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Discussion Paper

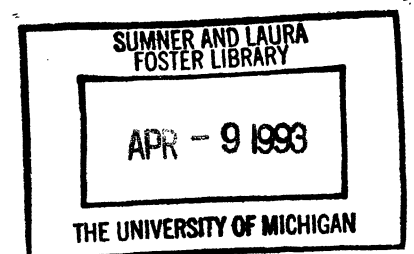


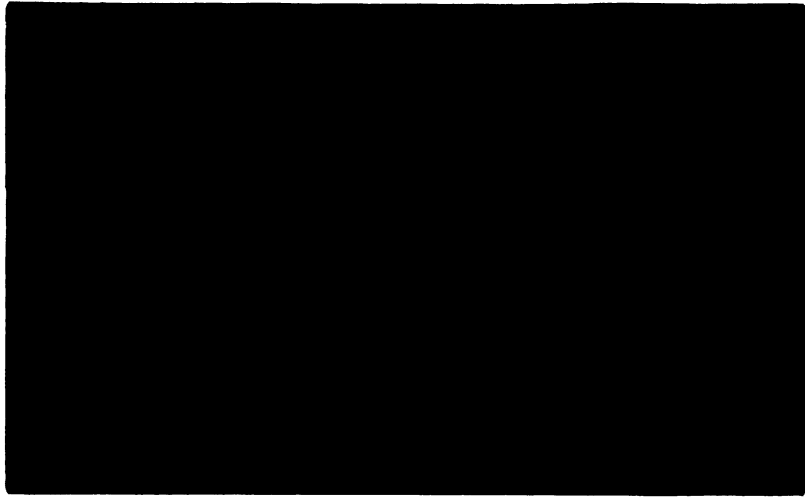
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DEPARTMENT OF ECONOMICS
University of Michigan

Ann Arbor, Michigan 48109





**THE MICHIGAN QUARTERLY
ECONOMETRIC MODEL
OF THE U.S. ECONOMY**

November 1989

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The University of Michigan**

A. Wages and Prices

$$\begin{aligned}
 \text{A1 } \Delta \ln \text{JCMH} &= .01064 + .70949 * \left[\frac{\Delta \text{WUSMIN}}{\text{JCMH}_{-1}} \right] \\
 &\quad (.00137) \quad (.39532) \\
 &+ .22429 * \ln \left[\frac{\text{PC}_{-1}}{\text{PC}_{-3}} \right] + .04333 * \ln \left[\frac{2 * \frac{\text{REM}_{-1}}{100} + \text{JCU}_{-1}}{3} \right] \\
 &\quad (.05370) \quad (.01482) \\
 &+ .06120 * \frac{\text{DTSI}}{\text{JCMH}_{-1}} + .00781 * \text{DFRZ1} \\
 &\quad (.01252) \quad (.00346) \\
 &+ .29213 * \frac{\text{RPPERM}_{-2}}{100} \\
 &\quad (.12525)
 \end{aligned}$$

$R^2 = .725$ $\text{S.E.} = .0034$ $\text{D.W.} = 1.95$ $\text{F.P.} = 1956.4-1983.4$

A. Wages and Prices

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 \end{aligned}$$

$R^2 = .725$ $\text{S.E.} = .0034$ $\text{D.W.} = 1.95$ $\text{F.P.} = 1956.4-1983.4$

$$A2 \quad \Delta \ln PPNF = - \begin{matrix} .00187 \\ (.00170) \end{matrix} + \begin{matrix} .01422 \\ (.00520) \end{matrix} * \Delta \ln PFARM_{-1}$$

$$+ \begin{matrix} .04806 \\ (.00918) \end{matrix} * \ln \left[\frac{PCRUDE_{-1}}{PCRUDE_{-3}} \right]$$

$$+ \begin{matrix} .00062 \\ (.00024) \end{matrix} * \sum_{i=5}^6 \beta_i * \left[\frac{1}{1-JCU} \right]_{-i}$$

