

()

:

محاولة بناء نموذج اقتصادي
قياسي كلي للاقتصاد الجزائري
1970-2005

:

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. .
. .
. .
. .
. .

2009/2008 :

الإهداء

إلى
الوالدين الكريمين
و كل أفراد العائلة

أهدي هذا العمل

شكر و تقدير

بادئاً ذي بدء أتقدم بالشكر الذي خلقني ووفقني خلال مشواري الدراسي
ثم أتقدم بالشكر للأستاذ المشرف الدكتور صالح تومي الذي لم يبخل علينا
بنصائحه و توجهاته القيمة.

كما لا يفوتني أن أشكر كل من ساعدني في إنجاز هذا العمل و أخص
بالذكر الأساتذة حجان عمر، بودريعة ياسين، فرد أم الخير، بختاش
راضية الدين لم يسئموا بسؤالهم عن أحوالنا.

و إلى الأخ دحماني خالد و كل موظفي الوزارة المنتدبة للتخطيط لدى
الحكومة على مساعدتهم في جمع الإحصائيات.
بارك الله فيهم جميعاً و جزأهم عنا كل خير.

III	.....	
IV	.....	
V	.....	
X	.....	
XII	.....	
XIII	.....	
3	.....		:
4	.....	
5	.....		1-I
5	.....	1.1.I	
7	.....1969-1967	2.1.I	
8	.....		2.I
8	.....1973-1970	1.2.I	
11	.....1977-1974	2.2.I	
13	.....1979 – 1978	3.2.I	
14	.....	4.2.I	
17	.....		3.I
18	.....1984-1980	1.3.I	
20	.....1989-1985	2.3 .I	
22	.....	3.3.I	
23	.....		4.I
24	.....1990/05/30-1989/05/31	1.4.I	
25	.....1992/03/30-1991/06/03	2.4.I	
26	.....1994	3.4.I	
27	.....1998/05/21الى1995/05/22	4.4.I	
28	.....	5.4.I	
30	.....		5.I
31	.....	1.5.I	
32	.....	2.5.I	
33	.....	

34	:	
35		
36		1.II
36	1.1.II	
44	2.1.II	
47	3.1.II	
55		2.II
55	1.2.II	
56	2.2.II	
58		3.II
58 .....1970-1962	1.3.II	
62 .....1988/1970	2.3.II	
65 .....-1990	3.3.II	
67		4.II
67	1.4.II	
67	2.4.II	
76		5.II
76	1.5.II	
80	2.5.II	
87		
88	:	
89		
90		1.III
90	1.1.III	
91	2.1.III	
92	3.1.III	
93	4.1.III	
94	5.1.III	

95	.....		2.III
96	.....	1.2.III	
96	.....	2.2.III	
98	.....	3.2.III	
99	.....		3.III
99	.....( )	1.3.III	
100	.....	2.3.III	
101	..... -	3.3.III	
102	.....	4.3.III	
103	.....		4.III
104	.....	1.4.III	
106	.....	2.4.III	
106	.....	3.4.III	
107	.....		5 .III
108	.....	1.5.III	
109	.....	2.5.III	
110	.....		6.III
110	.....	6.1.III	
117	.....	6.2.III	
122	.....	3.6.III	
123	.....		7.III
124	.....	2.7.III	
125	.....		8.III
125	.....	1.8.III	
126	.....	2.8.III	
127	.....	3.8.III	
128	.....	4.8.III	
129	.....	5.8.III	
132	.....	
133	.....	:

134	.....
135	.....	1. IV
135	.....	1.1.IV
136	.....	2.1.IV
136	.....	2.IV
137	.....	1.2.IV
138	.....	2.2.IV
139	.....	3.2.IV
144	.....	3.2.IV
146	.....	3.IV
146	.....	1.3.IV
148	.....	2.3.IV
153	.....	3.3.IV
155	.....	4.IV
156	.....	1.4.IV
158	.....	2.4.IV
161	.....	5.IV
161	.....	1.5.IV
162	.....	2.5.IV
162	.....	6 .IV
162	.....	1.6.IV
164	.....	2.6.IV
165	.....	3.6.IV
167	.....	4.6.IV
171	.....	7 .IV
172	..... Jarque-Bera	1.7.IV
173	..... Chow Test	2.7.IV
174	.....	8.IV
174	.....	1.8.IV
176	.....	2.8.IV

180	.....	
182	.....	:
183	.....	
183	.....		1.V
183	.....	1.1.V	
184	.....	2.1.V	
185	.....	3.1.V	
186	.....	4.1.V	
189	.....		2.V
190	..... 2000 -1970	2.2.V	
194	..... 2005-2001	2.2.V	
196	.....	3.2.V	
203	.....	
204	.....	
213	.....	
214	.....	
217	.....	
220	.....	
221	.....	
226	.....	
244	.....	

	1969/1963	
63		2-12
	1989/1970	
66		2-13
	2002/1990	
67	2002-1970	2-14
71	(2005-1966)	2-15
73	2005-1998	2-16
73	(2001/1966)	2-17
74	(2001-1963)	2-18
76	-1974)	2-19
	(2005	
79		2-20
84	(2000-1970)	2-21
85	(1989-1967)	2-22
86	2005-1990	2-23
190	.2000-1970	5-1
193	.2000-1970	5-2
195	.2005-2001	5-3
197	%10	5-4
	.2005-2001	
199	%10	5-5
	.2005-2001	
201	-2001 %40	5-6
	.2005	

فهرس الأشكال

الصفحة	عنوان الشكل	الرقم
48	تطور حجم السكان النشيطين و المشتغلين في الجزائر 2003-1970	21
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218	تكور محزون رأس المال خلال الفترة 2005-1970	1-6

المقدمة العامة

:
:

....

1962

.1976

1964

1966

1967

1967

1980

1983

1986

.1987

1988

.1994

2001

2004-2001

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-1

-2

-3

-4

-5

-6

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-1

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A Macro econometric Model For

:

Algeria

1986

1984-1962

Adaptation d'un modèle :

«macro économétrique de Haque et alii à l'économie algérienne

الاقتصاد الجزائري خلال الفترة

Haque et alii

.1998-1974

:

Haque et alii

1986

Robert Keyfitz

Un modèle économétrique pour l'algérie

2000-1991

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Feedback

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Eviews 6

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2005-1970

:

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2000

:

.1989

الفصل الأول:

المحاور الكبرى للسياسات الاقتصادية

الكلية الجزائرية

:

-1980

1978-1970

1986

1989

1988

1-I

:

1.1.I

:

[12ص 1]

[31ص 53]

*

[67ص 23]

90 %

**1964

:

-

-

-

1964

*انعقد في جوان 1962.
**انعقد مابين 16 و 21 أفريل و هو أول ميثاق ينعقد بعد الاستقلال.

1966

1963

1966-1963

:

1966/1963

:(1-1)

⁶10:

	1966	1965	1964	1963	
654.8	338.8	98.2	147.9	60.8	
810.3	370.9	156.8	131.6	151	
6442.3	2404.8	1562.7	1829.7	1179.2	

[50 ص 16]:

.1964

900000

[5 ص 42] .

%25.7 1966

.1963 % 18.13

[31 ص 56] : 1966 %10.4

-
-
-

:1969-1967

2.1.I

- (1965-1962)

-

G.Detanne de Benis

[26ص27] :

-

-

F.Perrou

(...)

G.D.Benis

-

-

()

:

.1969-1967

:(1-2)

⁹10

0.9	3.0	0.4	1	1	1.1	1.4	1.9	2.3	
8.97	2.99	3.98	9.97	9.97	10.96	13.95	18.94	22.93	

[67 ص 29] :

4.7

% 45.63

% 48.93

1.9

:

2.1

1970

1977

1974

1973

.1979-1978

:1973-1970

1.2.1

[27ص31].

[27ص32]:

9%

-
-
-
-
-
-

[85ص616].

1971

80%

[16ص32].

:

1973-1970

:(1-3)

⁹10

30.9	0.9	1.3	1.5	2.3	3.1	4.1	4.6	5.5	
100	2.91	4.20	4.85	7.44	10.03	13.26	14.88	17.79	

[70 ص 70] :

5.5 % 17.79
%14.88 %7.44

[29 ص 139]

: [23 ص 29]
341000 1970 300000 -
% 38 1973
2.8 * -
520

* يقصد بها صغار الفلاحين.

3.1

1.5

320

:1977-1974

2.2.I

1977-1974

4

12

:

(OPEP)

-

: 68-74

10

"

"

-

:

[32ص27] .

-

:

%11.5

-

.*

.
-
-
-
-

:1979 – 1978

3.2.I

[5 ص 334، 335]

95.63 1978

[5 ص 336] :

	65.23		-
2.35	55.65	3.77	
	6.46		
2.11	28.39		-
		26.29	

: **4.2.I**

*أنظر التقرير العام للمخطط الرباعي الثاني (1974-1977).

1980-1967
 ()
 % 45.71
 46] . %26
 (1978-1969)
 [13ص
 % 4.5
 [46ص 14] .
 1980-1966 5
 1966 % 32.7 1977 % 22.3

:(1-5)

329000	265000	1970-1970
521000	458000	1977-1974

[49ص 132] :

% 76 % 61.8 1977
 [41ص 84] . % 66
 .1978-1969 % 7 -

:

[90 ص 27-42] :

:

-

% 16 1970/1967

% 12

[92 ص 479] .1973/1970

:(1-6)

1979	1977/1974	1973/1970	1969/1967	
% 72.4	% 43.5	% 44.7	% 60	
% 77	% 61.2	% 57.3	% 72	

[55 ص 125]:

:

-2

.()

: -3

: -4

: -5

% 65.42 1969 %34.07

% 5.04 1967 % 45

1978

.1978

*

(1971-1967)

:(1-7)

³¹⁰

1828	35903	65	1967
7221	136299	220	1968
9485	251652	285	1969
4419	145934	137	1970
1738	41164	41	1971
24826	610952	748	

[67 ص 258] :

41 1968 220 . 136299

:

(1977-1967) :(1-8)

⁶10

1977-1974	1973-1970	1969-1967	
111	250	343	
44	134	325	

ONS

:

:

-6

)

(

5174 1963 766

. ¹1979

% 65

[50 ص 256] .

% 4.5

:

3.I

:1984-1980

1.3.I

1980

16.334

[83ص15]1974

3.305

()

1982

: -

-1

-2

-3

: -

% 8.2

% 48.6

: 516.5

(1984-1980)

(1-9)

⁹10

%				
37.7	211.7	132.2	79.5	
10.5	59.4	41.6	17.8	
2.8	15.8	13.4	2.4	
10	56.1	36.2	19.9	
16.5	92.5	58	34.5	
11.7	65.7	35.4	30.3	
3.9	22	15.3	6.7	
2.4	13.3	10.9	2.4	
4.5	25	21.6	3.4	
100	561.5	364.6	196.9	

[44 ص 249] :

.
.
% 35

196.9

(1973-1967) % 14.5 (1984-1980) % 10
 (1984-1980) % 19 1970 % 11
 .(1973-1967) % 56.5
 [44 ص 249].

111.6 : -
) % 8.2 1984 165.4 1979
 :

(1984-1980)				:(1-10)			
		**			*		
6	4.3	7.3	12.5	4	10.5	4	10.5

[76 ص 79-90]:

1984 93.5 1979 61
 . 1979 %92
 .1984 79 1979 55.5

:1989-1985 2.3 .I

251 828.38 .1989 1985
 . 362.12 % 47
 60.72 115.42
 . % 60 %25

* بناء و أشغال عمومية.
 ** تراكم رأس المال الثابت.

197
 % 32.3 . % 23
 [6 ص 10].

.1988
 14.88 1985 29.11
) %50 1986
 [38 ص 111].(...

% 95
 1986 % 40 1986 7.5 1985 14
 [74 ص 23-24].1985 1988 % 42 1987 % 31
 1986 1985
 % 35 5

:
 1989/1985 :(1-11)
 %10

1989	1988	1987	1986	
26.07	24.70	24.60	21.10	
69.4	80.3	54.4	59	
48.4	43.6	38.4	33.8	

Banque D'algerie :

1987

:

1987 8 19/87 :

[27 ص 104].

:

*

:

:

-
-
-
-
-
-
-

.1989

: 3.3.I

:

(85-80)

:(1-12)

% :

4	
4.6	
2.2	
8.2	
3.7	
8.2	
4.3	
2.5	
3.4	

[90-79 ص 76]:

)
40

((1-13)

% 60

%

1.4 - 0.6 -

1989 1988

. [86 ص 33]

. 1.8

:

4.I

1986

*

.1986 %50

*

	:			
		.1989	31	-
		.1991	03	-
1995		95-94		-
			3	1998

:1990/05/30-1989/05/31 1.4.I
()

1989/05/31

[07 ص 111] :

-
-
-

STAND BAY

:

		1990			-
					-
1989	%27.6	1990		%28.4	
		%25.3	% 29.6		

-
-
-

725 1990 -
10
[17-16ص31] . 17.8 10.47 %70

:1992/03/30-1991/06/03 2.4.I
3
[77-76ص49] .1991 27 1991
210
300 294

[116ص04]:

%85

22

1991 % 12 M3

1993 5

-
-
-
-
-
-
-
-
-
-
-

-

-

-

-

-

1998-1995

:

-

%4 1996 1995 %3.9

-

1998 %5.1 %10 1997 1996 %16.5

1997 %58 1996 %56.2 1995 %52.2 -

%59 1998

1996 %2.3 -

2.6

(10.8-) 63

.

:

5.4.I

(1-14)

.1998-1992

:(1-13)

1998	1997	1996	1995	1994	1993	1992		
4,6	4,9	1,2	3,8	-0,9	-2,2	-2	%	. . . . .
1303	1085,8	915,1	798,46	732,5	627,4	523,18		
0,214	2,54	2,8	2,45	2,05	1,89	1,85		
33,9	29,5	28,3	28,1	24,4	23,2	23,8	%	
							%	
1022,7	845,8	724,6	589,3	461,9	390,5	420,13		
810	862	786,6	574,8	385,4	300,7	302,7		
13,34	19,29	21,60	17,58	16,31	17,75	20	\$	
58,71	57,73	54,74	47,66	35,059	23,34	21,83	-\$	
30,47	31,22	33,65	31,57	29,48	25,72	26,67	\$	

:

%20

1995

1992

1998

*

1994

%21

%15

* ليس تطور الكتلة النقدية في حد ذاته عامل تضخم، لكنه يصبح إذا اختلف اتجاه نمو الكتلة النقدية نحو التزايد و النمو الاقتصادي نحو الانخفاض.

1996	1992	*		1998	1997
1998	%33,9				
300,7	1993				
1992	193,8	1993	179		
		121,5	108,9		
	% 22				
					.1994-1992

30,47 1998 1993

: 5.I

2001

2004 2001

7

[25ص256]

-

-

* سرعة تداول النقود مؤشر يربط بين الاقتصاد النقدي و الاقتصاد الحقيقي.

				-
				-
				-
			1.5.I	
				-
950		PNDA*		
	70	7500		
	[18ص 81] %.10	2004	2001	
		31,3		-
	45,3			-
			25	
				-
16,8				
		20000		-
			35.6	

* Plan national de développement agricole.

:

:(1-14)

2005	2004	2003	2002	2001	2000	
102.23	85.01	68.80	57.70	55.18	54.79	
5.10	5.19	6.90	4.69	2.59	2.20	
1.63	3.56	2.58	1.41	4.22	0.34	
8.45	10.18	10.49	10	10.40	8.87	
61.45	56.35	54.81	53.08	53.45	58.60	
30.08	33.45	34.69	36.90	36.13	32.51	

WDI 2007

:

2000

2001 28

.2005 56

()

.%33

:

.1986

1989

1990

1994

1994

الفصل الثاني:

دراسة تحليلية لمتغيرات النموذج

:

1986

1.II

1.1.II

()

2005-1970

(2005-1967)

:(2-1)

2005-2000	1999-1994	1993-1990	1989-1985	1984-1980	1979-1967	
3.03	2.73	0.75-	1.36	4.26	7.9	

ONS

:

:1985-1967

:

-1967

%4.26

%7.9

1979

:1994-1986

:

% 50

%2.1-

%1.2-

1986

*1988

1987

%2.9-

:2005-1995

:

* خصص أكثر من 60 مليار دج لتفعيل حركية و نشاط المؤسسات الوطنية المعاد هيكلتها.

%2:

% 3.8

%2.5

[06 102].1994

% 0.5 %0.2

1995 % 3

%1.2

1997

[158 31]

%6.1 %7.4 2005 2004

(2004-1974)

()

2004-1974

:(2-2)

1980	1979	1978	1977	1976	1975	1974	
12923.30	10775.90	8422.10	6744.40	6685.00	5820.20	3873.50	انتاج قى الفلاحي
9.75	10.33	10.28	9.78	11.39	12.26	8.71	$\sum VA\%$
19.93	27.95	24.88	0.89	14.86	50.26		معدل النمو

1987	1986	1985	1984	1983	1982	1981	
31787.40	26278.20	24084.10	18287.50	16607.60	16107.10	16253.20	انتاج قى الفلاحي
13.54	11.62	10.49	8.80	9.01	9.74	10.55	$\sum VA\%$
20.96	9.11	31.70	10.12	3.11	-0.90	25.77	معدل النمو

1994	1993	1992	1991	1990	1989	1988	
145614.50	131102.00	128416.30	87307.00	62725.40	51633.20	38785.30	انتاج قى الفلاحي
12.60	14.26	15.31	12.84	14.61	15.93	14.78	$\sum VA\%$
11.07	2.09	47.09	39.19	21.48	33.13	22.01	معدل النمو

2001	2000	1999	1998	1997	1996	1995	
412119.50	346171.40	359665.80	324845.80	242703.10	277842.10	196559.50	انتاج قى الفلاحي
11.82	10.09	13.84	14.65	10.96	13.57	12.53	$\sum VA\%$
19.05	-3.75	10.72	33.84	-12.65	41.35	34.99	معدل النمو

2004	2003	2002	
578886.70	515281.70	417225.20	انتاج قى الفلاحي
11.14	11.20	11.40	$\sum VA\%$
12.34	23.50	1.24	معدل النمو

ONS

:

(2-2)

% 50

1975

1982

PNDA

. [16 65] 2000 1997

70

750

2002

[18 81] %10

.% 1.24

% 13 % 8

% 12

%20.7

%7.3

:

*DETANNE DE BERNIS

:

2004-1974

:(2-3)

1980	1979	1978	1977	1976	1975	1974	
15974.10	13570.00	10921.30	8475.80	7449.80	5894.60	5352.20	الإنتاج
38.63	32.15	29.89	34.22	33.48	32.79	41.41	$\sum VA\%$
17.72	24.25	28.85	13.77	26.38	10.13		معدل النمو

1987	1986	1985	1984	1983	1982	1981	
42862.90	43719.90	36966.20	33082.80	25335.90	21388.60	18738.10	الإنتاج
19.39	17.26	28.56	30.48	33.73	35.49	38.40	$\sum VA\%$
-1.96	18.27	11.74	30.58	18.46	14.14	17.30	معدل النمو

(2-3)

1994	1993	1992	1991	1990	1989	1988	
161647.60	130880.20	127161.10	99536.90	66921.90	48508.70	47542.70	الإنتاج
28.33	26.91	29.86	34.75	29.16	22.93	20.09	$\sum VA\%$
23.51	2.92	27.75	48.74	37.96	2.03	10.92	معدل النمو

2001	2000	1999	1998	1997	1996	1995	
312655.00	290749.60	270395.50	256821.10	223180.50	213419.50	193904.70	الإنتاج
41.42	47.11	34.28	28.78	37.87	36.65	32.23	$\sum VA\%$
7.53	7.53	5.29	15.07	4.57	10.06	19.96	معدل النمو

2004	2003	2002	
368835.50	344868.90	325930.00	الإنتاج
45.9	43.39	40.34	$\sum VA\%$
6.95	5.81	4.25	معدل النمو

ONS

(2-3)

%28.78

%45.9

.1998

1975 %10.13

1987

1978 % 30.58

:

:

.2004-1974

:(2-4)

1980	1979	1978	1977	1976	1975	1974	
51191.30	33534.70	24481.00	23592.90	19639.00	15567.70	18422.30	الإنتاج
38.63	32.15	29.89	34.22	33.48	32.79	41.41	$\sum VA\%$
52.65	36.98	3.76	20.13	26.15	-15.50		معدل النمو

1987	1986	1985	1984	1983	1982	1981	
45537.20	39053.20	65544.70	63376.70	62138.70	58714.70	59162.80	الإنتاج
19.39	17.26	28.56	30.48	33.73	35.49	38.40	$\sum VA\%$
16.60	-40.42	3.42	1.99	5.83	-0.76	15.57	معدل النمو

1994	1993	1992	1991	1990	1989	1988	
327346.70	247398.30	250402.50	236245.30	125193.70	74288.40	52702.70	الإنتاج
28.33	26.91	29.86	34.75	29.16	22.93	20.09	$\sum VA\%$
32.32	-1.20	5.99	88.70	68.52	40.96	15.74	معدل النمو

2001	2000	1999	1998	1997	1996	1995	
1443928.10	1616314.70	890943.30	638221.50	838985.80	750415.30	505562.80	الإنتاج
41.42	47.11	34.28	28.78	37.87	36.65	32.23	$\sum VA\%$
-10.67	81.42	39.60	-23.93	11.80	48.43	54.44	معدل النمو

2004	2003	2002	
2329341.30	1868889.60	1477033.60	الإنتاج
45.9	43.4	40.34	$\sum VA\%$
24.64	26.53	2.29	معدل النمو

ONS

:

(2-4)

1986

39053.20

90.67

99

1986

.1985

OPEP

()

%. 50

1986

.%17.26

1986

%30

%41

. % 45.9

2004

:

*

(2-5)

%16.90

1991

%12.50

.1989

1986

% 36.41

.2004-1974

:(2-5)

1980	1979	1978	1977	1976	1975	1974	
20197.50	18119.80	15543.40	12305.80	10185.00	7602.20	5573.20	الإنتاج
15.24	17.37	18.98	17.85	17.36	16.01	12.53	$\Sigma VA\%$
11.47	16.58	26.31	20.82	33.97	36.41		معدل النمو

(2-5)

1987	1986	1985	1984	1983	1982	1981	
47091.50	49398.50	41327.00	38562.20	32156.10	27604.60	22805.00	الإنتاج
20.06	21.84	18.01	18.55	17.45	16.69	14.80	$\Sigma VA\%$
-4.67	19.53	7.17	19.92	16.49	21.05	12.91	معدل النمو

* أضيف له قطاع أشغال البترول العمومية.

1994	1993	1992	1991	1990	1989	1988	
169448.80	134776.60	112185.80	84957.10	61809.00	54771.60	44928.00	الإنتاج
14.66	14.66	13.38	12.50	14.40	16.90	17.13	$\sum VA\%$
25.73	20.14	32.05	37.45	12.85	21.91	-4.59	معدل النمو

2001	2000	1999	1998	1997	1996	1995	
358895.20	334951.10	307675.60	300883.40	276567.20	245709.80	213130.30	الإنتاج
10.30	9.76	11.84	13.57	12.49	12.00	13.59	$\sum VA\%$
7.15	8.87	2.26	8.79	12.56	15.29	25.78	معدل النمو

2004	2003	2002	
503857.00	445214.30	409937.80	الإنتاج
9.9	10.3	11.20	$\sum VA\%$
13.17	8.61	14.22	معدل النمو

ONS

:

:

(2-6)

.2004-1974

:(2-6)

1980	1979	1978	1977	1976	1975	1974	
32240.60	28317.60	22537.40	17830.20	14708.50	12595.30	11270.50	الإنتاج
24.33	27.15	27.52	25.86	25.07	26.53	25.33	$\sum VA\%$
13.85	25.65	26.40	21.22	16.78	11.75		معدل النمو

1987	1986	1985	1984	1983	1982	1981	
67526.40	67762.00	61590.40	54613.70	47998.40	41607.30	37123.50	الإنتاج
28.76	29.96	26.84	26.27	26.05	25.15	24.09	$\sum VA\%$
-0.35	10.02	12.77	13.78	15.36	12.08	15.15	معدل النمو

1994	1993	1992	1991	1990	1989	1988	
351586.40	275174.30	220458.10	171746.00	112655.70	94843.10	78380.60	الإنتاج
30.42	29.93	26.29	25.26	26.24	29.27	29.88	$\sum VA\%$
27.77	24.82	28.36	52.45	18.78	21.00	16.07	معدل النمو

2001	2000	1999	1998	1997	1996	1995	
958058.10	842670.40	770275.80	696673.60	633739.70	560299.10	459630.50	الإنتاج
27.49	24.56	29.64	31.42	28.61	27.36	29.30	$\sum VA\%$
13.69	9.40	10.56	9.93	13.11	21.90	30.73	معدل النمو

2004	2003	2002	
1293831.4	1132727.6	1030971.90	الإنتاج
25.49	26.29	28.16	$\sum VA\%$
14.22	9.86	7.61	معدل النمو

ONS

:

(2-6)
% 31.42 % 24.09

%60.92 % 26.30 %52.45
.%53.13

10-90

: 2.1.II

.2004-1970

:(2-7)

%

1976	1975	1974	1973	1972	1971	1970	
17.81	21.34	18.56	17.62	16.49	0.27	-	معدل نمو الاستثمار
41.51	38.67	32.75	29.68	26.74	29.50	25.61	I/PIB*

1983	1982	1981	1980	1979	1978	1977	
3.07	5.22	11.53	-4.35	-7.82	18.55	13.02	معدل نمو الاستثمار
41.84	38.01	42.68	39.46	41.62	48.56	44.57	I/PIB

1990	1989	1988	1987	1986	1985	1984	
-6.17	1.10	-1.82	-17.28	-5.53	3.55	5.43	معدل نمو الاستثمار
29.93	32.43	34.04	35.36	40.89	41.87	42.16	I/PIB

1997	1996	1995	1994	1993	1992	1991	
1.96	6.30	-2.64	-0.77	4.21	-1.61	-18.34	معدل نمو الاستثمار
24.02	23.65	23.22	25.36	25.12	23.21	23.62	I/PIB

2004	2003	2002	2001	2000	1999	1998	
2.59	7.96	6.74	11.94	-7.40	-11.67	11.77	معدل نمو الاستثمار
21.00	21.67	21.61	21.22	19.26	21.85	25.79	I/PIB

ONS

:

* مجموع القيم المضافة للخدمات+ النقل+التجارة.
* نسبة الاستثمار إلى الإنتاج الداخلي الخام.

1979

%17.40

05]

459.21

.1984

%75

[130

:

-1

-2

-3

-4

1986

%40

.1985

%41.87

1990

%29.93

: 3.1.II

)

(

1985

2005 -1966

[42 42]:

1977 1966 :

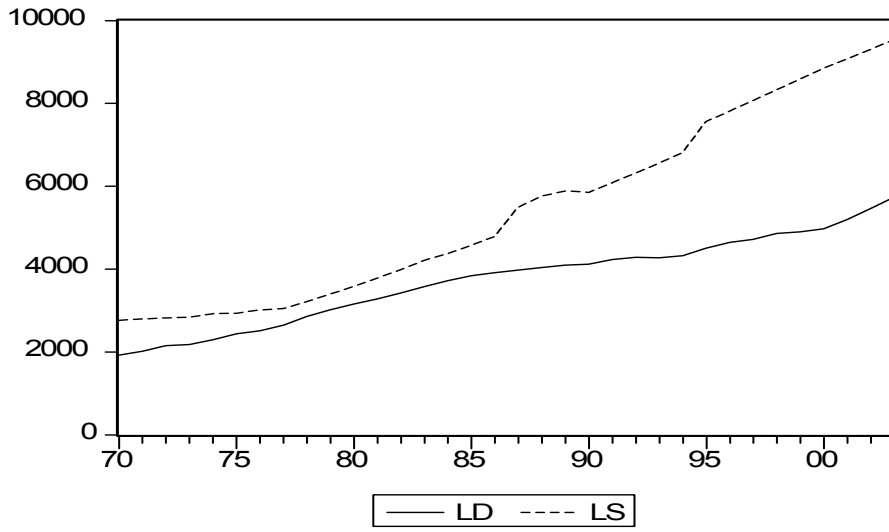
: % 1,6

-

-

*2003-1970

:(1-2)



1985

1979

:

%5.5

:

-

-

-

2005

1985

:

%4

:

(2-1)

[45-44 39]:

1978

1967

:

100

* يمثل LS فئة السكان النشيطة بينما LD فئة السكان المشتغلين.

1979 % 4,2 1984 1980 : .%4,4

62 45

1999 1989 :

27

2000 :

.2005-2000 %34 %33

1966

1971

. [128 75] 112500

1977

[48 38]:

-1

4750

1605

-2

: 1978

6972

19848

+

22884

17580

-3

-4

-5

1683

1185

2005-2000

500

8,1

2005/2004

-6,9

2001/2000

:

1980-1967

(%10)

. 1979-1973 7,5

%8,7

% 4,2

140

[21 17].1984

:1993-1986

1986

1770 1986

[73 36]

. [17 21]

5500

255000

.1985

13,7

% 23,2

1993

:2000-1994

2,6

2,3

1998

%28

.2000

:2005-2001

2001

2004

%6,2

720

2005

%15,7

2001

%2,7

[29-28 17].2004-2001

230

2. II

:

1.2. II

(2-9)

%57.16

1970 %21

1974

1990-1983

%37.63 1981 % 62.35

%60

[121 25].

