

ANEXOS

| | | | | | | |
|----------|-------------|-------------|--------|--------|-------------|---------|
| III | 0.53967E-01 | 0.11218E-01 | 4.8109 | 0.4856 | 0.50033 | 0.14127 |
| IV | 0.90327E-01 | 0.10969E-01 | 8.2344 | 0.6891 | 0.80758 | 0.21280 |
| CONSTANT | 0.84261 | 0.27944 | 3.0154 | 0.3288 | 0.00000E+00 | 8.8226 |

DURBIN-WATSON = 2.3526 VON NEUMAN RATIO = 2.3824 RHO = -0.19989
 RESIDUAL SUM = -0.80005E-14 RESIDUAL VARIANCE = 0.10420E-02
 SUM OF ABSOLUTE ERRORS= 1.9321
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.5522
 RUNS TEST: 45 RUNS, 39 POSITIVE, 41 NEGATIVE, NORMAL STATISTIC= 0.9063

EQUATION 3 OF 5 EQUATIONS DEPENDENT VARIABLE = W3 80
 OBSERVATIONS R-SQUARE = 0.7972 VARIANCE OF THE ESTIMATE = 0.16462E-02 STANDARD
 ERROR OF THE ESTIMATE = 0.40573E-01
 MEAN OF DEPENDENT VARIABLE = 0.72350
 LOG OF THE LIKELIHOOD FUNCTION = 1657.93

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.17491E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.3488
 SCHWARZ(1978) CRITERION-SC = -6.2000

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 75 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|------------------|--------------------------|-------------------|------------------|------------------|-----------------------------|------------------------|
| P1 | -0.32302E-02 | 0.35140E-01 | -0.91925E-01 | -0.0106 | -0.51118E-02 | -0.12080E-01 |
| P2 | 0.81691E-01 | 0.40083E-01 | 2.0380 | 0.2291 | 0.12307 | 0.37270 |
| P3 | -0.20599E-01 | 0.52292E-01 | -0.39392 | -0.0454 | -0.13828E-01 | -0.33343E-01 |
| P4 | -0.12938 | 0.54982E-01 | -2.3531 | -0.2622 | -0.17839 | -0.49005 |
| P5 | 0.71518E-01 | 0.77218E-01 | 0.92619 | 0.1063 | 0.66950E-01 | 0.29800 |
| F | 0.18508 | 0.46100E-01 | 4.0147 | 0.4206 | 0.28622 | 1.9426 |
| II | -0.66444E-01 | 0.15688E-01 | -4.2354 | -0.4393 | -0.33517 | -0.24107E-01 |
| III | -0.10957 | 0.14099E-01 | -7.7714 | -0.6679 | -0.54396 | -0.37862E-01 |
| IV | -0.19723 | 0.13788E-01 | -14.305 | -0.8554 | -0.94423 | -0.61336E-01 |
| CONSTANT | -0.69058 | 0.35123 | -1.9662 | -0.2214 | 0.00000E+00 | -0.95449 |

DURBIN-WATSON = 2.4704 VON NEUMAN RATIO = 2.5016 RHO = -0.23635
 RESIDUAL SUM = 0.10880E-13 RESIDUAL VARIANCE = 0.16462E-02
 SUM OF ABSOLUTE ERRORS= 2.5150
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.7972
 RUNS TEST: 49 RUNS, 45 POSITIVE, 35 NEGATIVE, NORMAL STATISTIC= 1.9721

EQUATION 4 OF 5 EQUATIONS
 DEPENDENT VARIABLE = W4 80 OBSERVATIONS

R-SQUARE = 0.6507
 VARIANCE OF THE ESTIMATE = 0.98617E-03
 STANDARD ERROR OF THE ESTIMATE = 0.31403E-01
 MEAN OF DEPENDENT VARIABLE = 0.14462
 LOG OF THE LIKELIHOOD FUNCTION = 1657.93

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.10478E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.8612
 SCHWARZ(1978) CRITERION-SC = -6.7123

| VARIABLE | ESTIMATED | STANDARD | T-RATIO | PARTIAL | STANDARDIZED | ELASTICITY |
|----------|-----------|----------|---------|---------|--------------|------------|
|----------|-----------|----------|---------|---------|--------------|------------|

| NAME | COEFFICIENT | ERROR | 75 DF | CORR. | COEFFICIENT | AT MEANS |
|----------|--------------|-------------|--------------|---------|--------------|--------------|
| P1 | -0.10067E-01 | 0.27198E-01 | -0.37013 | -0.0427 | -0.27007E-01 | -0.18833 |
| P2 | -0.86175E-01 | 0.31024E-01 | -2.7777 | -0.3054 | -0.22010 | -1.9668 |
| P3 | 0.29560E-01 | 0.40474E-01 | 0.73035 | 0.0840 | 0.33642E-01 | 0.23938 |
| P4 | 0.69989E-01 | 0.42556E-01 | 1.6446 | 0.1866 | 0.16360 | 1.3262 |
| P5 | -0.33081E-02 | 0.59767E-01 | -0.55350E-01 | -0.0064 | -0.52500E-02 | -0.68959E-01 |
| F | -0.47500E-01 | 0.35681E-01 | -1.3312 | -0.1519 | -0.12453 | -2.4941 |
| II | 0.30058E-01 | 0.12142E-01 | 2.4755 | 0.2748 | 0.25705 | 0.54559E-01 |
| III | 0.53331E-01 | 0.10913E-01 | 4.8869 | 0.4914 | 0.44884 | 0.92190E-01 |
| IV | 0.10460 | 0.10672E-01 | 9.8018 | 0.7494 | 0.84896 | 0.16274 |
| CONSTANT | 0.55581 | 0.27185 | 2.0445 | 0.2298 | 0.00000E+00 | 3.8432 |

DURBIN-WATSON = 1.5915 VON NEUMAN RATIO = 1.6117 RHO = 0.19328
RESIDUAL SUM = 0.50307E-14 RESIDUAL VARIANCE = 0.98617E-03
SUM OF ABSOLUTE ERRORS= 1.6368
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.6507
RUNS TEST: 37 RUNS, 39 POSITIVE, 41 NEGATIVE, NORMAL STATISTIC = -0.8951

EQUATION 5 OF 5 EQUATIONSDEPENDENT VARIABLE = W5 80
OBSERVATIONSR-SQUARE = 0.3978
VARIANCE OF THE ESTIMATE = 0.39130E-04
STANDARD ERROR OF THE ESTIMATE = 0.62554E-02
MEAN OF DEPENDENT VARIABLE = 0.20904E-01
LOG OF THE LIKELIHOOD FUNCTION = 1657.93

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.41576E-04
(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
AKAIKE (1973) INFORMATION CRITERION- AIC = -10.088
SCHWARZ(1978) CRITERION-SC = -9.9393

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 75 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | -0.11205E-02 | 0.54177E-02 | -0.20682 | -0.0239 | -0.19815E-01 | -0.14503 |
| P2 | -0.13914E-01 | 0.61799E-02 | -2.2515 | -0.2516 | -0.23427 | -2.1971 |
| P3 | -0.59311E-02 | 0.80623E-02 | -0.73566 | -0.0846 | -0.44496E-01 | -0.33229 |
| P4 | 0.34548E-02 | 0.84770E-02 | 0.40755 | 0.0470 | 0.53233E-01 | 0.45292 |
| P5 | 0.17511E-01 | 0.11905E-01 | 1.4709 | 0.1674 | 0.18319 | 2.5254 |
| F | -0.24956E-01 | 0.71076E-02 | -3.5112 | -0.3757 | -0.43130 | -9.0660 |
| II | 0.26796E-02 | 0.24187E-02 | 1.1078 | 0.1269 | 0.15105 | 0.33649E-01 |
| III | 0.32502E-02 | 0.21738E-02 | 1.4952 | 0.1701 | 0.18031 | 0.38871E-01 |
| IV | 0.58299E-02 | 0.21257E-02 | 2.7425 | 0.3019 | 0.31191 | 0.62751E-01 |
| CONSTANT | 0.20124 | 0.54152E-01 | 3.7162 | 0.3943 | 0.00000E+00 | 9.6269 |

DURBIN-WATSON = 1.1212 VON NEUMAN RATIO = 1.1354 RHO = 0.42188
RESIDUAL SUM = 0.31312E-14 RESIDUAL VARIANCE = 0.39130E-04
SUM OF ABSOLUTE ERRORS= 0.38399
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.3978
RUNS TEST: 34 RUNS, 35 POSITIVE, 45 NEGATIVE, NORMAL STATISTIC = -1.4577

|_TEST P1:1+P2:1+P3:1+P4:1+P5:1=0
TEST VALUE = 0.14557E-12 STD. ERROR OF TEST VALUE 0.17882E-07
T STATISTIC = 0.81405095E-05 WITH 355 D.F.
F STATISTIC = 0.66267895E-10 WITH 1 AND 355 D.F.
WALD CHI-SQUARE STATISTIC = 0.66267895E-10 WITH 1 D.F.
|_TEST P1:2+P2:2+P3:2+P4:2+P5:2=0
TEST VALUE = 0.68384E-12 STD. ERROR OF TEST VALUE 0.28076E-06

T STATISTIC = 0.24357201E-05 WITH 355 D.F.
F STATISTIC = 0.59327322E-11 WITH 1 AND 355 D.F.
WALD CHI-SQUARE STATISTIC = 0.59327322E-11 WITH 1 D.F.
| TEST P1:3+P2:3+P3:3+P4:3+P5:3=0
TEST VALUE = 0.35273E-11 STD. ERROR OF TEST VALUE 0.73466E-06
T STATISTIC = 0.48012610E-05 WITH 355 D.F.
F STATISTIC = 0.23052108E-10 WITH 1 AND 355 D.F.
WALD CHI-SQUARE STATISTIC = 0.23052108E-10 WITH 1 D.F.
| TEST P1:4+P2:4+P3:4+P4:4+P5:4=0
TEST VALUE = -0.48734E-11 STD. ERROR OF TEST VALUE 0.36294E-06
T STATISTIC = -0.13427443E-04 WITH 355 D.F.
F STATISTIC = 0.18029624E-09 WITH 1 AND 355 D.F.
WALD CHI-SQUARE STATISTIC = 0.18029624E-09 WITH 1 D.F.
| TEST P1:5+P2:5+P3:5+P4:5+P5:5=0
TEST VALUE = 0.51384E-12 STD. ERROR OF TEST VALUE 0.37702E-07
T STATISTIC = 0.13628908E-04 WITH 355 D.F.
F STATISTIC = 0.18574714E-09 WITH 1 AND 355 D.F.
WALD CHI-SQUARE STATISTIC = 0.18574714E-09 WITH 1 D.F.

