

Solutions
Homework
Chapter 19

Problem 19.1

```
|_ sample 1 30
|_ read p q ps di pf
5 VARIABLES AND          30 OBSERVATIONS STARTING AT OBS      1
```

```
|_ *OLS estimate demand equation
```

```
|_ ols p q ps di
```

```
REQUIRED MEMORY IS PAR=      3 CURRENT PAR=      781
OLS ESTIMATION
  30 OBSERVATIONS      DEPENDENT VARIABLE= P
...NOTE..SAMPLE RANGE SET TO:      1,      30
```

```
R-SQUARE =      0.8013      R-SQUARE ADJUSTED =      0.7784
VARIANCE OF THE ESTIMATE-SIGMA**2 =      8.6324
STANDARD ERROR OF THE ESTIMATE-SIGMA =      2.9381
SUM OF SQUARED ERRORS-SSE=      224.44
MEAN OF DEPENDENT VARIABLE =      20.908
LOG OF THE LIKELIHOOD FUNCTION = -72.7545
```

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	26 DF	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
Q	0.50401E-01	0.1663	0.3032		0.764	0.059	0.0373	0.0445
PS	0.45357	0.1980	2.291		0.030	0.410	0.2963	0.4777
DI	0.41194	0.6085E-01	6.770		0.000	0.799	0.6870	0.6949
CONSTANT	-4.5398	3.029	-1.499		0.146	-0.282	0.0000	-0.2171

```
|_ *estimate reduced form equations
```

```
|_ ols p ps di pf
```

```
REQUIRED MEMORY IS PAR=      3 CURRENT PAR=      781
OLS ESTIMATION
  30 OBSERVATIONS      DEPENDENT VARIABLE= P
...NOTE..SAMPLE RANGE SET TO:      1,      30
```

```
R-SQUARE =      0.8887      R-SQUARE ADJUSTED =      0.8758
VARIANCE OF THE ESTIMATE-SIGMA**2 =      4.8363
STANDARD ERROR OF THE ESTIMATE-SIGMA =      2.1992
SUM OF SQUARED ERRORS-SSE=      125.74
MEAN OF DEPENDENT VARIABLE =      20.908
LOG OF THE LIKELIHOOD FUNCTION = -64.0639
```

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	26 DF	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
PS	0.56938	0.1170	4.868		0.000	0.691	0.3720	0.5997
DI	0.25342	0.5748E-01	4.409		0.000	0.654	0.4226	0.4275
PF	0.45130	0.9950E-01	4.536		0.000	0.665	0.3854	0.4911
CONSTANT	-10.837	2.661	-4.072		0.000	-0.624	0.0000	-0.5183

|_ ols q ps di pf

REQUIRED MEMORY IS PAR= 3 CURRENT PAR= 781
OLS ESTIMATION
30 OBSERVATIONS DEPENDENT VARIABLE= Q
...NOTE..SAMPLE RANGE SET TO: 1, 30

R-SQUARE = 0.6974 R-SQUARE ADJUSTED = 0.6625
VARIANCE OF THE ESTIMATE-SIGMA**2 = 7.1829
STANDARD ERROR OF THE ESTIMATE-SIGMA = 2.6801
SUM OF SQUARED ERRORS-SSE= 186.75
MEAN OF DEPENDENT VARIABLE = 18.458
LOG OF THE LIKELIHOOD FUNCTION = -69.9971

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
PS	0.65640	0.1425	4.605	0.000	0.670	0.5802	0.7831
DI	0.21672	0.7005E-01	3.094	0.005	0.519	0.4890	0.4141
PF	-0.50698	0.1213	-4.181	0.000	-0.634	-0.5857	-0.6250
CONSTANT	7.8951	3.243	2.434	0.022	0.431	0.0000	0.4277

|_ *2sls estimate of demand and supply equations

|_ 2sls p q ps di (ps di pf)
TWO STAGE LEAST SQUARES - DEPENDENT VARIABLE = P
3 EXOGENOUS VARIABLES
2 POSSIBLE ENDOGENOUS VARIABLES
30 OBSERVATIONS

