

### ملحق رقم (1) متغيرات النموذج

Obs	L	K	Q
1986	12067	170287.7	309.705
1987	13250	179372.6	264.832
1988	13926	187376.4	231.77
1989	14132	194730.7	231.992
1990	13139	208337.5	252.234
1991	13157	228765.3	253.497
1992	14782	236028.2	264.931
1993	15946	248922.6	248.792
1994	14926	248615	252.605
1995	13076	263904.7	280
1996	14928	278720.7	333
1997	15975	282396	356
1998	16739	318337.8	365
1999	17208	328720.2	387.044
2000	15939	392875.3	403.486
2001	15887	337284	376.039
2002	14195	372772.3	398.268
2003	10785	399823	427.895
2004	14276	379956	393.002
2005	13834	381985	400.209
2006	13637	383058	405.04
2007	14748	394852	391.121
2008	18439	398237	323.254
2009	21764	418764	276.11
2010	14198	419368	394

المصدر : شركة سكر كنانه

### ملحق رقم (2) إستقرار كمية الإنتاج

-4.229639	1% Critical Value*	-3.7667
	5% Critical Value	-3.0038
	10% Critical Value	-2.6417

\*MacKinnon critical values for rejection of hypothesis of a unit root.

#### Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Q,2)

Method: Least Squares

Date: 11/02/11 Time: 05:23

Sample(adjusted): 1989 2010

Included observations: 22 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Q(-1))	-1.349748	0.319117	-4.229639	0.0005
D(Q(-1),2)	0.613514	0.297581	2.061671	0.0532
C	7.616716	7.516802	1.013292	0.3237
R-squared	0.486000	Mean dependent var		6.861455
Adjusted R-squared	0.431894	S.D. dependent var		46.76301
S.E. of regression	35.24658	Akaike info criterion		10.08874
Sum squared resid	23604.11	Schwarz criterion		10.23752
Log likelihood	-107.9761	F-statistic		8.982482
Durbin-Watson stat	1.643803	Prob(F-statistic)		0.001795

## ملحق رقم (4) إستقرار راس المال

ADF Test Statistic	-4.692687	1% Critical Value*	-3.7667
		5% Critical Value	-3.0038
		10% Critical Value	-2.6417

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(K,2)

Method: Least Squares

Date: 08/14/11 Time: 04:13

Sample(adjusted): 1989 2010

Included observations: 22 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(K(-1))	-1.838928	0.391871	-4.692687	0.0002
D(K(-1),2)	0.208934	0.225632	0.925991	0.3661
C	19565.14	5898.372	3.317040	0.0036
R-squared	0.769547	Mean dependent var	-336.3545	
Adjusted R-squared	0.745289	S.D. dependent var	38840.54	
S.E. of regression	19602.39	Akaike info criterion	22.73081	
Sum squared resid	7.30E+09	Schwarz criterion	22.87959	
Log likelihood	-247.0390	F-statistic	31.72320	
Durbin-Watson stat	1.993127	Prob(F-statistic)	0.000001	

## ملحق رقم (3) إستقرار العمل

ADF Test Statistic	-3.360184	1% Critical Value*	-3.7497
		5% Critical Value	-2.9969
		10% Critical Value	-2.6381

\*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(L)

Method: Least Squares

Date: 08/14/11 Time: 04:15

Sample(adjusted): 1988 2010

Included observations: 23 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
L(-1)	-0.843006	0.250881	-3.360184	0.0031
D(L(-1))	0.467259	0.316687	1.475459	0.1557
C	12477.87	3698.933	3.373371	0.0030
R-squared	0.376472	Mean dependent var		41.21739
Adjusted R-squared	0.314119	S.D. dependent var		2401.874
S.E. of regression	1989.182	Akaike info criterion		18.14994
Sum squared resid	79136911	Schwarz criterion		18.29805
Log likelihood	-205.7243	F-statistic		6.037771
Durbin-Watson stat	1.822930	Prob(F-statistic)		0.008883

## ملحق رقم (5) التكامل المشترك

Date: 11/15/11 Time: 16:38  
 Sample: 1986 2010  
 Included observations: 23

Test  
 assumption:  
 Linear  
 deterministic  
 trend in the  
 data

Series: Q L K  
 Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.527729	26.59856	29.68	35.65	None
0.295754	9.343882	15.41	20.04	At most 1
0.054109	1.279437	3.76	6.65	At most 2

