

اختبار اثر عدم الاستقرار على نمط انفاق المستهلك العراقي

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قسم الاحصاء

1- المقدمة

(2000-1970)

(1990-1980) (1980-1970)
(Chow-Test) (2000-1990)
(2000-1970)

1- الجانب النظري

(OLS) (RLS)

:

$$y_1 = x_1 B_1 + \mu_1$$

$$y_2 = x_2 B_2 + \mu_2$$

.(n₂ x1) (n₁ x1)

.(n₂ xm) (n₁ xm)

.(m x1)

.(n₂ x1) (n₁ x1)

y₂, y₁ :

: x₂, x₁

B₂, B₁ :

μ₂, μ₁ :

:

n=n₁+n₂

$$\mu_1 \sim N(0, \sigma^2 I)$$

$$\mu_2 \sim N(0, \sigma^2 I)$$

$$COV(\mu_1, \mu_2) = 0$$

:

$$y = xB + \mu$$

$$y = \begin{bmatrix} y_1 \\ y_2 \end{bmatrix}, x = \begin{bmatrix} x_1 & 0 \\ 0 & x_2 \end{bmatrix}, B = \begin{bmatrix} B_1 \\ B_2 \end{bmatrix}, \mu = \begin{bmatrix} \mu_1 \\ \mu_2 \end{bmatrix}$$



$$\begin{aligned}
 & (\quad) \\
 H_0: & B_{01} = B_{02} = \dots = B_{0p} \\
 & B_{t1} = B_{t2} = \dots = B_{tp} \\
 & \qquad \qquad \qquad t=2,3,\dots,m-1 \qquad \qquad \qquad p
 \end{aligned}$$

$$\begin{aligned}
 & \vdots \\
 b_{LS} &= (x'x)^{-1}x'y \\
 S &= e'e = (y - xb_{LS})'(y - xb_{LS})
 \end{aligned}$$

RB=0

$$R(I_m - I_m) = 0$$

R

$$\mu'\mu = (y - xB)'(y - xB) - 2\lambda RB$$

$$\frac{\partial \mu'\mu}{\partial B} = -2x'y + 2x'xb_{RLS} - 2\lambda^* R = 0$$

$$\frac{\partial \mu'\mu}{\partial \lambda} = -2Rb_{RLS} = 0$$

$$b_{RLS} = b_{LS} + (x'x)^{-1}R'[R(x'x)^{-1}R']^{-1}Rb_{LS}$$

$$\begin{aligned}
 & \vdots \\
 S^* &= e'^*e^* = (Y - xb_{RLS})'(Y - xb_{RLS}) \\
 &= y'y - b'_{RLS}x'y - y'xb_{RLS} + b'_{RLS}x'xb_{RLS} \\
 & \qquad \qquad \qquad (b_{RLS})
 \end{aligned}$$

$$S^* - y'y - y'xb_{RLS} - b'_{RLS}R'[R(x'x)^{-1}R']^{-1}Rb_{LS}$$

$$E\{b'_{RLS}R'[R(x'x)^{-1}R']^{-1}Rb_{LS}\} = 0$$

$$\therefore S^* = y'y - y'xb_{RLS}$$

(b_{RLS})

$$S^* = y'y - y'xb_{LS} - b'_{LS}R'[R(x'x)^{-1}R']^{-1}Rb_{LS}$$

$$S^* = S + b'_{LS}R'[R(x'x)^{-1}R']^{-1}Rb_{LS}$$

$$S^* - S = b'_{LS}R'[R(x'x)^{-1}R']^{-1}Rb_{LS}$$

:

(RB=0)