2005 % 73.56 1990 %47.56

2.2. II

(2-9)

1999 %78 1983 % 51

*

* كانت تمثل الأجر 72% من الإيرادات الاجمالية لعام 2000 (لم تقل عن 75% في السنوات السابقة).

2005-1970

:(2-9)

:

1970	1 350	4 956	6 306	4 253	1623	5 876	430
1971	1 648	5 271	6 919	4 687	2254	6 941	- 22
1972	3 278	5 900	9 178	5 365	2832	8 197	981
1973	4 114	6 953	11 067	6 270	3719	9 989	1 078
1974	13 399	10 039	23 438	9 406	4002	13 408	10 030
1975	13 462	11 591	25 053	13 656	5412	19 068	5 985
1976	14 237	11 978	26 215	13 170	6948	20 118	6 097
1977	18 019	15 460	33 479	15 282	10191	25 473	8 006
1978	17 365	19 417	36 782	17 575	12531	30 106	6 676
1979	26 516	19 913	46 429	20 090	13425	33 515	12 914
1980	37 658	23 925	61 583	27 587	17 928	45 515	16 068
1981	50 954	30 757	81 711	32 822	22 776	55 598	26 113
1982	41 458	36 114	77 572	41 085	33 667	74 752	2 820
1983	37 711	46 800	84 511	45 026	43 071	88 097	-3 586
1984	43 800	57 000	100 800	55 600	44 100	99 700	1 100
1985	46 800	63 700	110 500	58 900	44 300	103 200	7 300
1986	21 400	71 500	92 900	67 100	40 600	107 700	-14 800
1987	20 500	74 800	95 300	65 800	37 300	103 100	-7 800
1988	24 100	71 800	95 900	76 900	42 300	119 200	-23 300
1989	45 500	75 400	120 900	83 100	42 500	125 600	-4 700
1990	76 200	84 000	160 200	96 800	45 600	142 400	17 800
1991	161 500	110 900	272 400	183 200	52 000	235 200	37 200
1992	194 700	122 100	316 800	236 100	72 600	308 700	8 100
1993	179 200	134 600	313 800	288 900	101 400	390 300	-76 500
1994	222 200	212 000	434 200	344 600	117 200	461 800	-27 600
1995	336 100	264 698	600 798	444 425	144 660	589 085	11 713
1996	496 000	329 160	825 160	525 547	199 050	724 597	100 563
1997	564 765	361 903	926 668	609 507	235 686	845 193	81 475
1998	378 550	395 955	774 505	639 965	236 210	876 175	-101 670
1999	560 100	390 375	950 475	755 608	206 080	961 688	-11 213
2000	1173 237	404 573	1577 810	841 783	336 329	1178 112	399 698
2001	956 389	549 137	1505 526	913 734	407 295	1321 029	184 497
2002	942 904	660 284	1603 188	1045 871	504 830	1550 701	52 487
2003	1284 975	689 491	1974 466	1122 762	567 414	1690 176	284 290
2004	1485 699	744 197	2229 896	1251 055	640 714	1891 769	338 127
2005	2267 800	814 992	3082 792	1245 130	806 900	2052 030	1030 762

ONS

:

: 3.II

[31 18] :

:1970-1962 1.3.II

1962

1964

[32 18]:

: /

414/63

: /

: 1963 28

-

-

[118 55]

.%10 -

.% 10 %5 -

.%20 %15 -

]

[120 55

-

-

(le tarif de droit commun) -

*

1963

1968

2

35/68

.1968

:(2-10)

%40-%20	%50-%30	
%30-%20	%50-%100	
%20	%30	

[177 51]:

:

/

()

[306 10].

*

:

-
-
-

(GPA)

:

:(2-11)

*يمكنك الاطلاع على هذه الأسباب في ص 122. جاري فاتح
* بموجب الرسم رقم 188/63 المؤرخ في 16 ماي 1963.

167 1965 1964 1963

1964 % 12.34

1965

.1965-1964

.%43.21

1967

%92.55 1969

370

%57.84

%30.7

1964

M X : (2-11)

1969/1963

:

1969		1968		1967		1966		1965		1964		1963		
M	X	M	X	M	X	M	X	M	X	M	X	M	X	
654	929	712	643	827	579	713	931	781	1138	915	1394	766	1151	
78	3291	62	2902	50	2605	33	1819	25	1690	35	1933	249	2168	
308	203	242	235	214	108	212	151	253	188	226	148	213	312	
1515	68	1245	74	691	57	615	91	537	57	548	50	609	42	
1361	70	922	202	595	192	523	73	581	52	562	51	431	54	
1065	49	841	41	807	30	1057	15	1135	20	1186	12	1109	20	
-	-	-	-	-	-	-	-	-	-	-	-	60	1	
4981	4610	4024	4097	3154	3571	3153	3080	3312	3145	3472	3588	3437	3748	
370		73		418		73-		167-		116		311		

ONS

:

%57.84

%30.7

1964

%22.38

%32.26

1986

.%17.17

.%22.91 %30.93

1967 %92

OCDE

[58 32].

%59.3

:1988/1970

2.3.II

1971

*

%80

**

1973

[76 50]:

Les nations)

-

les plus favorisée)

-

:

*أسند الاحتكار إلى عشرون مؤسسة.
**لمزيد من التفاصيل يمكنك العودة إلى جاري فاتح

-

%3 -

%10 -

%25 -

100% 70% %40 -

*02/28

:

(2-12)

:(2-12)

1989/1970

ONS

1989		1986		1985		1980		1977		1973		1970		
M	X	M	X	M	X	M	X	M	X	M	X	M	X	
19965	264	7261	123	9728	281	7782	431	3544	526	1218	872	680	957	
25197	1711	16798	761	18517	863	13680	476	9170	405	3325	277	2422	427	
707	68927	619	34003	712	63299	854	51715	335	2344 5	118	6206	112	3456	
15786	510	10970	16	12492	17	11324	5	9442	2	2377	42	1813	25	
4075	371	4842	06	5250	92	4176	1	4434	17	1155	36	691	72	
4191	154	2854	26	2714	12	2697	20	1601	15	678	41	484	42	
151	-	50	-	78	-	6	-	4	-	5	5	3	1	NDA
70072	71937	43394	34935	49491	64564	40519	52648	2947 5	2441 0	8876	7479	6205	4981	
1865		8459 -		15073		12129		5065 -		1397 -		1224-		

(2-12)

4376 1984

1979 1974

8459				%80.5			
%19.21	1969			%20.15			
			1989	1986	%0.36	%0.81	1970
1980	1979		%1.8	%3.98		1970	%30.5
		[362	55]1985	1984	%98	1970	%70
				*			
%27.94				1979 - 1970		%34.72	
					.1986	%25.27	1980
%10.95							
%28.49	1980	19.20%		%20			1970
**							.1989
1970				%53.54			
						.1978	%11

* حجم صادرات المحروقات متعلق بأسعار البترول، قيمة الدولار وإنتاج الجزائر من البترول و الغاز.
 ** نخص بالذكر الثورة الزراعية.

: -1990

3.3.II

1986

FMI

:

STAND BAY

*

-

-

-

-

-

:

:

:

:

:(2-13)

2002/1990

2002		2001		1999		1998		1994		1993		1990		
M	X	M	X	M	X	M	X	M	X	M	X	M	X	
33038	2044803	1699922	22205	1454866	20172	1454132	20022	93515	1159	47555	2265	16907	450	
490298	2966147	2440984	442620	1781866	216853	1634148	183729	164998	10791	98353	8077	26867	2216	
14418715	108898	102714	14289681	98702	8112665	68694	5666161	1762	307230	2679	227782	840	118600	
34452	2473901	1935360	26646	1526764	29418	1279809	8833	49592	434	40367	356	26415	547	
18128	1135285	820505	19244	683441	16810	617664	2356	24429	72	12236	38	11707	107	

*قانون 16/90 المؤرخ في 7 أوت 1990.

17287	838489	648556	2961	560413	9246	469089	7655	4881	520	3535	695	3980	187	NDA
-	2875	583	-	679	-	49	-	1005	-	310	1	302	172	
15011919	9570398	7648624	14803358	1454866	8405165	5523586	5888756	340142	320206	205035	239214	87018	122279	
544152.1		715473.4		229843.5		36517		-15804		34517		35261		

ONS

:

1990

21.4

1995 1994

17.8

.1999

%50.7

2000

%53.14

1990

1991

%54.78

:

4.II

:

1.4.II

2002-1970

:(2-14)

1978	1977	1976	1975	1974	1973	1972	1971	1970	السنة
4.9955	4.9014	5.0644	4.829	4.8937	5.0486	4.9465	5.042	4.9371	سعر الصرف*

* واحد دولار أمريكي مقابل الدينار الجزائري.

السنة	1979	1980	1981	1982	1983	1984	1985	1986	1987
سعر الصرف	4.9472	5.0653	5.0958	5.1135	5.1473	5.0213	5.2425	5.9001	7.0029

السنة	1988	1989	1990	1991	1992	1993	1994	1995	1996
سعر الصرف	9.058	10.556	17.343	30.6	31.324	33.134	62.617	76.558	80.793

السنة	1997	1998	1999	2000	2001	2002
سعر الصرف	78.815	84.979	95.135	98.165	100.224	101.635

:

1963

:

0.18 -1 :1973-1964
(1 = 1) [05-02 76]

-2 :1994-1973

* 14

.1987

4.8

1986

.1986

5.9

1974

:

*العملات هي: الدولار الأمريكي، الشلنغ النمساوي، الفرنك البلجيكي، الفرنك الفرنسي، الكورون الدنماركي، الكورون النرويجي، الكورون السويدي، المارك الألماني، الليرة الإيطالية، الفلوران الهولندي، الجنيه الاسترليني، البزيكة الإسبانية، الفرنك السويسري و الدولار الكندي.

[133 58]1969

[14 63]

1970

%100

1978

Investissement

[52 46].Pirates

:

-1

%100

-2

()

-3

()

-4

[53 41]

-5

83.5 1992 42.5 1991 16.5)

[61 22] (1993

-6

M₂

1.7

[137 42]

1778

(1978-1967)

308.15 67.46 1989

3

:

(2005-1966)

:(2-15)

%:

2005-2003	2002-2001	2001-2000	2000-1999	1998-1994	1993-1986	1985-1979	1978-1966	
11.17	17.30	22.3	13.03	15.57	14.30	17.73	23.06	ΔM_2

.

:

1978-1966

% 23

%17

1985-1979

.()

% 14

M_2

1993-1986

1998-1996

%15

%13.03

1999

1998

*

1999

%2.66

1998

%4.59

%4.22

2001

2000

%0.33

%13.03

2002

2001-2000

%22.3

2001

%17.30

3

PNDA

(2-16)

2003

[117 20].

. %24 %22

2001

()

2004

2004

3109

2003

9,2325

% 5,83

2004

.2003

%8,69

1999

% 5,9

[185 98].

2005-1998

:(2-16)

:

2005	2004	2003	2002	2001	2000	1999	1998	
4146,9	3738	3354,9	2901,5	2473,5	2022,5	1789,4	1592,5	M2
2422,7	2160,5	1631	1416,3	1238,5	1048,2	905,2	826,4	
921	874,3	781,3	664,7	577,2	484,5	440	390,4	()
1501,7	1286,2	849	751,6	661,3	563,7	465,2	436	
1724,2	1577,5	1723,9	1485,2	1235	974,3	884,2	766,1	

[185 98] [111 97] :

V

[28 63]

()

.2001-1966

(2001/1966)

:(2-17)

2001/2000	2000/1999	1998/1994	1993/1990	1989/1985	1984/1980	1979/1975	1974/1970	1969/1966	
0.15	2.30	2.39	2.40	1.50	1.65	1.85	1.80	1.84	V

:

:

1979-1966

-1

-2

1989

1.50

(1986)

1998-1990

-3

2.30

-4

2000-1999

2001 0.15

%22.3 2000-1999

%13.03

*.2001-2000

*أنظر الجدول (2-15).

(2001-1963)

:(2-18)

%:

01	00	99	98	97	96	95	94	93/91	90	90/89	89/86	86/72	72/63	
6	6	8.5	9.5	11	13	14	15	11.5	10.5	7	5	2.75	2.5	

. :

%2.75 (1986-1963) -1

1990-1989 %7

10-90

1989

1990 -2

%15 14

1994

5

1994

()

1995

1996

2001 2000 %6 -3

1994

-4

: 5.II

1.5.II

(2005 -1974)

: (2-19)

*		
1087.48	938.21	1974
1376.38	1267.35	1978
1556.3	1322.74	1979
1767.53	1461.56	1980
2174.84	1892.97	1986
2068.73	1734.55	1987
2894.66	2572.69	1989
3496.58	2713.66	1993
3199.49	2720.48	1994
3478.6	2948.6	1998
3899.84	3149.27	2000

تابع للجدول (2-19)

r=0,99

*

4186.57	3259.1	2001
4460.12	3455.77	2002
4775.5	3601.65	2003
5133.37	3860.98	2004
5409.51	4061.46	2005

ONS

:

:1989-1970

:

%14.3 :

(2572.69)

(938.21) 1974

1989 1974

1989

%21.33 (1977-1974)

% 30.2

.%95 (1977)

-1980)

1984 1978

(1984

(

)

:(2-20)

:

%		
42.00	87719.19	
6.36	13290.85	
6.07	12672.64	
3.39	7074.192	
21.91	45768.49	
9.01	18828.10	
3.53	7368.601	
7.73	16153.63	
100	208875.693	

ONS

:

:2005-1990

1996 -1990

% 26.67

% 26.74

1996

1339

1410

1997

% 2

.% 5.3

%5.7

1997

1996

%18.7

)

2005

1997

%8.05

%19.82

(%5.28

%21.47

2005 2000 %80
%60
2004 %42

*
2000
: 2.5.II
[62 30]:

-

-

-

59].

[303

:1970

*1945

1970

:

1945

1966

12

-

-

-

* للإشارة فقط أن تحقيق الاستهلاك حسب الاحتياجات و الإشباع يجريه الديوان الوطني للإحصاء كل عشر سنوات.
* يعتبر أول قانون للأسعار.

1968 2

:1982-1970

1975 29

[58-56 50]

:

:

/1

:

/2

:

/3

:

/4

1982

[31 53]:

:

-

:

-

-

:

1986

[104 42]

:

:

/1

:

:

-

-

(

:

/2

% 5

1994

1996

1994

. %200

:

(

)

2005-1970

:

2005-1970

-

(2-21)

-

-

-

(2000-1970)	:(2-21)
33.1	
42.5	
60.70	1979-1978
81.21	
106.65	
95.71	1994-1990
83.84	2000-1995

%10

-

.%7.7

%8.2

:

*1978

256

:

(2-22)

:

5,5

[81 30].

% 12,5

*كان يحسب على أساس 167 مادة قبل 1978.

(1989-1967)

:(2-22)

%1.6	1967
%1.6	
%9.07	
%14.30	1979-1978
%8.93	
%10.3	

[10 53]:

*%11 1982-1969

[11 53].%8

%7

:

:

(2-23)

1989

2000

% 558,9

:

-

* 1990

-

%90 %40

[6 43]

:

-

*تمثل %55 من إنفاق العائلات.
* حسب معطيات الديوان الوطني لإحصائيات ارتفعت الكتلة الأجرية في الفترة 1996-1990 بـ 270 %.

2005-1990

:(2-23)

التغير %	المؤشر	السنة
20,2	120,2	1990
25,5	150,8	1991
31	197,5	1992
21,6	240,2	1993
31,7	316,3	1994
28,4	406,2	1995
20,3	488,8	1996
6,1	518,4	1997
6,2	550,7	1998
2,1	562,2	1999
-0,6	558,7	2000
3,5	578,2	2001
2,2	591,29	2002
3,5	611,8	2003
4,6	639,8	2004
1,9	652,1	2005

ONS

:

(2-23)

.2005 1,9%

الفصل الثالث:

المعادلات المكونة للنموذج

:

.Robert Keyfitz

L

[439 13] .Q

K

:

1.1.III

LEONTIEF

[173 01].

L K

L K

[173 01] .

: Q

$$K_t = v \cdot Q_t \quad (3-1)$$

: Q

$$L_t = u \cdot Q_t \quad (3-2)$$

:

$$Q_t = \frac{K_t}{v} = \frac{L_t}{u} \quad (3-3)$$

u>0, v>0 :

L K

(3-3)

Q

uL

vK

Q

:

$$Q_t = \text{Min} \left(\frac{K_t}{v}, \frac{L_t}{u} \right) \quad (3-4)$$

3*

$\sigma_{K,L}$

COBB

P.DOUGLAS

2.1.III

(CES)

$$Q_t = AL_t^\alpha K_t^\beta \quad (3-5)$$

: Q_t:

: L_t

: K_t

: α

: β

: A

.α+β

: λ

(3-5)

$$Q_t^* = A(\lambda L_t)^\alpha (\lambda K_t)^\beta$$

$$= \lambda^{\alpha+\beta} AL_t^\alpha K_t^\beta$$

$$Q_t^* = \lambda^{\alpha+\beta} Q_t \quad (3-6)$$

.(3-6)

α+β=1

α+β>1

α+β<1

$$\sigma = \frac{\delta(K_t/L_t)}{\delta MRS} = 1$$

:

3.1.III

Capital-Labor Substitution :

*

(CES) σ

1961 Economic Efficiency**

$$Q_t = A[\delta K_t^{-\rho} + (1 - \delta)L_t^{-\rho}]^{-\mu/\rho} \quad (3 - 8)$$

$$0 \leq \delta \leq 1.$$

$$\rho \geq -1 \quad \rho \neq 0.$$

(CES)

μ (CES) -

$$\sigma = \frac{1}{1+\rho}$$

ρ -

(CES)

$$\sigma \approx \infty \quad \rho \approx -1$$

:

$$Q_t = A[\delta K + (1 - \delta)L] \quad (3 - 9)$$

(CES)

$$\sigma \approx 0 \quad \rho \approx \infty$$

(3-4)

(CES)

$$\sigma \approx 1 \quad \rho \approx 0$$

(3-5)

:

4.1.III

1971 REVENKAR

[68 80] :

(VES)

$$Q_t = AK_t^{\sigma(1-\beta\Gamma)} [L_t + (\Gamma - 1)K_t]^{\sigma\beta\Gamma} \quad (3 - 10)$$

:

$$\Gamma = 1$$

(3-10)

$$Q_t = AK_t^{\sigma(1-\beta)} L_t^{\sigma\beta} \quad (3 - 11)$$

$\sigma = 1$

-

(VES)

:

* ARROW, CHENERY, MINHAS et SOLOW.

** Review of Economic Efficiency, August(1961).

$$\sigma = 1 + \frac{[(\Gamma - 1)/((1 - \beta \Gamma)]K}{L} \quad (3 - 12)$$

:

5.1.III

*Haque et alii

:

$$\log(Y_T) = 2.63 + 0.004D(\log(K_t)) + 0.40 \log(L_t) + 0.52 \log(Y_t(-1))$$

(5.15) (0.07)* (3.57) (4.78)

13)
$$\bar{R}^2 = 0.9 \quad (-6.03)^* \quad SE_{\bullet\bullet} = 0.04 \quad Lm(1)_{\bullet\bullet\bullet} 0.45 (Pr = 0.49)$$

(3 -

:

T.student

D71

[212-209 69].1971

Robert Keyfitz

.1999-1994

:

$$\log\left(\frac{Y_t}{L_t}\right) = -36.4844 + 0.70470 \log\left(\frac{K_t}{L_t}\right) + 0.01860t \quad (3 - 14)$$

(2.430) (1.1779) (3.0699)

$\bar{R}^2 = 0.77$ $SE = 0.0002$ $Dw^* = 2.77$

%1.9

1999-1994

.t

* للمزيد من الإطلاع عد إلى BELOGBI ZAKIA, Adaptation d'un modèle macro économétrique de Haque et alii à l'économie algérienne, Thèse de doctorat d'état, Université d'Alger, 2005

• قيمة احصائية T student، إذا صوحب بعلامة * تدل على أن المعلمة غير معنوية، أما إذا صوحب بعلمة ** تدل على أنها معنوية تحت عتبة 10%.

•• مجموع مربع الأخطاء.

••• اختبار Breuch-Godfrey مضاعف لاغرانج للكشف عن وجود الارتباط الذاتي للأخطاء.

* احصائية داربين واتسون للكشف عن وجود الارتباط الذاتي للأخطاء.

(capital par travailleur)

% 70

: 2.III

:
-1
-2
-3

: 1.2.III

[166 26]:

$$e_i = \frac{\Delta E_i / E_{i-1}}{\Delta VA_i / VA_{i-1}} \quad (3 - 15)$$

i : e_i
 i : $\Delta E_i / E_{i-1}$
 i : $\Delta VA_i / VA_{i-1}$

.*

$$e_i = \frac{\overline{\Delta E_i} / E_{i-1}}{\overline{\Delta VA_i} / VA_{i-1}} \quad (3 - 16)$$

i : $\overline{\Delta E_i}$
 i : $\overline{\Delta VA_i}$

* العلاقة (1) تعطينا مرونة الطلب على العمل بالنسبة للقيمة المضافة في كل سنة.

:K

(3-24)

$$\log E_{it} = \log a_i + b_i \cdot \log VA_{it} + c_i \log K_{it} + d_i t \quad (3-25)$$

3.2.III

$$\log(L) = -0.32 + 0.09 \log(Y_t) + 0.9 \log(L_{t-1}) - 0.05D92 \quad (3-26)$$

(-1.81)* (2.58) (24.97) (-3.91)

$\bar{R}^2 = 0.99$ $SE = 0.01$ $Lm(1)(Pr = 0.46)$
 $Lm(2) = 1.11(Pr = 0.57)$

D92

1992

3.III

*

)

[256 14]. (...)

ΔY

. ΔI

ΔC

$$I = f(Y, i) \quad (3-27)$$

.Y

i

*

1917 CLARK

[178 09]:

$$K_t^* = \alpha Q_t \quad (3-28)$$

:

.t

: K_t*

.t

: Q_t

t

Q

K

: α

12 9

3

(t+1)

$$K_{t+1}^* = \alpha Q_{t+1} \quad (3-29)$$

: (3-28) (3-29)

$$\Delta K = I_{nt} = \alpha(\Delta Q) \quad (3-30)$$

.t

I_{nt} :

:

2.3.III

K

1954

KOYCK

[180 09].

$$K_t = \beta_0 Q_t + \beta_1 Q_{t-1} + \beta_2 Q_{t-2} + \beta_3 Q_{t-3} + \dots \quad (3-31)$$

KOYCK

$$\beta_i = \beta_0 \lambda^i \quad i = 0,1,2,3 \dots$$

$$0 < \lambda < 1$$

λ

: (3-31) (3-32)

$$K_t = \beta_0 Q_t + \beta_0 \lambda Q_{t-1} + \beta_0 \lambda^2 Q_{t-2} + \beta_0 \lambda^3 Q_{t-3} + \dots \quad (3-32)$$

: λ (3-32)

$$\lambda K_{t+1} = \beta_0 \lambda Q_{t+1} + \beta_0 \lambda^2 Q_{t+1} + \beta_0 \lambda^3 Q_{t+1} + \dots \quad (3-33)$$

: (3-32) (3-33)

$$K_t = \beta_0 Q_t + \lambda K_{t-1} \quad (3-34)$$

$$I_{nt} = K_t - K_{t-1} \quad (3-35)$$

$$I_{nt} = \beta_0 Q_t - (1 - \lambda) K_{t-1} \quad (3-36)$$

:

:

$$I_{nt} = \beta_0 Q_t - (1 - \lambda - \delta) K_{t-1} \quad (3-37)$$

δ

(3-37)

$(1 - \lambda - \delta)$

3.3.III

[58 37]:

$$\Delta Y = \frac{s}{K} \quad (3 - 37)$$

: ΔY :

.()

: S

: K

%6

(3-37)

4

%.24

%.24 ()

%.6

:

:

Z :

$$\Delta Y = \frac{s}{K} - Z \quad (3 - 38)$$

4

%.32 %6

%2

(FBCF)

:

[173 01]

.(ABFF)

:

-

.() -
 .() -
 -

...

: 4.3.III

:

$$D(\log(I)) = 0.008 + 0.97D(\log(Y)) + 0.34D(\log(Tr(-1)))$$

(0.47)* (4.94) (3.14)

$$-0.19D(\log(in(-1))) - 0.19D1 - 0.2D80 \quad (3 - 39)$$

(-2.35) (-2.91) (-4.23)

$$\bar{R}^2 = 0.68 \quad SE = 0.06 \quad Log = 39.83$$

$$Lm(1) = 0.52(Pr = 0.47) \quad Lm(2) = 0.82(Pr = 0.9)$$

% 15

D1

.D80 D1

.1974

% 8.6 1973

D80

% 12.8- 1978 %20 -

.1980 %13.2- 1978

: 4.III

)

(

X_t

M_t

[06 80]

$$\log Mt = a_0 + \sum_{s=0}^{N1} a_{1s} \log(Y)_{t-s} + \sum_{h=0}^{N2} a_{2h} \log(PIM / PY)_{t-h} + \sum_{k=0}^{N3} a_{3k} \log(Z)_{t-k} + \sum_{j=1}^{N4} a_{4j} \log(M)_{t-j} + Ut \quad (3-40)$$

() Y

Di_t

Z

.(...

[09 103]:

$$TCR = \frac{TC \times USP_{PIB}}{IPC} \quad (3-41)$$

:

TC

USP_{PIB}

IPC

TCR

:

:

.()

MC

MF

MI

MK

MS

$$(\quad) M_0$$

$$M_t$$

$$M_t = M_C + M_F + M_K + M_I + M_S + M_0 \quad (3-42)$$

:

$$M_{it} = a_i M_{it} + b_i Y_{it} \quad (3-43)$$

$$\sum_{i=1}^N a_i = 1 \quad \sum_{i=1}^N b_i = 0$$

Y_{it}

Y_{it}

:

2.4.III

QW

(3-44)

PXW

$$Pxw = \frac{Px}{Pw \times TC} \quad (3-45)$$

:

: PX

: Pw

D

$$\log(X_t) = b_0 + \sum_{i=0}^{N1} b_{1i} \times \log(Pxw)_{t-i} + \sum_{j=0}^{N2} b_{2j} \times \log(Qw)_{t-j} + \sum_{k=0}^{N3} b_3 \times \log(D)_{t-k} + \sum_{s=1}^{N4} b_{4s} \times \log(X)_{t-s} + U_t \quad (3-44)$$

:

3.4.III

$$\log(M_t) = -8.195 + 2.188 \log(Y_t) - 1.045 \log(PM/PY) - 0.073T$$

$$\begin{matrix} (7.16) & (11.41) & (-6.31) & (-7.16) \\ +0.456D74 & -0.476D79 & & \end{matrix} \quad (3-45)$$

$$\begin{matrix} (7.76) & (-6.23) & & \end{matrix}$$

$$\bar{R}^2 = 0.972 \quad SE = 0.0736 \quad DW = 2.478 \quad F = 112.5$$

(:)

1974

D74

D79

[24-16 80]

:

$$D(\log(X_t)) = 0.009 + 2.86D(\log(DMH)) + 0.16D(\log(PPR89 * EF))$$

(0.37)* (2.17) (2.82)

$$+0.25(D(\log(PPR89 * EF)))^2 - 0.81D75 + 0.35D79 \quad (3 - 46)$$

(-5.42) (3.82)

(3.21)

$$\bar{R}^2 = 0.85$$

$$SE = 0.10$$

$$\log L = 24.7$$

DMH

D75,D79

1979 %58

1975 % 64

: 5 .III

: 1.5.III

()

[54 06]

":
[378 52]."

$$TC_t = \frac{P_t}{P_t^*} \quad (3 - 47)$$

: TC :

t : P_t

: P_t^*

: 2.5.III

*

(VAR)

Robert Keyfitz

$$D \log(FXR) = 0.5666 - 0.7664 \log(RER(-1)) - 0.6966 \text{Dlog} \left(\frac{P_f}{P_c} \right) \\ - 1.159 \left(\frac{\text{diff}(FXRES\$)}{PIB} \right) (-1) \quad (3 - 48) \\ \begin{matrix} (1.607) & (-2.11) & & (-2.312) \\ (-1.998) & & & \end{matrix} \\ \bar{R}^2 = 0.79 \quad SE = 0.019 \quad Dw = 2.53$$

6.III

6.1.III

-1

IRVING FISHER

()

[62 64]

$$M_s \cdot V = P \cdot T \quad (3-50)$$

()

M_s :

V :

P :

T :

**

M_s -

V -

T -

(3-50)

$$P = \frac{M_s \cdot V}{T} \quad (3-51)$$

(3-51)

V

T

$$M_s = M_d \quad (3-52) \quad (3-50)$$

$$M_s = \frac{1}{V} \cdot P \cdot T \quad (3-53)$$

(3-52) (3-53)

$$M_d = \frac{1}{V} \cdot P \cdot T \quad (3-54)$$

P (3-54)

$$\frac{M_s}{P} = \frac{1}{V} \cdot T \quad (3-55)$$

** سرعة تداول النقود مأخوذة من ترجمة Transaction Velocity Of Circulation

V

(3-55)

T

:

-2

ALFRED MARCHALL

[94 11]

:

$$M_d = K \cdot P \cdot Y \quad (3-57)$$

:Y

:K

[50 52]

$$K = \frac{1}{P} \quad (3-58) \quad (3-58)$$

$$\frac{M_d}{P} = K \cdot Y \quad (3-59)$$

*

:

K

-1

P

K -2

:

-

-

.