B3 MODELO SIN RESTRINGIR

UNIT 6 IS NOW ASSIGNED TO: a:WS3

|_SAMPLE 1 80|_READ MES PT PR PC PV PG W1 W2 W3 W4 W5 INGT I II III IV 16
 VARIABLES AND 80 OBSERVATIONS STARTING AT OBS 1

|_GENR P1=LOG(PT)
 |_GENR P2=LOG(PR)
 |_GENR P3=LOG(PC)
 |_GENR P4=LOG(PV)
 |_GENR P5=LOG(PG)
 |_GENR LINGT=LOG(INGT)
 |_GENR F=LINGT-P1*W1-P2*W2-P3*W3-P4*W4-P5*W5
 |_STAT P1 P2 P3 P4 P5

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|-------------|-------------|---------|---------|
| P1 | 80 | 2.7057 | 0.13890 | 0.19294E-01 | 2.3609 | 3.0910 |
| P2 | 80 | 3.3008 | 0.13224 | 0.17487E-01 | 3.0397 | 3.6712 |
| P3 | 80 | 1.1711 | 0.58925E-01 | 0.34721E-02 | 1.0296 | 1.3350 |
| P4 | 80 | 2.7404 | 0.12102 | 0.14646E-01 | 2.3795 | 2.9653 |
| P5 | 80 | 3.0147 | 0.82167E-01 | 0.67514E-02 | 2.8273 | 3.1864 |

|_STAT W1 W2 W3 W4 W5

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|-------------|-------------|-------------|-------------|------------|
| W1 | 80 | 0.15468E-01 | 0.36618E-02 | 0.13409E-04 | 0.58000E-02 | 0.2370E-01 |
| W2 | 80 | 0.95506E-01 | 0.47001E-01 | 0.22091E-02 | 0.10900E-01 | 0.20100 |
| W3 | 80 | 0.72350 | 0.87774E-01 | 0.77043E-02 | 0.52640 | 0.90030 |
| W4 | 80 | 0.14462 | 0.51775E-01 | 0.26806E-02 | 0.30500E-01 | 0.26560 |
| W5 | 80 | 0.20904E-01 | 0.78543E-02 | 0.61690E-04 | 0.84000E-02 | 0.4790E-01 |

|_STAT LINGT

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|-------|----|--------|---------|-------------|---------|---------|
| LINGT | 80 | 9.2579 | 0.16984 | 0.28846E-01 | 8.8327 | 9.5887 |

|_STAT F

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|---------|-------------|---------|---------|
| F | 80 | 7.5939 | 0.13574 | 0.18426E-01 | 7.2576 | 7.8204 |

|_OLS W1 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 24 CURRENT PAR= 305
 OLS ESTIMATION

80 OBSERVATIONS DEPENDENT VARIABLE = W1
 ...NOTE...SAMPLE RANGE SET TO: 1, 80

R-SQUARE = 0.4130 R-SQUARE ADJUSTED = 0.3375
 VARIANCE OF THE ESTIMATE = 0.88838E-05
 STANDARD ERROR OF THE ESTIMATE = 0.29806E-02
 MEAN OF DEPENDENT VARIABLE = 0.15468E-01
 LOG OF THE LIKELIHOOD FUNCTION = 357.077

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)

AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.99943E-05
(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
AKAIKE (1973) INFORMATION CRITERION- AIC = -11.515
SCHWARZ (1978) CRITERION-SC = -11.217

| ANALYSIS OF VARIANCE - FROM MEAN | | | | |
|----------------------------------|-------------|-----|-------------|-------|
| | SS | DF | MS | F |
| REGRESSION | 0.43745E-03 | 9. | 0.48606E-04 | 5.471 |
| ERROR | 0.62187E-03 | 70. | 0.88838E-05 | |
| TOTAL | 0.10593E-02 | 79. | 0.13409E-04 | |

| ANALYSIS OF VARIANCE - FROM ZERO | | | | |
|----------------------------------|-------------|-----|-------------|---------|
| | SS | DF | MS | F |
| REGRESSION | 0.19577E-01 | 10. | 0.19577E-02 | 220.367 |
| ERROR | 0.62187E-03 | 70. | 0.88838E-05 | |
| TOTAL | 0.20199E-01 | 80. | 0.25249E-03 | |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | 0.10554E-01 | 0.25858E-02 | 4.0815 | 0.4384 | 0.40034 | 1.8462 |
| P2 | -0.72702E-02 | 0.28692E-02 | -2.5338 | -0.2898 | -0.26255 | -1.5515 |
| P3 | -0.64215E-02 | 0.61948E-02 | -1.0366 | -0.1230 | -0.10333 | -0.48621 |
| P4 | -0.20930E-02 | 0.39914E-02 | -0.52437 | -0.0626 | -0.69172E-01 | -0.37082 |
| P5 | 0.30036E-02 | 0.60588E-02 | 0.49574 | 0.0591 | 0.67397E-01 | 0.58541 |
| F | -0.10371E-01 | 0.32960E-02 | -3.1466 | -0.3520 | -0.38446 | -5.0918 |
| II | -0.66674E-03 | 0.11253E-02 | -0.59250 | -0.0706 | -0.80618E-01 | -0.1132E-01 |
| III | -0.10327E-02 | 0.10357E-02 | -0.99706 | -0.1183 | -0.12288 | -0.1669E-01 |
| IV | -0.35148E-02 | 0.98549E-03 | -3.5666 | -0.3921 | -0.40335 | -0.5113E-01 |
| CONSTANT | 0.95093E-01 | 0.29704E-01 | 3.2014 | 0.3574 | 0.00000E+00 | 6.1479 |

DURBIN-WATSON = 1.1428 VON NEUMAN RATIO = 1.1573 RHO = 0.42714
RESIDUAL SUM = 0.23436E-14 RESIDUAL VARIANCE = 0.88838E-05
SUM OF ABSOLUTE ERRORS= 0.17209
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.4130
RUNS TEST: 33 RUNS, 39 POSITIVE, 41 NEGATIVE, NORMAL STATISTIC = -1.7958
COEFFICIENT OF SKEWNESS = 0.1684 WITH STANDARD DEVIATION OF 0.2689
COEFFICIENT OF EXCESS KURTOSIS = 0.7292 WITH STANDARD DEVIATION OF 0.5318

GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
OBSERVED .0.0 0.0 5.0 1.0 1.0 11.0 16.0 12.0 15.0 10.0 4.0 2.0 1.0 1.0
1.0
EXPECTED 0.4 0.7 1.8 3.6 6.2 9.2 11.7 12.7 11.7 9.2 6.2 3.6 1.8 0.7
0.4
CHI-SQUARE = 19.2262 WITH 3 DEGREES OF FREEDOM

|_OLS W2 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 24 CURRENT PAR= 305
OLS ESTIMATION
80 OBSERVATIONS DEPENDENT VARIABLE = W2
...NOTE...SAMPLE RANGE SET TO: 1, 80

R-SQUARE = 0.5576 R-SQUARE ADJUSTED = 0.5007
VARIANCE OF THE ESTIMATE = 0.11030E-02
STANDARD ERROR OF THE ESTIMATE = 0.33211E-01

MEAN OF DEPENDENT VARIABLE = 0.95506E-01
 LOG OF THE LIKELIHOOD FUNCTION = 164.216

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.12409E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.6933
 SCHWARZ(1978) CRITERION-SC = -6.3955

| ANALYSIS OF VARIANCE - FROM MEAN | | | | |
|----------------------------------|-------------|-----|-------------|-------|
| | SS | DF | MS | F |
| REGRESSION | 0.97309E-01 | 9. | 0.10812E-01 | 9.803 |
| ERROR | 0.77209E-01 | 70. | 0.11030E-02 | |
| TOTAL | 0.17452 | 79. | 0.22091E-02 | |

| ANALYSIS OF VARIANCE - FROM ZERO | | | | |
|----------------------------------|-------------|-----|-------------|--------|
| | SS | DF | MS | F |
| REGRESSION | 0.82702 | 10. | 0.82702E-01 | 74.981 |
| ERROR | 0.77209E-01 | 70. | 0.11030E-02 | |
| TOTAL | 0.90423 | 80. | 0.11303E-01 | |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | -0.26798E-02 | 0.28812E-01 | -0.93009E-01 | -0.0111 | -0.79198E-02 | -0.75919E-01 |
| P2 | 0.27396E-01 | 0.31971E-01 | 0.85691 | 0.1019 | 0.77080E-01 | 0.94685 |
| P3 | -0.48606E-01 | 0.69026E-01 | -0.70416 | -0.0839 | -0.60937E-01 | -0.59603 |
| P4 | 0.50619E-01 | 0.44474E-01 | 1.1382 | 0.1348 | 0.13034 | 1.4525 |
| P5 | -0.11519 | 0.67511E-01 | -1.7062 | -0.1998 | -0.20137 | -3.6359 |
| F | -0.10142 | 0.36726E-01 | -2.7616 | -0.3134 | -0.29291 | -8.0642 |
| II | 0.33370E-01 | 0.12539E-01 | 2.6613 | 0.3031 | 0.31436 | 0.9172E-01 |
| III | 0.51509E-01 | 0.11540E-01 | 4.4633 | 0.4707 | 0.47754 | 0.13483 |
| IV | 0.90366E-01 | 0.10981E-01 | 8.2294 | 0.7012 | 0.80793 | 0.21289 |
| CONSTANT | 1.0060 | 0.33098 | 3.0395 | 0.3415 | 0.00000E+00 | 10.533 |

DURBIN-WATSON = 2.3320 VON NEUMAN RATIO = 2.3615 RHO = -0.19478
 RESIDUAL SUM = 0.69320E-14 RESIDUAL VARIANCE = 0.11030E-02
 SUM OF ABSOLUTE ERRORS= 1.9530
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.5576
 RUNS TEST: 45 RUNS, 40 POSITIVE, 40 NEGATIVE, NORMAL STATISTIC = 0.9001
 COEFFICIENT OF SKEWNESS = 0.4773 WITH STANDARD DEVIATION OF 0.2689
 COEFFICIENT OF EXCESS KURTOSIS = 0.3627 WITH STANDARD DEVIATION OF 0.5318

GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
 OBSERVED 0.0 1.0 0.0 1.0 8.0 12.0 14.0 15.0 12.0 6.0 3.0 3.0 4.0 1.0
 0.0
 EXPECTED 0.4 0.7 1.8 3.6 6.2 9.2 11.7 12.7 11.7 9.2 6.2 3.6 1.8 0.7
 0.4
 CHI-SQUARE = 12.5330 WITH 3 DEGREES OF FREEDOM

|_OLS W3 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 24 CURRENT PAR= 305
 OLS ESTIMATION

80 OBSERVATIONS DEPENDENT VARIABLE = W3
 ...NOTE..SAMPLE RANGE SET TO: 1, 80

R-SQUARE = 0.8032 R-SQUARE ADJUSTED = 0.7778
 VARIANCE OF THE ESTIMATE = 0.17115E-02
 STANDARD ERROR OF THE ESTIMATE = 0.41371E-01
 MEAN OF DEPENDENT VARIABLE = 0.72350
 LOG OF THE LIKELIHOOD FUNCTION = 146.641

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.19255E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.2539
 SCHWARZ(1978) CRITERION-SC = -5.9561

| ANALYSIS OF VARIANCE - FROM MEAN | | | | |
|----------------------------------|---------|-----|-------------|--------|
| | SS | DF | MS | F |
| REGRESSION | 0.48883 | 9. | 0.54315E-01 | 31.735 |
| ERROR | 0.11981 | 70. | 0.17115E-02 | |
| TOTAL | 0.60864 | 79. | 0.77043E-02 | |

| ANALYSIS OF VARIANCE - FROM ZERO | | | | |
|----------------------------------|---------|-----|-------------|----------|
| | SS | DF | MS | F |
| REGRESSION | 42.366 | 10. | 4.2366 | 2475.294 |
| ERROR | 0.11981 | 70. | 0.17115E-02 | |
| TOTAL | 42.485 | 80. | 0.53107 | |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO | 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------|-------|---------------|--------------------------|---------------------|
| P1 | 0.92402E-02 | 0.35891E-01 | 0.25745 | | 0.0308 | 0.14623E-01 | 0.34555E-01 |
| P2 | 0.78524E-01 | 0.39826E-01 | 1.9717 | | 0.2294 | 0.11830 | 0.35825 |
| P3 | 0.79605E-01 | 0.85985E-01 | 0.92580 | | 0.1100 | 0.53441E-01 | 0.12886 |
| P4 | -0.11523 | 0.55401E-01 | -2.0799 | | -0.2413 | -0.15887 | -0.43645 |
| P5 | 0.12221 | 0.84097E-01 | 1.4532 | | 0.1711 | 0.11441 | 0.50924 |
| F | 0.18351 | 0.45749E-01 | 4.0113 | | 0.4323 | 0.28380 | 1.9261 |
| II | -0.64522E-01 | 0.15619E-01 | -4.1309 | | -0.4427 | -0.32548 | -0.23410E-01 |
| III | -0.10473 | 0.14376E-01 | -7.2850 | | -0.6567 | -0.51991 | -0.36188E-01 |
| IV | -0.19731 | 0.13679E-01 | -14.424 | | -0.8650 | -0.94459 | -0.61359E-01 |
| CONSTANT | -1.0126 | 0.41229 | -2.4561 | | -0.2817 | 0.00000E+00 | -1.3996 |