$$Rb_{LS} = R(x'x)^{-1}x'y$$

$$Rb_{LS} = R(x'x)^{-1}x'(xB + \mu)$$

$$Rb_{LS} = R(x'x)^{-1}x'\mu$$



$$\begin{aligned}
 S^* - S &= \mu' x(x'x)^{-1} R' [R(x'x)^{-1} R']^{-1} R(x'x)^{-1} x' \mu \\
 S^* - S &= \mu' A_1 \mu \\
 A_1 &= x(x'x)^{-1} R' [R(x'x)^{-1} R']^{-1} R(x'x)^{-1} x' \\
 &\quad \text{K} \qquad \qquad \qquad \text{Idempotent} \qquad \qquad \qquad \text{(A)} \\
 S^* - S &= b'_{LS} R' [R(x'x)^{-1} R]^{-1} R b_{LS} \sim \sigma^2 X^2_{(K)} \\
 S &= (y - xb)' (y - xb) \\
 S &= \mu' A_2 \mu \\
 A_2 &= [I - x(x'x)^{-1} x'] \\
 S &= y'y - y'x b_{LS} \sim \sigma^2 X^2_{(n-2m)} \\
 \therefore f(k, n - 2m) &= \frac{\sigma^2 X^2_K}{\sigma^2 X^2_{(n-2m)}} = \frac{S^* - S/P}{S/(n - 2m)}
 \end{aligned}$$

(p=2)

f

$$\begin{aligned}
 f_{m+1, n-p(m+1)} &= \frac{S^* - S/m + 1}{S/n - p(m + 1)} \\
 f_{(m+1), (p-1), n-p(m+1)} &= \frac{S^* - S/(m + 1)(p - 1)}{S/(n - p)(m + 1)}
 \end{aligned}$$

:
p
:(m+1)
:S
.OLS
:S*

URLS

1- الجانب التطبيقي

Chow Test

(Yt)

(x_{ti})

Chow Test



(RLS)



$$H_0 = B_1 = B_2 = 0$$

$$H_1 = B_1 \neq B_2 \neq 0$$

1- 1970-2000

$$\hat{y}_t = 322.912 - 0.00244\hat{x}_t + 1.959\hat{z}_t$$

$$S.E(588.72256), R^2(1.000), f(163925.8), \sigma^2(346594.247)$$

$$D.w(1.623), \eta i(0.0027), \mu pc(0.00244)$$

2- 1970-1980

$$\hat{y}_t = -281.737 - 0.0167\hat{x}_t + 18.031\hat{z}_t$$

$$S.E(18.33768), R^2(0.961), f(98.09), \sigma^2(336.27)$$

$$D.w(1.185), \eta i(0.49), \mu pc(0.167)$$

3- 1980-1990

$$\hat{y}_t = -131.564 - 0.00197\hat{x}_t + 9.361\hat{z}_t$$

$$S.E(80.19277), R^2(0.95), f(75.242), \sigma^2(6430.88)$$

$$D.w(1.797), \eta i(0.003), \mu pc(0.00197)$$

4- 1990-2000

$$\hat{y}_t = 691.496 - 0.00229\hat{x}_t + 1.951\hat{z}_t$$

$$S.E(1014.47), R^2(1.000), f(29573.7), \sigma^2(1029161.8)$$

$$D.w(2.084), \eta i(0.0025), \mu pc(0.0022)$$



:

$$H_0 = B_{01} = B_{02} = \dots = B_{0P} \\ = B_{t1} = B_{t2} = \dots = B_{tP}$$

$$H_0: RB = 0$$

t P R
 $m+1$ $P \times m+1$

-1970 2000

2000 -1990 1990 - 1980 1980 -1970

$$H_0 = D_{01} = D_{02} = D_{03}$$

$m+1=9$, $P=3$, $n= 31$
Chow

F Chow= 116492.7476

$F > F$

(1)
(2000-1970)

	b_0	b_1	b_2	F	R^2	σ^2	S.E	μ_{pc}	η_i	D.w
-1970 1980	-281.737	-0.167	18.03	98.09	0.961	336.27	18.33768	0.167	0.49	1.185
-1980 1990	131.564	-0.0019	9.361	75.242	0.95	6430.88	80.19277	0.0197	0.003	1.727
-1990 2000	691.496	-0.00229	1.951	29573.7	1.000	1029161.8	1014.47	0.0022	0.0025	2.084
-1970 2000	322.912	-0.00244	1.959	163925.8	1.000	346594.24	588.7225	0.0024	0.0027	1.623



الاستنتاجات

(2)

2000-1970

	()	()	()	()
1970-1981	0.196	153	0.261	433
1981-1991	0.165	767	0.040	893
1991-2000	0.723	95053	0.868	107876
1970-2000	0.326	28913	0.275	35227

(2001-1970)

- /

:

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(153)

(81-70)

(107876)

(2000-91)

(433)

(91-81)

(2000-1970)

(Chow Test)

(2000-1970)



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