K -3

$.M_s$ K

P

M_s K

.

.

:

K

-

P

-

K

-

:

-3

MILTON FRIEDMAN

:

-1

[11 36].

-2

-3

: -1

Y

(actualisation)

$$W = \frac{Y}{i} \quad (3-60)$$

:

:W

M

:

-2

.h

G

e

b

()

P

$$i_b - \frac{1}{i_b} \cdot \frac{di_b}{dt} \quad (3-61)$$

:

:i_b

.t

i_b

: $\frac{di_b}{dt}$

:

$$i_e + \frac{1}{P} \cdot \frac{dP}{dt} - \frac{1}{i_e} \cdot \frac{di_e}{dt} \quad (3-62)$$

:i_e

G

[16 36]

$$\frac{1}{P} \cdot \frac{dP}{dt} \quad (3-63)$$

:

$$h = \frac{W_H}{W_N} \quad (3-64)$$

:

-3

U

:

$$M_d = f\left(W, P, i_b - \frac{1}{i_b} \cdot \frac{di_b}{dt}, i_e + \frac{1}{P} \cdot \frac{dP}{dt} - \frac{1}{i_e} \cdot \frac{di_e}{dt}, \frac{1}{P} \cdot \frac{dP}{dt}, h, U\right) \quad (3-64)$$

$i_e \quad i_b$

$$i_b - \frac{1}{i_b} \cdot \frac{di_b}{dt}$$

$i_e \quad i_b$

: (3-64)

$$i_e + \frac{1}{P} \cdot \frac{dP}{dt} - \frac{1}{i_e} \cdot \frac{di_e}{dt}$$

$$: \quad Y \quad P \quad M_d = f\left(Y, P, i_b, i_e, \frac{1}{P} \cdot \frac{dP}{dt}, h, U\right) \quad (3-64)$$

$$\lambda M_d = f\left(\lambda Y, \lambda P, i_b, i_e, \frac{1}{P} \cdot \frac{dP}{dt}, h, U\right) \quad (3-65)$$

: (3-65)

$$\lambda = \frac{1}{P}$$

$$\frac{M_d}{P} = f\left(\frac{Y}{P}, i_b, i_e, \frac{1}{P} \cdot \frac{dP}{dt}, h, U\right) \quad (3-65)$$

:

$$\lambda = \frac{1}{Y}$$

(3-65)

$$\frac{M_d}{Y} = f\left(\frac{P}{Y}, i_b, i_e, \frac{1}{P} \cdot \frac{dP}{dt}, h, U\right) \quad (3-66)$$

$$M_d = f\left(\frac{Y}{P}, i_b, i_e, \frac{1}{P} \cdot \frac{dP}{dt}, h, U\right) Y \quad (3-67)$$

6.2.III

:

:

[104 11]

وعليه، يعتبر كينز أن الدخل هو المحدد الرئيسي للطلب على النقود من أجل المعاملات و يعبر عن ذلك رياضيا بما يلي:

$$M_{d1} = f(Y) \quad (3-68)$$

: M_{d1}

$$Y \quad M_{d1}$$

$$M_{d1} = \alpha_1 \cdot Y \quad (3-69)$$

α_1

:

...

:

$$M_{d2} = f(Y) \quad (3-70)$$

: M_{d2}

$$Y \quad M_{d2}$$

$$M_{d2} = \alpha_2 \cdot Y \quad (3-71)$$

α_2

:

-1

-2

-3

*

**

:

()

:

$$M_{d3} = f(i) \quad (3-72)$$

: M_{d3}

: i

:

$$M_{d3} = -hi \quad (3-73)$$

: h

:

:

$$M_d = f(Y, i) \quad (3-74)$$

: M_d

:

$$M_d = M_{d1} + M_{d2} + M_{d3}$$

$$M_d = \alpha_1 Y + \alpha_2 Y - hi$$

$$M_d = (\alpha_1 + \alpha_2) Y - hi$$

$$M_d = kY - hi \quad (3-75)$$

: k

((3-75))

:

*أنظر صبحي تادريسي قريصة، النقود و البنوك، الدار الجامعية للطباعة و النشر، 1986، ص 260.
**يقصد بالمضاربة بيع و شراء الأوراق المالية من أسهم و سندات في الأسواق المالية بغية الحصول على ربح.

W.BAUMOL

:

() -

-

Coûts de Courtage

-

M

-

$$[94 \quad 28] \frac{M}{2}$$

b ()

: n

M

Y

$$n \cdot M = Y \Leftrightarrow n = \frac{Y}{M} \quad (3-76)$$

:

$$n \cdot b = \frac{b \cdot Y}{M} \quad (3-77)$$

:

*

$$C = M \cdot \frac{i}{2} \quad (3-78)$$

: (3-78) (3-77)

$$V = \frac{b \cdot Y}{M} + M \cdot \frac{i}{2} \quad (3-79)$$

: V

* هذا ما يسمى بتكلفة الفرصة الضائعة.

$$\begin{aligned}
 & : \\
 \frac{dV}{dM} &= \frac{-bY}{M^2} + \frac{i}{2} = 0 \\
 \Rightarrow \frac{bY}{M^2} &= \frac{i}{2} \\
 M^2 &= 2 \cdot \frac{bY}{i} \\
 M &= \left(2 \cdot \frac{bY}{i} \right)^{\frac{1}{2}} \quad (3-80) \\
 \frac{M}{2} &
 \end{aligned}$$

$$\begin{aligned}
 & : \\
 \frac{M_d}{P} &= \frac{M}{2} \\
 &= \frac{1}{2} \cdot \left(2 \cdot \frac{bY}{i} \right)^{\frac{1}{2}} \quad (3-81)
 \end{aligned}$$

(3-81)

(b = 0)

3.6.III

$$\begin{aligned}
 \Delta \ln(C_d)_t &= -0.332 + 0.594 \Delta \ln(Y_t) - 0.396(P_y)_t - 0.223 \ln(C_d/Y)_{t-1} \\
 &\quad (1.531)^* \quad (3.750) \quad (2.635) \quad (1.825) \\
 &+ 0.127 D_{71} - 0.155 D_c \quad (3-82) \\
 &\quad (3.914) \quad (4.540) \\
 R^2 &= 0.87 \quad F = 29.70 \quad DW = 2.529 \quad SE = 0.039
 \end{aligned}$$

The Transaction demand for

cash C_d

1971

D71

T.Student

Dc

:

Haque et Alii

$$\log(M2) = -2.77 + 0.511 \log(Y_t) - 0.02TxR + 0.71 \log(M2(-1)) \quad (3 - 83)$$

(-3.22) (4.20) (-5.91) (11.86)

$$\bar{R}^2 = 0.98 \quad SE = 0.05 \quad \log L = 43.9$$
$$Lm(1) = 0.02(Pr = 0.86) \quad Lm(2) = 2.13(Pr = 0.34)$$

M2

TxR

:

7.iii

)

.(

: 2.7.III

$$D(\log(Tr)) = -0.01 + 1.13D(\log(Y_t)) + 0.18D(Qoil)$$

$$\begin{matrix} (-0.74)^* & (6.39) & (6.07) \\ -0.17D76 - 0.15D82 & & (3 - 84) \\ (-2.88) & (-2.53) & \end{matrix}$$

$\bar{R}^2 = 0.76$ $SE = 0.05$ $LogL = 42.27$
 $Lm(1) = 0.61(Pr = 0.43)$ $Lm(2) = 1.95(Pr = 0.37)$

.D82 D76

: 8.III

: 1.8.III

$$C = f(Yd) \quad (3 - 85)$$

$$Yd = Y - Tax$$

$Yd :$
 Y
 Tax
(3-85)

(3-85)

$$C = C_0 + cYd \quad (3 - 86)$$

C

C₀

c

:

2.8.III

1949 James Duesenbery

$$C_t = f(Y_t, Y_{t-1}, \dots, Y_{t-n}) \quad (3 - 87)$$

: Y_{max} t

$$C_t = f(Y_t, Y_{max}) \quad (3 - 88)$$

:

(3-88)

$$C_t = C_0 + \alpha Y_t + \beta Y_{max} \quad (3 - 89)$$

Brown

[11 37] :

Brown

$$C_t = \beta Y_t + \gamma C_{t-1} \quad (3 - 90)$$

.()

γ

$$MPC_1 = \frac{\delta C_t}{\delta Y_t} = \beta$$

:

$$C_t \approx C_{t-1}$$

$$C_t = C_0 + \beta Y_t + \gamma C_{t-1} \Rightarrow (1 - \gamma)C_t = C_0 + \beta Y_t$$

$$C_t = \frac{C_0}{1-\gamma} + \frac{\beta}{1-\gamma} Y_t \quad (3 - 91)$$

: C_t

Y_t

(3-91)

$$MPC_2 = \frac{\delta C_t}{\delta Y_t} = \frac{\beta}{1-\gamma}$$

$(MPC_2 > MPC_1)$

.
:
3.8.III

1957

.permanent income

$$C = KY_p \quad (3 - 92)$$

$$Y_c = Y_p + Y_t \quad (3 - 93)$$

$$C_c = C_p + C_t \quad (3 - 94)$$

$Y_c :$

Y_p

Y_t

C_c

C_p

C_t

(3-93)

. Y_t

Y_p

[29 60] : (t-1) t (t-1)

$$Y_p = Y_{t-1} + \theta(Y_t - Y_{t-1}) \Rightarrow Y_p = \theta Y_t + (1 - \theta)Y_{t-1} \quad (3 - 95)$$

$\theta :$

.
:
4.8.III

1963 F.Modigliani

[126 03]

$$C_t = aWR + cYL \quad (3 - 96)$$

WR :

YL

WL

NL

F.Modigliani

.(NL-WL)

YL.WL

C.NL

:

$$C * NL = YL * WL \Rightarrow C = \frac{WL}{NL} YL \quad (3 - 97)$$

(WR) ()

t

:

(NL - t)

$$C * (NL - T) = YL * (WL - T) + WR \Rightarrow C = \frac{1}{NL-T} WR + \frac{WL-T}{NL-T} YL \quad (3 - 98)$$

: (3-98) (3-96)

$$\frac{1}{\frac{NL-T}{WL-T}}$$

5.8.III

.*

$$C_t = 0.253 + 0.312dY_{dt} + 0.556C_{t-1} + 0.372Y_{dt-1} \quad (3 - 99)$$

(0.665)*(2.929) (3.592) (3.136)

$$R^2 = 0.98 \quad F = 378.25 \quad DW = 2.25 \quad SE = 4.19$$

(1970) Taylor Houthakker

* القيم ما بين القوسين تشير إلى إحصائية T.student أما العلامة * فهي تعني أن المعلمة غير معنوية عند مستوى 5%

0.37

C_{t-1}

0.837

[128 71] 0.738 ()

:

$$D(\log(C_t)) = 0.33 - 0.26D(\log(U)) + 0.23D(\log(Yd_t)) + 0.21D88 \quad (3 - 100)$$

(3.39) (-2.89) (2.15) (4.42)

$$\bar{R}^2 = 0.57 \quad SE = 0.04 \quad \log L = 49.73$$

$$Lm(1) = 0.08(Pr = 0.76), \quad Lm(2) = 0.11(Pr = 0.94)$$

U

0 1988 1 D88

1988 %31.6 1987 % 8.36-

69] .

[195

()

()

:

:(1) -

:(2) -

:(3) -

:(4) -

: (5) -

:(6) -

)

(

$$C_{jt} = a_0 + \beta_{jt}YD_t + \gamma_{jt}P_{jt} -$$

$$\sum_{j=1}^8 C_{jt} = C_t :$$

.j $C_{jt} :$

Y_{jt}

.j P_{jt}

:

()

الفصل الرابع:

تقدير معادلات النموذج

:

: 1. IV

: 1.1.IV

*

* يواجه الباحث في بعض المتغيرات مشكلة في تعريف المتغيرة من مصدر إلى آخر، مثل سعر الصرف الذي يعتبره البعض متوسط سنوي و البعض الآخر قيمة نهاية شهر ديسمبر.

.(1)

The Unit Root Test of

Stationarity

Nelson And Plesser (1982)

.⁴ Dickey-Fuller (1979)

Perron(1989)

1929

Perron

1973

Futher Evidence on The

Zivot And Andrews(1992)

Great Crash,The oil Price Shock,And The Unit-Root Hypothesis

."ZA"

ZA

(EIEWS6)

:

2.1.IV

T-student

Breuch-Godfrey

⁴ Glynn, John, Perera, Nelson Verma, Reetu, Unit Root Tests and Structural Breaks: A Survey with Applications P65.

:

2.IV

:

1.2.IV

*

:

CD

$$\text{LOG}(Qt) = 0.809 + 0.072\text{LOG}(Kt) + 0.793\text{LOG}(LDt) \quad (4 - 1)$$

(2.83) (3.272) (14.323)

$$\bar{R}^2 = 0.98 \quad Lm(1) = 1.426 (Pr = 0.2411) \quad SE = 0.077 \quad N = 36$$

CD

:

$$\text{LOG}\left(\frac{QT}{LDt}\right) = -0.238 + 0.009\text{LOG}\left(\frac{KT}{LDt}\right) \quad (4 - 2)$$

(-14.187) (0.586)*

$$\bar{R}^2 = 0.01 \quad Lm(1) = 4.981 (Pr = 0.03253) \quad SE = 0.108 \quad N = 36$$

2.2.IV

$$\text{LOG}(LDt) = 0.112 + 1.0196\text{LOG}(Qt) - 0.114\text{LOG}(Wt) \quad (4 - 3)$$

(0.532)* (40.799) (-3.036)

$$\bar{R}^2 = 0.97 \quad Lm(1) = 0.523(Pr = 0.474) \quad SE = 0.085 \quad N = 36$$

$$\text{LOG}(LDt) = -0.026 + 1.022\text{LOG}(Qt(-1)) - 0.133\text{LOG}(Wt(-1)) \quad (4 - 4)$$

(-0.541) (38.119) (-3.366)

$$\bar{R}^2 = 0.97 \quad Lm(1) = 1.738(Pr = 0.1970) \quad SE = 0.084 \quad N = 35$$

Wt

Qt

[69 ص 213].

(4-4) (4-3)

(4-4)

3.2.IV

:

()

$$\text{LOG(LDAt)} = 4.57605 + 0.351\text{LOG(QAt(-1))} - 0.156\text{LOG(Wt(-1))} \quad (4 - 5)$$

(22.959) (12..28) (-2.501)

$$\bar{R}^2 = 0.81 \quad Lm(1) = 43.578(Pr = 0.0000) \quad SE = 0.212 \quad N = 35$$

Qat(-1)

*

1971

2000

:

$$\text{LOG(LDAt)} = 5.51 + 0.232\text{LOG(QAt(-1))} - 0.154\text{D(LOG(Wt(-1)))}$$

(42.380)(10.128) (-1.833)**

$$+ 0.255\text{DPNDA} \quad (4 - 6)$$

(9.791)

$$\bar{R}^2 = 0.94 \quad Lm(1) = 3.541(Pr = 0.06992) \quad SE = 0.06 \quad N = 34$$

0.23

PNDA

%12.78

2001 %12.07

5-

8.1

2001-2000

*.2000-1999

* لاحظ أيضا وجود ارتباط ذاتي للأخطاء.
* إحصائيات مقدمة من طرف مندومية التخطيط.

:

$$\text{LOG(LDIHt)} = 3.464 + 0.448\text{LOG(QIN(-1))} - 0.0584\text{D(LOG(WT))} \quad (4 - 7)$$

(19.277) (14.346) (-0.388)*

$$\bar{R}^2 = 0.87 \quad Lm(1) = 8.781(Pr = 0.0058) \quad SE = 0.0216 \quad N = 35$$

:

$$\text{LOG(LDIHt)} = 1.352 + 0.499\text{LOG(QINT(-1))} + 0.25\text{LOG(MKt)} - 0.1\text{D78}$$

(3.313) (19.244) (6.324) (-

1.76)**

$$- 0.207\text{LOG(WT(-1))} \quad (4 - 8)$$

(-3.165)

$$\bar{R}^2 = 0.94 \quad Lm(1) = 0.160(Pr = 0.6919) \quad SE = 0.09 \quad N = 35$$

MKt

D78

.1978 %7.51-

:

$$\text{LOG(LDht)} = -0.935 + 0.531\text{LOG(QHt(-1))} - 0.58\text{LOG(Wt)} \quad (4 - 8)$$

(-1.46)* (4.216) (-2.625)

$$\bar{R}^2 = 0.74 \quad Lm(1) = 34.984(Pr = 0.0000) \quad SE = 0.687 \quad N = 31$$

DPH

$$\begin{aligned} \text{LOG}(\text{LDHt}) = & 0.226 + 0.509\text{LOG}(\text{QHt}(-1)) - 0.329\text{DPH} \\ & (0.658) \quad (10.297) \quad (-8.9) \\ & - 0.339\text{D}(\text{LOG}(\text{Wt}(-1))) \quad (4 - 9) \\ & (-1.802)** \end{aligned}$$

$$\bar{R}^2 = 0.93 \quad Lm(1) = 1.711(Pr = 0.2021) \quad SE = 0.169 \quad N = 31$$

%93

.DPH

DPH

OPEP لا على حساب وفرة عناصر الإنتاج.

:

:

$$\begin{aligned} \text{LOG}(\text{LDBTPt}) = & 0.039 + 0.816\text{LOG}(\text{QBTPt}(-1)) - 0.967\text{LOG}(\text{Wt}(-1)) \quad (4 - 10) \\ & (0.038)* \quad (5.262) \quad (-4.573) \end{aligned}$$

$$\bar{R}^2 = 0.58 \quad Lm(1) = 30.172(Pr = 0.000) \quad SE = 1.184 \quad N = 31$$

.

. t

$$\begin{aligned} \text{LOG}(\text{LDBTPt}) = & 3.617 + 0.464\text{LOG}(\text{QBTPt}(-1)) + 0.035\text{T} + 0.499\text{LOG}(\text{Wt}(-1)) \\ & (5.8) \quad (5.558) \quad (11.474) \quad (3.538) \end{aligned}$$

$$\bar{R}^2 = 0.95 \quad Lm(1) = 12.894(Pr = 0.01346) \quad SE = 0.112 \quad N = 31$$

:

$$\begin{aligned} \text{LOG}(\text{LDBTPt}) = & 0.866 + 0.251\text{LOG}(\text{QBTPt}(-1)) + 0.03\text{T} + 0.484\text{LOG}(\text{It}(-1)) \\ & (2.096) \quad (2.312) \quad (17.810) \quad (4.424) \end{aligned}$$

$$\bar{R}^2 = 0.96 \quad Lm(1) = 9.229(Pr = 0.0536) \quad SE = 0.09 \quad N = 31$$

It

.2001

:

:

$$\text{LOG(LDSt)} = 3.583 + 0.303(\text{LOG(QSt}(-1))) - 0.696\text{LOG(Wt)} \quad (4 - 11)$$

(13.674) (12.989) (-6.401)

$$\bar{R}^2 = 0.83 \quad Lm(1) = 4.588(Pr = 0.04014) \quad SE = 0.596 \quad N = 35$$

T.student

0.69

:

3.2.IV

:

LOG

$$\bar{R}^2 = 0.61 \quad Lm(1) = 78.85(Pr = 0.000) \quad SE = 1.333 \quad N = 36$$

(-0.169)* (7.555) (-4.311)

(4-12)

:

$$\text{LOG(It)} = 3.512 + 0.441\text{LOG(Kt)} - 0.389\text{LOG(int)} \quad (4 - 13)$$

(16.567) (16.304) (-9.941)

$$\bar{R}^2 = 0.88 \quad Lm(1) = 12.246(Pr = 0.01395) \quad SE = 0.401 \quad N = 36$$

$$\text{LOG(It)} = 3.434 + 0.193\text{LOG}((\text{MKt} + \text{MIt})) - 0.309\text{LOG(int)} \quad (4 - 14)$$

(7.810) (2.069) (-6.148)

$$+ 0.306\text{LOG}(\text{Kt}(-1))$$

$$(8.845)$$

$$\bar{R}^2 = 0.87 \quad Lm(1) = 17.456(Pr = 0.0000) \quad SE = 0.429 \quad N = 36$$

$$\text{LOG}(\text{It}) = 3.168 + 0.2\text{LOG}((\text{MKT} + \text{MIT})) - 0.361\text{LOG}(\text{int}) + 0.342\text{LOG}(\text{KT}(-1))$$

$$(8.718) \quad (2.568) \quad (-8.177) \quad (9.804)$$

$$- 0.285\text{D}(\text{LOG}(\text{DEt})) \quad (4 - 15)$$

$$(-2.954)$$

$$\bar{R}^2 = 0.89 \quad Lm(1) = 12.027(Pr = 0.01658) \quad SE = 0.263 \quad N = 35$$

$$\text{LOG}(\text{It}) = 1.007 + 0.192\text{LOG}((\text{MKT} + \text{MIT})) - 0.109\text{LOG}(\text{int})$$

$$(2.441) \quad (3.935) \quad (-2.746)$$

$$+ 0.06\text{LOG}(\text{KT}(-2)) + 0.63\text{LOG}(\text{IT}(-1)) \quad (4 - 16)$$

$$(1.806)** \quad (8.595)$$

$$\bar{R}^2 = 0.96 \quad Lm(1) = 0.104(Pr = 0.7482) \quad Lm(2) = 1.0192(Pr = 0.3738)$$

$$SE = 0.1 \quad N = 35$$

(4-13)

(4-14)

(4-15)

It DEt

(4-16)

:

3.IV

:

1.3.IV

:

$$\text{LOG}(M_t) = 2.824 + 0.503\text{LOG}(D_t) - 0.818\text{LOG}\left(\frac{PIM_t}{PY_t}\right) \quad (4-17)$$

(4.617) (6.686) (-5.882)

$$\bar{R}^2 = 0.61 \quad Lm(1) = 27.787 (Pr = 0.0000) \quad SE = 1.119 \quad N = 36$$

1986

()

(4-17)

d83

1987 1983

d87

$$\text{LOG}(M_t) = 3.648 + 0.327\text{LOG}(D_t) + 0.436D\left(\text{LOG}\left(\frac{PIM_t}{PY_t}\right)\right) + 0.329\text{LOG}(POIL_t)$$

(8.777) (3.955) (1.697)** (5.926)

$$+ 0.206D83 - 0.549D87 - 0.2\text{LOG}(TCR_t)$$

(1.935)** (-5.275) (-2.780) (4-18)

$$\bar{R}^2 = 0.87 \quad Lm(1) = 0.182 (Pr = 0.6729) \quad SE = 0.269 \quad N = 35$$

(4-18)

$\frac{PIM_t}{PY_t}$

0.32

D87 D83

1983

.1987 %34.73 1986

2.3.IV

:

:

()

MC
MF
MI
MK

:

:

$$\text{LOG}(\text{Mct}) = -12.1277 + 1.317\text{LOG}(\text{Mt}) + 0.876\text{LOG}(\text{YDt}) \quad (4 - 19)$$

(-2.815)
(2.777)
(3.699)

$$\bar{R}^2 = 0.31 \quad Lm(1) = 58.1(Pr = 0.0000) \quad SE = 9.18 \quad N = 32$$

(% 31)

M

MC

:

$$\text{LOG}(\text{Mct}) = 1.090 + 0.805\text{LOG}(\text{YDt}) + 0.981\text{LOG}\left(\frac{\text{Mct}}{\text{CONSt}}\right)$$

(3.653)
(15.834)
(79.82)

$$+ 0.04 * \text{LOG}(\text{IPct}) \quad (4 - 20)$$

(2.03)**

$$\bar{R}^2 = 0.99 \quad Lm(1) = 4.279(Pr = 0.04827) \quad SE = 0.047 \quad N = 32$$

$\frac{\text{Mct}}{\text{CONSt}}$

%99

$\frac{\text{Mct}}{\text{CONS}}$

. T.student

. 0.80
MC

.
:

:

$$\text{LOG(MFt)} = -1.625 + 0.295\text{LOG(MT)} + 0.801\text{LOG(QAt)} \quad (4 - 21)$$

(-1.629) (1.629)* (7.311)

$$\bar{R}^2 = 0.64 \quad Lm(1) = 9.777(Pr = 0.00375) \quad SE = 3.204 \quad N = 36$$

(4-21)

$\frac{PIM}{PA}$

MI

:

$$\text{LOG(MFt)} = 0.824 + 0.429\text{LOG(MIt)} + 0.344\text{LOG(QAt)} + 0.775\text{LOG}\left(\frac{PIMt}{PA_t}\right) \quad (4 - 22)$$

(1.009)* (3.499) (2.730) (4.477)

$$\bar{R}^2 = 0.79 \quad Lm(1) = 0.41(Pr = 0.5263) \quad SE = 1.816 \quad N = 36$$

PA

.