DURBIN-WATSON = 2.4872 VON NEUMAN RATIO = 2.5187 RHO = -0.24620
 RESIDUAL SUM = -0.67255E-14 RESIDUAL VARIANCE = 0.17115E-02
 SUM OF ABSOLUTE ERRORS= 2.5054
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.8032
 RUNS TEST: 47 RUNS, 42 POSITIVE, 38 NEGATIVE, NORMAL STATISTIC = 1.3762
 COEFFICIENT OF SKEWNESS = -0.0900 WITH STANDARD DEVIATION OF 0.2689
 COEFFICIENT OF EXCESS KURTOSIS = 0.3225 WITH STANDARD DEVIATION OF 0.5318

GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
 OBSERVED 0.0 1.0 2.0 3.0 8.0 6.0 13.0 8.0 16.0 13.0 8.0 1.0 0.0 0.0 1.0
 EXPECTED 0.4 0.7 1.8 3.6 6.2 9.2 11.7 12.7 11.7 9.2 6.2 3.6 1.8 0.7 0.4
 CHI-SQUARE = 13.1128 WITH 3 DEGREES OF FREEDOM

|_OLS W4 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 24 CURRENT PAR= 305
 OLS ESTIMATION
 80 OBSERVATIONS DEPENDENT VARIABLE = W4

...NOTE..SAMPLE RANGE SET TO: 1, 80

R-SQUARE = 0.6575 R-SQUARE ADJUSTED = 0.6134
VARIANCE OF THE ESTIMATE = 0.10363E-02
STANDARD ERROR OF THE ESTIMATE = 0.32192E-01
MEAN OF DEPENDENT VARIABLE = 0.14462
LOG OF THE LIKELIHOOD FUNCTION = 166.710

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.11658E-02
(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
AKAIKE (1973) INFORMATION CRITERION- AIC = -6.7556
SCHWARZ(1978) CRITERION-SC = -6.4579

| ANALYSIS OF VARIANCE - FROM MEAN | | | | |
|----------------------------------|-------------|-----|-------------|--------|
| | SS | DF | MS | F |
| REGRESSION | 0.13923 | 9. | 0.15470E-01 | 14.928 |
| ERROR | 0.72541E-01 | 70. | 0.10363E-02 | |
| TOTAL | 0.21177 | 79. | 0.26806E-02 | |

| ANALYSIS OF VARIANCE - FROM ZERO | | | | |
|----------------------------------|-------------|-----|-------------|---------|
| | SS | DF | MS | F |
| REGRESSION | 1.8125 | 10. | 0.18125 | 174.896 |
| ERROR | 0.72541E-01 | 70. | 0.10363E-02 | |
| TOTAL | 1.8850 | 80. | 0.23562E-01 | |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | -0.17843E-01 | 0.27928E-01 | -0.63888 | -0.0761 | -0.47869E-01 | -0.33381 |
| P2 | -0.84200E-01 | 0.30989E-01 | -2.7171 | -0.3089 | -0.21506 | -1.9218 |
| P3 | -0.32922E-01 | 0.66907E-01 | -0.49205 | -0.0587 | -0.37468E-01 | -0.26660 |
| P4 | 0.61164E-01 | 0.43109E-01 | 1.4188 | 0.1672 | 0.14297 | 1.1590 |
| P5 | -0.34919E-01 | 0.65438E-01 | -0.53362 | -0.0637 | -0.55416E-01 | -0.72790 |
| F | -0.46521E-01 | 0.35598E-01 | -1.3068 | -0.1543 | -0.12197 | -2.4428 |
| II | 0.28860E-01 | 0.12154E-01 | 2.3746 | 0.2730 | 0.24681 | 0.52384E-01 |
| III | 0.50309E-01 | 0.11186E-01 | 4.4975 | 0.4735 | 0.42341 | 0.86967E-01 |
| IV | 0.10465 | 0.10644E-01 | 9.8318 | 0.7616 | 0.84935 | 0.16281 |
| CONSTANT | 0.75661 | 0.32082 | 2.3584 | 0.2713 | 0.00000E+00 | 5.2317 |

DURBIN-WATSON = 1.6198 VON NEUMAN RATIO = 1.6403 RHO = 0.18115
RESIDUAL SUM = 0.70083E-15 RESIDUAL VARIANCE = 0.10363E-02
SUM OF ABSOLUTE ERRORS= 1.6273
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.6575
RUNS TEST: 33 RUNS, 37 POSITIVE, 43 NEGATIVE, NORMAL STATISTIC = -1.7597
COEFFICIENT OF SKEWNESS = -2.1881 WITH STANDARD DEVIATION OF 0.2689
COEFFICIENT OF EXCESS KURTOSIS = 13.2446 WITH STANDARD DEVIATION OF 0.5318

GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
OBSERVED 1.0 0.0 0.0 0.0 2.0 14.0 14.0 19.0 13.0 8.0 4.0 4.0 1.0 0.0 0.0
EXPECTED 0.4 0.7 1.8 3.6 6.2 9.2 11.7 12.7 11.7 9.2 6.2 3.6 1.8 0.7 0.4
CHI-SQUARE = 18.6222 WITH 3 DEGREES OF FREEDOM

|_OLS W5 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 24 CURRENT PAR= 305
OLS ESTIMATION
80 OBSERVATIONS DEPENDENT VARIABLE = W5
...NOTE..SAMPLE RANGE SET TO: 1, 80

R-SQUARE = 0.4132 R-SQUARE ADJUSTED = 0.3378
 VARIANCE OF THE ESTIMATE = 0.40854E-04
 STANDARD ERROR OF THE ESTIMATE = 0.63917E-02
 MEAN OF DEPENDENT VARIABLE = 0.20904E-01
 LOG OF THE LIKELIHOOD FUNCTION = 296.047

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.45960E-04
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -9.9890
 SCHWARZ(1978) CRITERION-SC = -9.6913

| ANALYSIS OF VARIANCE - FROM MEAN | | | | |
|----------------------------------|-------------|-----|-------------|-------|
| | SS | DF | MS | F |
| REGRESSION | 0.20138E-02 | 9. | 0.22375E-03 | 5.477 |
| ERROR | 0.28597E-02 | 70. | 0.40854E-04 | |
| TOTAL | 0.48735E-02 | 79. | 0.61690E-04 | |

| ANALYSIS OF VARIANCE - FROM ZERO | | | | |
|----------------------------------|-------------|-----|-------------|--------|
| | SS | DF | MS | F |
| REGRESSION | 0.36971E-01 | 10. | 0.36971E-02 | 90.497 |
| ERROR | 0.28597E-02 | 70. | 0.40854E-04 | |
| TOTAL | 0.39831E-01 | 80. | 0.49789E-03 | |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | 0.66626E-03 | 0.55451E-02 | 0.12015 | 0.0144 | 0.11783E-01 | 0.86238E-01 |
| P2 | -0.14368E-01 | 0.61529E-02 | -2.3351 | -0.2688 | -0.24191 | -2.2688 |
| P3 | 0.84259E-02 | 0.13285E-01 | 0.63426 | 0.0756 | 0.63213E-01 | 0.47206 |
| P4 | 0.54826E-02 | 0.85593E-02 | 0.64055 | 0.0763 | 0.84478E-01 | 0.71876 |
| P5 | 0.24774E-01 | 0.12993E-01 | 1.9068 | 0.2222 | 0.25917 | 3.5729 |
| F | -0.25181E-01 | 0.70681E-02 | -3.5626 | -0.3918 | -0.43519 | -9.1477 |
| II | 0.29549E-02 | 0.24132E-02 | 1.2245 | 0.1448 | 0.16657 | 0.37106E-01 |
| III | 0.39444E-02 | 0.22210E-02 | 1.7760 | 0.2076 | 0.21883 | 0.47174E-01 |
| IV | 0.58190E-02 | 0.21133E-02 | 2.7535 | 0.3126 | 0.31133 | 0.62634E-01 |
| CONSTANT | 0.15510 | 0.63698E-01 | 2.4349 | 0.2794 | 0.00000E+00 | 7.4196 |

DURBIN-WATSON = 1.0903 VON NEUMAN RATIO = 1.1041 RHO = 0.43784
 RESIDUAL SUM = 0.68652E-14 RESIDUAL VARIANCE = 0.40854E-04
 SUM OF ABSOLUTE ERRORS= 0.38868
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.4132
 RUNS TEST: 32 RUNS, 34 POSITIVE, 46 NEGATIVE, NORMAL STATISTIC = -1.8653
 COEFFICIENT OF SKEWNESS = 0.6930 WITH STANDARD DEVIATION OF 0.2689
 COEFFICIENT OF EXCESS KURTOSIS = 0.4370 WITH STANDARD DEVIATION OF 0.5318

GOODNESS OF FIT TEST FOR NORMALITY OF RESIDUALS - 15 GROUPS
 OBSERVED 0.0 0.0 0.0 3.0 5.0 17.0 14.0 11.0 11.0 6.0 6.0 5.0 0.0 0.0 2.0
 EXPECTED 0.4 0.7 1.8 3.6 6.2 9.2 11.7 12.7 11.7 9.2 6.2 3.6 1.8 0.7 0.4
 CHI-SQUARE = 21.6375 WITH 3 DEGREES OF FREEDOM

B4. MODELO SIN RESTRINGIR Y CORREGIDO POR AUTOCORRELACIÓN

UNIT 6 IS NOW ASSIGNED TO: a:WSAUTO
 |_SAMPLE 1 80 |_READ MES PT PR PC PV PG W1 W2 W3 W4 W5 INGT I II III IV 16
 VARIABLES AND 80 OBSERVATIONS STARTING AT OBS 1

|_GENR P1=LOG(P)
 |_GENR P2=LOG(PR)
 |_GENR P3=LOG(PC)
 |_GENR P4=LOG(PV)
 |_GENR P5=LOG(PG)
 |_GENR LINGT=LOG(INGT)
 |_GENR F=LINGT-P1*W1-P2*W2-P3*W3-P4*W4-P5*W5
 |_STAT P1 P2 P3 P4 P5

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|-------------|-------------|---------|---------|
| P1 | 80 | 2.7057 | 0.13890 | 0.19294E-01 | 2.3609 | 3.0910 |
| P2 | 80 | 3.3008 | 0.13224 | 0.17487E-01 | 3.0397 | 3.6712 |
| P3 | 80 | 1.1711 | 0.58925E-01 | 0.34721E-02 | 1.0296 | 1.3350 |
| P4 | 80 | 2.7404 | 0.12102 | 0.14646E-01 | 2.3795 | 2.9653 |
| P5 | 80 | 3.0147 | 0.82167E-01 | 0.67514E-02 | 2.8273 | 3.1864 |

|_STAT W1 W2 W3 W4 W5

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|-------------|-------------|-------------|-------------|-------------|
| W1 | 80 | 0.15468E-01 | 0.36618E-02 | 0.13409E-04 | 0.58000E-02 | 0.23700E-01 |
| W2 | 80 | 0.95506E-01 | 0.47001E-01 | 0.22091E-02 | 0.10900E-01 | 0.20100 |
| W3 | 80 | 0.72350 | 0.87774E-01 | 0.77043E-02 | 0.52640 | 0.90030 |
| W4 | 80 | 0.14462 | 0.51775E-01 | 0.26806E-02 | 0.30500E-01 | 0.26560 |
| W5 | 80 | 0.20904E-01 | 0.78543E-02 | 0.61690E-04 | 0.84000E-02 | 0.47900E-01 |

|_STAT LINGT

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|-------|----|--------|---------|-------------|---------|---------|
| LINGT | 80 | 9.2579 | 0.16984 | 0.28846E-01 | 8.8327 | 9.5887 |

|_STAT F

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|---------|-------------|---------|---------|
| F | 80 | 7.5939 | 0.13574 | 0.18426E-01 | 7.2576 | 7.8204 |

|_AUTO W1 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 26 CURRENT PAR= 208