$$+ \begin{matrix} .03196 \\ (.00875) \end{matrix} * DFROFF + \begin{matrix} .00547 \\ (.00453) \end{matrix} * \ln \left[\frac{RAAA_{-1}}{RAAA_{-5}} \right]$$

$$+ \begin{matrix} .16115 \\ (.01492) \end{matrix} * \left[\ln \left[\frac{JCMH_{-1}}{JCMH_{-5}} \right] - \sum_{i=1}^4 \frac{QMHT_{-i}}{4} \right]$$

$$\beta_i = (.6, .4)$$

$$R^2 = .814 \quad S.E. = .0037 \quad D.W. = 2.53 \quad F.P. = 1958.3-1983.4$$

$$A3 \quad \Delta \ln PCDO = \begin{matrix} .00052 \\ (.00153) \end{matrix} + \begin{matrix} .13510 \\ (.11303) \end{matrix} * \Delta \ln PPNF_{-1}$$

$$+ \begin{matrix} .11873 \\ (.03830) \end{matrix} * \Delta \ln PMNOIL + \begin{matrix} .61180 \\ (.09108) \end{matrix} * \Delta \ln PCDO_{-1}$$

$$R^2 = .646 \quad S.E. = .0056 \quad D.W. = 1.78 \quad F.P. = 1967.2-1984.4$$

$$A4 \quad \Delta \ln PCDVA = .00059 + .94337 * \Delta \ln PAUTO \\ (.00036) \quad (.02327)$$

$$R^2 = .954 \quad S.E. = .0023 \quad D.W. = 2.44 \quad F.P. = 1967.3-1987.4$$

$$A5 \quad \Delta \ln PCDVT = .00101 + 1.1477 * \Delta \ln PAUTO \\ (.00261) \quad (.15873)$$

$$+ .13147 * \Delta \ln PTRKL_{-1} \\ (.10637)$$

$$- .48007 * \Delta \ln PCDVT_{-1} \\ (.08635)$$

$$R^2 = .471 \quad S.E. = .0153 \quad D.W. = 2.20 \quad F.P. = 1967.3-1987.4$$

$$A6 \quad \Delta \ln PCDVO = .00263 + 1.0701 * \Delta \ln PPNF - .62890 * \Delta \ln PPNF_{-1} \\ (.00356) \quad (.29182) \quad (.29800)$$

$$+ .30364 * \Delta \ln PAUTO + .19715 * \Delta \ln PCDVO_{-1} \\ (.14862) \quad (.10733)$$

$$R^2 = .276 \quad S.E. = .0137 \quad D.W. = 2.01 \quad F.P. = 1967.3-1987.4$$

$$A7 \quad \Delta \ln PCDFE = - .00324 + .40176 * \Delta \ln PPNF \\ (.00131) \quad (.09861)$$

$$+ .11144 * \Delta \ln PPNF_{-1} + .05826 * \Delta \ln PMNOIL \\ (.10689) \quad (.02759)$$

$$+ .37863 * \Delta \ln PCDFE_{-1} \\ (.11464)$$

$$R^2 = .743 \quad S.E. = .0039 \quad D.W. = 2.03 \quad F.P. = 1967.2-1984.4$$

$$\begin{aligned}
 \text{A8 } \Delta \ln \text{PCNFD} &= .00664 + .06166 * \Delta \ln \text{PFARM} \\
 &\quad (.00153) \quad (.00997) \\
 &+ .01809 * \Delta \ln \text{PFARM}_{-1} + .48959 * \Delta \ln \text{PCNFD}_{-1} \\
 &\quad (.01123) \quad (.08875)
 \end{aligned}$$

$$R^2 = .539 \quad \text{S.E.} = .0075 \quad \text{D.W.} = 2.20 \quad \text{F.P.} = 1968.2-1987.4$$