:

:

$$\text{LOG(MIt)} = -1.728 + 0.915\text{LOG(Mt)} - 0.072\text{LOG(DIt)} \quad (4 - 23)$$

(-2.087) (6.916) (-0.809)*

$$\bar{R}^2 = 0.67 \quad Lm(1) = 32.095(Pr = 0.0000) \quad SE = 1.326 \quad N = 36$$

Dit (4-23)

$$\begin{aligned}
 \text{LOG}(MIt) = & 1.093 + 0.626\text{LOG}(MIt(-1)) + 0.368\text{LOG}\left(\frac{PIMt}{PYt}\right) \\
 & (2.712) \quad (5.714) \quad (3.017) \\
 & + 0.246\text{LOG}(POILt) + 1.004D(\text{LOG}(It)) \quad (4-24) \\
 & (2.988) \quad (4.119) \\
 \bar{R}^2 = 0.82 \quad Lm(1) = 0.177(Pr = 0.6767) \quad LM(2) = 0.120(Pr = 886) \\
 SE = 0.592 \quad N = 35
 \end{aligned}$$

$$\frac{PIMt}{PYt}$$

$MIt(-1)$

$$\text{LOG}(MKt) = -0.814 + 0.843\text{LOG}(Mt) + 0.105\text{LOG}(It) \quad (4-25) \\
 (-1.35) \quad (5.516) \quad (0.744)$$

$$\bar{R}^2 = 0.77 \quad Lm(1) = 30.941(Pr = 0.0000) \quad SE = 0.744 \quad N = 36 \\
 (4-25)$$

$$\begin{aligned} \text{LOG}(\text{Mkt}) = & 2.507 + 0.479\text{D}\left(\text{LOG}\left(\left(\frac{\text{PIMt}}{\text{PYt}}\right)\right)\right) + 1.179\text{D}(\text{LOG}(\text{It})) \\ & \quad (5.180) \quad (1.585)^* \quad (5.015) \\ & + 0.307 * \text{LOG}(\text{POILt}) + 0.337\text{LOG}(\text{Mkt}(-1)) + 0.011\text{T} \quad (4 - 26) \\ & \quad (4.455) \quad (2.869) \quad (4.183) \\ \bar{R}^2 = 0.82 \quad Lm(1) = 0.278(Pr = 0.6021) \quad SE = 0.744 \quad N = 35 \end{aligned}$$

$$\frac{P}{\text{PYt}} \quad (4-26)$$

()

: **3.3.IV**

OCDE

:

$$\begin{aligned} \text{LOG}(\text{Xt}) = & -24.795 + 1.134\text{LOG}(\text{QWt}) + 0.014\text{LOG}(\text{POILt}) \quad (4 - 27) \\ & \quad (5.885) \quad (7.1134) \quad (0.453) \end{aligned}$$

$$\bar{R}^2 = 0.92 \quad Lm(1) = 1.865(Pr = 0.1815) \quad SE = 0.024 \quad N = 36$$

5

QWt

T.student

:

$$\text{LOG}(\text{TCRt}) = 37.296 - 1.386\text{LOG}(\text{QWt}) + 0.476\text{LOG}(\text{PWt}) \quad (4 - 32)$$

$$\begin{matrix} & (5.074) & (-5.015) & (11.336) \end{matrix}$$

$$\bar{R}^2 = 0.92 \quad Lm(1) = 20.018 (Pr = 0.0000) \quad SE = 0.561 \quad N = 36$$

(4-32)

:

$$\text{LOG}(\text{TCRt}) = 1.4029 + 0.868\text{D}(\text{LOG}(\text{PYt})) + 0.192\text{LOG}(\text{PWt})$$

$$\begin{matrix} (2.847) & (4.877) & (5.522) \\ - 0.169\text{LOG}(\text{MT}(-1)) + 0.293\text{LOG}(\text{TCRt}(-1)) \end{matrix} \quad (4 -$$

33)

$$\begin{matrix} (-2.55) & (2.443) \end{matrix}$$

$$\bar{R}^2 = 0.95 \quad Lm(1) = 0.004 (Pr = 0.7417) \quad Lm(2) = 0.302 (PR = 0.9484)$$

$$SE = 0.331 \quad N = 35$$

:

2.4.IV

Yt

$$\text{LOG}(M2t) = -14.534 + 1.944\text{LOG}(Yt) - 0.219\text{LOG}(\text{Trt}) \quad (4 - 34)$$

$$\begin{matrix} & (-20.715) & (21.024) & (-4.242) \\ \bar{R}^2 = 0.93 & Lm(1) = 4.522(Pr = 0.04152) & SE = 0.752 & N = 36 \end{matrix}$$

T.student
() ()

M2

$$\text{LOG}(M2t) = -7.516 + 1.740\text{LOG}(Yt) - 0.781\text{LOG}(Vt) \quad (3 - 35)$$

$$\begin{matrix} & (-8.325) & (29.893) & (-7.126) \\ \bar{R}^2 = 0.96 & Lm(1) = 0.5521(Pr = 0.04754) & SE = 0.457 & N = 36 \end{matrix}$$

(3-35) (3-34)

T.student

$$\text{LOG}(M2t) = -6.864 + 1.653\text{LOG}(Yt) - 0.757\text{LOG}(Vt) - 0.0567\text{LOG}(\text{INF}t) \quad (4 - 36)$$

$$\begin{array}{cccc} & (-8.074) & (26.778) & (-7.643) & (-3.011) \\ \bar{R}^2 = 0.96 & Lm(1) = 3.519 & (Pr = 0.7075) & SE = 0.338 & N = 34 \end{array}$$

$$\text{LOG}(M2t) = -7.521 + 1.614\text{LOG}(Yt) - 0.666\text{LOG}(Vt) - 0.067\text{LOG}(\text{INF}t)$$

$$\begin{array}{cccc} & (-9.323) & (27.96) & (-6.963) & (-3.833) \\ & + 0.094 * \text{LOG}(\text{POIL}t(-1)) & & & (4 - 37) \\ & (2.744) & & & \end{array}$$

$$\bar{R}^2 = 0.97 \quad Lm(1) = 2.42 (Pr = 0.13099) \quad SE = 0.268 \quad N = 34$$

: **1.5.IV**

.FP QH

$$\text{LOG(FPt)} = -6.255 + 0.278\text{LOG(POILt)} + 1.748\text{LOG(QHt)} \quad (4 - 38)$$

(-8.558) (3.769) (19.113)

$$\bar{R}^2 = 0.92 \quad Lm(1) = 11.142(Pr = 0.0023) \quad SE = 0.952 \quad N = 32$$

: 1987

$$\text{LOG(FPt)} = -5.811 + 0.259\text{LOG(POILt)} + 1.694\text{LOG(QHt)} - 0.453\text{D87} \quad (4 - 39)$$

(-8.452) (3.752) (19.746) (-2.624)

$$\bar{R}^2 = 0.93 \quad Lm(1) = 5.367(Pr = 0.02833) \quad SE = 0.764 \quad N = 32$$

T.student

D87 .FP

1986

2.5.IV

:

$$\text{LOG(TVAt)} = -6.735 + 1.51\text{LOG(Qt)} + 0.826\text{D}(\text{LOG(IT)}) \quad (4 - 40)$$

(-9.506) (17.163) (2.856)

$$\bar{R}^2 = 0.89 \quad Lm(1) = 4.522(Pr = 0.04152) \quad SE = 0.157 \quad N = 35$$

Qt (4-40)

Qt

:

6 .IV

: 1.6.IV

()

:

$$\begin{aligned} \text{LOG(IPCt)} = & -5.133 + 0.872\text{LOG(Yt(-1))} - 0.2875\text{LOG(M2t)} \\ & (1.901)** (2.379) \qquad \qquad \qquad (-1.874)** \\ & + 0.653\text{LOG(PIMt)} \qquad \qquad \qquad (4 - 41) \\ & (18.43) \end{aligned}$$

$$\bar{R}^2 = 0.98 \quad Lm(1) = 7.644(Pr = 0.09647) \quad SE = 0.558 \quad N = 35$$

T.student

:

$$\begin{aligned} \text{LOG(IPCt)} = & 0.565 + 0.237\text{LOG(PIMt)} + 0.657\text{LOG(IPCt(-1))} \\ & (6.746) \quad (4.988) \qquad \qquad \qquad (10.224) \\ & - 0.714\text{D(LOG(Wt))} \qquad \qquad \qquad (4 - \end{aligned}$$

42)

$$\bar{R}^2 = 0.99 \quad Lm(1) = 0.499(Pr = 0.4853) \quad Lm(2) = 3.201(Pr = 0.05543)$$

$$SE = 0.12 \quad N = 35$$

2.6.IV

$$\begin{aligned} \text{LOG}(Wt) = & 0.060 - 0.635\text{D}(\text{LOG}(\text{IPct})) - 0.726\text{D}(\text{LOG}(\text{LDt})) \\ & (0.552)^* \quad (-4.524) \qquad \qquad \qquad (-2.136) \\ & + 0.98\text{LOG}(Wt(-1)) \qquad \qquad \qquad (4 - 43) \\ & (15.315) \end{aligned}$$

$$\begin{aligned} \bar{R}^2 = 0.87 & \quad Lm(1) = 0.7167(Pr = 0.01192) & \quad Lm(2) = 3.818(Pr = 0.0337) \\ SE = 0.184 & \quad N = 35 \end{aligned}$$

()

(4-44)

$$\begin{aligned} \text{LOG}(Wt) = & -0.022 - 0.342\text{D}(\text{LOG}(\text{IPC})) - 0.965\text{D}(\text{LOG}(\text{LD})) \\ & (-0.215)^* \quad (-2.198) \qquad \qquad \qquad (-3.066) \\ & + 0.957\text{LOG}(WT(-1)) + 0.785\text{D}(\text{LOG}(YT(-1))) \qquad (4 - 44) \\ & (15.984) \qquad \qquad \qquad (3.171) \end{aligned}$$

$$\bar{R}^2 = 0.89$$

$$E = 0.136$$

: 3.6.IV

:

$$\text{LOG(CONSt)} = 0.569 + 0.905\text{LOG(YDt)} \quad (4 - 45)$$

(4.164) (52.141)

$$\bar{R}^2 = 0.98 \quad Lm(1) = 8.853(Pr = 0.005) \quad SE = 0.05 \quad N = 32$$

T.student

%90

:

$$\text{LOG(CONSt)} = 0.520 + 0.630\text{LOG(YDt)} + 0.290\text{LOG(CONSt(-1))} \quad (4 - 46)$$

(3.864) (6.885) (2.953)

$$\bar{R}^2 = 0.99 \quad Lm(1) = 1.827(Pr = 0.1875) \quad Lm(2) = 2.561(Pr = 0.0965)$$

$$SE = 0.04 \quad N = 31$$

0.63

0.88

:

1988

$$\text{LOG(CONSt)} = 0.442 + 0.483\text{LOG(YDt)} + 0.450\text{LOG(CONSt(-1))} + 0.1247819142 * D88 \quad (4 - 47)$$

(3.720) (5.299) (4.577) (3.229)

$$\bar{R}^2 = 0.99 \quad Lm(1) = 0.624(Pr = 0.4366) \quad Lm(2) = 2.34(Pr = 0.1171)$$

$$SE = 0.02 \quad N = 31$$

1988

%4.88- %8.37-

%26.16 % 31.61

.1987

const(-1)

.0.48

:

4.6.IV

*

:

:c1 (1)

:c2 (2)

:c3 (3)

:c4 (4)

.** :c5 (5)

:

:

$$\text{LOG}(C1t) = -9.763 + 2.337\text{LOG}(YDt) - 0.3977\text{LOG}(P1t) \quad (4 - 48)$$

(-10.545) (15.120) (-4.861)

$\bar{R}^2 = 0.91 \quad Lm(1) = 51.441(Pr = 0.000) \quad SE = 0.635 \quad N = 32$

P1t

.C1t(-1)

P1t

$$\text{LOG}(C1t) = -0.3649 + 0.106\text{LOG}(YDt) + 0.932\text{LOG}(C1t(-1)) + 1.103D83$$

(-1.446) (2.109) (36.225) (21.989)

$$+ 0.259D88 \quad (4 - 49)$$

(5.479)

$\bar{R}^2 = 0.99 \quad Lm(1) = 0.336(Pr = 0.566) \quad Lm(2) = 0.768(Pr = 0.474)$
 $SE = 0.05 \quad N = 31$

D83 D88

C1t

1983

% 72.09

%226.74

* يمكن الإطلاع على طريقة حساب الاستهلاك حسب الإشباع و الاحتياج في الملحق (3).
 ** قمنا بجمع فئة الصحة و النظافة و الاتصال و المواصلات و التعليم ثقافة و ترفيه.

. C1t(-1)

:

:

$$\text{LOG}(C2t) = -11.496 + 2.366\text{LOG}(YDt) - 0.471\text{LOG}(P2t) \quad (4 - 50)$$

(-13.19) (15.448) (-4.82)

$$\bar{R}^2 = 0.92 \quad Lm(1) = 56.761(Pr = 0.000) \quad SE = 1.688 \quad N = 32$$

$$D(\text{LOG}(C2t)) = 0.0225 + 0.467D(\text{LOG}(YDt)) + 1.014D83 + 0.123D88 \quad (4 - 51)$$

(2.059) (2.887) (22.44) (2.686)

$$\bar{R}^2 = 0.94 \quad Lm(1) = 0.415(Pr = 0.524) \quad SE = 0.052 \quad N = 31$$

D(LOG (C2t))

D88 D83

.(4-50)

:

:

$$\text{LOG}(C3t) = -9.902 + 2.0129\text{LOG}(YDt) - 0.244\text{LOG}(P3t) \quad (4 - 52)$$

(-9.508) (11.418) (-2.961)

$$\bar{R}^2 = 0.91 \quad Lm(1) = 56.761(Pr = 0.000) \quad SE = 1.425 \quad N = 32$$

TIN

ABMEM

:

$$\text{LOG}(C3T) = -0.244 + 1.021\text{LOG}(ABMEMt) - 0.035D(\text{LOG}(TIN)) \quad (4 - 53)$$

(-0.4)* (8.039) (-0.08)*

$$\bar{R}^2 = 0.71 \quad Lm(1) = 12.77(Pr = 0.0016) \quad SE = 3.141 \quad N = 26$$

$$\begin{aligned} \text{LOG}(C3T) = & -8.7106 + 1.767\text{LOG}(YDt(-2)) + 0.245\text{LOG}(ABMEMt) \\ & (-7.310) \quad (7.587) \quad (1.851)** \\ & - 0.292\text{LOG}(P3t) \quad (4 - 54) \\ & (-3.675) \\ \bar{R}^2 = 0.91 \quad Lm(1) = 4.398(Pr = 0.04716) \quad SE = 0.892 \quad N = 28 \\ & (4-54) \end{aligned}$$

D83

.P3t

$$\begin{aligned} \text{LOG}(C4t) = & -11.85 + 2.320\text{LOG}(YDt) - 0.461\text{LOG}(P4t) \quad (4 - 55) \\ & (-13.255) \quad (14.34) \quad (-4.232) \\ \bar{R}^2 = 0.91 \quad Lm(1) = 57.56(Pr = 0.000) \quad SE = 1.729 \quad N = 32 \end{aligned}$$

$$\begin{aligned} \text{LOG}(C4t) = & -11.285 + 2.223\text{LOG}(YDt(-1)) - 0.4030\text{LOG}(P4t(-1)) \quad (4 - 56) \\ & (-11.724) \quad (12.942) \quad (-3.561) \\ \bar{R}^2 = 0.90 \quad Lm(1) = 10.567(Pr = 0.3081) \quad SE = 1.8 \quad N = 31 \\ & (4-56) \end{aligned}$$

$$\begin{aligned} & : \quad \text{PS} \\ \text{LOG}(C5t) = & -8.619 + 1.972\text{LOG}(YDt) - 0.112\text{LOG}(PS) \quad (4 - 57) \\ & (-4.089) \quad (5.795) \quad (-0.923)* \\ \bar{R}^2 = 0.88 \quad Lm(1) = 52.584(Pr = 0.0000) \quad SE = 2.07 \quad N = 32 \end{aligned}$$

D83

$$\text{LOG}(C5t) = 0.175 + 0.718D(\text{LOG}(YDt)) + 0.975\text{LOG}(C5(-1)) + 0.749D83(4 - 59)$$

(2.289)
(4.737)
(83.211)
(14.735)

$\bar{R}^2 = 0.99$ $Lm(1) = 0.104(Pr = 0.7482)$ $Lm(2) = 0.782(Pr = 0.4683)$
 $SE = 0.064$ $N = 3$

7 .IV

Jarque-Bera 1.7.IV

: . Jarque-Bera
Jarque-Bera :(1-4)

Prob	Jarque-Bera	
0.721	0.258	<i>Qt</i>
0.092	0.428	<i>LDt</i>
0.5107	1.343	<i>LDAt</i>
0.7930	0.463	<i>LDHHt</i>
0.8579	0.306	<i>LDHt</i>
0.9721	0.056	<i>LDBTPt</i>
0.4905	1.424	<i>It</i>
0.6312	0.920	<i>Mt</i>
0.6198	0.956	<i>MCt</i>
0.9035	0.202	<i>MFt</i>
0.1129	8.697	<i>MEt</i>
0.0186	8.024	<i>MKt</i>
0.3089	2.349	<i>Xt</i>
0.6559	0.843	<i>TCRt</i>
0.0609	5.596	<i>M2t</i>
0.7721	0.517	<i>FPt</i>
0.0901	14.02	<i>TVAt</i>

0.8087	0.424	<i>IPCt</i>
0.7978	0.451	<i>CONSt</i>
0.5926	1.046	<i>C1t</i>
0.5871	1.064	<i>D(C2t)</i>
0.8682	0.282	<i>C3t</i>
0.5807	1.086	<i>C4t</i>
0.5438	1.218	<i>C5t</i>

:Chow Test 2.7.IV

1989

Eviews 6.0

:(1-4)

Prob		
0.116805	2.133558	<i>Qt</i>
0.296036	1.291387	<i>LDt</i>
-	*	<i>LDAt</i>
-	-	<i>LDHHt</i>
-	-	<i>LDHt</i>
0.01289	6.405193	<i>LDBTPt</i>
0.103029	2.070399	<i>It</i>
-	-	<i>Mt</i>
0.019154	3.618001	<i>MCt</i>
0.06538	4.453300	<i>MFt</i>
-	-	<i>Mit</i>
0.254656	1.406341	<i>MKt</i>
-	-	<i>Xt</i>
0.223124	1.507729	<i>TCRt</i>
0.000304	7.203774	<i>M2t</i>
-	-	<i>FPt</i>
0.092947	2.350869	<i>TVAAt</i>
0.189447	1.655232	<i>IPCt</i>
0.193561	1.617433	<i>Wt</i>

* لا يمكن تطبيق اختبار الاستقرار نظرا لوجود متغيرة صورية.

-	-	<i>CONSt</i>
-	-	<i>C1t</i>
-	-	<i>D(C2t)</i>

(1-4)

Prob		
0.000000	26.39752	<i>C3t</i>
0.001371	10.27290	<i>C4t</i>
-	-	<i>C5t</i>

1989

8.IV

1.8.IV

$$Y_t = (CONSt * IPCt + It * PIt + CONAI_t + CONAPt + CONIFt + Xt * PXt + VDS_t - Mt * PIMt) \frac{PY_t}{PY_t} \quad (4 - 60)$$

$$Y_{nt} = Q_{nt} + TVAt + DEDt \quad (4 - 61)$$

$$Q_{nt} = QAt * PA_t + QINt * PINDt + QHt * PINDt + QSt * PSt + QBTP * PY_t \quad (4 - 62)$$

$$LDt = LDA_t + LDIHHt + LDHt + LDBTPt + LDSt + LDADt \quad (4 - 63)$$

$$Ut = \frac{LSt - LDt}{LSt} * 100 \quad (4 - 64)$$

$$Mnt = (MCt * IPCt + MFt * PA_t + Mit * PIt + MKt * PIt + MNDt) \quad (4 - 65)$$

:

$$NX_t = \frac{(X_t * P_{Xt} - M_t * P_{IMt})}{IP_{Ct}} \quad (4 - 66)$$

:

$$BSt = (FP_t + FO_t) - (DE_t + DF_t) \quad (4 - 67)$$

:

$$INF_t = \frac{IP_{Ct} - IP_{Ct(-1)}}{IP_{Ct(-1)}} * 100 \quad (4 - 68)$$

:

$$K_t = (1 - \delta)K_t(-1) + I_t \quad (4 - 69)$$

.%5

δ

δ :

:

2.8.IV

:

$$\text{LOG}(Q_t) = c(1) + c(2) * \log(K_t) + c(3) * \log(LD)$$

$$\text{LOG}(LD) = C(4) + C(5) * \text{LOG}(Q_T(-1)) + C(6) * \text{LOG}(WT(-1))$$

$$\text{LOG}(LDA) = C(7) + C(8) * \text{LOG}(QA(-1)) + C(9) * D(\text{LOG}(WT(-1))) + C(10) * DP_NDA$$

$$\text{LOG}(LDIHH) = C(11) + C(12) * \text{LOG}(QIN(-1)) + C(13) * \text{LOG}(WT(-1)) + C(14) * D78 + C(15) * \text{LOG}(MKT)$$

$$\text{LOG}(LDH) = C(16) + C(17) * \text{LOG}(QH(-1)) + C(18) * DPH + C(19) * D(\text{LOG}(WT(-1)))$$

$$\text{LOG}(LDBTP) = C(17) + C(18) * \text{LOG}(QBTP(-1)) + C(19) * T + C(20) * \text{LOG}(IT(-1))$$

$$\text{LOG}(ES) = C(21) + C(22) * (\text{LOG}(QS(-1))) + C(23) * \text{LOG}(WT)$$

$$\text{LOG}(IT) = C(24) + C(25) * \text{LOG}((MKT + MIT)) + C(26) * \text{LOG}(O2) + C(27) * \text{LOG}(KT(-2)) + C(28) * \text{LOG}(IT(-1))$$

$$\begin{aligned} \text{LOG(MT)} &= \text{C}(29) + \text{C}(30)*\text{LOG}(\text{DIT}) + \text{C}(31)*\text{D}(\text{LOG}(\text{PIM}/\text{PY})) + \\ &\text{C}(32)*\text{LOG}(\text{POIL}) + \text{C}(33)*\text{D}87 + \text{C}(34)*\text{D}83 + \text{C}(35)*\text{LOG}(\text{TCR}) \\ \text{LOG(MCT)} &= \text{C}(36) + \text{C}(37)*\text{LOG}(\text{YDT}) + \text{C}(38)*\text{LOG}((\text{MCT})/\text{CONST}) + \\ &\text{C}(39)*\text{LOG}(\text{IPC}) \end{aligned}$$

$$\text{LOG(MF)} = \text{C}(40) + \text{C}(41)*\text{LOG}(\text{MIT}) + \text{C}(42)*\text{LOG}(\text{QA}) + \text{C}(43)*\text{LOG}(\text{PIM}/\text{PA})$$

$$\text{LOG(MIT)} = \text{C}(45) + \text{C}(46)*\text{LOG}(\text{MIT}(-1)) + \text{C}(47)*\text{LOG}(\text{PIM}/\text{PY}) + \text{C}(48)*\text{LOG}(\text{POIL}) + \text{C}(49)*\text{D}(\text{LOG}(\text{IT}))$$

$$\text{LOG(MKT)} = \text{C}(50) + \text{C}(51)*\text{D}(\text{LOG}((\text{PIM}/\text{PY}))) + \text{C}(52)*\text{D}(\text{LOG}(\text{IT})) + \text{C}(53)*\text{LOG}(\text{POIL}) + \text{C}(54)*\text{LOG}(\text{MKT}(-1)) + \text{C}(55)*\text{T}$$

$$\text{LOG(XT)} = \text{C}(56) + \text{C}(57)*\text{LOG}(\text{QW}) + \text{C}(58)*\text{D}71 + \text{C}(59)*\text{LOG}(\text{XT}(-1)) + \text{C}(60)*\text{LOG}(\text{PX}(-1)/\text{PW}(-1)*\text{TC}(-1))$$

$$\text{LOG(TCR)} = \text{C}(61) + \text{C}(62)*\text{D}(\text{LOG}(\text{PY})) + \text{C}(63)*\text{LOG}(\text{PW}*\text{TC}) + \text{C}(64)*\text{LOG}(\text{MT}(-1)) + \text{C}(65)*\text{LOG}(\text{TCR}(-1))$$

$$\text{LOG(M2)} = \text{C}(66) + \text{C}(67)*\text{LOG}(\text{YT}) + \text{C}(67)*\text{LOG}(\text{V}) + \text{C}(68)*\text{LOG}(\text{ABS}(\text{inf})) + \text{C}(69)*\text{LOG}(\text{POIL}(-1))$$

$$\text{LOG(FP)} = \text{C}(67) + \text{C}(68)*\text{LOG}(\text{POIL}) + \text{C}(69)*\text{LOG}(\text{QH}) + \text{C}(70)*\text{D}87$$

$$\begin{aligned} \text{LOG(TVA)} &= \text{C}(71) + \text{C}(72)*\text{LOG}(\text{QT}) + \text{C}(73)*\text{D}((\text{LOG}(\text{IT}))) \\ \text{LOG(IPC)} &= \text{C}(74) + \text{C}(75)*\text{LOG}(\text{PIM}) + \text{C}(76)*\text{LOG}(\text{IPC}(-1)) + \\ &\text{C}(77)*\text{D}(\text{LOG}(\text{WT})) \end{aligned}$$

$$\text{LOG(WT)} = \text{C}(78) + \text{C}(79)*\text{D}(\text{LOG}(\text{IPC})) + \text{C}(90)*\text{D}(\text{LOG}(\text{LD})) + \text{C}(91)*\text{LOG}(\text{WT}(-1)) + \text{C}(92)*\text{D}(\text{LOG}(\text{YT}(-1)))$$

$$\text{LOG(CONST)} = \text{C}(93) + \text{C}(94)*\text{LOG}(\text{YDT}) + \text{C}(95)*\text{LOG}(\text{CONST}(-1)) + \text{C}(96)*\text{D}88$$

$$\text{LOG(C1T)} = \text{C}(97) + \text{C}(98)*\text{D}(\text{LOG}(\text{YDT})) + \text{C}(99)*\text{LOG}(\text{C1T}(-1)) + \text{C}(100)*\text{D}83 + \text{C}(101)*\text{D}88$$

$$\text{D}(\text{LOG}(\text{C2T})) = \text{C}(102) + \text{C}(103)*\text{D}(\text{LOG}(\text{YDT})) + \text{C}(104)*\text{D}83 + \text{C}(105)*\text{D}88$$

$$\text{LOG(C4T)} = \text{C}(106) + \text{C}(107)*\text{LOG}(\text{YDT}(-1)) + \text{C}(108)*\text{LOG}(\text{P4T}(-1))$$

$$\text{LOG(C5T)} = \text{C}(109) + \text{C}(110)*\text{D}(\text{LOG}(\text{YDT})) + \text{C}(111)*\text{LOG}(\text{C5T}(-1)) + \text{C}(112)*\text{D}83$$

$$Y_t = (\text{CONST}_t * \text{IPC}_t + I_t * P_t + \text{CONA}_t + \text{CONA}_t + \text{CONIF}_t + X_t * P_t$$

$$+VDS_t - M_t * PIM_t) / PY_t$$

$$Y_{nt} = Q_{nt} + TVA_t + DED_t$$

$$Q_{nt} = QA_t * PA_t + QIN_t * PIND_t + QH_t * PIND_t + QSt * PSt + QBTP * PY_t$$

$$LD_t = LDA_t + LDIHH_t + LDH_t + LDBTP_t + LDSt + LDAD_t$$

$$U_t = \frac{LSt - LD_t}{LSt} * 100$$

$$M_{nt} = (MC_t * IPC_t + MF_t * PA_t + MI_t * PI_t + MK_t * PI_t + MND_t)$$

$$BSt = (FP_t + FO_t) - (DE_t + DF_t)$$

$$INF_t = \frac{IPC_t - IPC_{t(-1)}}{IPC_{t(-1)}} * 100$$

$$K_t = (1 - \delta)K_{t(-1)} + I_t$$

9

24

.(4)

1986

Jarque-Bera

الفصل الخامس: محاكاة النموذج

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2005-2001

: 1.V

: 1.1.V

. [68 ص 17]

Tocher

: Shannon,R.E:

. [66 ص 2]

(itération)

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: -2

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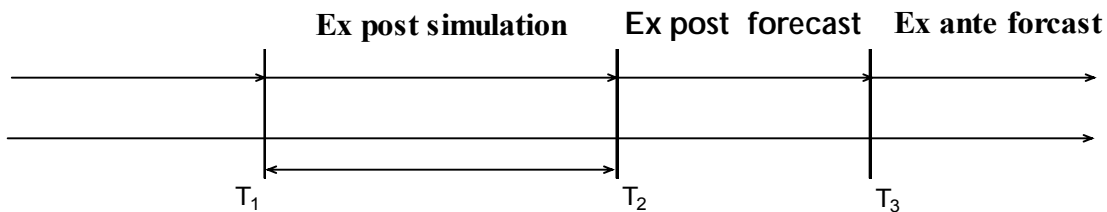
[32 ص 61] : Ex post simulation_ -1

()

:Ex post Forecast -2

: Ex ante Forecast -3

:
:5-1



[359 ص 65]:

()

t

. Jacobi و Newton-Raphson ، Gauss Seidel

:

Gauss Seidel

$$Ax = b$$

$$A \cdot x = b \quad (5 - 1)$$

()

Gauss Seidel*

$$r^k$$

$$r^k = b - Ax^k \quad (5 - 2)$$

(itération)

k

$$x^{(k+1)}$$

Gauss Seidel

$$x^{(0)}$$

:

$$x^{(k+1)} = \frac{1}{a_{ij}} (b_i - \sum_{j=1}^{i-1} a_{ij} x_j^{k+1} - \sum_{j=i+1}^N a_{ij} x_j^k) \quad (5 - 3)$$

k x

k + 1

* J.K.F.GAUSS (1826) et L.SEIDEL (1874)

: -1

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(Root Means Square Error) RMSE* (

(Root Means Square Percent Error) RMSPE**

:

$$RMSE = \sqrt{\frac{1}{T} \sum (Y_t^s - Y_t)^2} \quad (5 - 4)$$

RMSE

*

**

$$RMSPPE = \sqrt{\frac{1}{T} \sum \frac{(Y_t^s - Y_t)^2}{Y_t^2}} \quad (5 - 5)$$

Y_t^s :
 Y_t
 T

Theil's Inequality Coefficient (1)

$$U(1) = \frac{\sqrt{\frac{1}{T} \sum (Y_t^s - Y_t)^2}}{\sqrt{\frac{1}{T} \sum Y_t^{s2} + \frac{1}{T} \sum Y_t^2}} \quad (5 - 6)$$

RMSE

RMSE

[0,1]

U

U=1

U=0

[364ص 65]:

*

$$MSE = (\bar{Y}_t^s - \bar{Y}_t)^2 + (\sigma_{Yst} - \sigma_{Yt})^2 + 2(1 - \rho)\sigma_{Yst}\sigma_{Yt} \quad (5 - 7)$$

$\sigma_{Yst} \sigma_{Yt}$ $Y_t^s Y_t$ $\bar{Y}^s \bar{Y}_t$
 ρ

$$(\bar{Y}^s - \bar{Y}_t)^2$$

$$(\sigma_{Yst} - \sigma_{Yt})^2$$

$$2(1 - \rho) \sigma_{Yst} \sigma_{Yt}$$

MSE

[365ص 65]:

$$U^M = \frac{(\bar{Y}_t^s - \bar{Y}_t)^2}{MSE} \quad (5 - 8)$$

* يعرف MSE كما يلي: $MSE = \frac{1}{T} \sum (Y_t^s - Y_t)^2$

$$U^S = \frac{(\bar{\sigma}_t^s - \bar{\sigma}_t)^2}{MSE} \quad (5 - 9)$$

$$U^c = \frac{2(1-\rho)\sigma_t^s\sigma_t}{MSE} \quad (5 - 10)$$

:

$U > 0$

U^M :

U^S

U^S

U^c

U^c

$Y_t Y_t^s$

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2.V

2005-2001

2000-1970

RMSPE

RMSE

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U^S

U^M

$U(1)$

$\rho_{Y_t Y_t^s}$

U^c

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.2000-1970

:(5-1)