DEPENDENT VARIABLE = W1

..NOTE R-SQUARE, ANOVA, RESIDUALS DONE ON ORIGINAL VARS

LEAST SQUARES ESTIMATION 80 OBSERVATIONS
 BY COCHRANE-ORCUTT TYPE PROCEDURE WITH CONVERGENCE = 0.00100

| ITERATION | RHO | LOG L.F. | SSE |
|-----------|---------|----------|-------------|
| 1 | 0.00000 | 357.077 | 0.62187E-03 |
| 2 | 0.42714 | 366.655 | 0.48822E-03 |
| 3 | 0.51159 | 367.095 | 0.48227E-03 |
| 4 | 0.53419 | 367.115 | 0.48183E-03 |
| 5 | 0.54044 | 367.113 | 0.48179E-03 |
| 6 | 0.54218 | 367.112 | 0.48179E-03 |
| 7 | 0.54267 | 367.112 | 0.48179E-03 |

LOG L.F. = 367.112 AT RHO = 0.54267

ASYMPTOTIC ESTIMATE

0.00882 0.09391 VARIANCE ST.ERROR T-RATIO RHO 0.54267
 0.4867 5.77869 R-SQUARE = 0.5452 R-SQUARE ADJUSTED =
 VARIANCE OF THE ESTIMATE = 0.68827E-05
 STANDARD ERROR OF THE ESTIMATE = 0.26235E-02
 MEAN OF DEPENDENT VARIABLE = 0.15468E-01
 LOG OF THE LIKELIHOOD FUNCTION = 367.112

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.77431E-05
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -11.770
 SCHWARZ(1978) CRITERION-SC = -11.472

ANALYSIS OF VARIANCE - FROM MEAN

| | SS | DF | MS |
|------------|-------------|-----|-------------|
| REGRESSION | 0.57753E-03 | 9. | 0.64170E-04 |
| ERROR | 0.48179E-03 | 70. | 0.68827E-05 |
| TOTAL | 0.10593E-02 | 79. | 0.13409E-04 |

ANALYSIS OF VARIANCE - FROM ZERO

| | SS | DF | MS |
|------------|-------------|-----|-------------|
| REGRESSION | 0.19717E-01 | 10. | 0.19717E-02 |
| ERROR | 0.48179E-03 | 70. | 0.68827E-05 |
| TOTAL | 0.20199E-01 | 80. | 0.25249E-03 |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|----------|---------------|--------------------------|---------------------|
| P1 | 0.10911E-01 | 0.22994E-02 | 4.7450 | 0.4933 | 0.41388 | 1.9086 |
| P2 | -0.21005E-02 | 0.34296E-02 | -0.61246 | -0.0730 | -0.75854E-01 | -0.44825 |
| P3 | -0.13475E-01 | 0.69217E-02 | -1.9468 | -0.2266 | -0.21684 | -1.0203 |
| P4 | -0.89740E-03 | 0.39942E-02 | -0.22468 | -0.0268 | -0.29659E-01 | -0.15900 |
| P5 | -0.11319E-02 | 0.65724E-02 | -0.17222 | -0.0206 | -0.25398E-01 | -0.22061 |
| F | -0.66059E-02 | 0.30779E-02 | -2.1462 | -0.2485 | -0.24488 | -3.2432 |
| II | -0.19173E-02 | 0.10509E-02 | -1.8245 | -0.2131 | -0.23183 | -0.32539E-01 |
| III | -0.21997E-02 | 0.11814E-02 | -1.8620 | -0.2172 | -0.26176 | -0.35554E-01 |
| IV | -0.34518E-02 | 0.10713E-02 | -3.2220 | -0.3594 | -0.39612 | -0.50213E-01 |
| CONSTANT | 0.66549E-01 | 0.32751E-01 | 2.0320 | 0.2360 | 0.00000E+00 | 4.3025 |

DURBIN-WATSON = 2.0755 VON NEUMAN RATIO = 2.1017 RHO = -0.03795
 RESIDUAL SUM = -0.11424E-03 RESIDUAL VARIANCE = 0.68829E-05
 SUM OF ABSOLUTE ERRORS = 0.15128
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.5452
 RUNS TEST: 35 RUNS, 37 POSITIVE, 43 NEGATIVE, NORMAL STATISTIC = -1.3070

|_AUTO W2 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 26 CURRENT PAR= 208

DEPENDENT VARIABLE = W2
 ..NOTE R-SQUARE, ANOVA, RESIDUALS DONE ON ORIGINAL VARS

LEAST SQUARES ESTIMATION 80 OBSERVATIONS
 BY COCHRANE-ORCUTT TYPE PROCEDURE WITH CONVERGENCE = 0.00100

| ITERATION | RHO | LOG L.F. | SSE |
|-----------|----------|----------|-------------|
| 1 | 0.00000 | 164.216 | 0.77209E-01 |
| 2 | -0.19478 | 165.912 | 0.73967E-01 |
| 3 | -0.21372 | 165.931 | 0.73925E-01 |
| 4 | -0.21488 | 165.931 | 0.73924E-01 |

5 -0.21495 165.931 0.73924E-01
 LOG L.F. = 165.931 AT RHO = -0.21495

 ASYMPTOTIC ESTIMATE
 VARIANCE ST.ERROR T-RATIO
 RHO -0.21495 0.01192 0.10919 -1.96860

R-SQUARE = 0.5764 R-SQUARE ADJUSTED = 0.5220
 VARIANCE OF THE ESTIMATE = 0.10561E-02
 STANDARD ERROR OF THE ESTIMATE = 0.32497E-01
 MEAN OF DEPENDENT VARIABLE = 0.95506E-01
 LOG OF THE LIKELIHOOD FUNCTION = 165.931

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.11881E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.7367
 SCHWARZ (1978) CRITERION-SC = -6.4390

 ANALYSIS OF VARIANCE - FROM MEAN
 SS DF MS
 REGRESSION 0.10059 9. 0.11177E-01
 ERROR 0.73924E-01 70. 0.10561E-02
 TOTAL 0.17452 79. 0.22091E-02

 ANALYSIS OF VARIANCE - FROM ZERO
 SS DF MS
 REGRESSION 0.83031 10. 0.83031E-01
 ERROR 0.73924E-01 70. 0.10561E-02
 TOTAL 0.90423 80. 0.11303E-01

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | 0.43065E-02 | 0.27298E-01 | 0.15776 | 0.0189 | 0.12727E-01 | 0.12200 |
| P2 | 0.24020E-01 | 0.27601E-01 | 0.87026 | 0.1035 | 0.67582E-01 | 0.83017 |
| P3 | -0.46472E-01 | 0.59513E-01 | -0.78088 | -0.0929 | -0.58262E-01 | -0.56986 |
| P4 | 0.61600E-01 | 0.39409E-01 | 1.5631 | 0.1836 | 0.15861 | 1.7675 |
| P5 | -0.11398 | 0.59322E-01 | -1.9214 | -0.2238 | -0.19926 | -3.5978 |
| F | -0.95069E-01 | 0.34555E-01 | -2.7513 | -0.3124 | -0.27457 | -7.5591 |
| II | 0.34102E-01 | 0.11455E-01 | 2.9771 | 0.3352 | 0.32125 | 0.93728E-01 |
| III | 0.50726E-01 | 0.10027E-01 | 5.0588 | 0.5174 | 0.47028 | 0.13278 |
| IV | 0.92670E-01 | 0.95518E-02 | 9.7019 | 0.7573 | 0.82853 | 0.21832 |
| CONSTANT | 0.91343 | 0.29490 | 3.0974 | 0.3472 | 0.00000E+00 | 9.5641 |

DURBIN-WATSON = 2.0821 VON NEUMAN RATIO = 2.1085 RHO = -0.06538
 RESIDUAL SUM = -0.86623E-02 RESIDUAL VARIANCE = 0.10571E-02
 SUM OF ABSOLUTE ERRORS= 1.8568
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.5760
 RUNS TEST: 43 RUNS, 38 POSITIVE, 42 NEGATIVE, NORMAL STATISTIC = 0.4738

{_AUTO W3 P1 P2 P3 P4 P5 F II III IV/RSTAT

REQUIRED MEMORY IS PAR= 26 CURRENT PAR= 208

DEPENDENT VARIABLE = W3
 ..NOTE R-SQUARE,ANOVA,RESIDUALS DONE ON ORIGINAL VARS

LEAST SQUARES ESTIMATION 80 OBSERVATIONS
 BY COCHRANE-ORCUTT TYPE PROCEDURE WITH CONVERGENCE = 0.00100

| ITERATION | RHO | LOG L.F. | SSE |
|-----------|----------|----------|---------|
| 1 | 0.00000 | 146.641 | 0.11981 |
| 2 | -0.24620 | 149.531 | 0.11137 |
| 3 | -0.28051 | 149.578 | 0.11121 |
| 4 | -0.28345 | 149.578 | 0.11121 |
| 5 | -0.28368 | 149.578 | 0.11121 |

LOG L.F. = 149.578 AT RHO = -0.28368

| | ASYMPTOTIC ESTIMATE | VARIANCE | ST.ERROR | T-RATIO |
|-----|---------------------|----------|----------|----------|
| RHO | -0.28368 | 0.01149 | 0.10721 | -2.64606 |

R-SQUARE = 0.8173 R-SQUARE ADJUSTED = 0.7938
 VARIANCE OF THE ESTIMATE = 0.15887E-02
 STANDARD ERROR OF THE ESTIMATE = 0.39858E-01
 MEAN OF DEPENDENT VARIABLE = 0.72350
 LOG OF THE LIKELIHOOD FUNCTION = 149.578

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.17873E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.3284
 SCHWARZ(1978) CRITERION-SC = -6.0306

| ANALYSIS OF VARIANCE - FROM MEAN | | | |
|----------------------------------|---------|-----|-------------|
| | SS | DF | MS |
| REGRESSION | 0.49743 | 9. | 0.55270E-01 |
| ERROR | 0.11121 | 70. | 0.15887E-02 |
| TOTAL | 0.60864 | 79. | 0.77043E-02 |

| ANALYSIS OF VARIANCE - FROM ZERO | | | |
|----------------------------------|---------|-----|-------------|
| | SS | DF | MS |
| REGRESSION | 42.374 | 10. | 4.2374 |
| ERROR | 0.11121 | 70. | 0.15887E-02 |
| TOTAL | 42.485 | 80. | 0.53107 |

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 70 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | -0.11635E-01 | 0.32985E-01 | -0.35274 | -0.0421 | -0.18412E-01 | -0.43511E-01 |
| P2 | 0.92268E-01 | 0.32552E-01 | 2.8345 | 0.3209 | 0.13901 | 0.42095 |
| P3 | 0.84647E-01 | 0.70069E-01 | 1.2081 | 0.1429 | 0.56825E-01 | 0.13702 |
| P4 | -0.13691 | 0.46684E-01 | -2.9326 | -0.3308 | -0.18877 | -0.51856 |
| P5 | 0.12574 | 0.70168E-01 | 1.7920 | 0.2094 | 0.11771 | 0.52394 |
| F | 0.18619 | 0.41694E-01 | 4.4657 | 0.4709 | 0.28794 | 1.9542 |
| II | -0.68866E-01 | 0.13690E-01 | -5.0304 | -0.5153 | -0.34739 | -0.24986E-01 |
| III | -0.10781 | 0.11849E-01 | -9.0982 | -0.7361 | -0.53519 | -0.37251E-01 |
| IV | -0.20155 | 0.11270E-01 | -17.885 | -0.9058 | -0.96494 | -0.62681E-01 |
| CONSTANT | -0.97618 | 0.35084 | -2.7824 | -0.3156 | 0.00000E+00 | -1.3492 |

DURBIN-WATSON = 2.1446 VON NEUMAN RATIO = 2.1717 RHO = -0.07406
 RESIDUAL SUM = 0.46273E-02 RESIDUAL VARIANCE = 0.15890E-02
 SUM OF ABSOLUTE ERRORS= 2.3507
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.8173
 RUNS TEST: 45 RUNS, 45 POSITIVE, 35 NEGATIVE, NORMAL STATISTIC = 1.0575

|_AUTO W4 P1 P2 P3 P4 P5 F II III IV/RSTAT



A1. LAS PREFERENCIAS Y LA DEMANDA DEL CONSUMIDOR

La conducta del consumidor es presentada en términos de las preferencias y de las posibilidades de consumo. Inicialmente, se puede suponer la existencia de una función de utilidad y examinar sus propiedades. Pero si se desea conocer exactamente lo que implica tal supuesto, tenemos que encontrar un conjunto de axiomas de selección cuya aceptación implicaría admitir la existencia de una función de utilidad.