R-SQUARE = 0.5567 R-SQUARE ADJUSTED = 0.5056
VARIANCE OF THE ESTIMATE-SIGMA**2 = 19.259
STANDARD ERROR OF THE ESTIMATE-SIGMA = 4.3885
SUM OF SQUARED ERRORS-SSE= 500.74
MEAN OF DEPENDENT VARIABLE = 20.908

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
Q	-0.89017	0.3917	-2.273	0.032	-0.407	-0.6580	-0.7859
PS	1.1537	0.3719	3.103	0.005	0.520	0.7537	1.2152
DI	0.44633	0.9156E-01	4.875	0.000	0.691	0.7443	0.7529
CONSTANT	-3.8095	4.531	-0.8408	0.408	-0.163	0.0000	-0.1822

|_ 2sls q p pf (ps di pf)
TWO STAGE LEAST SQUARES - DEPENDENT VARIABLE = Q
3 EXOGENOUS VARIABLES
2 POSSIBLE ENDOGENOUS VARIABLES
30 OBSERVATIONS

R-SQUARE = 0.9019 R-SQUARE ADJUSTED = 0.8946
VARIANCE OF THE ESTIMATE-SIGMA**2 = 2.2428
STANDARD ERROR OF THE ESTIMATE-SIGMA = 1.4976
SUM OF SQUARED ERRORS-SSE= 60.555
MEAN OF DEPENDENT VARIABLE = 18.458

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
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P          1.0139      0.7476E-01   13.56      0.000 0.934      1.3718      1.1485
PF         -1.0009      0.8253E-01  -12.13     0.000-0.919    -1.1564    -1.2338
CONSTANT  20.033       1.223      16.38     0.000 0.953      0.0000     1.0853
|_ end
|_ STOP

```

Problem 19.3

(a) Lagged consumption, government spending, interest rate

γ_{12} *positive Propensity to consume*

β_{11} *Unknown*

β_{12} *positive habit*

γ_{22} *positive accelerator.*

β_{21} *unknown*

β_{22} *negative Demand theory*

(b)

Equation	K-k*	g*-1	Identification
Consumption	2	1	over
Investment	2	1	over

$$y_t = \frac{(\beta_{11} + \beta_{21})}{(1 - \gamma_{12} - \gamma_{22})} + \frac{\beta_{12}}{(1 - \gamma_{12} - \gamma_{22})} C_{t-1} + \frac{\beta_{22}}{(1 - \gamma_{12} - \gamma_{22})} r_t + \frac{1}{(1 - \gamma_{12} - \gamma_{22})} g_t$$

$$(c) \quad c_t = \frac{(\beta_{11}(1 - \gamma_{22}) + \gamma_{12}\beta_{21})}{(1 - \gamma_{12} - \gamma_{22})} + \frac{(\beta_{12}(1 - \gamma_{22}))}{(1 - \gamma_{12} - \gamma_{22})} C_{t-1} + \frac{(\gamma_{12}\beta_{22})}{(1 - \gamma_{12} - \gamma_{22})} r_t + \frac{\gamma_{12}}{(1 - \gamma_{12} - \gamma_{22})} g_t$$

$$i_t = \frac{(\beta_{21}(1 - \gamma_{12}) + \gamma_{22}\beta_{11})}{(1 - \gamma_{12} - \gamma_{22})} + \frac{(\gamma_{22}\beta_{12})}{(1 - \gamma_{12} - \gamma_{22})} C_{t-1} + \frac{(\beta_{22}(1 - \gamma_{12}))}{(1 - \gamma_{12} - \gamma_{22})} r_t + \frac{\gamma_{22}}{(1 - \gamma_{12} - \gamma_{22})} g_t$$

(d) |_ sample 1 50

```

|_ read y c i r g
5 VARIABLES AND          50 OBSERVATIONS STARTING AT OBS          1

```

```

|_ sample 2 50
|_ genr clag = lag(c)
..NOTE.LAG VALUE IN UNDEFINED OBSERVATIONS SET TO ZERO
|_ *Part (d) (i)

```