ρ	U^C	U^M	U^S	$U(1)$	RMSPE	RMSE	
0.96	0.814	0.136	0.050	0.034	0.068	225.662	Yt
0.99	0.973	0.027	0.000	0.002	0.008	6648.868	Ynt
0.99	0.883	0.047	0.070	0.017	0.034	104.537	Qt
0.99	0.95	0.035	0.013	0.016	0.029	120.619	LDt
0.94	0.974	0.00	0.019	0.018	0.037	37.386	IDAt
0.97	0.987	0.002	0.01	0.026	0.053	22.616	LDIHHt
0.97	0.766	0.212	0.023	0.043	0.086	2.842	LDHt
0.97	0.995	0.003	0.001	0.038	0.069	43.454	LDBTPt
0.91	0.973	0.011	0.014	0.055	0.148	83.999	LDSSt
0.92	0.90	0.02	0.072	0.037	0.072	78.072	It
0.95	0.988	0.116	0.000	0.041	0.080	91.093	Mt
0.99	0.976	0.002	0.021	0.072	0.361	96.552	MCt
0.95	0.997	0.000	0.002	0.103	0.306	6.135	MFt
0.86	0.971	0.022	0.005	0.079	0.169	30.000	Mit
0.81	0.845	0.123	0.031	0.079	0.145	51.271	MKt
0.98	0.951	0.014	0.034	0.024	0.052	34.959	Xt
0.97	0.887	0.085	0.027	0.051	0.087	1.355	TCRt
0.97	0.928	0.056	0.014	0.049	0.204	0.236	M2t
0.87	0.874	0.117	0.007	0.139	0.353	212.125	FPt
0.92	0.996	0.003	0.000	0.066	0.134	28.472	TVAt
تابع للجدول (5-1)							
ρ	U^C	U^M	U^S	$U(1)$	RMSPE	RMSE	
0.99	0.886	0.63	0.274	0.047	0.081	21.472	IPCt
0.90	0.956	0.037	0.006	0.041	0.081	0.018	Wt
0.99	0.989	0.009	0.000	0.016	0.033	71.909	CONST
0.99	0.672	0.217	0.110	0.016	0.039	28.275	C1t
0.99	0.925	0.065	0.010	0.017	0.044	4.784	C2t
0.91	0.931	0.006	0.062	0.115	0.245	16.183	C4t
0.99	0.990	0.000	0.010	0.023	0.048	32.106	C5t
0.49	0.962	0.024	0.014	0.458	1.778	212.125	BSt
0.99	0.992	0.005	0.002	0.056	0.148	35931.844	Mnt
0.94	0.694	0.302	0.004	0.207	2.807	135.801	NX
0.75	0.954	0.045	0.001	0.265	2.749	9.319	INFtt
0.98	0.965	0.024	0.011	0.038	0.123	2.180	Ut
0.99	0.975	0.001	0.024	0.003	0.009	78.073	Kt

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(5)

2000-1970

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ρ	U^C	U^M	U^S	$U(1)$	RMSPE	RMSE	
0.94	0.630	0.248	0.123	0.049	0.089	312.017	Yt
0.99	0.825	0.122	0.053	0.004	0.011	9899.953	Ynt
0.97	0.814	0.013	0.173	0.061	0.114	379.168	Qt
0.99	0.880	0.087	0.033	0.071	0.127	560.146	LDt
0.94	0.964	0.036	0.000	0.020	0.039	38.923	IDA t
0.97	0.971	0.001	0.027	0.027	0.055	23.102	LDIHHt
0.97	0.780	0.200	0.020	0.043	0.086	2.793	LDHt
0.97	0.815	0.056	0.130	0.051	0.085	55.611	LDBTPt
0.91	0.888	0.002	0.111	0.073	0.186	116.269	LDS t
0.95	0.825	0.031	0.144	0.044	0.084	96.752	It
0.95	0.989	0.011	0.000	0.041	0.085	96.722	Mt
0.59	0.734	0.176	0.089	0.514	1.709	85.450	MCt
0.95	0.854	0.080	0.066	0.103	0.303	6.117	MF
0.86	0.995	0.005	0.000	0.077	0.167	29.252	Mit
0.77	0.921	0.063	0.017	0.086	0.157	55.987	MKt
0.97	0.732	0.151	0.117	0.030	0.065	43.512	Xt
0.97	0.971	0.010	0.019	0.056	0.096	1.473	TCRt
0.88	0.806	0.133	0.062	0.276	0.690	1.473	M2t

0.88	0.979	0.011	0.009	0.131	0.359	199.088	FPt
0.87	0.758	0.003	0.240	0.130	0.261	60.855	TVAt
0.99	0.785	0.000	0.215	0.080	0.115	35.525	IPCt
0.80	0.763	0.234	0.002	0.093	0.153	0.038	Wt
0.99	0.948	0.015	0.037	0.019	0.035	82.907	CONSt
0.99	0.716	0.149	0.134	0.020	0.041	34.871	C1t
تابع للجدول (5-2)							
ρ	U^C	U^M	U^S	$U(1)$	RMSPE	RMSE	
0.99	0.756	0.239	0.005	0.101	0.176	25.656	C2t
0.90	0.863	0.032	0.105	0.114	0.241	16.182	C4t
0.99	0.984	0.010	0.006	0.047	0.076	63.701	C5t
0.50	0.911	0.079	0.009	0.451	1.703	199.088	BSt
0.99	0.910	0.085	0.005	0.057	0.137	37076.396	Mnt
0.93	0.791	0.166	0.043	0.204	3.513	139.366	NXt
0.78	0.986	0.012	0.002	0.188	1.609	8.124	INFt
0.86	0.735	0.123	0.143	0.163	0.261	8.172	Ut
0.99	0.936	0.015	0.050	0.020	0.032	448.269	Kt

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:(5-3)

U(1)	RMSPE	RMSE	
0.030	0.055	310.299	Yt
0.006	0.011	65862.188	Ynt
0.073	0.125	666.584	Qt
0.098	0.159	1172.231	LDt
0.034	0.067	103.703	IDAt
0.019	0.037	16.980	LDIHHt
0.019	0.039	2.079	LDHt
0.074	0.145	144.796	LDBTPt
0.148	0.243	330.784	LDSSt
0.032	0.064	74.458	It
0.034	0.065	78.986	Mt
0.171	0.468	64.873	MCt
0.098	0.208	0.408	MFt
0.052	0.093	26.381	Mit
0.054	0.124	47.892	MKt
0.053	0.096	123.642	Xt
0.051	0.109	1.883	TCRt
0.247	0.396	2.291	M2t
0.263	0.347	1047.953	FPt
0.117	0.191	101.936	TVAt
0.016	0.033	18.898	IPCt
0.152	0.379	0.057	Wt
0.005	0.010	37.015	CONSt
0.018	0.032	51.070	C1t
0.008	0.017	3.891	C2t
0.098	0.196	27.785	C4t
0.013	0.024	30.742	C5t
0.973	1.998	1047.953	BSt
0.024	0.061	66115.153	Mnt
تابع للجدول (5-3)			
U(1)	RMSPE	RMSE	

0.108	0.152	329.855	NXt
0.510	2.501	4.295	INFt
0.166	0.590	12.375	Ut
0.005	0.009	160.801	Kt

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2005	2004	2003	2002	2001	
-2.187	5.044	1.982	3.208	0.019	Yt
0.755	1.207	0.462	0.330	0.000	Ynt
12.959	7.612	1.672	-0.489	0.000	Qt
0.000	0.000	0.000	0.000	0.000	LDt
16.818	9.425	2.463	-0.695	0.000	LDAt
2.108	0.379	-0.090	-1.609	0.000	LDIHHt
-1.023	-0.318	-0.513	0.142	0.000	LDHt
-11.501	-5.781	-4.610	1.536	0.000	LDBTPt
13.107	14.615	8.245	5.918	0.000	LDSSt
-5.294	-2.929	-2.546	0.167	0.000	It
0.772	0.370	0.001	-0.168	0.000	Mt
-13.138	38.109	38.369	69.794	0.000	MCt
12.037	9.013	5.682	0.908	0.000	MFt
12.799	8.764	5.704	0.653	0.000	MIt
1.246	-1.857	-2.442	-6.712	0.000	MKt
3.947	3.370	1.292	-0.771	0.000	Xt
-4.981	-2.290	-0.007	0.904	0.000	TCRt
-1.368	2.296	0.802	1.369	0.012	M2t
-0.072	-4.439	-2.950	-1.252	0.000	FPt
21.785	12.689	3.805	-1.628	0.000	TVAt
-7.725	10.674	5.023	7.649	0.000	IPCt
21.612	14.557	2.855	-0.406	-3.802	Wt
0.218	-0.352	-0.432	-0.679	0.000	CONSt
3.806	0.704	0.669	-1.484	0.000	C1t
0.926	-1.734	-1.355	-2.330	0.000	C2t
0.000	0.000	0.000	0.000	0.000	C4t
2.515	-0.402	-0.394	-1.893	0.000	C5t
-0.158	-19.503	-13.334	-22.483	0.000	BSt
تابع للجدول (5-4)					
2005	2004	2003	2002	2001	
2.054	5.494	4.033	3.882	0.000	Mnt
14.332	-0.051	-0.922	-9.917	0.000	NXt
-829.706	234.821	132.688	873.175	0.000	INFt
-69.407	-31.182	-3.723	0.988	0.000	Ut
-1.472	-0.680	-0.344	0.091	0.000	Kt

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2005	2004	2003	2002	2001	
-15.122	3.027	3.248	3.343	2.038	Yt
-0.803	-0.145	-0.177	-0.109	0.910	Ynt
-9.274	-6.904	-7.209	-1.866	0.266	Qt
-9.739	-12.509	1.732	3.420	7.606	LDt
-5.809	-4.077	-5.143	3.368	8.277	LDAT
2.941	2.953	3.035	2.975	2.758	LDIHHt
-1.023	-0.318	-0.513	0.142	0.000	LDHt
-11.501	-5.781	-4.610	1.536	0.000	LDBTPt
13.107	14.615	8.245	5.918	0.000	LDSst
-2.779	-0.273	-0.006	2.755	2.444	It

4.326	5.878	5.426	3.681	19.256	Mt
1.015	1.324	2.425	2.325	4.235	MCt
24.045	21.024	17.124	16.737	16.011	MFt
17.429	7.425	5.667	4.708	8.384	MIt
15.141	13.020	12.445	7.528	15.393	MKt
-11.089	-7.987	-8.137	-4.462	2.156	Xt
-4.981	-2.290	-0.007	0.904	0.000	TCRt
20.386	21.512	18.051	19.489	1.491	M2t
2.326	4.356	7.365	10.035	10.326	FPt
-8.630	-8.289	-5.462	-7.291	11.859	TVAt
-7.835	6.185	2.389	5.950	4.852	IPCt
21.612	14.557	2.855	-0.407	-3.802	Wt
-0.862	-0.845	0.365	0.286	1.522	CONSt
-1.976	-3.209	-0.064	-2.158	1.528	C1t
-0.663	-2.666	0.427	-0.981	2.353	C2t
0.000	0.000	0.000	0.000	0.000	C4t
-1.701	-3.032	0.032	-1.488	1.977	C5t
-1.439	-22.937	-17.155	-40.458	-4.900	BSt
10.284	13.649	12.123	11.471	7.990	Mnt
0.012	0.251	1.325	4.231	2.321	NXt
-523.401	179.509	94.937	425.883	119.722	INFt
40.193	41.387	-2.618	-4.861	-10.203	Ut
تابع للجدول (5-5)					
2005	2004	2003	2002	2001	
0.305	0.673	0.344	0.440	0.059	Kt

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2005	2004	2003	2002	2001	
-10.727	7.144	6.670	6.836	6.587	Yt
-1.236	-0.692	-0.715	-0.719	0.239	Ynt
-9.292	-6.922	-7.226	-1.883	0.244	Qt
-9.739	-12.509	1.732	3.420	7.606	LDt
-5.809	-4.077	-5.143	3.368	8.277	LDAt
1.925	0.195	-0.275	-1.787	-1.922	LDIHHt
-1.023	-0.318	-0.513	0.142	0.000	LDHt
-11.501	-5.781	-4.610	1.536	0.000	LDBTPt
11.468	12.839	6.349	3.935	-2.056	LDST
0.996	6.654	1.928	3.746	-3.250	It
0.772	0.370	0.001	0.168	6.742	Mt
-51.281	26.486	46.618	84.340	67.078	MCT
27.571	24.555	20.499	21.426	18.963	MFt
4.375	1.062	-1.860	-6.828	-8.787	MIt
3.083	10.373	10.443	5.638	5.155	MKt
-11.089	-7.987	-8.137	-4.462	2.156	Xt
-4.981	-2.290	-0.007	0.904	0.000	TCRt
-0.071	3.028	1.259	1.813	1.261	M2t
-1.382	0.496	-1.829	4.945	7.806	FPt
-10.831	-10.496	-7.727	-9.502	8.221	TVAt
-15.096	-2.181	-5.678	-2.398	-3.409	IPCt

25.674	18.383	6.290	2.919	-0.590	Wt
-0.862	-0.845	0.365	0.286	1.522	CONSt
3.806	0.704	0.669	-1.484	0.000	C1t
-0.663	-2.666	0.427	-0.981	2.353	C2t
34.991	21.604	13.661	4.179	-4.351	C4t
-1.701	-3.032	0.032	-1.488	1.977	C5t
-3.041	2.179	-8.266	88.837	40.466	BSt
-4.156	2.643	3.456	4.671	3.466	Mnt
-4.320	-2.395	-1.325	-0.325	2.035	NXt
-248.214	-141.666	-362.395	49.425	-38.275	INFt
-248.214	-141.666	-362.395	49.425	-38.275	Ut
0.072	0.445	0.128	0.234	-0.193	Kt

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Block-Recursive

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Equation Systems

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الملاحق

		<i>Yt</i>
		<i>Ynt</i>
		<i>Qt</i>
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		<i>QIHHt</i>
		<i>QBTPt</i>
		<i>Qat</i>
		<i>QSt</i>
	()	<i>LDt</i>
		<i>LDHt</i>
		<i>LDIHHt</i>
		<i>LDBTPt</i>
		<i>LDAt</i>
		<i>LDSSt</i>
		<i>LDADt</i>
	()	<i>LSt</i>
		<i>Ut</i>
		<i>Kt</i>
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		<i>It</i>
OPEP		<i>POILt</i>
		<i>INT</i>
		<i>Mt</i>

		<i>Mnt</i>
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		<i>Mit</i>
		<i>MKt</i>
		<i>MNDt</i>
		<i>Dit</i>
(WDI 2007)		<i>QWt</i>
		<i>PXWt</i>
		<i>Xt</i>
		<i>NXt</i>
(WDI 2007)		<i>PIMt</i>
(WDI 2007)		<i>PXt</i>
(WDI 2007)		<i>PYt</i>
		<i>IPCt</i>
(WDI 2007)		<i>PIt</i>
(WDI 2007)		<i>PWt</i>
(WDI 2007)		<i>PAt</i>
(WDI 2007)		<i>PINDt</i>
(WDI 2007)		<i>PSt</i>
		<i>TCRt</i>
		<i>M2t</i>
		<i>Vt</i>

		<i>YDt</i>
		<i>CONSt</i>
		<i>C1t</i>
		<i>C2t</i>
		<i>C3t</i>
		<i>C4t</i>
		<i>C5t</i>
		<i>P1t</i>
		<i>P2t</i>
		<i>P3t</i>
		<i>P4t</i>
		<i>P5t</i>
		<i>ABMEMt</i>
		<i>CON_IFt</i>
		<i>CON_Ait</i>
		<i>CON_Apt</i>
		<i>VDSSt</i>
		<i>INFt</i>
		<i>BSt</i>
		<i>FPt</i>
		<i>FOt</i>
		<i>DFt</i>
		<i>DEt</i>
		<i>TVAAt</i>
		<i>DEDt</i>

Dhareshwar and Nehru

.1990-1950

92

$$K_t = (1 - \delta)K_{t-1} + I_t \quad (6-1)$$

K_0
Harberger (1978)

$$\begin{aligned} K_t &= K_{t-1} - \delta K_{t-1} + I_t \\ K_t - K_{t-1} &= -\delta K_{t-1} + I_t \end{aligned} \quad (6-2)$$

$$\frac{K_t - K_{t-1}}{K_{t-1}} = -\delta + \frac{I_t}{K_{t-1}} \quad (6-3)$$

$$K_{t-1} = \frac{I_t}{(g + \delta)} \quad (6-4)$$

(2005-1970)

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(6-1)

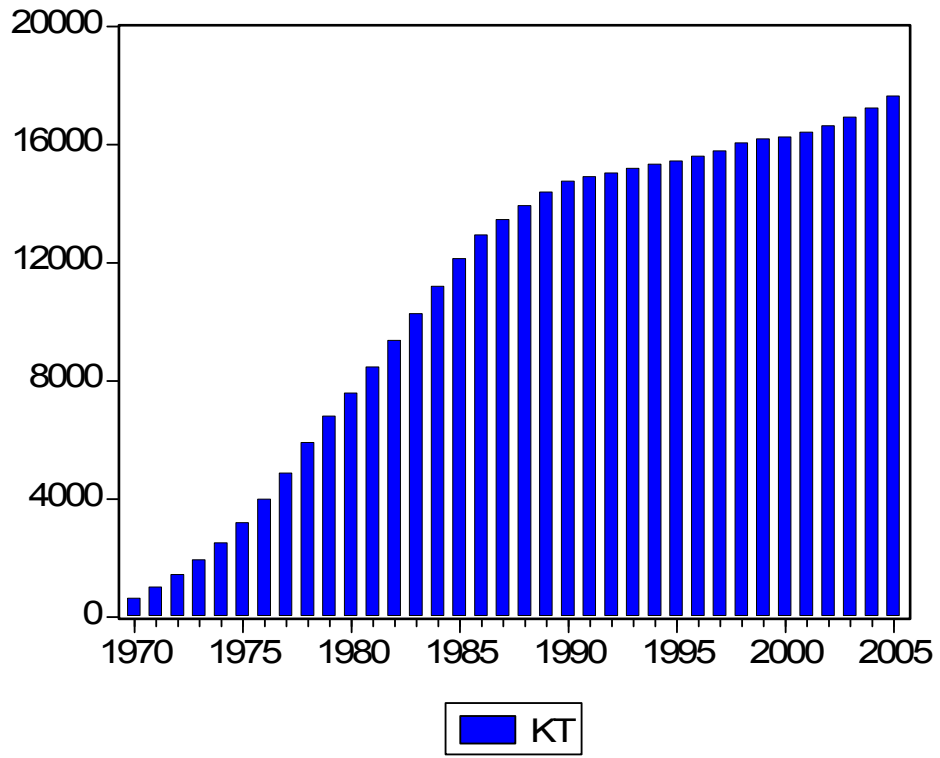
Harberger

$g = 0.0375$

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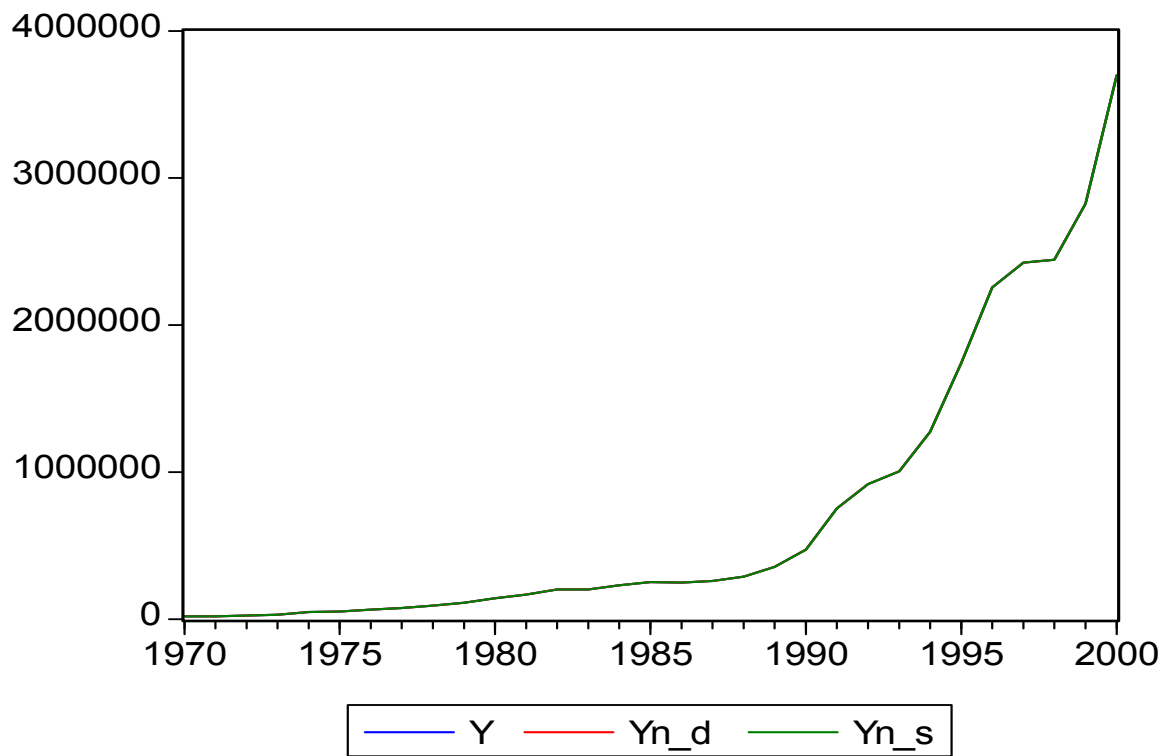
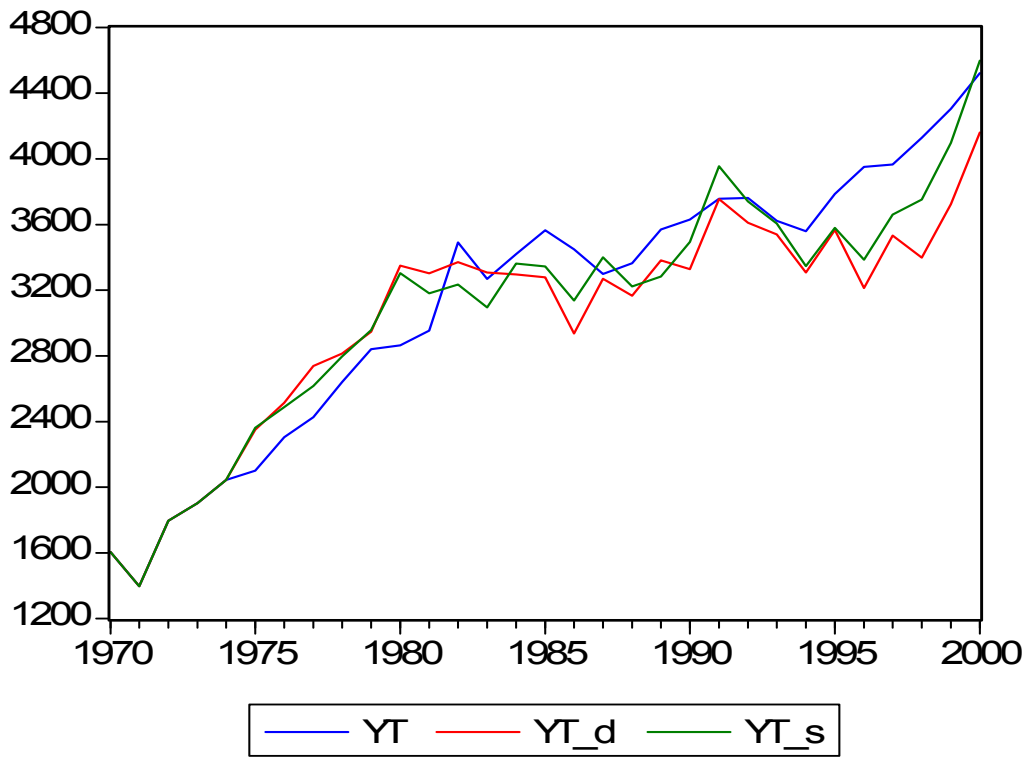
%17.55