Brevemente se describirán los axiomas de selección. Las compras individuales de bienes son los objetos de selección. Denotaremos q como un vector o canasta de bienes. El símbolo \geq significa "es tan buena como", los superíndices son usados para distinguir entre vectores.

Axioma 1. Reflexividad. Para cualquier vector q , $q \geq q$.

Cada canasta de bienes es tan buena como ella misma.

Axioma 2. Comparación. Para cualesquiera dos canastas q^1 y q^2 , $q^1 \geq q^2$, o $q^2 \geq q^1$.

Cualesquiera dos canastas pueden ser comparadas y ordenadas sus preferencias. Si $q^1 \geq q^2$ y $q^2 \geq q^1$, entonces $q^1 \approx q^2$ lo cual significa que el consumidor está indiferente ante q^1 y q^2 .

Axioma 3. Transitividad o consistencia. Si $q^1 \geq q^2$ y $q^2 \geq q^3$, entonces $q^1 \geq q^3$.

Este axioma es el centro de la teoría de selección y tiene el mayor contenido empírico de los axiomas que responden por la existencia de las preferencias.

Los axiomas 1 a 3 definen un procedimiento en el conjunto de selección; así que con frecuencia se hace referencia a ellos simplemente como ordenamiento de preferencias.

Axioma 4. Continuidad. Para cualquier canasta q^1 , definimos $A(q^1)$ es "al menos tan bueno como el conjunto q^1 ", $B(q^1)$ es "no mejor que q^1 ". $A(q^1) = \{q/q \geq q^1\}$, $B(q^1) = \{q/q^1 \geq q\}$.

Esto significa que los subconjuntos $A(q^1)$ y $B(q^1)$ son cerrados, es decir contienen su propia frontera para cualquier q^1 en el conjunto de selección.

Axioma 5. No saciación. La función de utilidad denotada como $U(q)$ es no decreciente en cada uno de sus argumentos y para todo vector q en el conjunto de selección es decreciente en al menos uno de sus argumentos.

Axioma 6. Convexidad. Si $q^1 \geq q^0$, entonces para cualquier λ tal que $0 \leq \lambda \leq 1$, $\lambda q^1 + (1-\lambda)q^0 \geq q^0$. Esta es una manera formal de decir que las curvas de indiferencia son convexas al origen. Si q^1 y q^2 en la figura 2.1 están en la misma curva de indiferencia, cualquier combinación q^* de ambas es preferida.

Si combinamos las preferencias del consumidor con sus posibilidades de consumo, es decir con la restricción de presupuesto $x = \sum p_k q_k$, donde x es el ingreso de los individuos, P_k se refiere al precio de la canasta k y q_k es la canasta de bienes k ; el problema de selección se reduce al problema de maximización de utilidad:

$$\text{maximizar } U(q) \text{ sujeto a } \sum p_k q_k = x \quad (2.1)$$

La solución a este problema de maximización sería el sistema de funciones de demanda Marshallianas:

$$q_i = g_i(x, P) \quad (2.2)$$

El problema planteado en (2.1) puede ser resuelto aplicando cálculo diferencial:

$$L = U(q) + \lambda(x - \sum p_k q_k) \quad (2.3)$$

donde λ es el multiplicador de Lagrange y representa la utilidad marginal del dinero. Si $\lambda = 0$ la restricción no es efectiva. Las condiciones de primer orden para la maximización son:

$$\delta U(q) / \delta q_i = \lambda p_i \quad (2.4)$$

$$x = \sum p_k q_k \quad (2.5)$$

Condiciones de segundo orden:

$$\delta^2 U(q) / \delta^2 q_i = \delta^2 U(q) / \delta q_j \quad (2.6)$$

Existen $n+1$ ecuaciones en las $n+1$ incógnitas q y λ , y su solución cuando está existe, es el sistema de demandas Marshallianas representado por (2.2) para todo $i=1,2,\dots,n$. El problema de la maximización de utilidad puede ser reformulado, tal que los bienes seleccionados minimicen el gasto necesario para alcanzar el nivel de utilidad $U(q)$. El vector de bienes seleccionados sería el mismo en ambos casos.

Problema dual:

$$\text{Minimizar } x=p \cdot q \text{ sujeto a } U(q)=U \quad (2.7)$$

Las funciones de demanda obtenidas de la minimización de costos y denotadas como $h(U,P)$, son conocidas como funciones de demanda compensadas o Hicksianas. Debido a que la solución al problema original es exactamente igual al del problema dual se tiene que:

$$q_i = g_i(X,P) = h_i(u,P) \quad (2.8)$$

La función de costos $C(U,P)$ describe el costo mínimo necesario para alcanzar el nivel de utilidad U a los precios P , y es definida por la siguiente ecuación como:

$$C(U,P) = \sum P_k h_k(U,P) = X \quad (2.9)$$

Toda función de costos debe cumplir con las siguientes propiedades:

Propiedad 1. Homogeneidad. La función de costos es homogénea de grado uno en precios. Para cualquier escalar $\phi > 0$:

$$C(U, \phi P) = \phi C(U, P) \quad (2.10)$$

Lo que significa que si el precio de una canasta de bienes se duplica, es requerido que el gasto en tales bienes sea también duplicado para mantener a los individuos en un mismo nivel de utilidad.

Propiedad 2. La función de costo es **creciente en U, no decreciente en P y creciente en al menos un precio**. Esta propiedad es consecuencia del axioma de no saciación. Manteniendo constantes los precios, si el individuo desea obtener mayor utilidad del consumo de bienes, necesariamente tiene que gastar más en ellos. Si los precios se incrementan, el gasto se incrementa para mantener al individuo al menos tan bien como antes.

Propiedad 3. **Concavidad**. La función de costos es cóncava en precios. La concavidad implica que cuando los precios aumentan, los costos se incrementan no más que linealmente. Esto se debe a que el consumidor racional minimiza los costos, es decir reordena sus compras para sacar ventaja del cambio en los precios. (Ver figura 2.2).

Propiedad 4. **Continuidad**. La función de costos es continua en precios y la primera y segunda derivadas con respecto a P existen a menos que el vector de precios sea cero.

Propiedad 5. Las derivadas de la función de costo con respecto al precio son las **funciones de demanda Hicksianas**:

$$\delta C(U,P)/\delta P_i = h_i(U,P) = q_i \quad (2.10)$$

Esta propiedad es también conocida como el lema de Shephard.

A2. PROPIEDADES DE LAS FUNCIONES DE DEMANDA

Propiedad 1. **Aditividad.** El valor monetario total, tanto de la demanda Marshalliana como de la demanda Hicksiana, es el gasto total:

$$\sum P_k h_k (U, P) = \sum P_k g_k (X, P) = X \quad (2.11)$$

donde $h_k(U,P)$ se refiere a la demanda Hicksiana

$g_k(X,P)$ se refiere a la demanda Marshalliana

P_k =precio del bien k , para todo $k=1,2,\dots,n$.

Propiedad 2. **Homogeneidad.** Las demandas Hicksianas o compensadas son homogéneas de grado cero en precios, las demandas Marshallianas son homogéneas de grado cero en precios y en ingreso, es decir, para el escalar $\phi > 0$, se tiene que:

$$h_i (U, \phi P) = h_i (U, P) = g_i (\phi X, \phi P) = g_i (X, P). \quad (2.12)$$

donde de nuevo, $h_i C(U,P)$ se refiere a la demanda Hicksiana y $g_i (X,P)$ se refiere a la demanda Marshalliana. Las demandas Hicksianas son derivadas de una función homogénea de grado uno y por lo tanto son homogéneas de grado cero, esto es:

$$\delta C(U,P)/\delta P_i = h_i (U,P) = q_i \quad (2.13)$$

Propiedad 3. **Simetría.** Las derivadas precio cruzadas de las demandas Hicksianas son simétricas, para todo i diferente de j .

$$\delta h_i(U,P)/\delta P_j = \delta h_j (U, P)/\delta P_i \quad (2.14)$$

Si $h_i (U,P) = \delta C(U, P)/\delta P_i$, $\delta h_i / \delta P_j = \delta C / \delta P_j \delta P_i$. Similarmente, $\delta h_j / \delta P_i = \delta^2 C / \delta P_i \delta P_j$, así que la única diferencia entre los dos se halla en la doble diferenciación. La propiedad de simetría se deriva de la consistencia de las preferencias del consumidor, su interpretación esta directamente relacionada con la función de costo. Si la condición de simetría no se cumple,

significa que las decisiones de selección que realiza el consumidor son inconsistentes. Esta propiedad será ilustrada con el siguiente ejemplo: suponga que a un consumidor se le compensa con un peso sobre el precio por litro comprado de brandies, esta compensación incrementará el número de litros comprados de cerveza en exactamente la misma cantidad de litros extra comprados de brandies si la compensación de un peso se hubiera aplicado sobre el precio por litro de la cerveza.

Propiedad 4. Negatividad. La matriz $n \times n$ formada por los elementos $\delta h_j / \delta P_j$ es negativa semidefinida, y es la matriz de segundas derivadas de una función cóncava $C(U,P)$. Si llamamos S_{ij} a $\delta h_j / \delta P_j$, la matriz de estos elementos es S , mejor conocida como la matriz de sustitución de Slutsky o matriz de efectos compensados. Dicha matriz es simétrica y los elementos de la diagonal deberán ser negativos:

$$S_{ii} < 0 \quad (2.15)$$

Lo cual significa que un incremento en el precio cuando la utilidad se mantiene constante implica que disminuya la demanda por el bien cuyo precio aumentó, o al menos permanezca sin cambio. La expresión $S_{ii} < 0$ es mejor conocida como la “ley de la demanda” y establece que las funciones de demanda no pueden tener pendiente positiva.

Estas son las cuatro propiedades deseables en cualquier función de demanda. Las propiedades de agregación y de homogeneidad son consecuencia de la especificación de la restricción de presupuesto lineal. Mientras que las propiedades de simetría y negatividad se derivan de un orden de preferencias consistente, descrito por los axiomas de selección del consumidor.