```

|_ ols y clag r g

```

```

REQUIRED MEMORY IS PAR=          6 CURRENT PAR=          781

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```

OLS ESTIMATION

```

```

49 OBSERVATIONS          DEPENDENT VARIABLE= Y

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```

...NOTE..SAMPLE RANGE SET TO:          2,          50

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```

R-SQUARE =          0.8520          R-SQUARE ADJUSTED =          0.8422

```

VARIANCE OF THE ESTIMATE-SIGMA**2 = 198.42
 STANDARD ERROR OF THE ESTIMATE-SIGMA = 14.086
 SUM OF SQUARED ERRORS-SSE= 8929.1
 MEAN OF DEPENDENT VARIABLE = 86.961
 LOG OF THE LIKELIHOOD FUNCTION = -197.056

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
CLAG	1.0580	0.1324	7.989	0.000	0.766	0.6067	0.6312
R	-0.32060	0.4772	-0.6718	0.505	-0.100	-0.0394	-0.0488
G	4.4219	0.8544	5.176	0.000	0.611	0.3940	0.4637
CONSTANT	-4.0094	10.00	-0.4009	0.690	-0.060	0.0000	-0.0461

|_ ols c clag r g

REQUIRED MEMORY IS PAR= 6 CURRENT PAR= 781
 OLS ESTIMATION
 49 OBSERVATIONS DEPENDENT VARIABLE= C
 ...NOTE...SAMPLE RANGE SET TO: 2, 50

R-SQUARE = 0.6454 R-SQUARE ADJUSTED = 0.6218
 VARIANCE OF THE ESTIMATE-SIGMA**2 = 155.25
 STANDARD ERROR OF THE ESTIMATE-SIGMA = 12.460
 SUM OF SQUARED ERRORS-SSE= 6986.1
 MEAN OF DEPENDENT VARIABLE = 52.710
 LOG OF THE LIKELIHOOD FUNCTION = -191.044

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
CLAG	0.58512	0.1171	4.995	0.000	0.597	0.5872	0.5759
R	-0.42655E-01	0.4221	-0.1011	0.920	-0.015	-0.0092	-0.0107
G	1.8161	0.7557	2.403	0.020	0.337	0.2832	0.3142
CONSTANT	6.3578	8.847	0.7186	0.476	0.107	0.0000	0.1206

|_ ols i clag r g

REQUIRED MEMORY IS PAR= 6 CURRENT PAR= 781
 OLS ESTIMATION
 49 OBSERVATIONS DEPENDENT VARIABLE= I
 ...NOTE...SAMPLE RANGE SET TO: 2, 50

R-SQUARE = 0.7879 R-SQUARE ADJUSTED = 0.7737
 VARIANCE OF THE ESTIMATE-SIGMA**2 = 53.141
 STANDARD ERROR OF THE ESTIMATE-SIGMA = 7.2898
 SUM OF SQUARED ERRORS-SSE= 2391.3
 MEAN OF DEPENDENT VARIABLE = 25.236
 LOG OF THE LIKELIHOOD FUNCTION = -164.779

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
CLAG	0.46137	0.6854E-01	6.732	0.000	0.708	0.6121	0.9485
R	-0.28138	0.2470	-1.139	0.261	-0.167	-0.0800	-0.1475
G	1.6184	0.4421	3.660	0.001	0.479	0.3336	0.5848
CONSTANT	-9.7346	5.176	-1.881	0.067	-0.270	0.0000	-0.3857

|_ * Part (d) (ii)

|_ ols c y clag

REQUIRED MEMORY IS PAR= 5 CURRENT PAR= 781
OLS ESTIMATION
49 OBSERVATIONS DEPENDENT VARIABLE= C
...NOTE..SAMPLE RANGE SET TO: 2, 50

R-SQUARE = 0.8822 R-SQUARE ADJUSTED = 0.8771
VARIANCE OF THE ESTIMATE-SIGMA**2 = 50.431
STANDARD ERROR OF THE ESTIMATE-SIGMA = 7.1015
SUM OF SQUARED ERRORS-SSE= 2319.8
MEAN OF DEPENDENT VARIABLE = 52.710
LOG OF THE LIKELIHOOD FUNCTION = -164.035

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	46 DF	P-VALUE	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
Y	0.61971	0.5891E-01	10.52		0.000	0.840	1.0846	1.0224
CLAG	-0.17053	0.1027	-1.660		0.104	-0.238	-0.1712	-0.1678
CONSTANT	7.6674	2.846	2.694		0.010	0.369	0.0000	0.1455

|_ ols i y r

REQUIRED MEMORY IS PAR= 5 CURRENT PAR= 781
OLS ESTIMATION
49 OBSERVATIONS DEPENDENT VARIABLE= I
...NOTE..SAMPLE RANGE SET TO: 2, 50

R-SQUARE = 0.8172 R-SQUARE ADJUSTED = 0.8093
VARIANCE OF THE ESTIMATE-SIGMA**2 = 44.796
STANDARD ERROR OF THE ESTIMATE-SIGMA = 6.6930
SUM OF SQUARED ERRORS-SSE= 2060.6
MEAN OF DEPENDENT VARIABLE = 25.236
LOG OF THE LIKELIHOOD FUNCTION = -161.132

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	46 DF	P-VALUE	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
Y	0.38456	0.2800E-01	13.74		0.000	0.897	0.8897	1.3251
R	-0.19360	0.2277	-0.8502		0.400	-0.124	-0.0551	-0.1015
CONSTANT	-5.6434	4.393	-1.285		0.205	-0.186	0.0000	-0.2236

|_ * Part (d) (iii)

|_ 2sls c y clag (clag r g)

TWO STAGE LEAST SQUARES - DEPENDENT VARIABLE = C
3 EXOGENOUS VARIABLES
2 POSSIBLE ENDOGENOUS VARIABLES
49 OBSERVATIONS

R-SQUARE = 0.8475 R-SQUARE ADJUSTED = 0.8409
VARIANCE OF THE ESTIMATE-SIGMA**2 = 65.315
STANDARD ERROR OF THE ESTIMATE-SIGMA = 8.0817
SUM OF SQUARED ERRORS-SSE= 3004.5
MEAN OF DEPENDENT VARIABLE = 52.710

VARIABLE	ESTIMATED	STANDARD	T-RATIO	PARTIAL	STANDARDIZED	ELASTICITY
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NAME	COEFFICIENT	ERROR	46 DF	P-VALUE	CORR. COEFFICIENT	AT MEANS
Y	0.40267	0.1079	3.730	0.001	0.482	0.6643
CLAG	0.15925	0.1738	0.9165	0.364	0.134	0.1567
CONSTANT	9.4316	3.311	2.849	0.007	0.387	0.1789

