0.197 03938 7	34.09 5164 15	21.671 45848	- 6.628 33495 5
2012	80.7319 3192	50.31 0895 12	4.2555 436	44.91 7962 18	74.28 5965 87	29.36 80037	0.226 80532 9	30.62 3203 15	5.0953 40043	7.553 92829 1
2013	84.1321 5532	50.55 1389 16	2.8372 526	33.95 7176 28	66.68 0226 1	32.72 30498 3		33.42 5710 57	1.8582 55327	11.06 20174 8

Source: World Bank, Department of Statistics: www.worldbank.org-statistical data

These data are represented in the following Figure 1:

Figure 1. show the curves for the economic indicators for Iraq (millions of dollars, percentage)



Source: The data from Table 1 by use Minitab. 16 Demo

From the figure above the inflation (annual %) indicator which given a high ratio when compared with other indicators and second Trade. % GDP, we can observe other indicators which it extended in parallel under time series studied.



Literature Review

Hisham (2004) published a book entitled "Transformation Mechanisms from a centrally planned to a market economy system, the experience of transition economies". The Editor used the descriptive method for the new concept of comprehensive development in the transition economies. This is a new process between the material and the uses of current and future needs through a complex and long-lasting process is the process of transformation moves the economy in all its structures and institutions, mechanisms and means it shifting from a socialist thought a cross central planning is based on the capitalist thought through decentralised planning and the adoption of a new system is the system Market economy. Omar, (2006) published a thesis entitled "Economic reform policies in developing economies between tasks and shifts with reference to the case of Iraq" Kicks off research hypothesis from the transition from a planned economy to a market economy is through the channels and mechanisms embodied in the programs and policies of economic reform and usually following with those programs positive and negative secretions.

The Iraqi economy is able to put the pros on the negatives in the transitional phase, and this research has used the inductive approach to obtain the results and objectives desired, and the study found a set of conclusions and recommendations that will promote the Iraqi economy in the next phase.

Hamdiya (2007) published a thesis entitled " Structural changes trends in the economies of the transition from a centrally planned to a market economy system for the period (1990-2004)" The research hypothesis highlighted the inability of transition from the socialist states to the capitalist system to check the structural changes undesirable from the standpoint of development, in order to reach the goals of search requests to combine of deduction and induction approach by adoption of linkage methodology between the theoretical analysis of the problem and framed fundamentals and concepts of the theory of models econometrics. Economic relations which represents the phenomenon of these countries development whenever the data permit, then it can reach a private conclusions, and others can be generalised and reached the researcher about how to determine the requirements of the pillars of economic development of the transition economies and identify the dynamic relationships of economic growth and a focus on economic changes in favour of sectors out of respect for the most productive.

Ahmed (2009) published a thesis entitled "Necessary and fundamental of the transition from the planned to the automatic method for growth, Iraq Case Study". The resultant research hypothesis is that the process of transition from a totalitarian economy to liberation market without excluding the role of the state, is a necessity to turn these economies into the most advanced. This researcher used inductive reasoning to investigate the case and then turned to a deductive approach, as the researcher tried to find a gradual path to accomplish these

transformations for which procedures have already begun in the Iraqi economy after the fall of the former regime in 2003. This was effected through the laws of the occupation forces and then Iraqi governments, which have been associated through agreements with international organisations to perform these transformations.

Ahmed Jassim, (2012) publish thesis entitled "Evaluation and testing of the transition path to a market economy in Iraq, comparative analysis of systematic shock and gradient", It emanated research hypothesis that the gradual economic transformation is the best approach, the researcher used the analytical technique and the link between the descriptive and inductive approach to the experiences of selected and benefit from them and apply what suits the nature of the future of the Iraqi economy and research found a group of results and diagnose weaknesses and failures suffered by the economy and the researcher a set of recommendations that would provide for the advancement of the Iraqi economy.

Methodology

We can estimate the linear regression model by using tenth variables as following:

GDP: represent the Gross domestic product in money (constant 2005 US\$).

Ind.A.V: represent the industrial Add Value sector in money (constant 2005 US\$).

Agr.V.A: represent the Agriculture Add Value sector in money (constant 2005 US\$).