B1. MODELO RESTRINGIDO POR HOMOGENEIDAD Y SIMETRIA

UNIT 6 IS NOW ASSIGNED TO: a:WS1

|_SAMPLE 1 80|_READ MES PT PR PC PV PG W1 W2 W3 W4 W5 INGT I II III IV 16
 VARIABLES AND 80 OBSERVATIONS STARTING AT OBS 1

```
|_GENR P1=LOG(PT)
|_GENR P2=LOG(PR)
|_GENR P3=LOG(PC)
|_GENR P4=LOG(PV)
|_GENR P5=LOG(PG)
|_GENR LINGT=LOG(INGT)
|_GENR F=LINGT-P1*W1-P2*W2-P3*W3-P4*W4-P5*W5
|_STAT P1 P2 P3 P4 P5
```

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|-------------|-------------|---------|---------|
| P1 | 80 | 2.7057 | 0.13890 | 0.19294E-01 | 2.3609 | 3.0910 |
| P2 | 80 | 3.3008 | 0.13224 | 0.17487E-01 | 3.0397 | 3.6712 |
| P3 | 80 | 1.1711 | 0.58925E-01 | 0.34721E-02 | 1.0296 | 1.3350 |
| P4 | 80 | 2.7404 | 0.12102 | 0.14646E-01 | 2.3795 | 2.9653 |
| P5 | 80 | 3.0147 | 0.82167E-01 | 0.67514E-02 | 2.8273 | 3.1864 |

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|-------------|-------------|-------------|-------------|-------------|
| W1 | 80 | 0.15468E-01 | 0.36618E-02 | 0.13409E-04 | 0.58000E-02 | 0.23700E-01 |
| W2 | 80 | 0.95506E-01 | 0.47001E-01 | 0.22091E-02 | 0.10900E-01 | 0.20100 |
| W3 | 80 | 0.72350 | 0.87774E-01 | 0.77043E-02 | 0.52640 | 0.90030 |
| W4 | 80 | 0.14462 | 0.51775E-01 | 0.26806E-02 | 0.30500E-01 | 0.26560 |
| W5 | 80 | 0.20904E-01 | 0.78543E-02 | 0.61690E-04 | 0.84000E-02 | 0.47900E-01 |

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|-------|----|--------|---------|-------------|---------|---------|
| LINGT | 80 | 9.2579 | 0.16984 | 0.28846E-01 | 8.8327 | 9.5887 |

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|---------|-------------|---------|---------|
| F | 80 | 7.5939 | 0.13574 | 0.18426E-01 | 7.2576 | 7.8204 |

```
|_SYSTEM 4/RESTRICT RSTAT
|_OLS W1 P1 P2 P3 P4 P5 F II III IV
|_OLS W2 P1 P2 P3 P4 P5 F II III IV
|_OLS W3 P1 P2 P3 P4 P5 F II III IV
|_OLS W4 P1 P2 P3 P4 P5 F II III IV
|_*AUTO W5 P1 P2 P3 P4 P5 F II III IV/RSTAT
|_RESTRICT P1:1+P2:1+P3:1+P4:1+P5:1=0
|_RESTRICT P1:2+P2:2+P3:2+P4:2+P5:2=0
|_RESTRICT P1:3+P2:3+P3:3+P4:3+P5:3=0
|_RESTRICT P1:4+P2:4+P3:4+P4:4+P5:4=0
|_RESTRICT P2:1-P1:2=0
|_RESTRICT P3:1-P1:3=0
|_RESTRICT P4:1-P1:4=0
|_RESTRICT P3:2-P2:3=0
|_RESTRICT P4:2-P2:4=0
|_RESTRICT P4:3-P3:4=0
|_END
```

MULTIVARIATE REGRESSION-- 4 EQUATIONS
 36 RIGHT-HAND SIDE VARIABLES IN SYSTEM
 MAX ITERATIONS = 1 CONVERGENCE TOLERANCE = 0.10000E-02
 80 OBSERVATIONS
 IR OPTION IN EFFECT - ITERATIVE RESTRICTIONS

ITERATION 0 COEFFICIENTS
 0.10179E-01-0.14255E-01 0.88620E-03 0.81349E-02-0.49450E-02-0.67637E-02
 -0.12176E-02-0.11614E-02-0.34817E-02-0.14255E-01 0.98378E-02 0.55685E-01
 -0.27873E-01-0.23395E-01-0.11822 0.34465E-01 0.52235E-01 0.85161E-01
 0.88620E-03 0.55685E-01-0.12839E-01-0.53529E-01 0.97972E-02 0.20722
 -0.69082E-01-0.10979 -0.19524 0.81349E-02-0.27873E-01-0.53529E-01
 0.78715E-01-0.54483E-02-0.57078E-01 0.33606E-01 0.55971E-01 0.10877

ITERATION 0 SIGMA
 0.94395E-05
 -0.18505E-04 0.10495E-02
 0.34821E-04 -0.91723E-03 0.15979E-02
 -0.33032E-04 -0.11548E-03 -0.76211E-03 0.10059E-02

BREUSCH-PAGAN LM TEST FOR DIAGONAL COVARIANCE MATRIX
 CHI-SQUARE = 88.444 WITH 6 DEGREES OF FREEDOM
 LOG OF DETERMINANT OF SIGMA= -35.990
 LOG OF LIKELIHOOD FUNCTION = 985.548

ITERATION 1 SIGMA INVERSE
 0.20600E+06
 55455. 36204.
 52621. 35112. 35044.
 52997. 32578. 32309. 30952.

ITERATION 1 COEFFICIENTS
 0.10928E-01-0.85199E-02-0.36917E-02 0.14368E-02-0.15285E-03-0.95276E-02
 -0.76252E-03-0.10066E-02-0.34454E-02-0.85199E-02 0.26576E-01 0.35697E-01
 -0.35634E-01-0.18119E-01-0.12402 0.35782E-01 0.52986E-01 0.85916E-01
 -0.36917E-02 0.35697E-01-0.44781E-02-0.24987E-01-0.25403E-02 0.21959
 -0.70931E-01-0.11028 -0.19511 0.14368E-02-0.35634E-01-0.24987E-01
 0.53572E-01 0.56124E-02-0.61888E-01 0.33372E-01 0.55076E-01 0.10691

ITERATION 1 SIGMA
 0.79044E-05
 -0.17013E-04 0.10493E-02
 0.29578E-04 -0.95039E-03 0.16616E-02
 -0.27210E-04 -0.70818E-04 -0.79289E-03 0.97574E-03

LOG OF DETERMINANT OF SIGMA= -36.218
 LOG OF LIKELIHOOD FUNCTION = 994.675

SYSTEM R-SQUARE = 0.9184 ... CHI-SQUARE = 200.49 WITH 26 D.F.

| VARIABLE | COEFFICIENT | ST. ERROR | T-RATIO |
|----------|--------------|-------------|--------------|
| P1 | 0.10928E-01 | 0.24128E-02 | 4.5291 |
| P2 | -0.85199E-02 | 0.28548E-02 | -2.9844 |
| P3 | -0.36917E-02 | 0.38318E-02 | -0.96344 |
| P4 | 0.14368E-02 | 0.34166E-02 | 0.42054 |
| P5 | -0.15285E-03 | 0.36972E-02 | -0.41344E-01 |
| F | -0.95276E-02 | 0.35501E-02 | -2.6838 |
| II | -0.76252E-03 | 0.12108E-02 | -0.62979 |
| III | -0.10066E-02 | 0.10878E-02 | -0.92542 |
| IV | -0.34454E-02 | 0.10567E-02 | -3.2606 |
| P1 | -0.85199E-02 | 0.28548E-02 | -2.9844 |
| P2 | 0.26576E-01 | 0.29396E-01 | 0.90408 |
| P3 | 0.35697E-01 | 0.29080E-01 | 1.2275 |
| P4 | -0.35634E-01 | 0.21491E-01 | -1.6581 |
| P5 | -0.18119E-01 | 0.60252E-02 | -3.0072 |
| F | -0.12402 | 0.36145E-01 | -3.4311 |
| II | 0.35782E-01 | 0.12595E-01 | 2.8410 |
| III | 0.52986E-01 | 0.11269E-01 | 4.7019 |
| IV | 0.85916E-01 | 0.11048E-01 | 7.7767 |
| P1 | -0.36917E-02 | 0.38318E-02 | -0.96344 |
| P2 | 0.35697E-01 | 0.29080E-01 | 1.2275 |
| P3 | -0.44781E-02 | 0.40254E-01 | -0.11125 |
| P4 | -0.24987E-01 | 0.27767E-01 | -0.89989 |
| P5 | -0.25403E-02 | 0.75240E-02 | -0.33762 |
| F | 0.21959 | 0.44206E-01 | 4.9675 |
| II | -0.70931E-01 | 0.15499E-01 | -4.5765 |
| III | -0.11028 | 0.13910E-01 | -7.9282 |
| IV | -0.19511 | 0.13670E-01 | -14.273 |
| P1 | 0.14368E-02 | 0.34166E-02 | 0.42054 |
| P2 | -0.35634E-01 | 0.21491E-01 | -1.6581 |
| P3 | -0.24987E-01 | 0.27767E-01 | -0.89989 |
| P4 | 0.53572E-01 | 0.29724E-01 | 1.8023 |
| P5 | 0.56124E-02 | 0.82647E-02 | 0.67909 |
| F | -0.61888E-01 | 0.36028E-01 | -1.7178 |
| II | 0.33372E-01 | 0.12325E-01 | 2.7077 |
| III | 0.55076E-01 | 0.11034E-01 | 4.9915 |
| IV | 0.10691 | 0.10822E-01 | 9.8789 |

EQUATION 1 OF 4 EQUATIONS
DEPENDENT VARIABLE = W1

80 OBSERVATIONS

R-SQUARE = 0.4031
VARIANCE OF THE ESTIMATE = 0.79044E-05
STANDARD ERROR OF THE ESTIMATE = 0.28115E-02
MEAN OF DEPENDENT VARIABLE = 0.15468E-01
LOG OF THE LIKELIHOOD FUNCTION = 994.675

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)

AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.79044E-05
(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
AKAIKE (1973) INFORMATION CRITERION- AIC = -11.748
SCHWARZ(1978) CRITERION-SC = -11.748

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 80 DF | PARTIAL STANDARDIZED ELASTICITY CORR. COEFFICIENT AT MEANS |
|---------------|-----------------------|----------------|---------------|--|
|---------------|-----------------------|----------------|---------------|--|

| | | | | | | |
|----------|--------------|-------------|--------------|---------|--------------|--------------|
| P1 | 0.10928E-01 | 0.24128E-02 | 4.5291 | 0.4518 | 0.41452 | 1.9115 |
| P2 | -0.85199E-02 | 0.28548E-02 | -2.9844 | -0.3165 | -0.30768 | -1.8182 |
| P3 | -0.36917E-02 | 0.38318E-02 | -0.96344 | -0.1071 | -0.59405E-01 | -0.27952 |
| P4 | 0.14368E-02 | 0.34166E-02 | 0.42054 | 0.0470 | 0.47487E-01 | 0.25457 |
| P5 | -0.15285E-03 | 0.36972E-02 | -0.41344E-01 | -0.0046 | -0.34299E-02 | -0.29792E-01 |
| F | -0.95276E-02 | 0.35501E-02 | -2.6838 | -0.2874 | -0.35318 | -4.6776 |
| II | -0.76252E-03 | 0.12108E-02 | -0.62979 | -0.0702 | -0.92199E-01 | -0.12941E-01 |
| III | -0.10066E-02 | 0.10878E-02 | -0.92542 | -0.1029 | -0.11979 | -0.16270E-01 |
| IV | -0.34454E-02 | 0.10567E-02 | -3.2606 | -0.3425 | -0.39538 | -0.50119E-01 |
| CONSTANT | 0.88449E-01 | 0.27106E-01 | 3.2631 | 0.3427 | 0.00000E+00 | 5.7184 |