```

|_ 2sls i y r (clag r g)
TWO STAGE LEAST SQUARES - DEPENDENT VARIABLE = I
3 EXOGENOUS VARIABLES
2 POSSIBLE ENDOGENOUS VARIABLES
49 OBSERVATIONS

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R-SQUARE = 0.8139 R-SQUARE ADJUSTED = 0.8058
VARIANCE OF THE ESTIMATE-SIGMA**2 = 45.605
STANDARD ERROR OF THE ESTIMATE-SIGMA = 6.7531
SUM OF SQUARED ERRORS-SSE= 2097.8
MEAN OF DEPENDENT VARIABLE = 25.236

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	46 DF	P-VALUE	CORR. COEFFICIENT	PARTIAL STANDARDIZED	ELASTICITY AT MEANS
Y	0.41008	0.3075E-01	13.34		0.000	0.891	0.9488	1.4131
R	-0.14583	0.2309	-0.6316		0.531	-0.093	-0.0415	-0.0765
CONSTANT	-8.4949	4.636	-1.833		0.073	-0.261	0.0000	-0.3366

|_ end
|_ STOP

(e) For the consumption function income is positive as expected and significant, lag consumption is not significant but has the correct sign.

For the investment equation income is positive as expected and significant, but the interest rate is not significant but has the corrected expected negative sign.