Exp.: represent the Export sector percentage of % GDP.

Trade: represent the Trade sector percentage of % GDP.

Imp.: represent the import sector percentage of % GDP.FDI. % GDP

Money S.S.: represent the Supply of money wide concept.

Inf.: represent the Inflation deflator (annual %).

Interest rate (%): represent the Interest rate (%).

We use linear model the formulation of it as following:

$$Q_i = b_0 + b_1 p_q + b_2 C_u + b_3 A_p + b_4 Y_t + U_i$$

Where: (i = 1, 2, 3,n)

b_0 : constant (intercept).

b_1 : parameters represents slop.

U_i : random variable.

The result of estimation as follows:

Estimation and Interpretation

Estimated economic indicators for Iraq models by using statistical software (Minitab release 16) and earned a researcher on the results according to the Johnson transfers and the real data which showed that GDP are stable depends on Johnson transfers and the researcher will analysis two models as Table 2 below follows the program it excludes variable imports and

the unemployment rate by using linear model while the model which contains the transformed variables in a way Johnson has statistical program exclude variable unemployment and interest rate because of the high they relate with others:

Table 2: Model Estimations Variables and Tests

Estimations Variables &tests	Real date model GDP-Ind.,Agr.,Ser.	GPD- J Variables model
Constan t	-132.31 (-3.23) ^{1%}	-443.5 (-3.14) ^{1%}
Ind.sector t	5.0099 (6.67) ^{1%}	-3.636(N) (-1.05) ^{25%}
Exp. Sector t	-1.8825 (-3.77) ^{1%}	12.049(N) (-3.23) ^{1%}
Imp Sector t		13.090(J) (2.39) ^{5%}
Trad .sector t	0.1099 (1.01) ^{25%}	-81.27(J) (-2.65) ^{1%}
Money S.S. t	-0.4693 (-1.73) ^{5%}	5.421(N) (2.35) ^{5%}
FDI. % GDP t	39.19 (3.05) ^{1%}	-44.44(N) (-0.97) ^{25%}
Inf. GDP deflator (annual %) t	-1.2853 (-2.88) ^{1%}	-29.52(J) (-1.91) ^{5%}
Interest rate (%) t	-1.3589 (-3.79) ^{1%}	
S.E	2.41231	3.79812
R^2	99.5%	98.7%
\bar{R}^2	95.9%	89.8%
r	99.7%	99.3%
$F_{(8,20)}$	(27.53) ^{1%}	(11.02) ^{1%}
D.W	(3.29629) ⁱⁿ	(3.47296) ^{out}

Source: organized from the estimation results by using Minitab 16 and Data Table 1

N: real data, J: Johnson transformation data

$t - table_{0.01} = 2.583$,

$t - table_{0.05} = 1.746$, $t - table_{0.10} = 1.337$, $t - table_{0.25} = 0.690$

$$F - table_{0.01} = 3.56, F - table_{0.05} = 2.45$$

$$D.W_{0.05} = dl = 0.692 \quad du = 1.84$$

Table 2 shows the estimated models of the impact of economic indicators on output domestic product. Results of the table were the best estimator model is a linear model in real data that has passed all statistical tests and standard and therefore, the researcher elected this model to explain economic relations.

Table 3: Shows the transformations Johnson by using functions for economic indicators in Iraq, the period of 1994-2013

Years	J-Trade. % GDP(1)	J-Imp. % GDP(2)	J-Inf. GDP(3) deflator (annual %)	J- Interest rate % - GDP(4)
1994	0.16214	0.65789	1.83087	0.24578
1995	0.28326	0.46578	1.68423	0.34679
1996	0.42873	0.54678	1.09760-	-0.57680
1997	0.63456	0.43268	1.08344	0.64578
1998	0.57293	0.23897	1.16441-	0.76589
1999	0.54637	0.43567	0.94821	0.76543
2000	0.71862	0.34158	0.67443	-0.53214
2001	0.74974	0.74446	1.23029-	0.65748
2002	0.60326	0.32671	0.41850-	0.32907
2003	1.83000	1.80831	0.35703-	0.34973
2004	0.61280	0.83861	0.07289	-0.20856
2005	0.52314	0.74033	0.49494	-1.71000
2006	0.03129-	0.08593-	0.12142	-0.21339
2007	0.61350-	1.36463-	0.00285	0.41781
2008	0.29055-	0.68700-	0.49201	-1.17696
2009	0.38235-	0.05405-	1.25930-	1.71000
2010	0.61687-	0.35379-	0.10430	-0.28967
2011	0.74820-	1.80229-	0.24278	-0.72951
2012	0.60165-	0.93135-	0.49950-	0.64047
2013	1.83000-	0.46453-	0.65342-	0.81091

