ملحق رقم(1):

الإنحدار للدالة اللوغريثمية للناتج المحلي الإجمالي

Dependent Variable: LOG(GDP)
Method: Least Squares
Date: 03/01/17 Time: 14:53
Sample(adjusted): 1971 2014
Included observations: 44 after adjusting endpoints
Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.02270	3.866846	-2.591956	0.0134
LOG(X)	0.962710	0.262093	3.673155	0.0007
LOG(M)	1.405060	0.281427	4.992626	0.0000
LOG(EX)	0.400045	0.161556	2.476199	0.0177
AR(1)	0.958331	0.029632	32.34068	0.0000

R-squared	0.950569	Mean dependent var	9.412849
Adjusted R-squared	0.945499	S.D. dependent var	2.141301
S.E. of regression	0.499894	Akaike info criterion	1.557804
Sum squared resid	9.745876	Schwarz criterion	1.760553
Log likelihood	-29.27170	F-statistic	187.4958
Durbin-Watson stat	2.072406	Prob(F-statistic)	0.000000
Inverted AR Roots	.96		

ملحق رقم(2)

إستقرار الناتج المحلي الاجمالي

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		7.428814	1.0000
Test critical values:	1% level	-3.588509	
	5% level	-2.929734	
	10% level	-2.603064	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 03/01/17 Time: 14:57
Sample(adjusted): 1971 2014
Included observations: 44 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GDP(-1)	0.296807	0.039953	7.428814	0.0000
C	-3356.811	3455.089	-0.971555	0.3368

R-squared	0.567845	Mean dependent var	10697.56
Adjusted R-squared	0.557555	S.D. dependent var	28831.01
S.E. of regression	19177.39	Akaike info criterion	22.60524
Sum squared resid	1.54E+10	Schwarz criterion	22.68634
Log likelihood	-495.3153	F-statistic	55.18727
Durbin-Watson stat	1.956011	Prob(F-statistic)	0.000000

ملحق رقم (3)

إستقرار سعر الصرف

Null Hypothesis: D(EX) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.866896	0.0003
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EX,2)
Method: Least Squares
Date: 03/01/17 Time: 14:58
Sample(adjusted): 1972 2014
Included observations: 43 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EX(-1))	-0.731307	0.150261	-4.866896	0.0000
C	0.099646	0.064930	1.534654	0.1326

R-squared	0.366176	Mean dependent var	0.001860
Adjusted R-squared	0.350716	S.D. dependent var	0.502468
S.E. of regression	0.404879	Akaike info criterion	1.074940
Sum squared resid	6.721017	Schwarz criterion	1.156856
Log likelihood	-21.11120	F-statistic	23.68668
Durbin-Watson stat	1.932112	Prob(F-statistic)	0.000017

ملحق رقم (4)

إستقرار الصادرات

Null Hypothesis: D(X) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.513051	0.0000
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(X,2)
Method: Least Squares
Date: 03/01/17 Time: 14:59
Sample(adjusted): 1972 2014
Included observations: 43 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(X(-1))	-1.279220	0.150266	-8.513051	0.0000
C	128.9024	198.8912	0.648105	0.5205

R-squared	0.638677	Mean dependent var	-10.35116
Adjusted R-squared	0.629865	S.D. dependent var	2136.465
S.E. of regression	1299.799	Akaike info criterion	17.22320
Sum squared resid	69268530	Schwarz criterion	17.30512
Log likelihood	-368.2988	F-statistic	72.47203
Durbin-Watson stat	1.812421	Prob(F-statistic)	0.000000

ملحق رقم(5)

إستقرار الواردات

Null Hypothesis: D(M) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.317648	0.0000
Test critical values:	1% level	-3.592462	
	5% level	-2.931404	
	10% level	-2.603944	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(M,2)
Method: Least Squares
Date: 03/01/17 Time: 15:00
Sample(adjusted): 1972 2014
Included observations: 43 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(M(-1))	-0.995763	0.157616	-6.317648	0.0000
C	210.3730	163.3194	1.288108	0.2049