$$\begin{aligned}
 \text{A9 } \Delta \ln \text{PCNCS} &= .00485 + .05948 * \Delta \ln \text{PMNOIL}_{-4} \\
 &\quad (.00122) \quad (.04185) \\
 &+ .11973 * (\Delta \ln \text{PMNOIL}_{-1} - \Delta \ln \text{PMNOIL}_{-2}) \\
 &\quad (.05365) \\
 &+ .03654 * \Delta \ln \text{PCRUDE}_{-1} + .21583 * \Delta \ln \text{PCNCS}_{-1} \\
 &\quad (.02364) \quad (.11765)
 \end{aligned}$$

$$R^2 = .250 \quad \text{S.E.} = .0059 \quad \text{D.W.} = 2.02 \quad \text{F.P.} = 1968.2-1986.4$$

$$\begin{aligned}
 \text{A10 } \Delta \ln \text{PCNOO} &= .00058 + .27753 * \Delta \ln \text{PPNF} \\
 &\quad (.00113) \quad (.09286) \\
 &+ .07315 * \Delta \ln \text{PMNOIL} + .60361 * \Delta \ln \text{PCNOO}_{-1} \\
 &\quad (.03000) \quad (.07886)
 \end{aligned}$$

$$R^2 = .713 \quad \text{S.E.} = .0043 \quad \text{D.W.} = 1.97 \quad \text{F.P.} = 1968.2-1987.4$$

$$\begin{aligned}
 \text{A11 } \Delta \ln \text{ PCNFC} &= .00549 + .33919 * \Delta \ln \text{ POIL} \\
 &\quad (.00348) \quad (.04165) \\
 &+ .11926 * \Delta \ln \text{ PNGAS} + .01008 * \Delta \ln \text{ POTHRCRU} \\
 &\quad (.07420) \quad (.00571) \\
 &+ .25754 * \Delta \ln \text{ PCNFC}_{-1} \\
 &\quad (.07169)
 \end{aligned}$$

$$R^2 = .750 \quad \text{S.E.} = .0271 \quad \text{D.W.} = 1.90 \quad \text{F.P.} = 1968.2-1987.4$$

$$\begin{aligned}
 \text{A12 } \Delta \ln \text{ PCNGO} &= .00002 + .99788 * \Delta \ln \text{ PGAS} \\
 &\quad (.00096) \quad (.01884)
 \end{aligned}$$

$$R^2 = .973 \quad \text{S.E.} = .0082 \quad \text{D.W.} = 2.23 \quad \text{F.P.} = 1968.2-1987.4$$

$$\begin{aligned}
 \text{A13 } \Delta \ln \text{ PCS} &= - .00049 + .11478 * \ln \left[\frac{\text{PPNF}}{\text{PPNF}_{-2}} \right] \\
 &\quad (.00117) \quad (.04550) \\
 &+ .09192 * \ln \left[\frac{\text{JCMH}}{\text{JCMH}_{-4}} \right] \\
 &\quad (.03259) \\
 &+ .00878 * \ln \left[\frac{\text{PNGAS}}{\text{PNGAS}_{-4}} \right] \\
 &\quad (.00339) \\
 &+ .31082 * \Delta \ln \text{ PCS}_{-1} \\
 &\quad (.09453)
 \end{aligned}$$

$$R^2 = .868 \quad \text{S.E.} = .0026 \quad \text{D.W.} = 2.17 \quad \text{F.P.} = 1959.1-1983.4$$

$$A14 \quad \Delta \ln PCPI = - \begin{matrix} .00042 \\ (.00053) \end{matrix} + \begin{matrix} 1.0710 \\ (.04154) \end{matrix} * \Delta \ln PC$$

$$+ \begin{matrix} .00241 \\ (.00065) \end{matrix} * \Delta RFHA_{-1}$$

$$- \begin{matrix} .05321 \\ (.01051) \end{matrix} * \Delta \ln \left[\frac{CDV82 + CDFE82 + CDO82}{C82} \right]$$