\*(\*\*) denotes rejection of the hypothesis at 5%(1%) significance level  
 L.R. rejects any cointegration at 5% significance level

Unnormalized Cointegrating Coefficients:

Q	L	K
0.001700	-0.000122	-1.24E-07
0.007252	9.83E-05	-6.19E-06
-0.000231	-1.36E-05	-2.41E-06

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

Q	L	K	C
1.000000	-0.071798	-7.29E-05	771.5806

(0.07189) (0.00072)

Log likelihood -560.5020

Normalized  
Cointegrating  
Coefficients: 2  
Cointegrating  
Equation(s)

## ملحق رقم (6) النموذج المقدر

Dependent Variable: LOG(Q)  
Method: Least Squares  
Date: 11/15/11 Time: 15:17  
Sample(adjusted): 1987 2010  
Included observations: 24 after adjusting endpoints  
Convergence achieved after 9 iterations

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.351682	2.250673	0.600568	0.5549
LOG(L)	-0.463274	0.135780	-3.411944	0.0028
LOG(K)	0.702026	0.143377	4.896371	0.0001
AR(1)	0.579927	0.151566	3.826234	0.0011
R-squared	0.872840	Mean dependent var		5.776319
Adjusted R-squared	0.853766	S.D. dependent var		0.214396
S.E. of regression	0.081986	Akaike info criterion		-2.013521
Sum squared resid	0.134435	Schwarz criterion		-1.817178
Log likelihood	28.16225	F-statistic		45.76074
Durbin-Watson stat	1.603266	Prob(F-statistic)		0.000000
Inverted AR Roots	.58			

## ملحق رقم (7) الكشف عن مشكلة إختلاف التباين

ARCH Test:

F-statistic	0.530221	Probability	0.474556
Obs*R-squared	0.566417	Probability	0.451686