Source: organised from the estimation results by using Minitab 16 and data Table 1

We can clarify the transformation data (Johnson Transformation) more accurately by using the following figures:

We will work to test the complementary relationship by conducting the Joint Integration Test (Johansen), which tests the

- hypothesis H0 , which states that there is no common integration (long-term relationship) between variables, as opposed to the .
- alternative hypothesis (H1) which provides for a common integration relationship between variables,

based on the trace test, which is symbolized by the symbol (λ_{trace}) and figure () that demonstrates the results of the Johansen test for the joint integration test of the variables studied ,

Figure (2) Johansen's test for model variables.

Sample (adjusted): 1994-2013				
Included observations: 18 after adjustments				
Trend assumption: Linear deterministic trend				
Series: GDP1 GDP2 GDP3 GDP4				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.859346	78.49210	47.85613	0.0000
At most 1 *	0.770887	43.18593	29.79707	0.0008
At most 2 *	0.603592	16.66221	15.49471	0.0332
At most 3	0.000366	0.006591	3.841466	0.9347

Source: organised from the estimation results by using (Eveiwes9) and data Table 3

According to the results of this test according to the Trace, there is a common integration between variables (GDP1,GDP2, GDP3) because trace statistic is greater than the value (Critical Value) below the level (0.05) and the value (prob) smaller than (0.05) morale. There is no common integration of the variable (GDP4) because trace statistic is smaller than the value (Critical Value) below the level (0.05) and the value (prob) is greater than (0.05) non-morale.

Analysis of Variance

Dependent on t-test the significant of regression coefficient model and variables (Ind.sector, Exp.sector, FDI sector, Inf. & Interest) at 1%, while the significant of Money S.S. at 5%, & on level 25% the significant at 1% of Trade variable, and based on F-test the significant of overall model at 1% which indicates the efficiency and substantive R^2 and efficiency of the elected variables to represent the economic relationship.

Multicollinearity Problem

Table 4 below shows the matrix of partial correlation coefficients of independent variables.

For the detection from multiple linear correlation problem, the researcher used Klein test for comparing the total correlation coefficient it about 99.3%, and matrix multiple linear correlation coefficient of the following :

Table 4: matrix of partial correlation coefficients of independent variables

Variables	Exp. % GDP	Ind % GDP	Trade. % GDP	Money S.S % GDP	FDI. % GDP	Inf. GDP defla	Interest rate (%)
Exp. % GDP	1						
Ind % GDP	0.834	1					
Trade. % GDP	0.924	0.727	1				
Money S.S % GDP	-0.785	0.176	-0.570	1			
FDI. % GDP	0.334	-0.650	0.288	-0.314	1		
Inf. GDP defla	0.193	-0.501	0.053	-0.594	0.117	1	
Interest rate (%)	-0.571	0.130	-0.346	0.513	-0.227	-0.969	1

Source: organised from the estimation results by using Minitab 16 and data Table 1

From the matrix above it can be observed that the total correlation of coefficients is greater than all the partial matrix between the independent variables & the matrix in above explain the highest value correlation between variables of inflation and interest rates but is lower than with the total correlation coefficient of estimated model, therefore the model does not demonstrate a multi-collinearity problem.