$$R^2 = .883 \quad S.E. = .0032 \quad D.W. = 2.05 \quad F.P. = 1954.3-1983.4$$

$$A15 \quad \Delta \ln PINC = - \begin{matrix} .00127 \\ (.00196) \end{matrix} + \begin{matrix} .56056 \\ (.16109) \end{matrix} * \Delta \ln PPNF$$

$$+ \begin{matrix} .03672 \\ (.02035) \end{matrix} * \ln \left[\frac{PCRUDE}{PCRUDE_{-2}} \right] + \begin{matrix} .08700 \\ (.05982) \end{matrix} * \Delta \ln PMNOIL$$

$$+ \begin{matrix} .39917 \\ (.09077) \end{matrix} * \Delta \ln PINC_{-1}$$

$$R^2 = .701 \quad S.E. = .0069 \quad D.W. = 1.88 \quad F.P. = 1967.2-1984.4$$

$$\begin{aligned}
 \text{A16 } \Delta \ln \text{PIRC} = & - .00666 + .17995 * \ln \left[\frac{\text{JCMH}}{\text{JCMH}_{-2}} \right] \\
 & \quad (.00323) \quad (.13670) \\
 & + .00191 * \sum_{i=1}^3 \beta_i * (\text{RAAA-RCPCD})_{-i} \\
 & \quad (.00071) \\
 & + .03249 * \ln \left[\frac{\text{PCRUE}}{\text{PCRUE}_{-2}} \right] + .93290 * \Delta \ln \text{PPNF} \\
 & \quad (.02287) \quad (.21390)
 \end{aligned}$$

$$\beta_i = (.41, .49, .10)$$

$$R^2 = .451 \quad \text{S.E.} = .0101 \quad \text{D.W.} = 2.33 \quad \text{F.P.} = 1954.4-1983.4$$

$$\begin{aligned}
 \text{A17 } \ln \text{PHOUSH.E} = & .94741 + .07555 * \ln \left[\frac{\text{HOUSEX}}{\text{HOUSEX}_{-4}} \right] \\
 & \quad (.25091) \quad (.01872) \\
 & + .02796 * \ln \left[\frac{\text{RCPCD}_{-1}}{\text{RCPCD}_{-3}} \right] + .28025 * \ln \left[\frac{\text{JCMH}}{\text{JCMH}_{-4}} \right] \\
 & \quad (.01279) \quad (.17807) \\
 & - .01206 * \text{DSEAS1} + .00160 * \text{DSEAS2} \\
 & \quad (.00464) \quad (.00469) \\
 & - .01324 * \text{DSEAS3} + .79266 * \ln \text{PHOUSH.E}_{-1} \\
 & \quad (.00458) \quad (.05414)
 \end{aligned}$$

$$R^2 = .864 \quad \text{S.E.} = .0211 \quad \text{D.W.} = 1.80 \quad \text{F.P.} = 1969.1-1984.4$$

$$A18 \quad \Delta \ln PGFD = - .00354 + .74360 * \Delta \ln PPNF$$

(.00332) (.26386)

$$+ .61920 * DGPAY * \Delta \ln \left[\frac{YGWS}{EGOV} \right]$$

(.12877)

$$+ .20904 * DGPAY_{-1} * \Delta \ln \left[\frac{YGWS}{EGOV} \right]_{-1}$$

(.14781)

$$+ .59505 * \Delta \ln PPNF_{-1} - .31220 * \Delta \ln PGFD_{-1}$$

(.26765) (.12436)

$$R^2 = .510 \quad S.E. = .0111 \quad D.W. = 2.11 \quad F.P. = 1972.1-1987.4$$

$$A19 \quad \Delta \ln PGFO = .00232 + .44012 * \Delta \ln PPNF$$

(.00181) (.13311)

$$+ .15053 * \Delta \ln PIPDO_{-1} + .01695 * \Delta \ln POIL_{-1}$$

(.06338) (.00815)