R-squared	0.493281	Mean dependent var	-16.78605
Adjusted R-squared	0.480922	S.D. dependent var	1449.996
S.E. of regression	1044.680	Akaike info criterion	16.78620
Sum squared resid	44745582	Schwarz criterion	16.86812
Log likelihood	-358.9034	F-statistic	39.91268
Durbin-Watson stat	1.980765	Prob(F-statistic)	0.000000

ملحق رقم (6)

التكامل المشترك

Date: 03/01/17 Time: 15:04
Sample(adjusted): 1972 2014
Included observations: 43 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: M X GDP EX
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.741613	80.32282	47.21	54.46
At most 1	0.256534	22.13103	29.68	35.65
At most 2	0.187681	9.384456	15.41	20.04
At most 3	0.010327	0.446384	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.741613	58.19179	27.07	32.24
At most 1	0.256534	12.74658	20.97	25.52
At most 2	0.187681	8.938072	14.07	18.63
At most 3	0.010327	0.446384	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):

M	X	GDP	EX
0.001166	-6.06E-05	-9.19E-05	0.742215
-0.001508	0.001152	1.63E-05	-0.637872
0.000463	-9.36E-05	-1.74E-06	-1.146909
-0.000373	-0.000623	4.62E-05	-0.276852

ملحق رقم (7)

إختلاف التباين

White Heteroskedasticity Test:

F-statistic	2.134627	Probability	0.071644
Obs*R-squared	11.34373	Probability	0.078317

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 03/01/17 Time: 15:17
Sample: 1970 2014
Included observations: 45

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	18.32522	11.41043	1.606007	0.1166
LOG(M)	2.421304	4.384843	0.552199	0.5840
(LOG(M))^2	-0.109310	0.304944	-0.358461	0.7220
LOG(X)	-7.059235	4.569134	-1.544983	0.1306
(LOG(X))^2	0.413206	0.309507	1.335044	0.1898
LOG(EX)	-0.657299	0.343809	-1.911815	0.0635
(LOG(EX))^2	-0.126665	0.052328	-2.420601	0.0204

R-squared	0.252083	Mean dependent var	0.816617
Adjusted R-squared	0.133991	S.D. dependent var	1.942136
S.E. of regression	1.807344	Akaike info criterion	4.163629
Sum squared resid	124.1268	Schwarz criterion	4.444665
Log likelihood	-86.68165	F-statistic	2.134627
Durbin-Watson stat	1.148086	Prob(F-statistic)	0.071644

ملحق رقم (8)

الارتباط الذاتي للبواقي

Dependent Variable: LOG(GDP)
Method: Least Squares
Date: 03/01/17 Time: 15:23
Sample(adjusted): 1971 2014
Included observations: 44 after adjusting endpoints
Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.02270	3.866846	-2.591956	0.0134
LOG(M)	1.405060	0.281427	4.992626	0.0000
LOG(X)	0.962710	0.262093	3.673155	0.0007
LOG(EX)	0.400045	0.161556	2.476199	0.0177
AR(1)	0.958331	0.029632	32.34068	0.0000

R-squared	0.950569	Mean dependent var	9.412849
Adjusted R-squared	0.945499	S.D. dependent var	2.141301
S.E. of regression	0.499894	Akaike info criterion	1.557804
Sum squared resid	9.745876	Schwarz criterion	1.760553
Log likelihood	-29.27170	F-statistic	187.4958
Durbin-Watson stat	2.072406	Prob(F-statistic)	0.000000