Autocorrelation Problem

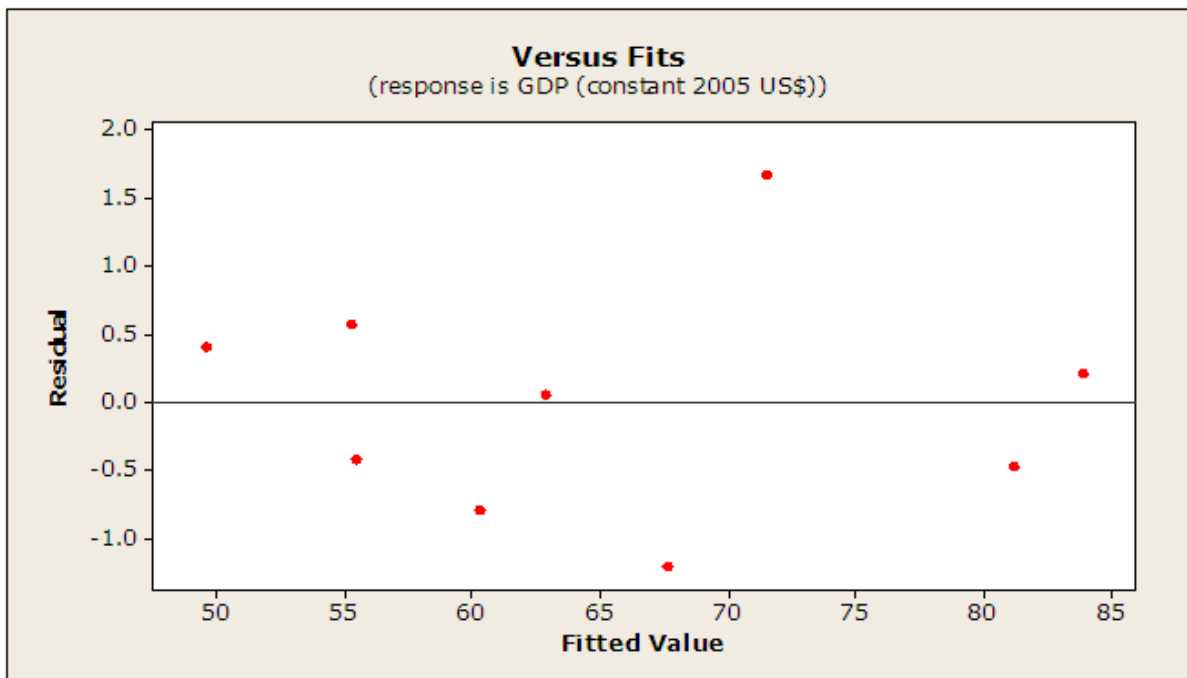
To test the issue of autocorrelation, D-W test was applied for the the findings are given below

Table 5: Testing the issue of Autocorrelation through D-W test results

dl	du	4-du	4-dl
0.692	1.84	2.160	3.308
D.W = 3.29629			

It can also be said that there is no problem in the estimated model because of the occurrence of the value of D-W at acceptance area as depicted above. In addition, Figure 12 shows the residuals of the estimated model.

Figure 3. Spread of the residuals of the estimated model



Source: organized from the estimation results by using Minitab 16 and data Table 1

Conclusions

1. From the results of the estimation and interpretation of Iraqi economic relations, the industrial sector showed positivity in relationship with GDP; this is compatible with the assumptions of economic theory and therefore it cannot be inferred that the industrial sector has the capacity and capability presently, and this is a result of the extr-active industry that relied on the oil as a main commodity.
2. Iraqi exports index (non-oil) breached theoretical hypotheses which showed a negative to GDP and that indicates that of the non-oil exports fact, the failure of the industrial and agricultural sector, make it difficult to export goods and services to the foreign sector and therefore the relationship appeared negative with GDP.
3. Economic relations with the S.S.Money index have a negative relationship with the GDP, which is compatible with the assumptions of economic theory because the increase in S.S.Money has caused a negative impact on the economy and led to higher inflation.
4. Iraqi interest rate is associated with GDP by negative relationship, which is in agreement with the assumptions of economic theory because higher interest rates will lead to a decline in investment due to the high cost of capital, and the encouragement for capital owners to deposit their money in the banks and that reflects negatively to reduce investment into the country and therefore reflects on the GDP.
5. Evidenced by the results of the estimation that the total exports variable (oil and non-oil) was the strongest variable in impact on the GDP, the Iraqi level of significant 1%, as it explains what rate for 54.39% of the changes in the GDP.



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