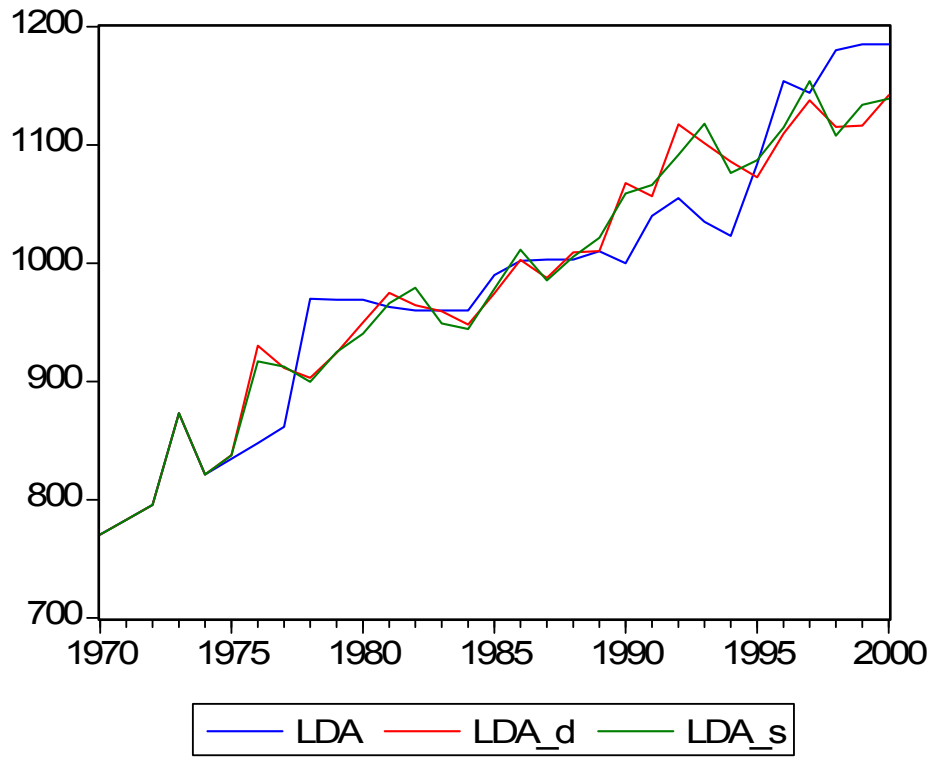
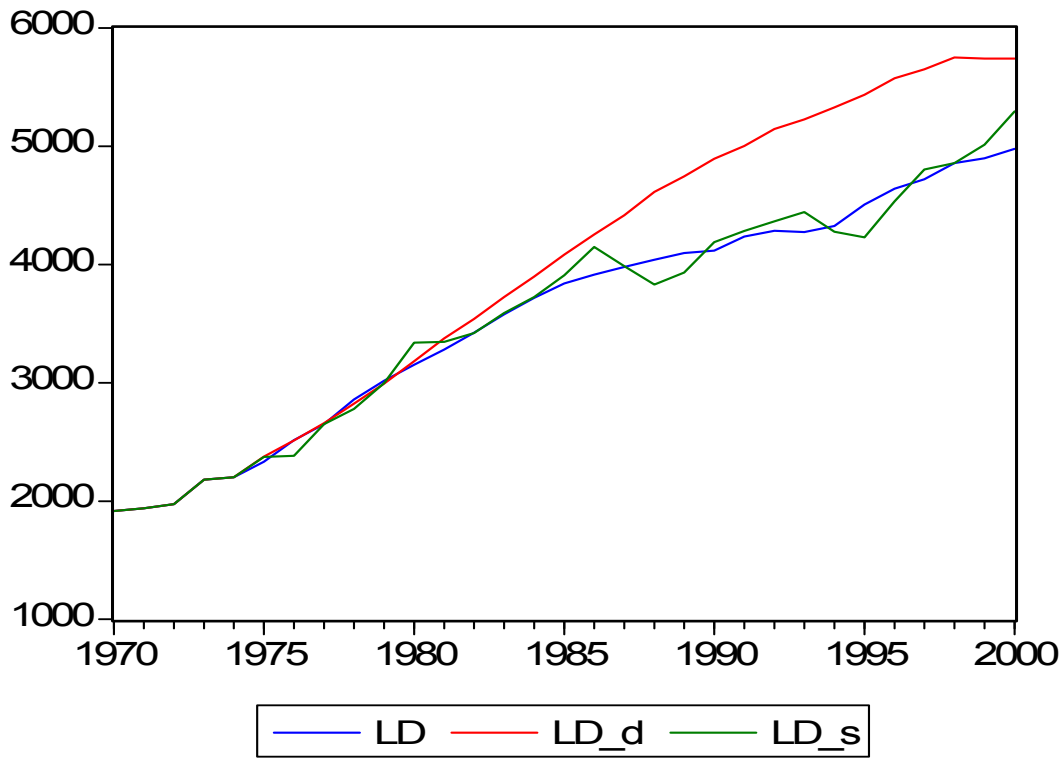
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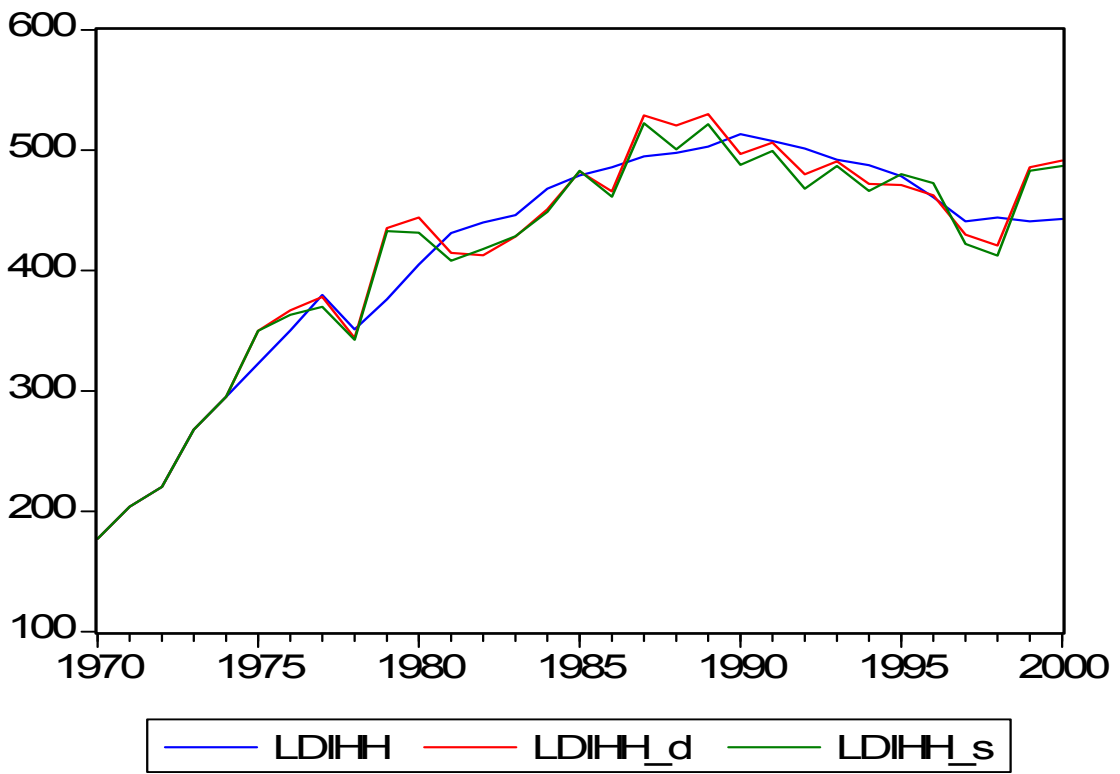
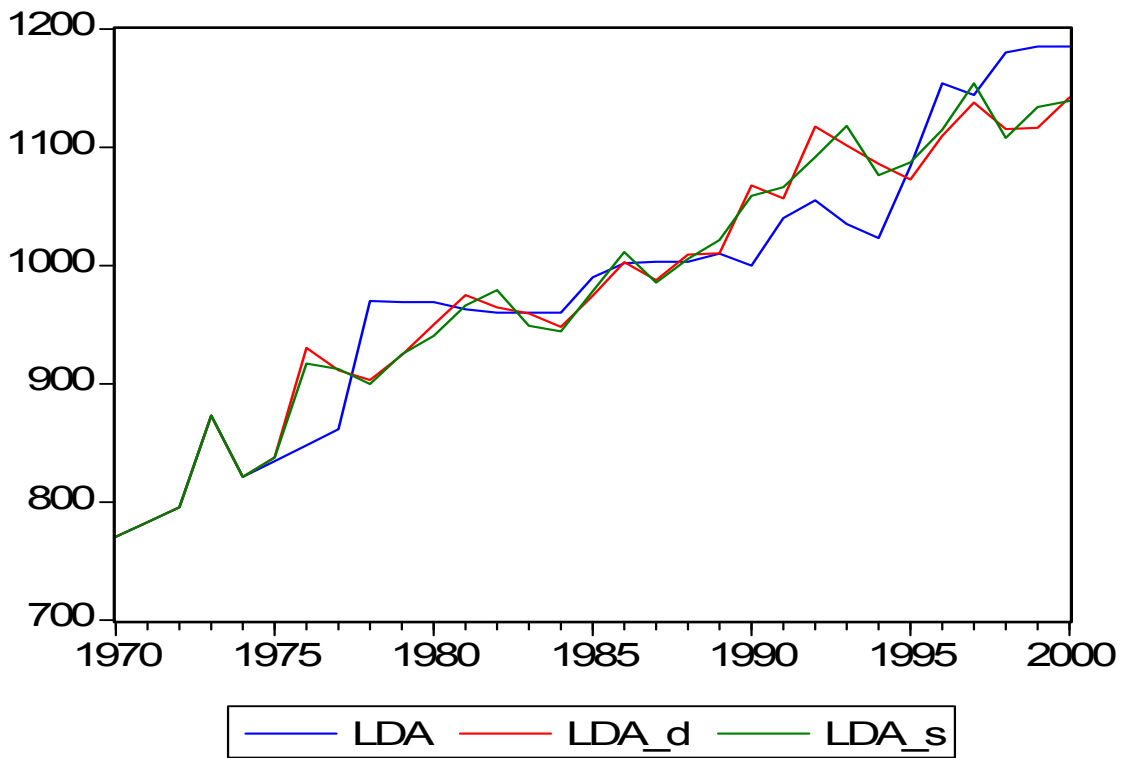
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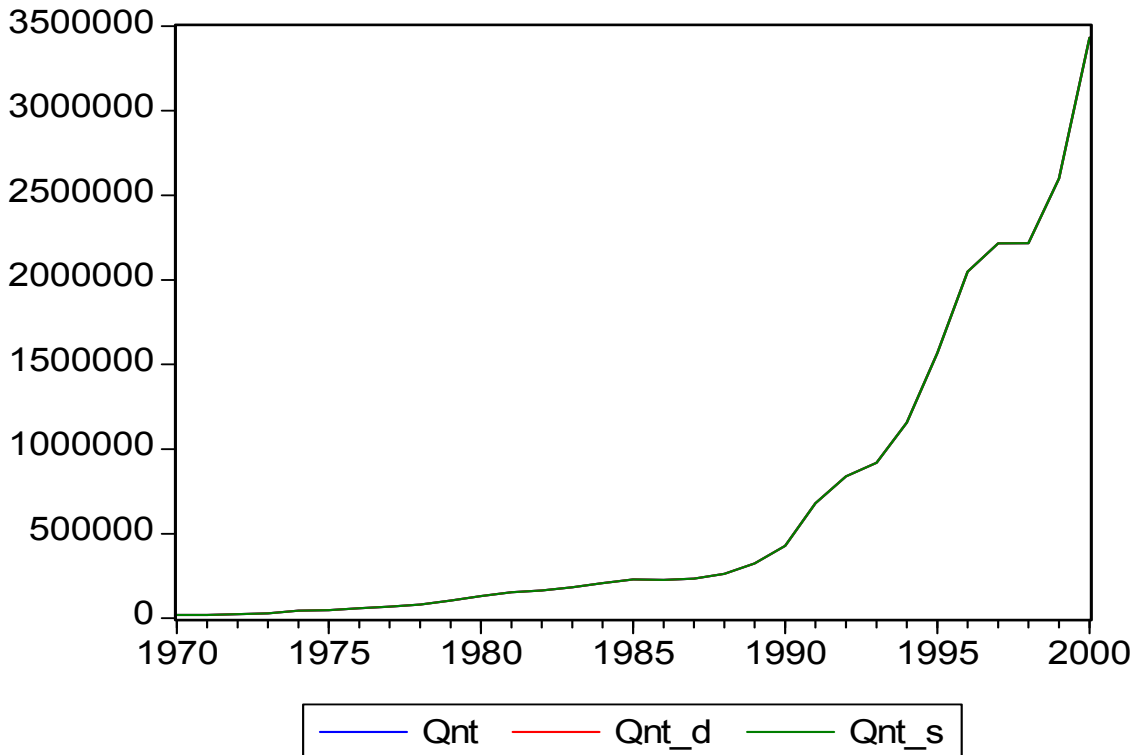
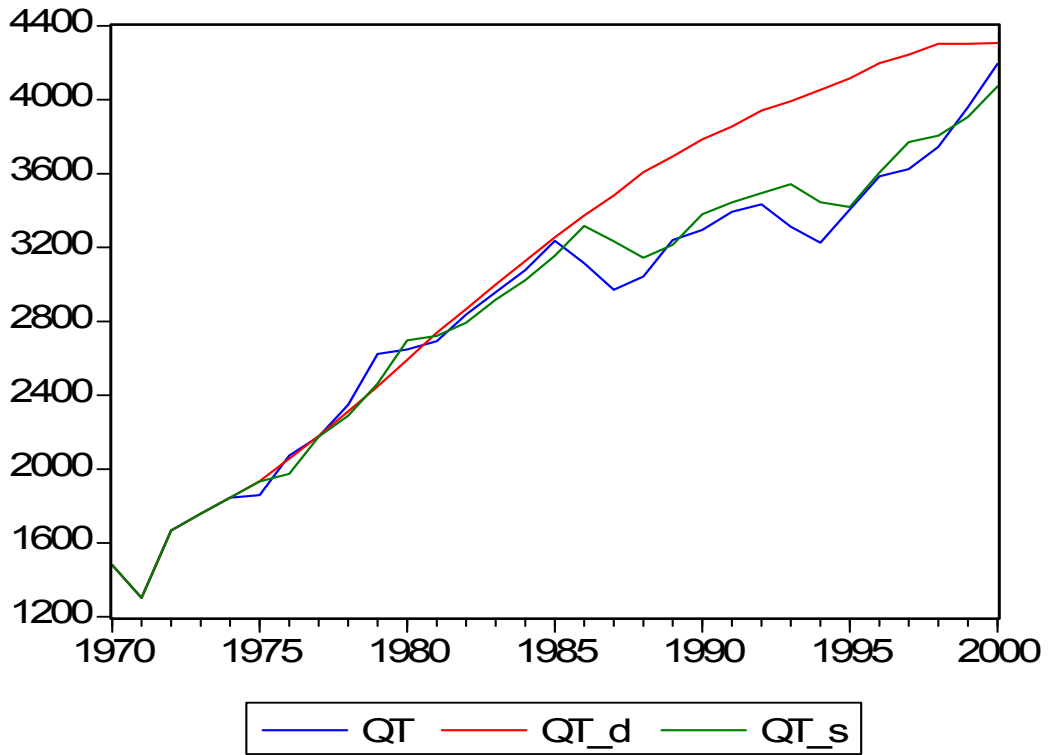
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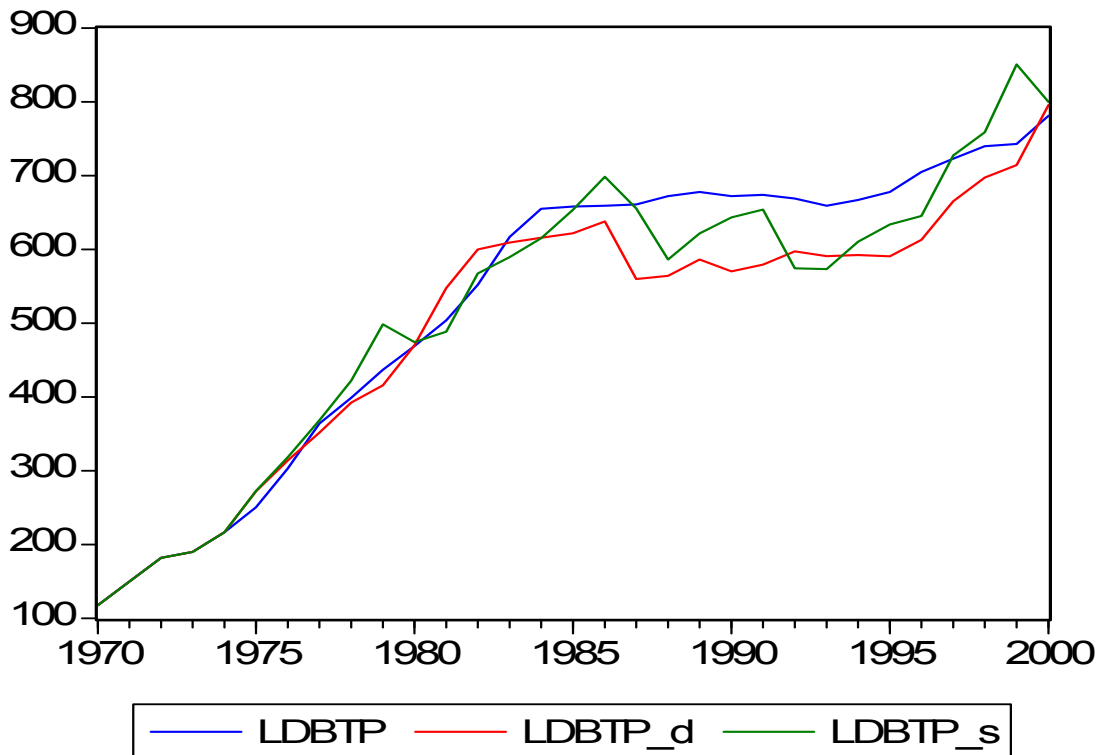
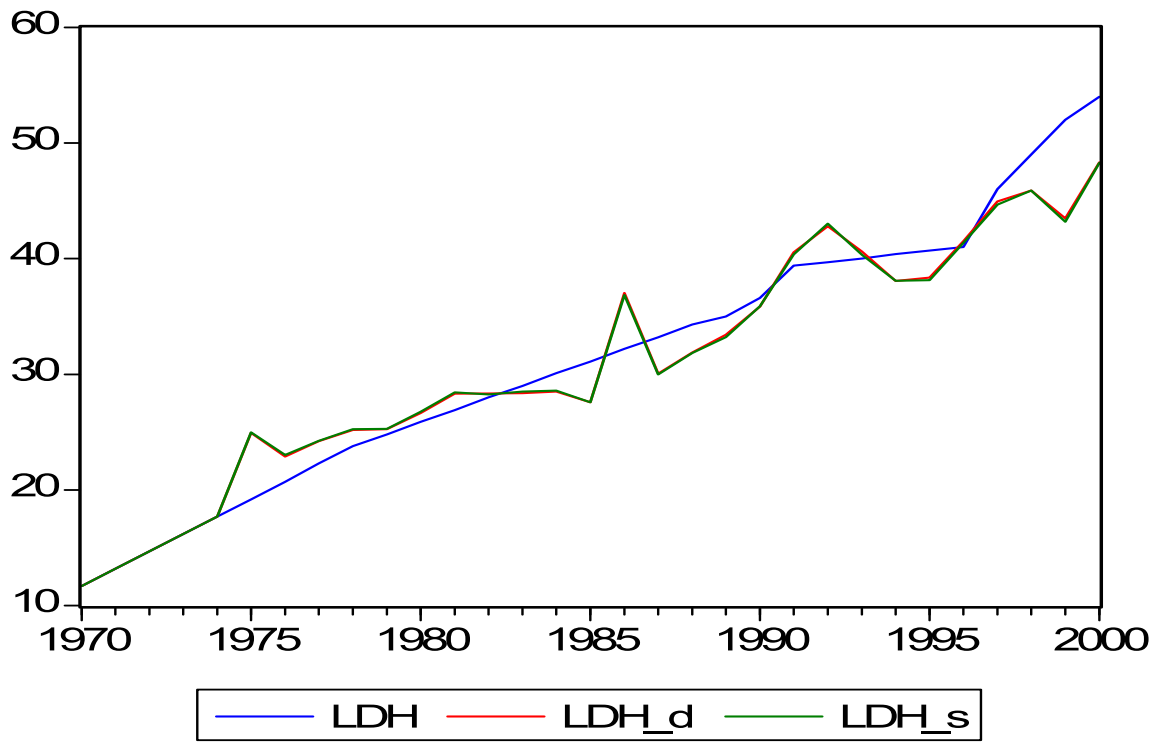
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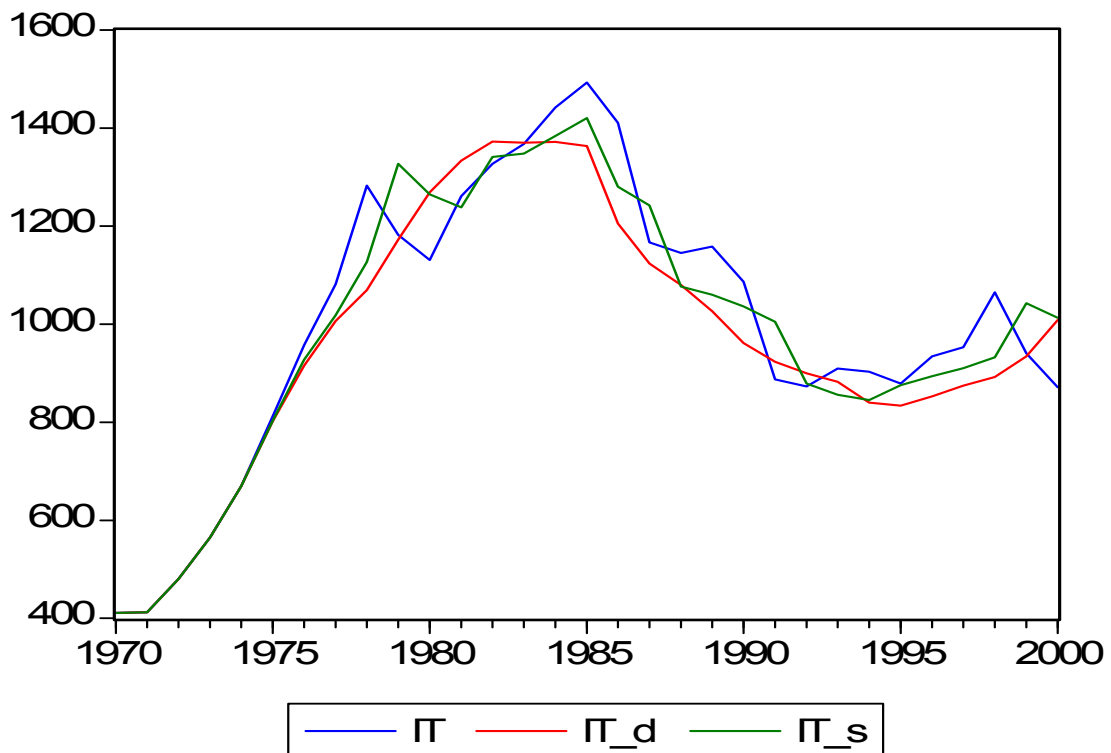
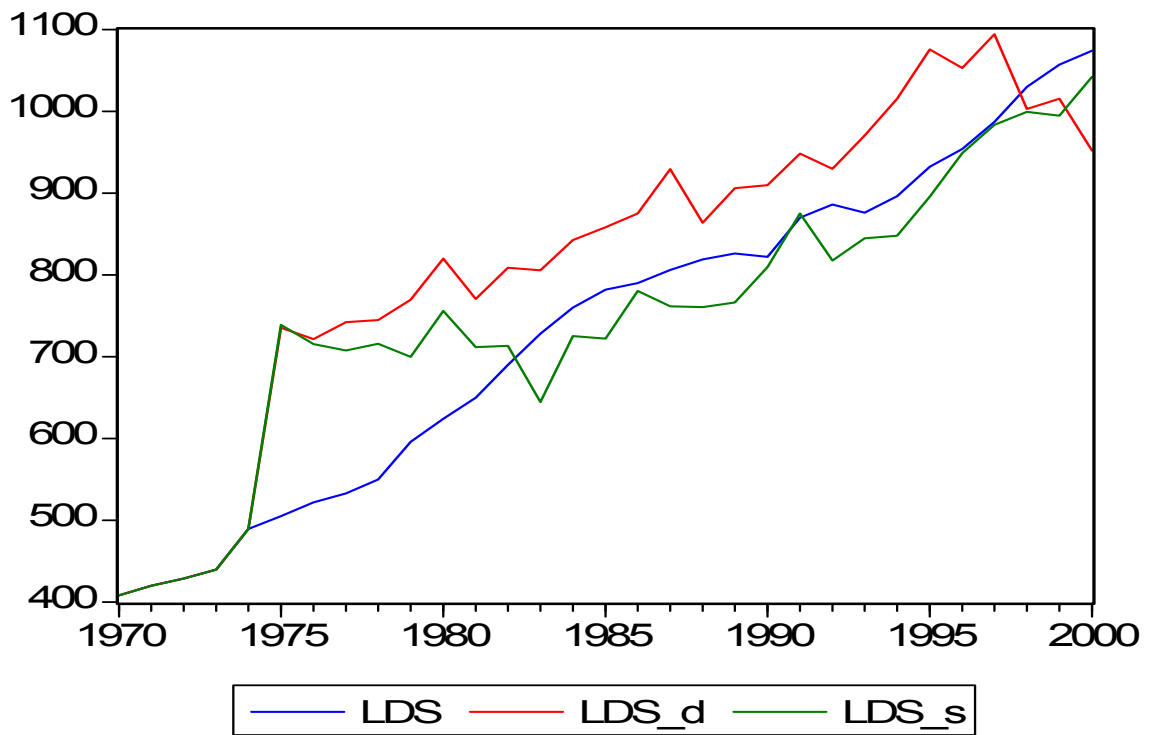


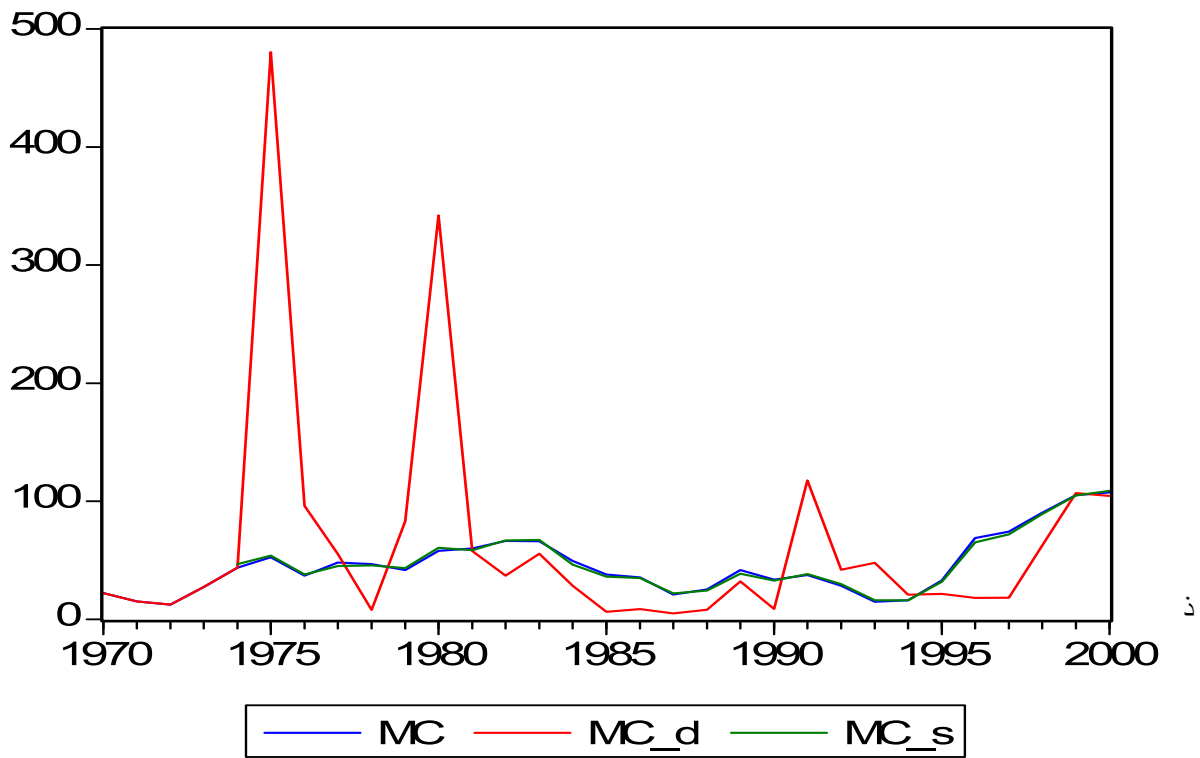
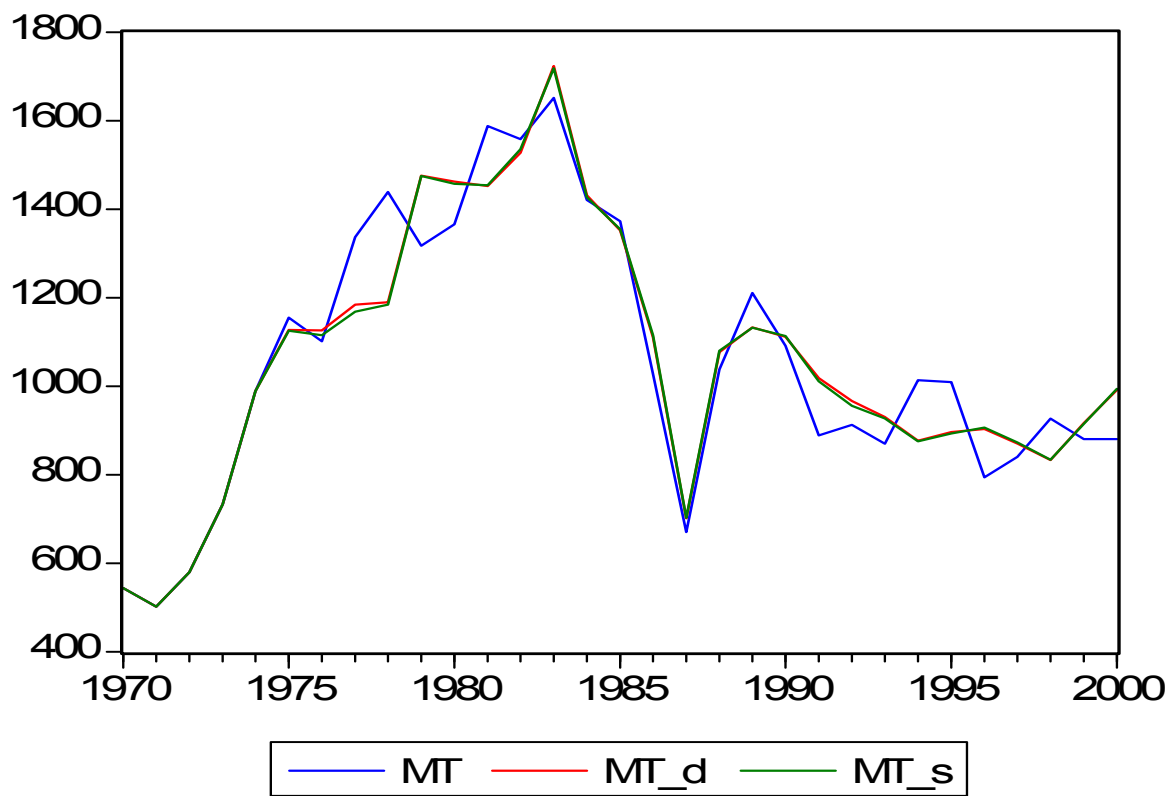


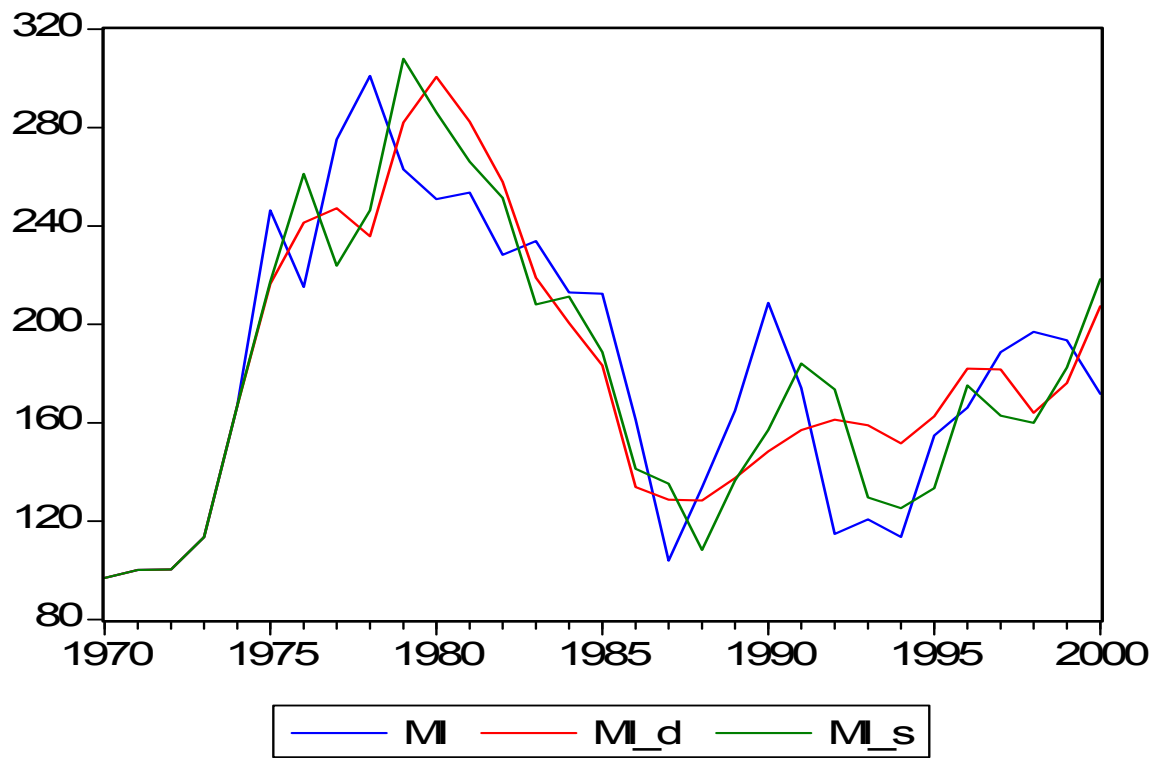
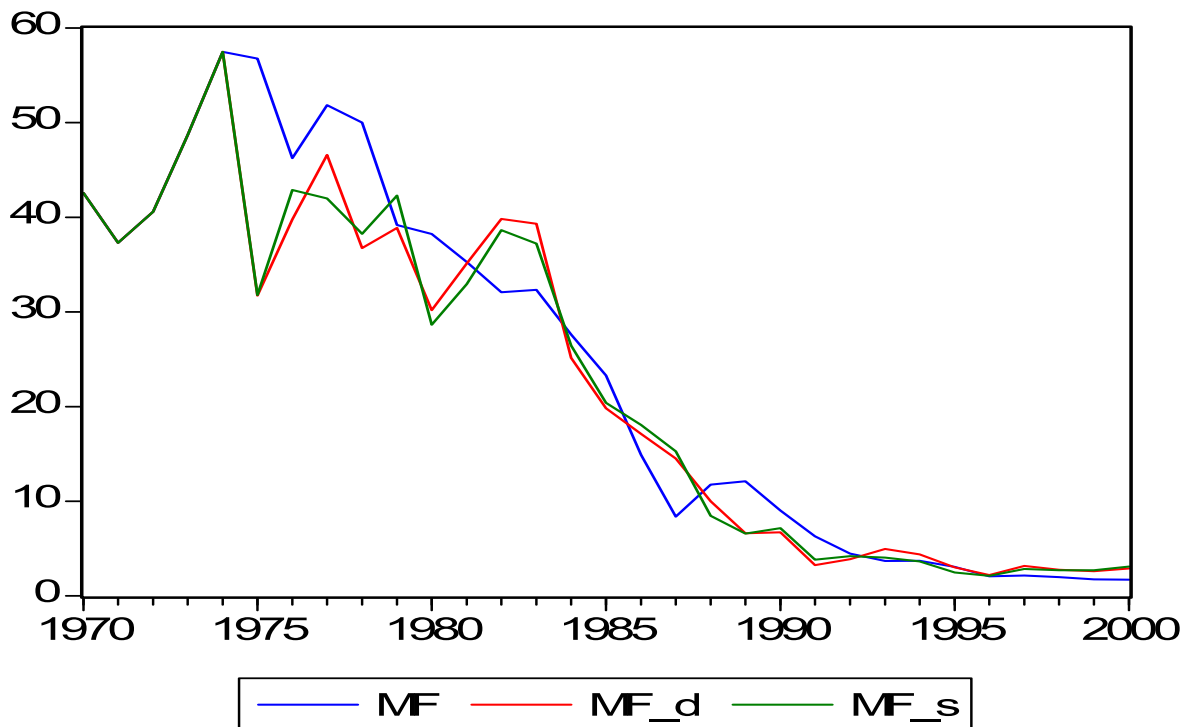