(f)

Equation	Constant	Clag	R	G
OLS Y	-4.0094	1.0580	-0.32060	4.4219
2sls Y	5.002403	0.850467	-0.7788	5.340454
OLS C	6.3578	0.58512	-0.042655	1.8161
2sls C	11.44592	0.501708	-0.3136	2.150441
OLS i	-9.7346	0.46137	-0.28138	1.6184
2sls i	-6.44351	0.34876	-0.4652	2.190013

The OLS estimates will be more efficient since they are BLUE. The estimates derived from the 2sls coefficients are indirect and while consistent are not expected to be efficient. The OLS estimates should be the best to use as estimates of the reduced form coefficients.

Problem 19.4

(a)

Equation	K-k*	g*-1	Identification
Consumption	2	1	over
Investment	1	0	over

(b) |_ sample 1 50

|_ read y c i r g
5 VARIABLES AND 50 OBSERVATIONS STARTING AT OBS 1

|_ *Estimating reduced form equations
|_ * Part b (ii) - OLS estimates reduced form

|_ ols y r g

REQUIRED MEMORY IS PAR= 5 CURRENT PAR= 781

OLS ESTIMATION

50 OBSERVATIONS DEPENDENT VARIABLE= Y

...NOTE...SAMPLE RANGE SET TO: 1, 50

R-SQUARE = 0.6517 R-SQUARE ADJUSTED = 0.6369

VARIANCE OF THE ESTIMATE-SIGMA**2 = 460.94

STANDARD ERROR OF THE ESTIMATE-SIGMA = 21.470

SUM OF SQUARED ERRORS-SSE= 21664.

MEAN OF DEPENDENT VARIABLE = 86.092

LOG OF THE LIKELIHOOD FUNCTION = -222.732

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
R	-0.57292	0.7183	-0.7977	0.429	-0.116	-0.0706	-0.0888
G	8.7075	0.9786	8.898	0.000	0.792	0.7878	0.9111
CONSTANT	15.304	14.78	1.036	0.306	0.149	0.0000	0.1778

|_ ols c r g

REQUIRED MEMORY IS PAR= 5 CURRENT PAR= 781

OLS ESTIMATION

50 OBSERVATIONS DEPENDENT VARIABLE= C

...NOTE...SAMPLE RANGE SET TO: 1, 50

R-SQUARE = 0.4621 R-SQUARE ADJUSTED = 0.4392

VARIANCE OF THE ESTIMATE-SIGMA**2 = 231.14

STANDARD ERROR OF THE ESTIMATE-SIGMA = 15.203

SUM OF SQUARED ERRORS-SSE= 10864.

MEAN OF DEPENDENT VARIABLE = 52.260

LOG OF THE LIKELIHOOD FUNCTION = -205.476

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	P-VALUE	PARTIAL CORR.	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
R	-0.19435	0.5086	-0.3821	0.704	-0.056	-0.0420	-0.0496
G	4.2116	0.6930	6.078	0.000	0.663	0.6687	0.7259

CONSTANT 16.918 10.46 1.617 0.113 0.230 0.0000 0.3237

|_ ols i r g

REQUIRED MEMORY IS PAR= 5 CURRENT PAR= 781

OLS ESTIMATION

50 OBSERVATIONS DEPENDENT VARIABLE= I

...NOTE..SAMPLE RANGE SET TO: 1, 50

R-SQUARE = 0.5798 R-SQUARE ADJUSTED = 0.5619

VARIANCE OF THE ESTIMATE-SIGMA**2 = 102.91

STANDARD ERROR OF THE ESTIMATE-SIGMA = 10.144

SUM OF SQUARED ERRORS-SSE= 4836.7

MEAN OF DEPENDENT VARIABLE = 24.926

LOG OF THE LIKELIHOOD FUNCTION = -185.246

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
R	-0.38015	0.3394	-1.120	0.268	-0.161	-0.1089
G	3.4637	0.4624	7.491	0.000	0.738	0.7285
CONSTANT	-1.2000	6.982	-0.1719	0.864	0.025	0.0000