DURBIN-WATSON = 1.1459 VON NEUMAN RATIO = 1.1604 RHO = 0.42495
RESIDUAL SUM = 0.21337E-15 RESIDUAL VARIANCE = 0.79044E-05
SUM OF ABSOLUTE ERRORS= 0.17641
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.4037
RUNS TEST: 33 RUNS, 42 POSITIVE, 38 NEGATIVE, NORMAL STATISTIC = -1.7823

EQUATION 2 OF 4 EQUATIONS
DEPENDENT VARIABLE = W2 80 OBSERVATIONS

R-SQUARE = 0.5190
VARIANCE OF THE ESTIMATE = 0.10493E-02
STANDARD ERROR OF THE ESTIMATE = 0.32392E-01
MEAN OF DEPENDENT VARIABLE = 0.95506E-01
LOG OF THE LIKELIHOOD FUNCTION = 994.675

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.10493E-02
(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
AKAIKE (1973) INFORMATION CRITERION- AIC = -6.8597
SCHWARZ(1978) CRITERION-SC = -6.8597

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 80 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|---------------|---------------|--------------------------|---------------------|
| P1 | -0.85199E-02 | 0.28548E-02 | -2.9844 | -0.3165 | -0.25179E-01 | -0.24137 |
| P2 | 0.26576E-01 | 0.29396E-01 | 0.90408 | 0.1006 | 0.74773E-01 | 0.91851 |
| P3 | 0.35697E-01 | 0.29080E-01 | 1.2275 | 0.1360 | 0.44753E-01 | 0.43774 |
| P4 | -0.35634E-01 | 0.21491E-01 | -1.6581 | -0.1823 | -0.91755E-01 | -1.0225 |
| P5 | -0.18119E-01 | 0.60252E-02 | -3.0072 | -0.3187 | -0.31675E-01 | -0.57193 |
| F | -0.12402 | 0.36145E-01 | -3.4311 | -0.3582 | -0.35817 | -9.8607 |
| II | 0.35782E-01 | 0.12595E-01 | 2.8410 | 0.3027 | 0.33708 | 0.98346E-01 |
| III | 0.52986E-01 | 0.11269E-01 | 4.7019 | 0.4653 | 0.49123 | 0.13870 |
| IV | 0.85916E-01 | 0.11048E-01 | 7.7767 | 0.6561 | 0.76814 | 0.20241 |
| CONSTANT | 1.0411 | 0.27475 | 3.7893 | 0.3901 | 0.00000E+00 | 10.901 |

DURBIN-WATSON = 2.1451 VON NEUMAN RATIO = 2.1723 RHO = -0.09885
RESIDUAL SUM = 0.14336E-13 RESIDUAL VARIANCE = 0.10493E-02
SUM OF ABSOLUTE ERRORS= 2.0232
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.5196
RUNS TEST: 43 RUNS, 39 POSITIVE, 41 NEGATIVE, NORMAL STATISTIC = 0.4560

EQUATION 3 OF 4 EQUATIONS
DEPENDENT VARIABLE = W3 80 OBSERVATIONS
R-SQUARE = 0.7816
VARIANCE OF THE ESTIMATE = 0.16616E-02
STANDARD ERROR OF THE ESTIMATE = 0.40762E-01

MEAN OF DEPENDENT VARIABLE = 0.72350
 LOG OF THE LIKELIHOOD FUNCTION = 994.675

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.16616E-02
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.4000
 SCHWARZ(1978) CRITERION-SC = -6.4000

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO | 80 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|----------|-------|---------------|--------------------------|---------------------|
| P1 | -0.36917E-02 | 0.38318E-02 | -0.96344 | | -0.1071 | -0.58421E-02 | -0.13806E-01 |
| P2 | 0.35697E-01 | 0.29080E-01 | 1.2275 | | 0.1360 | 0.53781E-01 | 0.16286 |
| P3 | -0.44781E-02 | 0.40254E-01 | -0.11125 | | -0.0124 | -0.30062E-02 | -0.72487E-02 |
| P4 | -0.24987E-01 | 0.27767E-01 | -0.89989 | | -0.1001 | -0.34452E-01 | -0.94644E-01 |
| P5 | -0.25403E-02 | 0.75240E-02 | -0.33762 | | -0.0377 | -0.23780E-02 | -0.10585E-01 |
| F | 0.21959 | 0.44206E-01 | 4.9675 | | 0.4855 | 0.33960 | 2.3048 |
| II | -0.70931E-01 | 0.15499E-01 | -4.5765 | | -0.4555 | -0.35780 | -0.25735E-01 |
| III | -0.11028 | 0.13910E-01 | -7.9282 | | -0.6633 | -0.54749 | -0.38107E-01 |
| IV | -0.19511 | 0.13670E-01 | -14.273 | | -0.8474 | -0.93406 | -0.60675E-01 |
| CONSTANT | -0.88043 | 0.34503 | -2.5517 | | -0.2743 | 0.00000E+00 | -1.2169 |

DURBIN-WATSON = 2.2008 VON NEUMAN RATIO = 2.2287 RHO = -0.10545
 RESIDUAL SUM = 0.23426E-13 RESIDUAL VARIANCE = 0.16616E-02
 SUM OF ABSOLUTE ERRORS= 2.6328
 R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.7817
 RUNS TEST: 47 RUNS, 40 POSITIVE, 40 NEGATIVE, NORMAL STATISTIC = 1.3502

EQUATION 4 OF 4 EQUATIONS
 DEPENDENT VARIABLE = W4 80 OBSERVATIONS

R-SQUARE = 0.6314
 VARIANCE OF THE ESTIMATE = 0.97574E-03
 STANDARD ERROR OF THE ESTIMATE = 0.31237E-01
 MEAN OF DEPENDENT VARIABLE = 0.14462
 LOG OF THE LIKELIHOOD FUNCTION = 994.675

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)
 AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.97574E-03
 (FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)
 AKAIKE (1973) INFORMATION CRITERION- AIC = -6.9323
 SCHWARZ(1978) CRITERION-SC = -6.9323

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO | 80 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|---------------|-----------------------|----------------|----------|-------|---------------|--------------------------|---------------------|
| P1 | 0.14368E-02 | 0.34166E-02 | 0.42054 | | 0.0470 | 0.38548E-02 | 0.26881E-01 |
| P2 | -0.35634E-01 | 0.21491E-01 | -1.6581 | | -0.1823 | -0.91015E-01 | -0.81332 |
| P3 | -0.24987E-01 | 0.27767E-01 | -0.89989 | | -0.1001 | -0.28438E-01 | -0.20235 |
| P4 | 0.53572E-01 | 0.29724E-01 | 1.8023 | | 0.1975 | 0.12522 | 1.0151 |
| P5 | 0.56124E-02 | 0.82647E-02 | 0.67909 | | 0.0757 | 0.89069E-02 | 0.11699 |
| F | -0.61888E-01 | 0.36028E-01 | -1.7178 | | -0.1886 | -0.16226 | -3.2497 |
| II | 0.33372E-01 | 0.12325E-01 | 2.7077 | | 0.2897 | 0.28539 | 0.60572E-01 |
| III | 0.55076E-01 | 0.11034E-01 | 4.9915 | | 0.4873 | 0.46352 | 0.95206E-0 |
| IV | 0.10691 | 0.10822E-01 | 9.8789 | | 0.7413 | 0.86773 | 0.16633 |
| CONSTANT | 0.54728 | 0.28001 | 1.9545 | | 0.2135 | 0.00000E+00 | 3.7842 |

DURBIN-WATSON = 1.5045 VON NEUMAN RATIO = 1.5236 RHO = 0.24258
 RESIDUAL SUM = 0.85487E-14 RESIDUAL VARIANCE = 0.97574E-03

SUM OF ABSOLUTE ERRORS= 1.7052
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.6315
RUNS TEST: 31 RUNS, 42 POSITIVE, 38 NEGATIVE, NORMAL STATISTIC = -2.2335

B2. MODELO RESTRINGIDO POR HOMEogeneidad

UNIT 6 IS NOW ASSIGNED TO: a:WS2

|_SAMPLE 1 80|_READ MES PT PR PC PV PG W1 W2 W3 W4 W5 INGT I II III IV 16
 VARIABLES AND 80 OBSERVATIONS STARTING AT OBS 1

```
|_GENR P1=LOG(PT)
|_GENR P2=LOG(PR)
|_GENR P3=LOG(PC)
|_GENR P4=LOG(PV)
|_GENR P5=LOG(PG)
|_GENR LINGT=LOG(INGT)
|_GENR F=LINGT-P1*W1-P2*W2-P3*W3-P4*W4-P5*W5
|_STAT P1 P2 P3 P4 P5
```

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|-------------|-------------|---------|---------|
| P1 | 80 | 2.7057 | 0.13890 | 0.19294E-01 | 2.3609 | 3.0910 |
| P2 | 80 | 3.3008 | 0.13224 | 0.17487E-01 | 3.0397 | 3.6712 |
| P3 | 80 | 1.1711 | 0.58925E-01 | 0.34721E-02 | 1.0296 | 1.3350 |
| P4 | 80 | 2.7404 | 0.12102 | 0.14646E-01 | 2.3795 | 2.9653 |
| P5 | 80 | 3.0147 | 0.82167E-01 | 0.67514E-02 | 2.8273 | 3.1864 |

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|-------------|-------------|-------------|-------------|-------------|
| W1 | 80 | 0.15468E-01 | 0.36618E-02 | 0.13409E-04 | 0.58000E-02 | 0.23700E-01 |
| W2 | 80 | 0.95506E-01 | 0.47001E-01 | 0.22091E-02 | 0.10900E-01 | 0.20100 |
| W3 | 80 | 0.72350 | 0.87774E-01 | 0.77043E-02 | 0.52640 | 0.90030 |
| W4 | 80 | 0.14462 | 0.51775E-01 | 0.26806E-02 | 0.30500E-01 | 0.26560 |
| W5 | 80 | 0.20904E-01 | 0.78543E-02 | 0.61690E-04 | 0.84000E-02 | 0.47900E-01 |

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|-------|----|--------|---------|-------------|---------|---------|
| LINGT | 80 | 9.2579 | 0.16984 | 0.28846E-01 | 8.8327 | 9.5887 |

| NAME | N | MEAN | ST. DEV | VARIANCE | MINIMUM | MAXIMUM |
|------|----|--------|---------|-------------|---------|---------|
| F | 80 | 7.5939 | 0.13574 | 0.18426E-01 | 7.2576 | 7.8204 |

```
|_SYSTEM 5/RESTRICT RSTAT
|_OLS W1 P1 P2 P3 P4 P5 F II III IV
|_OLS W2 P1 P2 P3 P4 P5 F II III IV
|_OLS W3 P1 P2 P3 P4 P5 F II III IV
|_OLS W4 P1 P2 P3 P4 P5 F II III IV
|_OLS W5 P1 P2 P3 P4 P5 F II III IV
|_RESTRICT P1:1+P2:1+P3:1+P4:1+P5:1=0
|_RESTRICT P1:2+P2:2+P3:2+P4:2+P5:2=0
|_RESTRICT P1:3+P2:3+P3:3+P4:3+P5:3=0
|_RESTRICT P1:4+P2:4+P3:4+P4:4+P5:4=0
|_RESTRICT P1:5+P2:5+P3:5+P4:5+P5:5=0
|_END
```

MULTIVARIATE REGRESSION-- 5 EQUATIONS 45 RIGHT-HAND SIDE VARIABLES IN
 SYSTEMMAX ITERATIONS = 1 CONVERGENCE TOLERANCE = 0.10000E-02
 80 OBSERVATIONSIR OPTION IN EFFECT - ITERATIVE RESTRICTIONS

```
ITERATION 0 COEFFICIENTS
0.10713E-01-0.73106E-02-0.51416E-02-0.19122E-02 0.36511E-02-0.10391E-01
-0.64220E-03-0.97077E-03-0.35158E-02 0.36469E-02 0.25789E-01 0.22311E-02
0.57800E-01-0.89467E-01-0.10222 0.34345E-01 0.53967E-01 0.90327E-01
-0.32302E-02 0.81691E-01-0.20599E-01-0.12938 0.71518E-01 0.18508
```