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 11/15/11 Time: 15:54

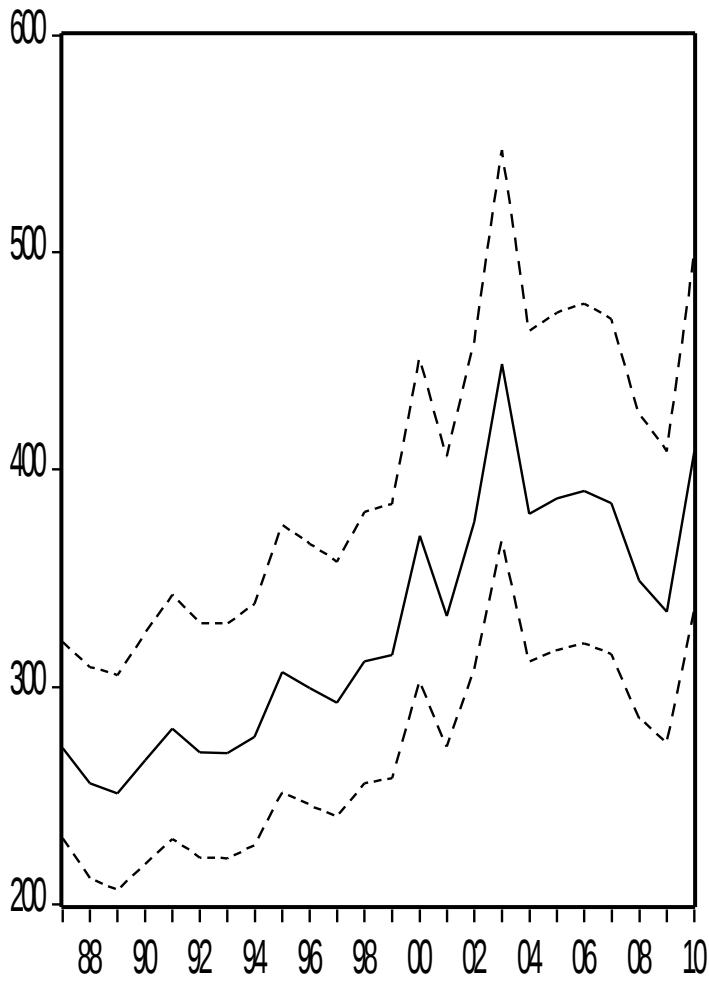
Sample(adjusted): 1988 2010

Included observations: 23 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004933	0.001922	2.566321	0.0180
RESID^2(-1)	0.155400	0.213414	0.728163	0.4746
R-squared	0.024627	Mean dependent var		0.005802
Adjusted R-squared	-0.021820	S.D. dependent var		0.007150
S.E. of regression	0.007227	Akaike info criterion		-6.939016
Sum squared resid	0.001097	Schwarz criterion		-6.840277
Log likelihood	81.79868	F-statistic		0.530221
Durbin-Watson stat	1.948185	Prob(F-statistic)		0.474556



**ملحق رقم ( 10 ) اختبار مقدرة النموذج للتنبؤ**



— QF ---- ±2S.E.

Forecast: QF	
Actual: Q	
Forecast sample: 1986 2010	
Adjusted sample: 1987 2010	
Included observations: 24	
Root Mean Squared Error	32.14996
Mean Absolute Error	26.95959
Mean Abs. Percent Error	8.357869
Theil Inequality Coefficient	0.048240
Bias Proportion	0.009626
Variance Proportion	0.141051
Covariance Proportion	0.849322

## ملحق رقم (8) كمية الإنتاج بشركة سكر كنانة

Kenana Sugar Production 1986-2010

Years	Feddans Harvested	Tonnes Sugar
1985-86	82'606	292'838
1986-87	81'690	309'705
1987-88	77'135	264'832
1988-89	80'802	231'770
1989-90	75'139	231'992
1990-91	77'500	252'234
1991-92	77'284	253'497
1992-93	75'981	264'931
1993-94	77'616	248'792
1994-95	75'077	252'605
1995-96	76'834	280'000
1996-97	76'538	333'000
1997-98	79'160	356'000
1998-99	79'006	365'000
1999-00	78'594	387'044
2000-01	78'209	403'486
2001-02	79'712	376'039
2002-03	79'359	398'268
2003-04	80'096	427'895

المصدر : شركة سكر كنانة

(تابع للملحق رقم 8)

1996-97	500,560	423,860
1997-98	557,224	451,474
1998-99	610,395	528,052
1999-00	663,836	617,469
2000-01	692,688	708,377
2001-02	696,825	751,121
2002-03	728,335	722,641
2003-04	754,915	747,814
2004-05	747,482	884,509
2005-06	773,625	997,934
2006/07	809,933	910,299
2007/08	741,584	1,017,302
2008/09	738,500	1,067,753
2009/10	773,760	1,428,760

**ملحق رقم (9) العمل وراس المال بشركة كنانة**

**Kenana sugar production 1986 -2010**

cabital	labour	years
170287.7	12067	1986
179372.6	13250	1987
187376.4	13926	1988
194730.7	14132	1989
208337.5	13139	1990
228765.3	13157	1991
236028.2	14782	1992
248922.6	15946	1993
248615	14926	1994
263904.7	13076	1995
278720.7	14928	1996
282396	15975	1997
318337.8	16739	1998
328720.2	17208	1999
392875.3	15939	2000
337284	15887	2001
372772.3	14195	2002
399823	10785	2003
379956	14276	2004
381985	13834	2005
383058	13637	2006
394852	14748	2007

**Kenana sugar production 1986 -2010**

cabital	labour	years
170287.7	12067	1986
179372.6	13250	1987
187376.4	13926	1988
194730.7	14132	1989
208337.5	13139	1990
228765.3	13157	1991
236028.2	14782	1992
248922.6	15946	1993
248615	14926	1994
263904.7	13076	1995
278720.7	14928	1996
282396	15975	1997
318337.8	16739	1998
328720.2	17208	1999
392875.3	15939	2000
337284	15887	2001
372772.3	14195	2002
399823	10785	2003
379956	14276	2004
381985	13834	2005
383058	13637	2006
394852	14748	2007

(تابع للملحق رقم 9)

398237	18439	2008
418764	21764	2009
419368	14198	2010

المصدر: شركة سكر كنانة