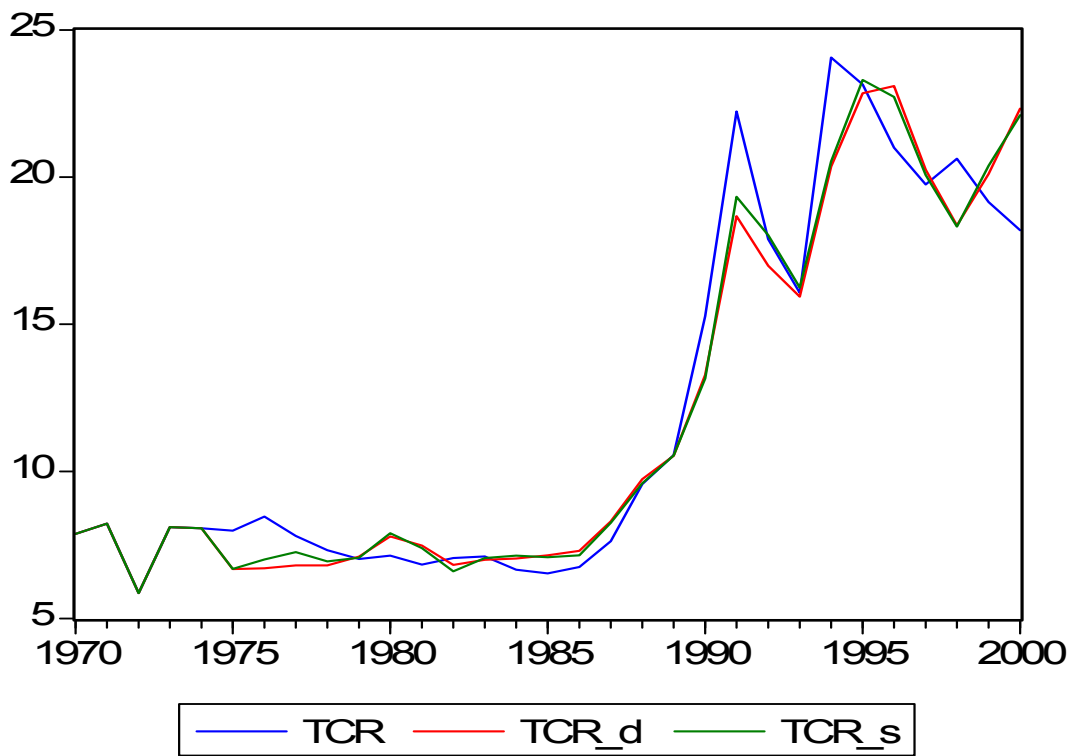
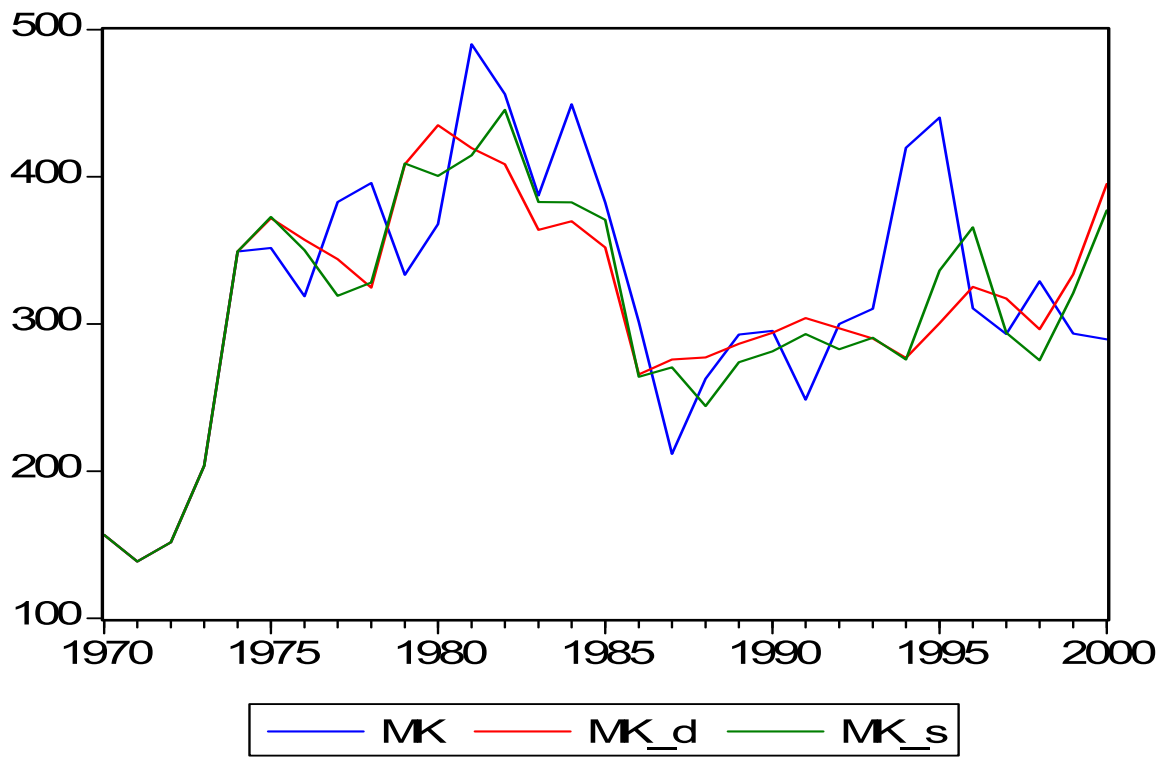


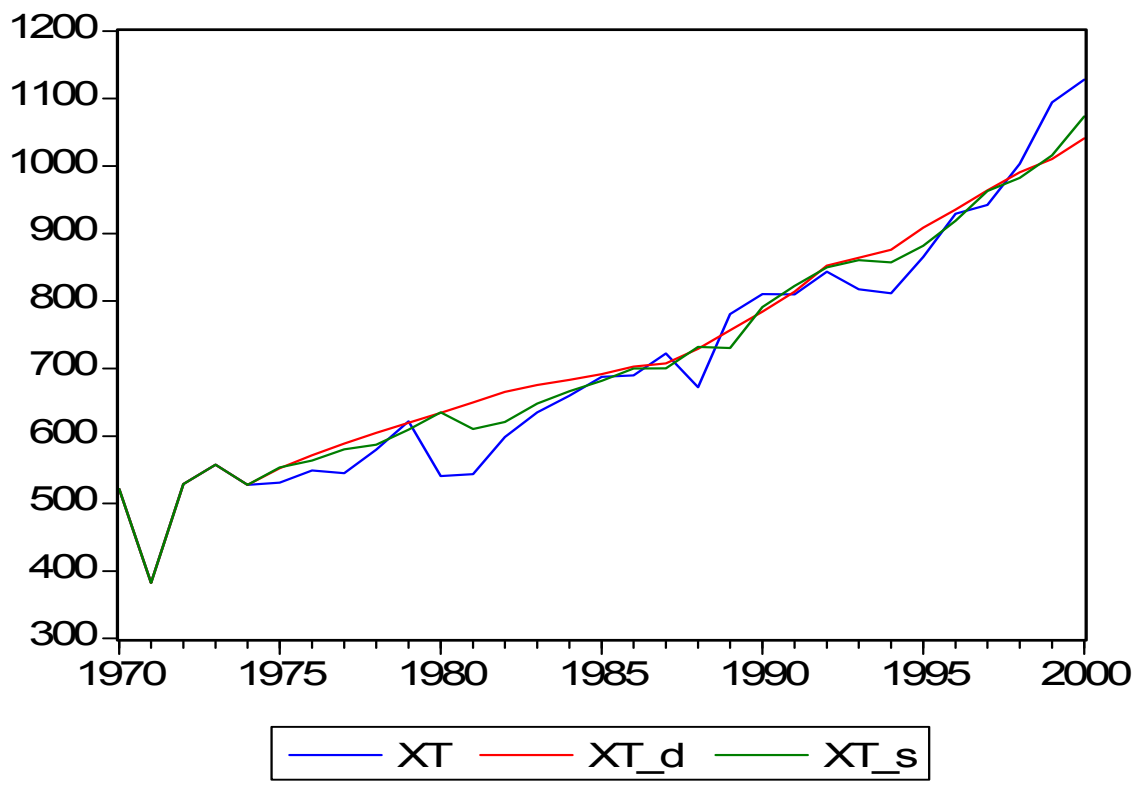
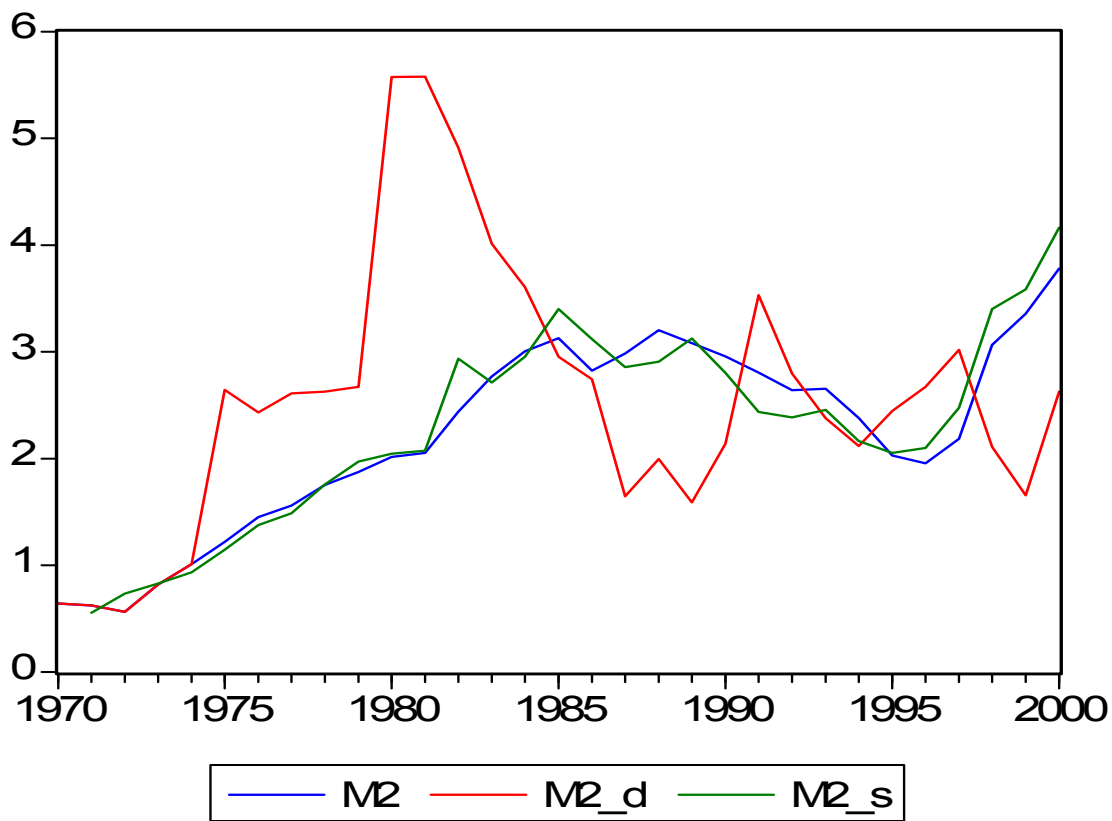


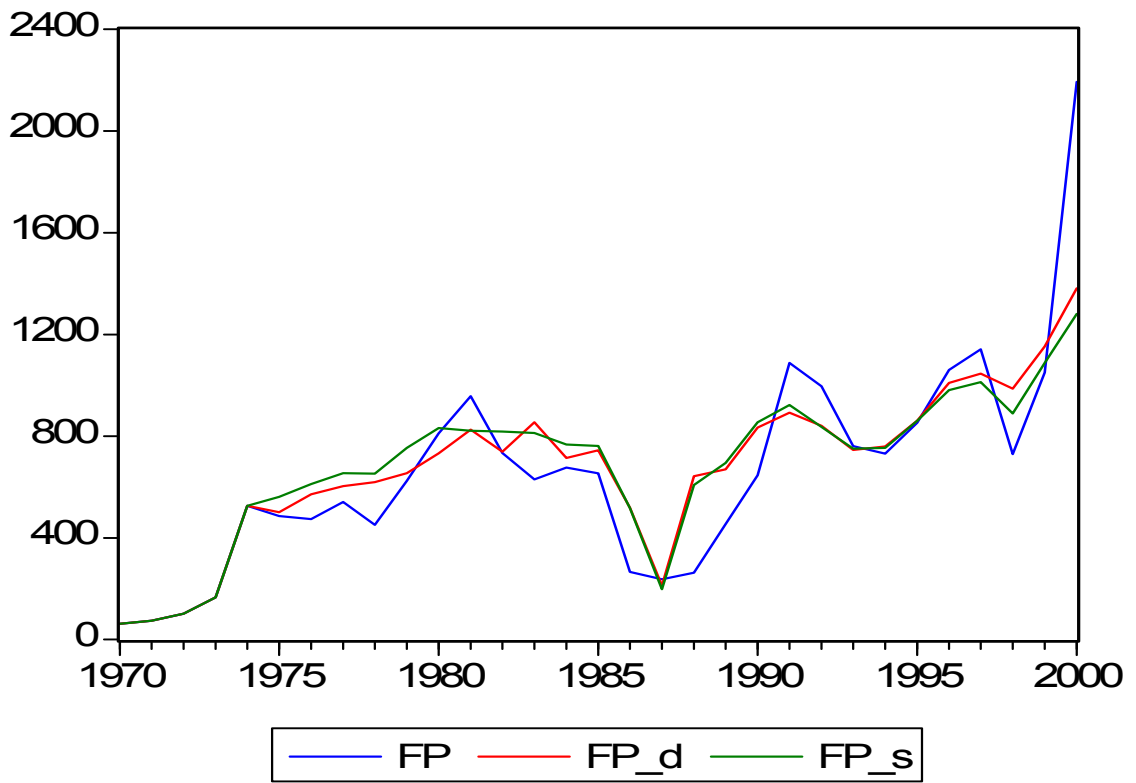
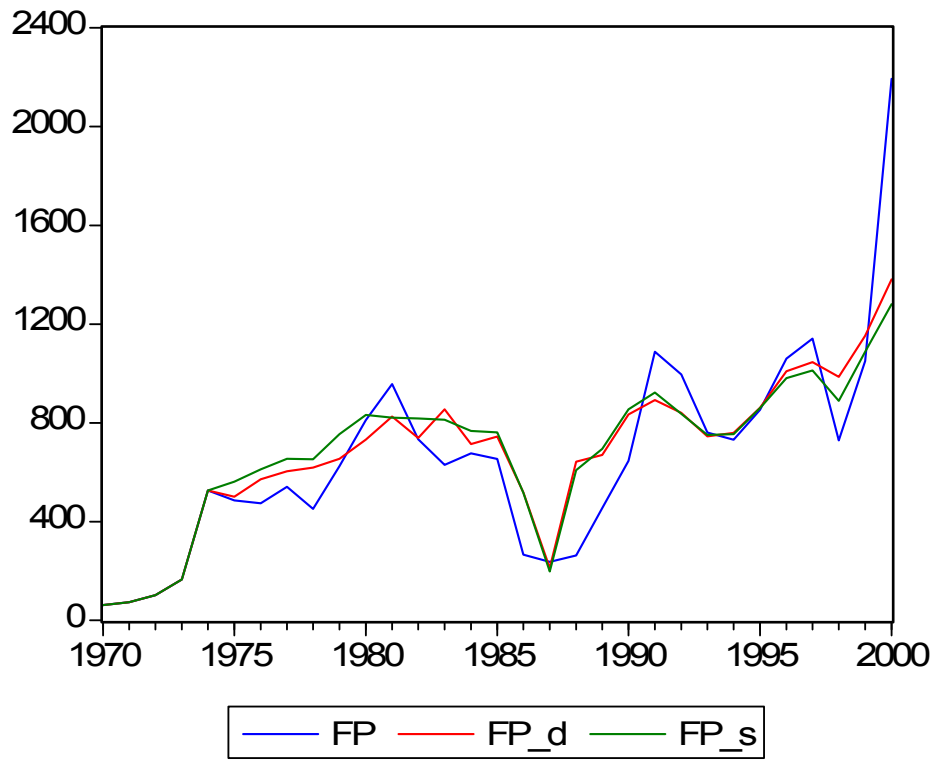


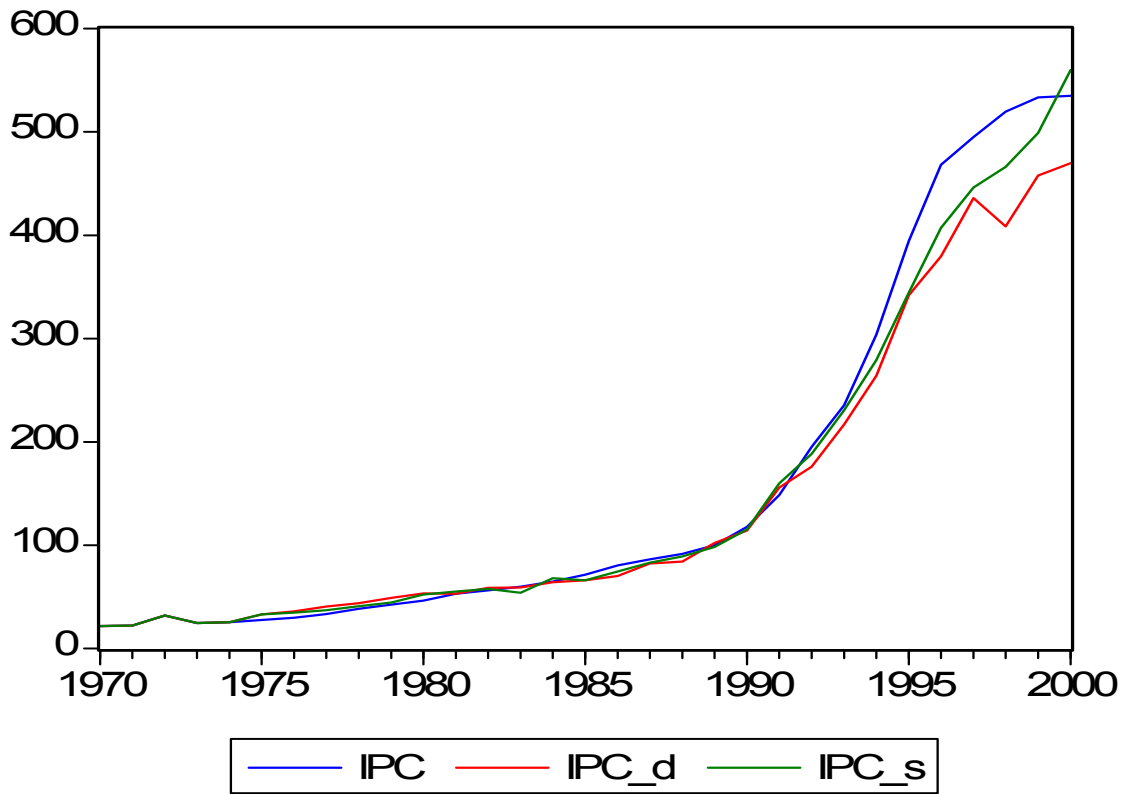
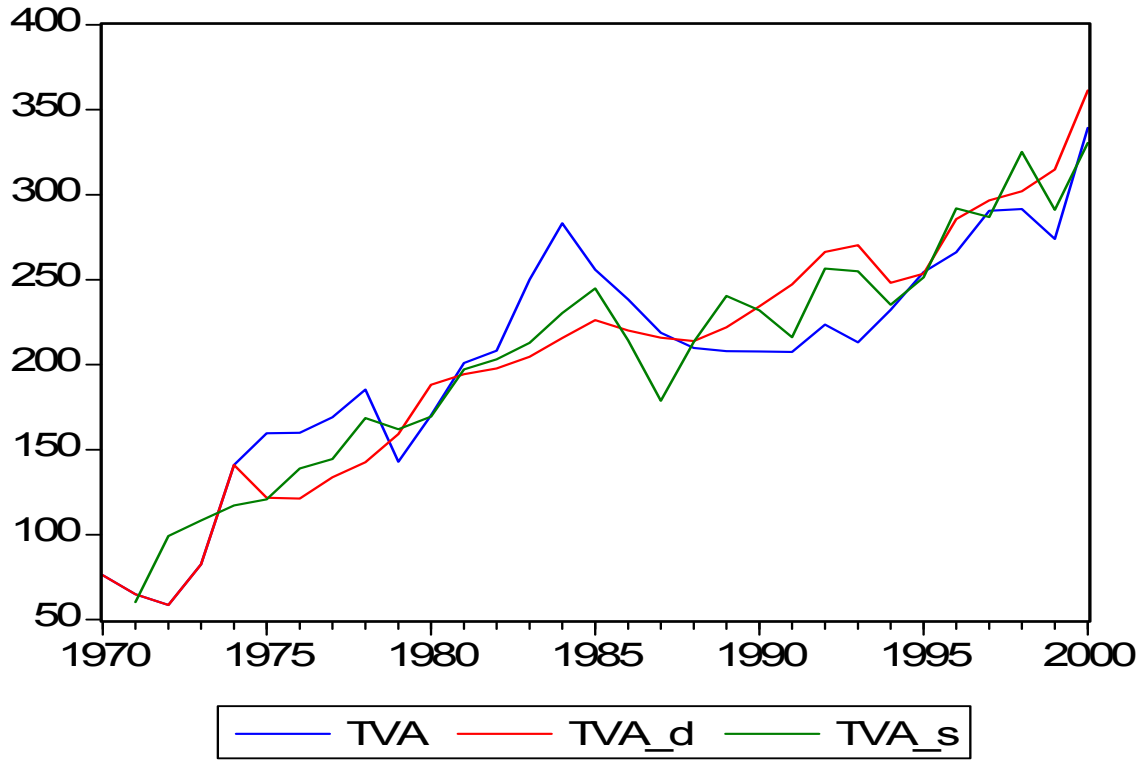


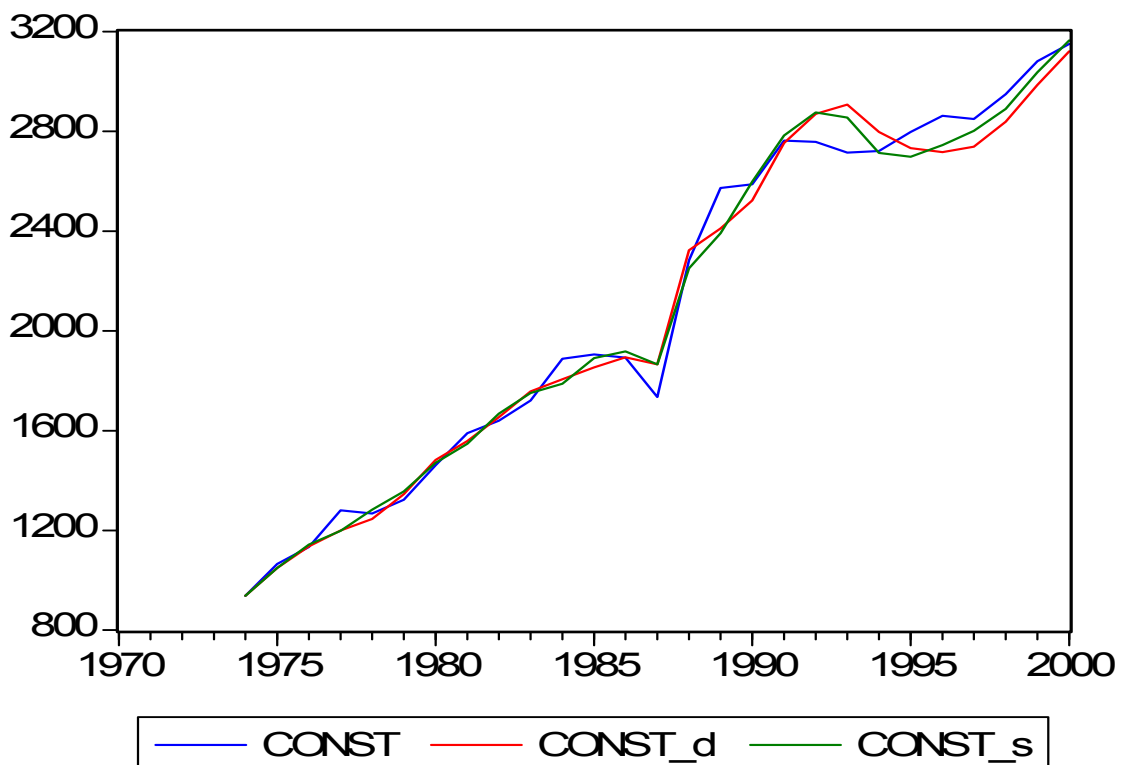
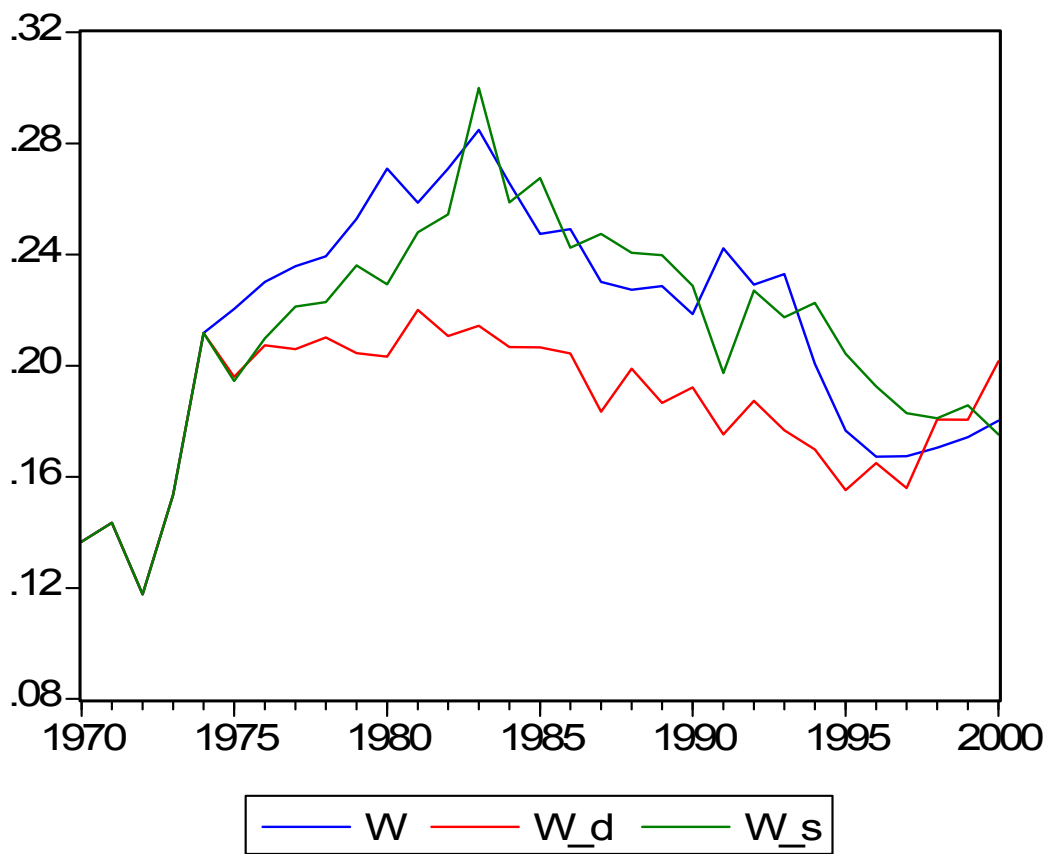