-0.66444E-01-0.10957 -0.19723 -0.10067E-01-0.86175E-01 0.29560E-01
 0.69989E-01-0.33081E-02-0.47500E-01 0.30058E-01 0.53331E-01 0.10460
 -0.11205E-02-0.13914E-01-0.59311E-02 0.34548E-02 0.17511E-01-0.24956E-01
 0.26796E-02 0.32502E-02 0.58299E-02

ITERATION 0 SIGMA
 0.77808E-05
 -0.14983E-04 0.97687E-03
 0.26063E-04 -0.87532E-03 0.15433E-02
 -0.25431E-04 -0.76559E-04 -0.74169E-03 0.92453E-03
 0.65916E-05 -0.10214E-04 0.47500E-04 -0.80530E-04 0.36685E-04

BREUSCH-PAGAN LM TEST FOR DIAGONAL COVARIANCE MATRIX
 CHI-SQUARE = 117.00 WITH 10 DEGREES OF FREEDOM
 LOG OF DETERMINANT OF SIGMA= -55.638
 LOG OF LIKELIHOOD FUNCTION = 1657.93

ITERATION 1 SIGMA INVERSE
 0.23722E+09
 0.23780E+09 0.23854E+09
 0.23777E+09 0.23851E+09 0.23848E+09
 0.23764E+09 0.23838E+09 0.23835E+09 0.23822E+09
 0.23738E+09 0.23814E+09 0.23811E+09 0.23798E+09 0.23778E+09

ITERATION 1 COEFFICIENTS
 0.10713E-01-0.73106E-02-0.51416E-02-0.19122E-02 0.36511E-02-0.10391E-01
 -0.64220E-03-0.97077E-03-0.35158E-02 0.36469E-02 0.25789E-01 0.22311E-02
 0.57800E-01-0.89467E-01-0.10222 0.34345E-01 0.53967E-01 0.90327E-01
 -0.32302E-02 0.81691E-01-0.20599E-01-0.12938 0.71518E-01 0.18508
 -0.66444E-01-0.10957 -0.19723 -0.10067E-01-0.86175E-01 0.29560E-01
 0.69989E-01-0.33081E-02-0.47500E-01 0.30058E-01 0.53331E-01 0.10460
 -0.11205E-02-0.13914E-01-0.59311E-02 0.34548E-02 0.17511E-01-0.24956E-01
 0.26796E-02 0.32502E-02 0.58299E-02

ITERATION 1 SIGMA
 0.77808E-05
 -0.14983E-04 0.97687E-03
 0.26063E-04 -0.87532E-03 0.15433E-02
 -0.25431E-04 -0.76559E-04 -0.74169E-03 0.92453E-03
 0.65916E-05 -0.10214E-04 0.47500E-04 -0.80530E-04 0.36685E-04
 LOG OF DETERMINANT OF SIGMA= -55.638
 LOG OF LIKELIHOOD FUNCTION = 1657.93

SYSTEM R-SQUARE = 0.9370 CHI-SQUARE = 221.21 WITH 40 D.F.

| VARIABLE | COEFFICIENT | ST.ERROR | T-RATIO |
|----------|--------------|-------------|----------|
| P1 | 0.10713E-01 | 0.24951E-02 | 4.2937 |
| P2 | -0.73106E-02 | 0.28461E-02 | -2.5686 |
| P3 | -0.51416E-02 | 0.37130E-02 | -1.3847 |
| P4 | -0.19122E-02 | 0.39040E-02 | -0.48980 |
| P5 | 0.36511E-02 | 0.54829E-02 | 0.66592 |
| F | -0.10391E-01 | 0.32734E-02 | -3.1745 |
| II | -0.64220E-03 | 0.11139E-02 | -0.57652 |
| III | -0.97077E-03 | 0.10011E-02 | -0.96967 |
| IV | -0.35158E-02 | 0.97899E-03 | -3.5912 |
| P1 | 0.36469E-02 | 0.27957E-01 | 0.13044 |

| | | | |
|-----|--------------|-------------|--------------|
| P2 | 0.25789E-01 | 0.31890E-01 | 0.80869 |
| P3 | 0.22311E-02 | 0.41604E-01 | 0.53626E-01 |
| P4 | 0.57800E-01 | 0.43744E-01 | 1.3213 |
| P5 | -0.89467E-01 | 0.61435E-01 | -1.4563 |
| F | -0.10222 | 0.36678E-01 | -2.7869 |
| II | 0.34345E-01 | 0.12481E-01 | 2.7517 |
| III | 0.53967E-01 | 0.11218E-01 | 4.8109 |
| IV | 0.90327E-01 | 0.10969E-01 | 8.2344 |
| P1 | -0.32302E-02 | 0.35140E-01 | -0.91925E-01 |
| P2 | 0.81691E-01 | 0.40083E-01 | 2.0380 |
| P3 | -0.20599E-01 | 0.52292E-01 | -0.39392 |
| P4 | -0.12938 | 0.54982E-01 | -2.3531 |
| P5 | 0.71518E-01 | 0.77218E-01 | 0.92619 |
| F | 0.18508 | 0.46100E-01 | 4.0147 |
| II | -0.66444E-01 | 0.15688E-01 | -4.2354 |
| III | -0.10957 | 0.14099E-01 | -7.7714 |
| IV | -0.19723 | 0.13788E-01 | -14.305 |
| P1 | -0.10067E-01 | 0.27198E-01 | -0.37013 |
| P2 | -0.86175E-01 | 0.31024E-01 | -2.7777 |
| P3 | 0.29560E-01 | 0.40474E-01 | 0.73035 |
| P4 | 0.69989E-01 | 0.42556E-01 | 1.6446 |
| P5 | -0.33081E-02 | 0.59767E-01 | -0.55350E-01 |
| F | -0.47500E-01 | 0.35681E-01 | -1.3312 |
| II | 0.30058E-01 | 0.12142E-01 | 2.4755 |
| III | 0.53331E-01 | 0.10913E-01 | 4.8869 |
| IV | 0.10460 | 0.10672E-01 | 9.8018 |
| P1 | -0.11205E-02 | 0.54177E-02 | -0.20682 |
| P2 | -0.13914E-01 | 0.61799E-02 | -2.2515 |
| P3 | -0.59311E-02 | 0.80623E-02 | -0.73566 |
| P4 | 0.34548E-02 | 0.84770E-02 | 0.40755 |
| P5 | 0.17511E-01 | 0.11905E-01 | 1.4709 |
| F | -0.24956E-01 | 0.71076E-02 | -3.5112 |
| II | 0.26796E-02 | 0.24187E-02 | 1.1078 |
| III | 0.32502E-02 | 0.21738E-02 | 1.4952 |
| IV | 0.58299E-02 | 0.21257E-02 | 2.7425 |

EQUATION 1 OF 5 EQUATIONS
DEPENDENT VARIABLE = W1

80 OBSERVATIONS

R-SQUARE = 0.4124
VARIANCE OF THE ESTIMATE = 0.82995E-05
STANDARD ERROR OF THE ESTIMATE = 0.28809E-02
MEAN OF DEPENDENT VARIABLE = 0.15468E-01
LOG OF THE LIKELIHOOD FUNCTION = 1657.93

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)

AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.88182E-05

(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)

AKAIKE (1973) INFORMATION CRITERION- AIC = -11.639

SCHWARZ(1978) CRITERION-SC = -11.490

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 75 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|------------------|--------------------------|-------------------|------------------|------------------|-----------------------------|------------------------|
| P1 | 0.10713E-01 | 0.24951E-02 | 4.2937 | 0.4442 | 0.40638 | 1.8740 |
| P2 | -0.73106E-02 | 0.28461E-02 | -2.5686 | -0.2844 | -0.26401 | -1.5601 |
| P3 | -0.51416E-02 | 0.37130E-02 | -1.3847 | -0.1579 | -0.82736E-01 | -0.38930 |
| P4 | -0.19122E-02 | 0.39040E-02 | -0.48980 | -0.0565 | -0.63197E-01 | -0.33879 |
| P5 | 0.36511E-02 | 0.54829E-02 | 0.66592 | 0.0767 | 0.81927E-01 | 0.71162 |
| F | -0.10391E-01 | 0.32734E-02 | -3.1745 | -0.3442 | -0.38520 | -5.1017 |
| II | -0.64220E-03 | 0.11139E-02 | -0.57652 | -0.0664 | -0.77651E-01 | -0.10899E-01 |
| III | -0.97077E-03 | 0.10011E-02 | -0.96967 | -0.1113 | -0.11552 | -0.15690E-01 |
| IV | -0.35158E-02 | 0.97899E-03 | -3.5912 | -0.3831 | -0.40346 | -0.51143E-01 |
| CONSTANT | 0.90979E-01 | 0.24939E-01 | 3.6481 | 0.3882 | 0.00000E+00 | 5.8820 |

DURBIN-WATSON = 1.1494 VON NEUMAN RATIO = 1.1639 RHO = 0.42369
RESIDUAL SUM = 0.72685E-15 RESIDUAL VARIANCE = 0.82995E-05
SUM OF ABSOLUTE ERRORS= 0.17269
R-SQUARE BETWEEN OBSERVED AND PREDICTED = 0.4124
RUNS TEST: 33 RUNS, 40 POSITIVE, 40 NEGATIVE, NORMAL STATISTIC = -1.8003

EQUATION 2 OF 5 EQUATIONS DEPENDENT VARIABLE = W2 80
OBSERVATIONS R-SQUARE = 0.5522 VARIANCE OF THE ESTIMATE = 0.10420E-02
STANDARD ERROR OF THE ESTIMATE = 0.32280E-01 MEAN OF DEPENDENT VARIABLE = 0.95506E-01
LOG OF THE LIKELIHOOD FUNCTION = 1657.93

MODEL SELECTION TESTS - SEE JUDGE ET.AL.(1985, P.242)

AKAIKE (1969) FINAL PREDICTION ERROR- FPE = 0.11071E-02

(FPE ALSO KNOWN AS AMEMIYA PREDICTION CRITERION -PC)

AKAIKE (1973) INFORMATION CRITERION- AIC = -6.8062

SCHWARZ(1978) CRITERION-SC = -6.6573

| VARIABLE NAME | ESTIMATED COEFFICIENT | STANDARD ERROR | T-RATIO 75 DF | PARTIAL CORR. | STANDARDIZED COEFFICIENT | ELASTICITY AT MEANS |
|------------------|--------------------------|-------------------|------------------|------------------|-----------------------------|------------------------|
| P1 | 0.36469E-02 | 0.27957E-01 | 0.13044 | 0.0151 | 0.10778E-01 | 0.10331 |
| P2 | 0.25789E-01 | 0.31890E-01 | 0.80869 | 0.0930 | 0.72560E-01 | 0.89131 |
| P3 | 0.22311E-02 | 0.41604E-01 | 0.53626E-01 | 0.0062 | 0.27971E-02 | 0.2736E-01 |
| P4 | 0.57800E-01 | 0.43744E-01 | 1.3213 | 0.1508 | 0.14883 | 1.6585 |
| P5 | -0.89467E-01 | 0.61435E-01 | -1.4563 | -0.1658 | -0.15641 | -2.8241 |
| F | -0.10222 | 0.36678E-01 | -2.7869 | -0.3063 | -0.29521 | -8.1275 |
| II | 0.34345E-01 | 0.12481E-01 | 2.7517 | 0.3028 | 0.32354 | 0.9447E-01 |