Inverted AR Roots .96

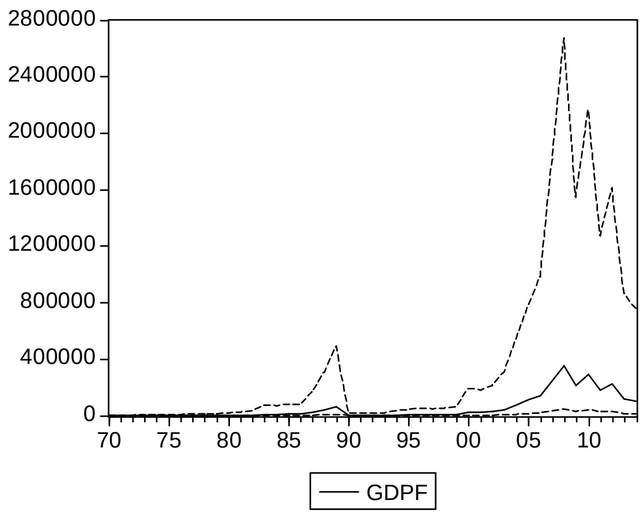
ملحق رقم (9)

الارتباط الخطي

	M	X	EX
M	1	0.903254978295	0.731269423122
X	0.903254978295	1	0.610890265741
EX	0.731269423122	0.610890265741	1

ملحق رقم (10)

التنبوء (قيمة ثايل)



Forecast: GDPF	
Actual: GDP	
Forecast sample: 1970 2014	
Included observations: 45	
Root Mean Squared Error	78888.41
Mean Absolute Error	31783.11
Mean Abs. Percent Error	143.7688
Theil Inequality Coefficient	0.369022
Bias Proportion	0.000939
Variance Proportion	0.008768
Covariance Proportion	0.990294

ملحق رقم (11)

بيانات سعر الصرف

Year	Official Exchange Rate	Parallel Rate	Premium	Temporary Advances to Government (Million SDGs)
1970	0.00035	0.00061	75.3%	-
1971	0.00035	0.00061	75.3%	-
1972	0.00035	0.00061	75.3%	-
1973	0.00035	0.00061	75.3%	-
1974	0.00035	0.00060	72.4%	-
1975	0.00035	0.00060	72.4%	-
1976	0.00038	0.00055	45.9%	-
1977	0.00038	0.00059	56.5%	-

1978	0.00038	0.00063	67.1%	-
1979	0.00043	0.00084	94.6%	-
1980	0.00050	0.00110	120.0%	-
1981	0.00070	0.00103	47.1%	-
1982	0.00130	0.00167	28.5%	-
1983	0.00130	0.00178	37.1%	-
1984	0.00130	0.00239	83.8%	-
1985	0.00130	0.00369	183.8%	-
1986	0.00250	0.00769	207.6%	-
1987	0.00350	0.00697	99.1%	-
1988	0.00450	0.01429	217.6%	-
1989	0.00450	0.01854	312.1%	-
1990	0.00450	0.04167	825.9%	-
1991	0.00500	0.12800	2460.0%	-
1992	0.10000	0.27000	170.0%	-
1993	0.13000	0.49000	276.9%	-
1994	0.22000	0.69000	213.6%	-
1995	0.40000	1.00000	150.0%	93.6
1996	1.25000	1.48000	18.4%	324.3
1997	1.58000	1.65300	4.6%	79.0
1998	1.99000	2.01000	1.0%	90.0
1999	2.52000	3.00000	19.0%	375.7
2000	2.57000	3.08400	20.0%	82.2
2001	2.59000	3.10800	20.0%	100.0
2002	2.63000	3.02450	15.0%	128.8
2003	2.61000	2.87100	10.0%	66.2
2004	2.58000	2.70900	5.0%	0.0
2005	2.31000	2.35620	2.0%	-122.0
2006	2.17000	2.19170	1.0%	315.0
2007	2.02000	2.02000	0.0%	290.0
2008	2.09000	2.28000	9.1%	1,430.5
2009	2.33000	2.58000	10.7%	854.9
2010	2.67000	2.82336	5.7%	1,009.4
2011	2.67000	3.62678	35.8%	1,499.3
2012	3.30000	5.56073	68.5%	2,000.0
2013	5.75000	7.13255	24.0%	2,375.5
2014	5.83000	8.80734	51.1%	2,240.0
2015	6.01070	9.68030	61.1%	3,486.7