|_ *Part b, (ii) - OLS estimates of structural equations

|_ ols c y

REQUIRED MEMORY IS PAR= 4 CURRENT PAR= 781

OLS ESTIMATION

50 OBSERVATIONS DEPENDENT VARIABLE= C

...NOTE..SAMPLE RANGE SET TO: 1, 50

R-SQUARE = 0.8782 R-SQUARE ADJUSTED = 0.8757

VARIANCE OF THE ESTIMATE-SIGMA**2 = 51.236

STANDARD ERROR OF THE ESTIMATE-SIGMA = 7.1579

SUM OF SQUARED ERRORS-SSE= 2459.3

MEAN OF DEPENDENT VARIABLE = 52.260

LOG OF THE LIKELIHOOD FUNCTION = -168.337

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
Y	0.53401	0.2870E-01	18.61	0.000	0.937	0.9371
CONSTANT	6.2867	2.670	2.354	0.023	0.322	0.0000

|_ ols i r

REQUIRED MEMORY IS PAR= 4 CURRENT PAR= 781

OLS ESTIMATION

50 OBSERVATIONS DEPENDENT VARIABLE= I

...NOTE..SAMPLE RANGE SET TO: 1, 50

R-SQUARE = 0.0780 R-SQUARE ADJUSTED = 0.0588

VARIANCE OF THE ESTIMATE-SIGMA**2 = 221.07

STANDARD ERROR OF THE ESTIMATE-SIGMA = 14.868

SUM OF SQUARED ERRORS-SSE= 10611.

MEAN OF DEPENDENT VARIABLE = 24.926

LOG OF THE LIKELIHOOD FUNCTION = -204.889

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	48 DF	P-VALUE	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
R	-0.97483	0.4836	-2.016		0.049	-0.279	-0.2794	-0.5220
CONSTANT	37.938	6.789	5.588		0.000	0.628	0.0000	1.5220

|_ * Part b, (ii) - 2sls estimates of structural equations

|_ 2sls c y (r g)
TWO STAGE LEAST SQUARES - DEPENDENT VARIABLE = C
2 EXOGENOUS VARIABLES
2 POSSIBLE ENDOGENOUS VARIABLES
50 OBSERVATIONS

R-SQUARE = 0.8691 R-SQUARE ADJUSTED = 0.8664
VARIANCE OF THE ESTIMATE-SIGMA**2 = 55.060
STANDARD ERROR OF THE ESTIMATE-SIGMA = 7.4203
SUM OF SQUARED ERRORS-SSE= 2642.9
MEAN OF DEPENDENT VARIABLE = 52.260

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	48 DF	P-VALUE	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
Y	0.47968	0.3685E-01	13.02		0.000	0.883	0.8418	0.7902
CONSTANT	10.964	3.342	3.281		0.002	0.428	0.0000	0.2098

|_ 2sls i r (r g)
TWO STAGE LEAST SQUARES - DEPENDENT VARIABLE = I
2 EXOGENOUS VARIABLES
1 POSSIBLE ENDOGENOUS VARIABLES
50 OBSERVATIONS

R-SQUARE = 0.0780 R-SQUARE ADJUSTED = 0.0588
VARIANCE OF THE ESTIMATE-SIGMA**2 = 221.07
STANDARD ERROR OF THE ESTIMATE-SIGMA = 14.868
SUM OF SQUARED ERRORS-SSE= 10611.
MEAN OF DEPENDENT VARIABLE = 24.926

VARIABLE NAME	ESTIMATED COEFFICIENT	STANDARD ERROR	T-RATIO	48 DF	P-VALUE	PARTIAL CORR. COEFFICIENT	STANDARDIZED COEFFICIENT	ELASTICITY AT MEANS
R	-0.97483	0.4836	-2.016		0.049	-0.279	-0.2794	-0.5220
CONSTANT	37.938	6.789	5.588		0.000	0.628	0.0000	1.5220

|_ end
|_ STOP

(c) The ols estimate of the investment equation is the same as the 2sls since the investment equation does not have an endogenous variable on the rhs. The equation can be estimated efficiently and with unbiased estimates using ols.

(d) The first model had one insignificant variable in each structural equation that might cause a hassle in doing forecasts. All the variables in the structural equations of the second model are significant. This may aid forecasting. On the other hand the Rsq for specially the investment function is substantial better for the first model than the second and may imply better forecasts. There is not a meaningful difference on the Rsq for the consumption function and probably will not effect the forecasts.