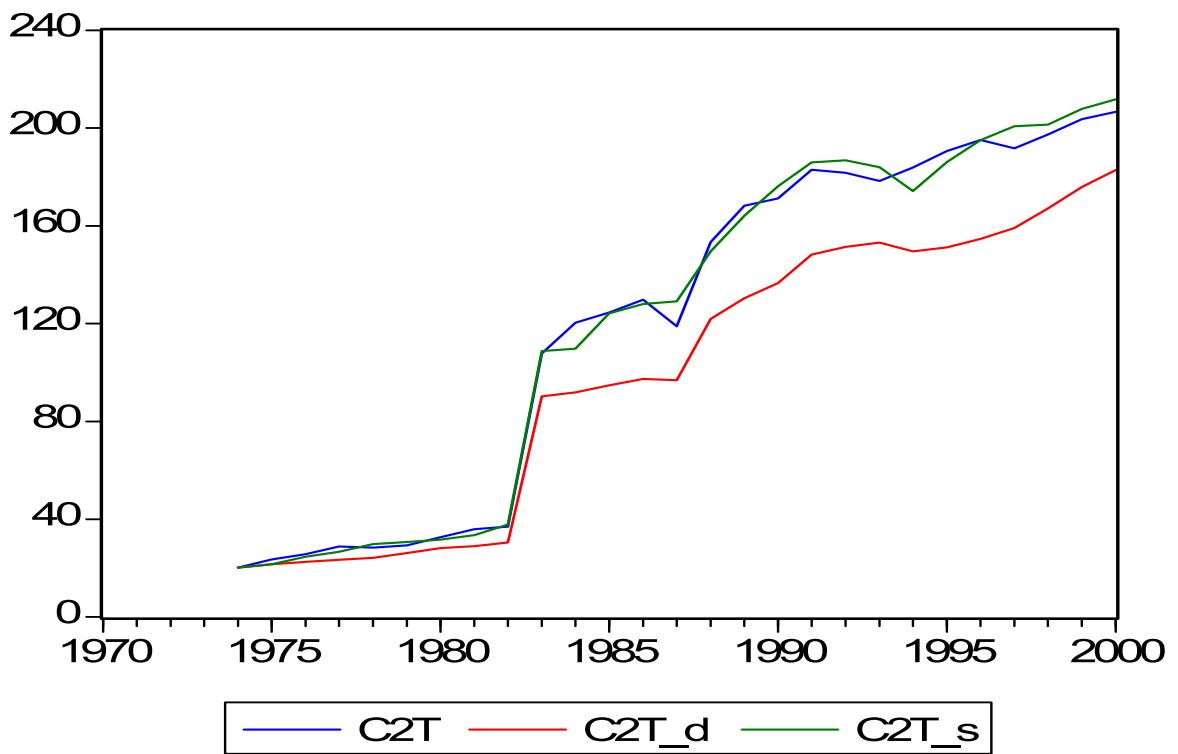
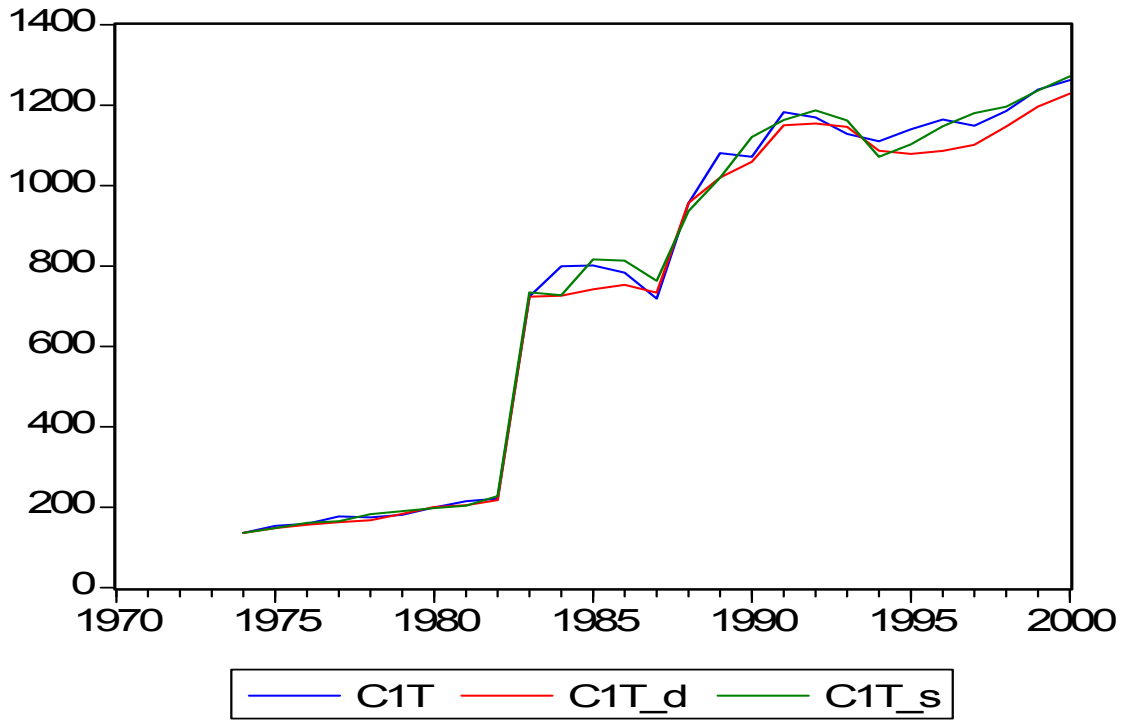


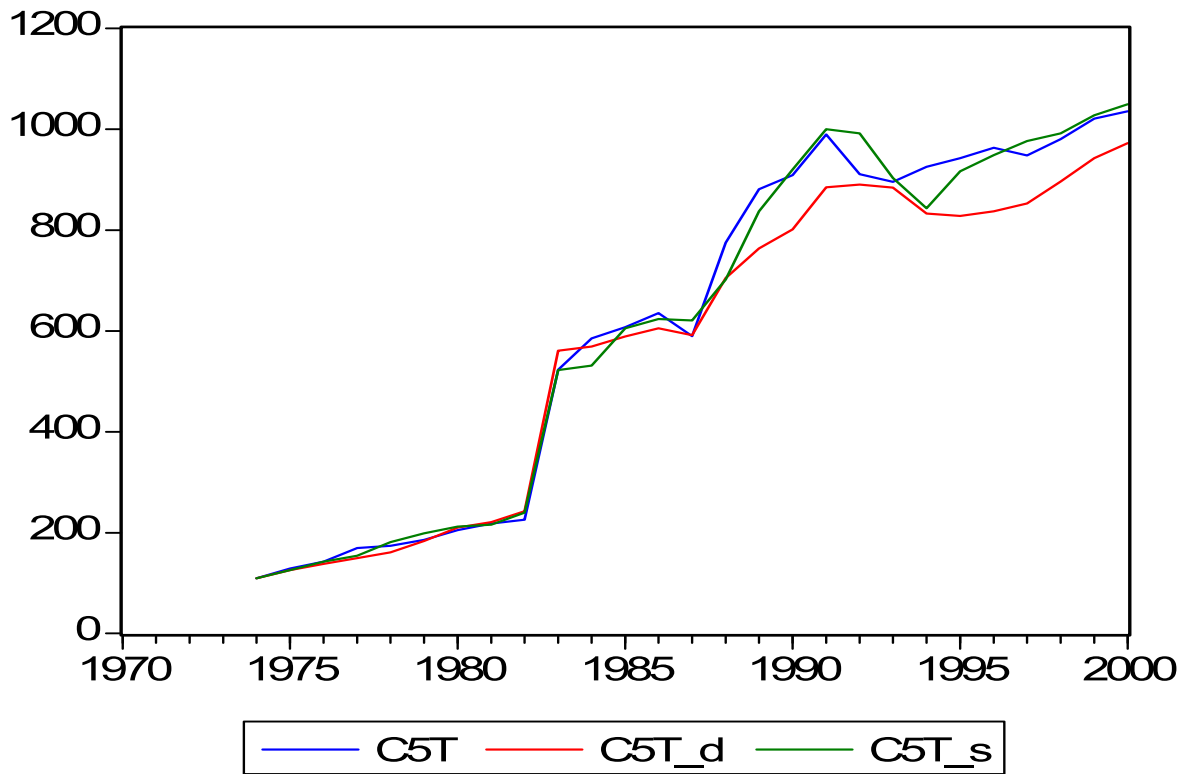
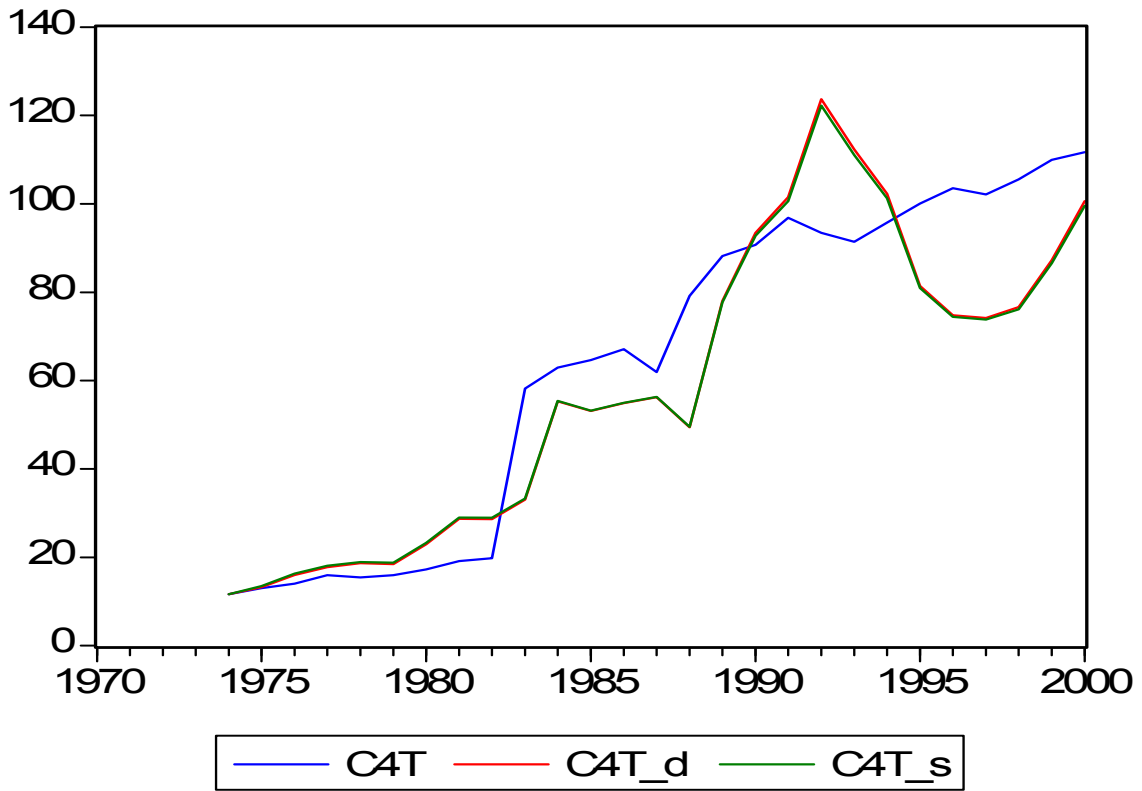


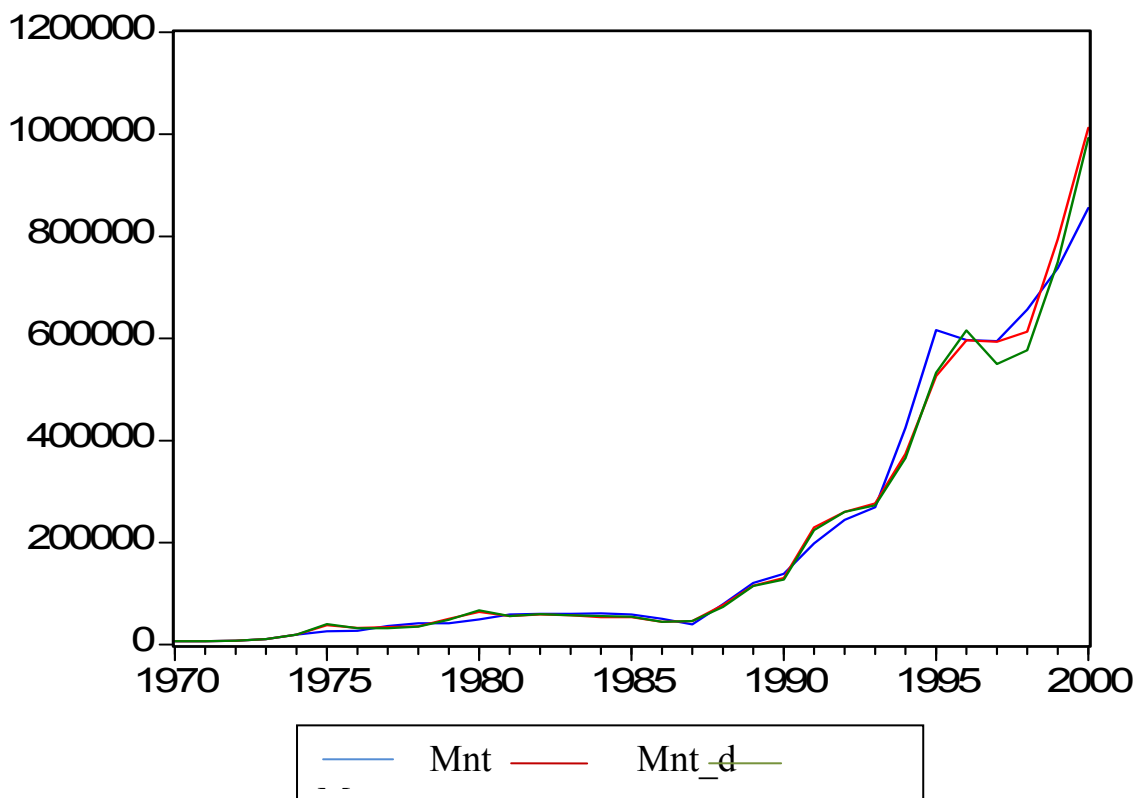
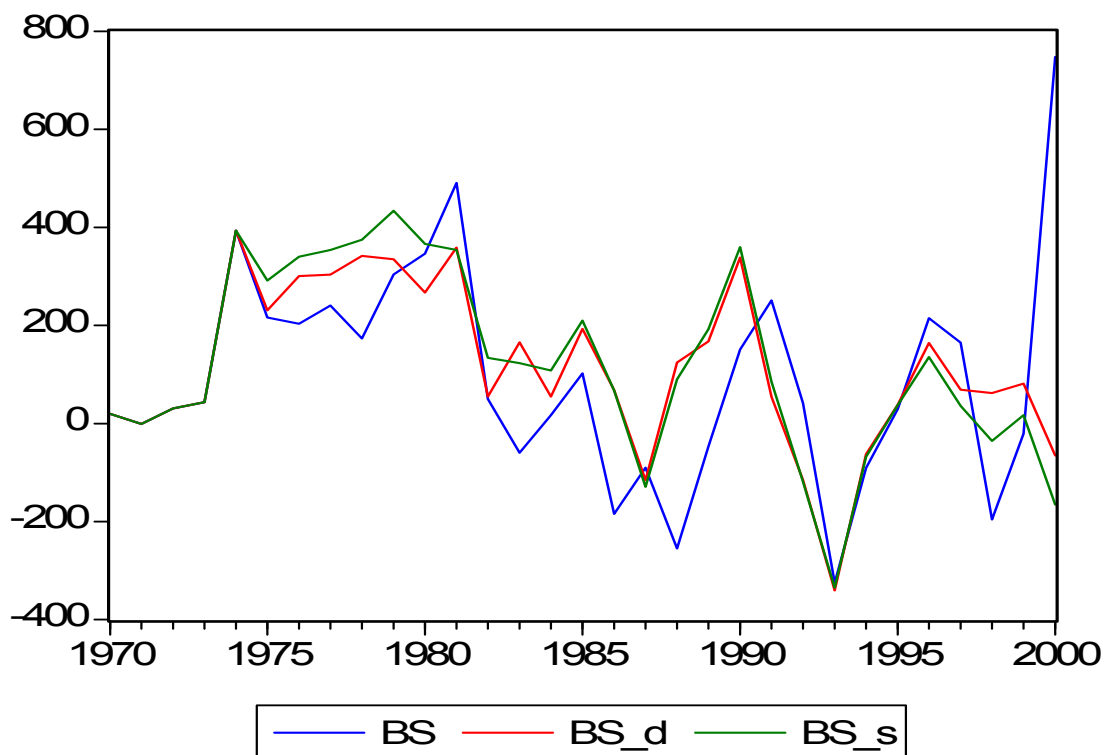


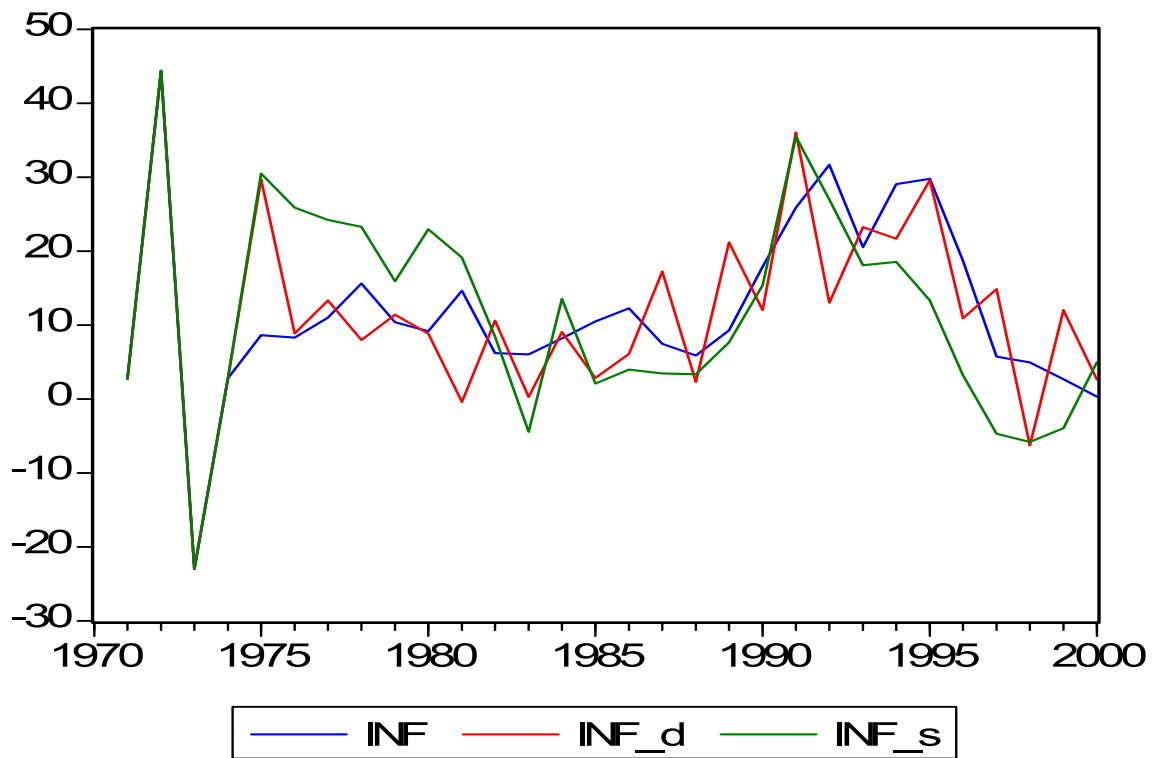
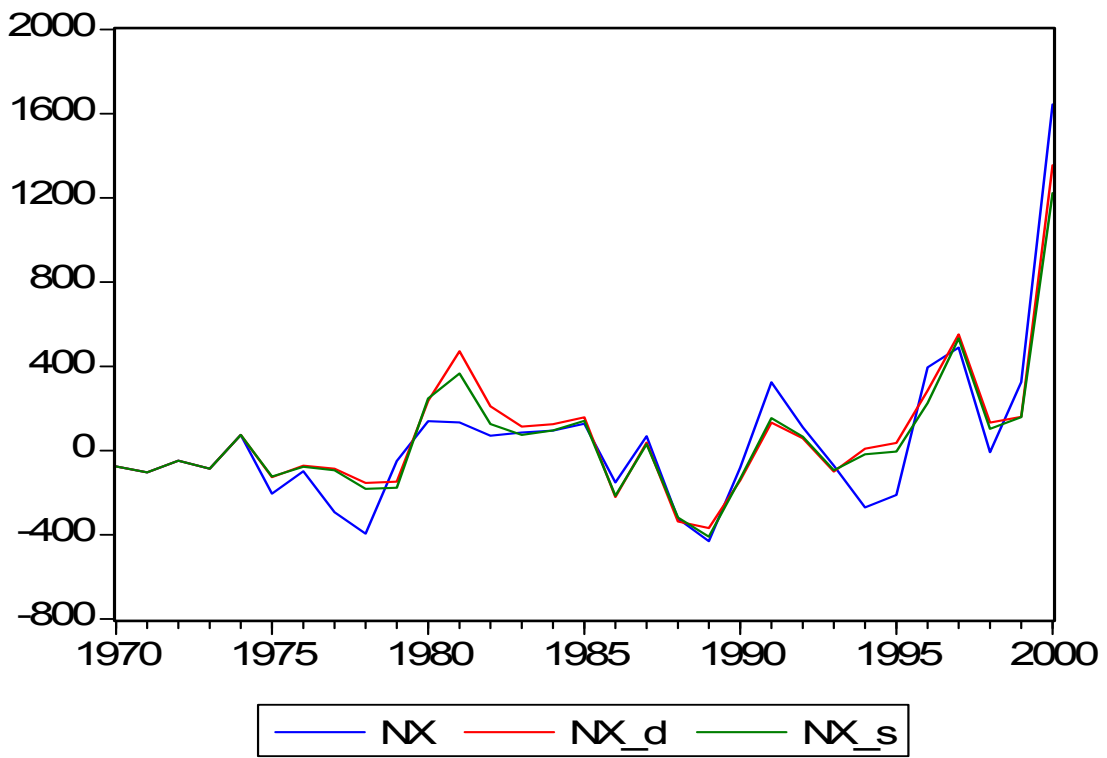


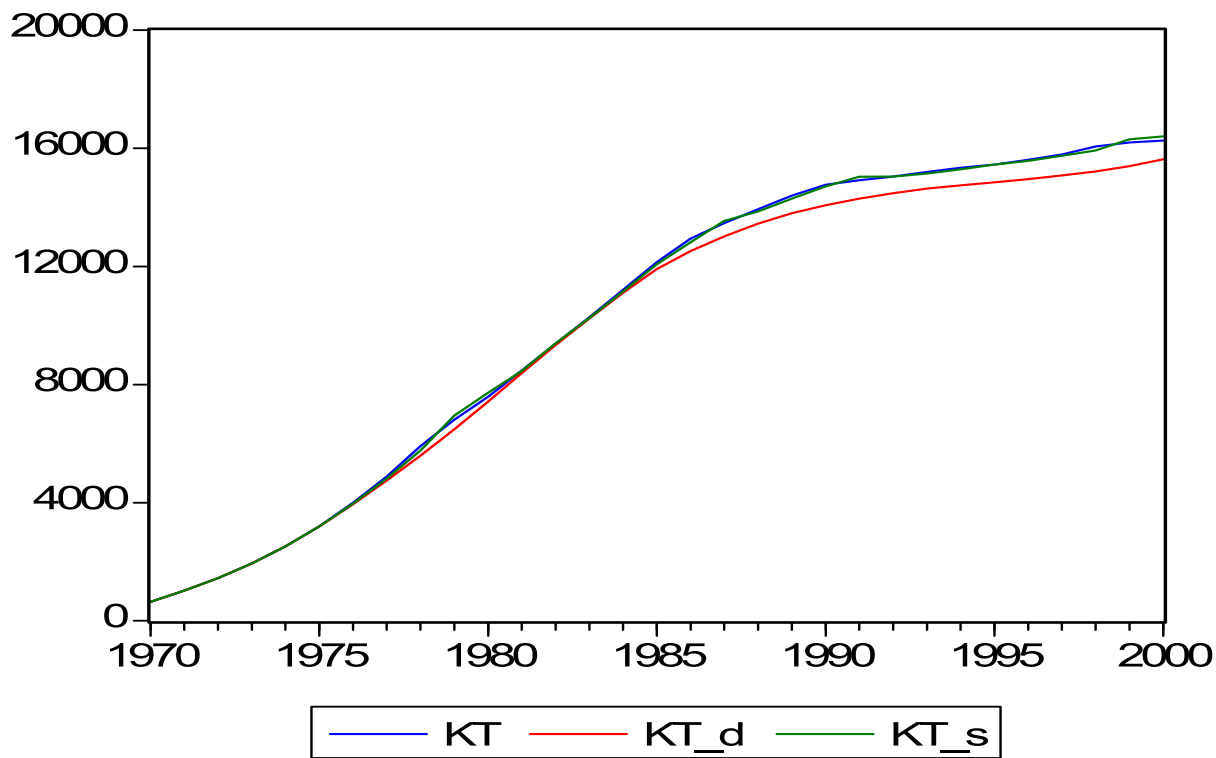
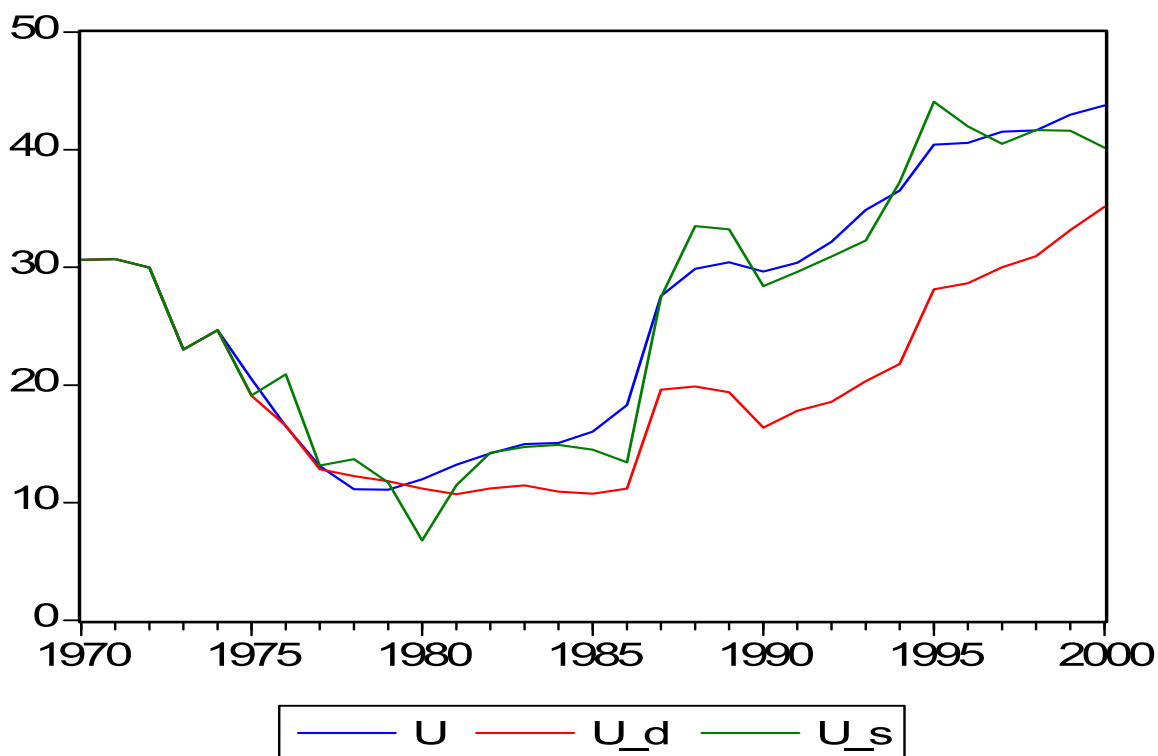












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