المصدر/ بيانات وزارة المالية والإقتصاد الوطني

ملحق رقم (12)

الصادرات والواردات والميزان التجاري خلال فترة الدراسة (1970-2014)

السنة	الصادرات	الواردات	الميزان التجارى	السنة	الصادرات	الواردات	الميزان التجارى
1970	102.2	108.3	-6.1	1993	317.3	944.9	-527.6
1971	114.4	123.7	-9.3	1994	523.9	1161.5	-736.6
1972	124.4	117.9	+6.5	1995	555.7	1184.5	-628.8
1973	152.2	151.8	+0.4	1996	620.2	1504.4	-884.2
1974	122	247.5	-125.5	1997	594.2	1421.9	-827.7
1975	152.5	359.9	-207.4	1998	595.7	1732.2	-1139.5
1976	193	341	-148.4	1999	780.1	1256.2	-476.1
1977	230.2	376.5	-146.4	2000	1806.7	1366.41	440.29
1978	202.3	249.5	-247.2	2001	1698.7	2024.84	-326.14
1979	232.7	477.3	-244.6	2002	1949.11	2152.83	-203.72
1980	271.3	788.2	-516.9	2003	2542.17	2536.1	6.07
1981	357	866.7	-509.7	2004	3777.77	3586.18	191.57
1982	483.1	1213.8	-730.7	2005	4824.28	5945.99	-1121.71
1983	810.7	1760.9	-150.2	2006	5656.60	7104.7	-1448.1
1984	817.3	1490.7	-673.4	2007	8879.20	7722.7	1156.8
1985	844.7	2128.7	-1284	2008	11670	8229.4	3441.1
1986	833.2	2400.7	-1567.5	2009	7833.7	8528	-694.3
1987	1497	2612.9	-1115.9	2010	10044.80	8729.7	1315.1
1988	2187.9	4772.9	-2585	2011	6688.3	9235.4	-2547.1
1989	3023.1	6013.6	-2990.5	2012	8038.3	9229.9	-1191.6
1990	333.7	712.9	379.2	2013	4783.1	9917.7	-5134.6
1991	305	890.3	-585.3	2014	4350.2	9211.3	-4861.1
1992	319.3	820.9	-501.6	2015			

المصدر/ بنك السودان المركزي

ملحق رقم (13)

الناتج المحلي الإجمالي بالأسعار الثابتة والجارية خلال فترة الدراسة

GDP at Constant Prices	GDP at Current Prices	السنة	GDP at Constant Prices	GDP at Prices Current	السنة
9.00	948.45	1993	0.00	**0.60**	1970
9.85	1881.29	1994	0.00	**0.64**	1971
9.97	4049.74	1995	0.00	0.75	1972
10.44	10478.14	1996	0.00	0.90	1973
11.07	16137.37	1997	0.00	1.25	1974
11.73	21935.91	1998	0.00	1.51	1975
12.43	27058.81	1999	0.00	1.85	1976
13.46	33662.71	2000	0.00	2.34	1977
14.32	40658.56	2001	0.00	2.88	1978
15.25	47756.11	2002	0.00	3.25	1979
16.17	55733.78	2003	0.00	3.97	1980
18.01	68721.39	2004	0.00	4.95	1981
19.05	85707.13	2005	0.00	7.04	1982
22.22	98718.81	2006	0.00	9.59	1983
22.21	114017.55	2007	0.00	11.81	1984
23.54	127746.90	2008	0.00	15.36	1985
27.62	148137.10	2009	0.00	20.22	1986
29.40	164978.70	2010	0.00	36.48	1987
27.00	186689.90	2011	0.00	46.79	1988
27.10	243412.80	2012	0.00	82.56	1989
28.10	294630.20	2013	6.69	110.11	1990
	471295.50	2014	7.45	192.66	1991
		2015	8.36	421.82	1992

المصدر الجهاز المركزي للإحصاء