$$+ .75700 * DGPAY * \Delta \ln \left[\frac{YGWS}{EGOV} \right]$$

(.07163)

$$R^2 = .772 \quad S.E. = .0060 \quad D.W. = 2.07 \quad F.P. = 1972.2-1987.4$$

$$\begin{aligned}
 \text{A20 } \Delta \ln \text{ PGSL} &= .00642 + .29207 * \Delta \ln \text{ PPNF} \\
 &\quad (.00125) \quad (.07650) \\
 &+ .31046 * \Delta \ln \text{ JCMH} + .03708 * \Delta \ln \text{ PMNOIL} \\
 &\quad (.10079) \quad (.02338) \\
 &+ .01303 * \Delta \ln \text{ PMOIL} \\
 &\quad (.00307)
 \end{aligned}$$

$$R^2 = .785 \quad \text{S.E.} = .0030 \quad \text{D.W.} = 1.50 \quad \text{F.P.} = 1972.2-1986.4$$

$$\begin{aligned}
 \text{A21 } \Delta \ln \text{ PIPDQ} &= - .00275 + .29712 * \Delta \ln \text{ PPNF} \\
 &\quad (.00122) \quad (.10647) \\
 &+ .13457 * \Delta \ln \text{ PMNOIL} + .75483 * \Delta \ln \text{ PIPDQ}_{-1} \\
 &\quad (.03161) \quad (.05715)
 \end{aligned}$$

$$R^2 = .877 \quad \text{S.E.} = .0044 \quad \text{D.W.} = 1.86 \quad \text{F.P.} = 1967.2-1984.4$$

$$\begin{aligned}
 \text{A22 } \Delta \ln \text{ PIPDAG} &= - .00178 + .44421 + \Delta \ln \text{ PPNF} + .18420 * \Delta \ln \text{ PMNOIL} \\
 &\quad (.00264) \quad (.20285) \quad (.07395) \\
 &+ .53381 * \Delta \ln \text{ PIPDAG}_{-1} \\
 &\quad (.08712)
 \end{aligned}$$

$$R^2 = .575 \quad \text{S.E.} = .0107 \quad \text{D.W.} = 1.74 \quad \text{F.P.} = 1967.2-1986.4$$

$$\begin{aligned}
 \text{A23 } \Delta \ln \text{ PIPDO} = & - .00599 + .64741 * \Delta \ln \text{ PPNF} \\
 & \quad (.00239) \quad (.20087) \\
 & + .28904 * \Delta \ln \text{ PAUTO} + .09947 * \Delta \ln \text{ PMNOIL}_{-1} \\
 & \quad (.08825) \quad (.06718) \\
 & - .05600 * \Delta \ln \text{ PCRUDE} + .37239 * \Delta \ln \text{ PIPDO}_{-1} \\
 & \quad (.03918) \quad (.09075)
 \end{aligned}$$

$$R^2 = .643 \quad \text{S.E.} = .0080 \quad \text{D.W.} = 2.35 \quad \text{F.P.} = 1967.3-1984.4$$

$$\begin{aligned}
 \text{A24 } \Delta \ln \text{ PIPDT} = & - .00211 + .56332 * \Delta \ln \text{ PPNF} \\
 & \quad (.00190) \quad (.14351) \\
 & + .37802 * \Delta \ln \text{ PTRKL} \\
 & \quad (.05742) \\
 & + .20537 * \Delta \ln \text{ PTRKH} \\
 & \quad (.07072)
 \end{aligned}$$

$$R^2 = .677 \quad \text{S.E.} = .0076 \quad \text{D.W.} = 2.52 \quad \text{F.P.} = 1967.3-1987.4$$

$$\begin{aligned}
 \text{A25 } \Delta \ln \text{ PX} = & - .00408 + .79826 * \Delta \ln \text{ PPNF} \\
 & \quad (.00234) \quad (.17574) \\
 & + .30906 * \Delta \ln \text{ PMNOIL}_{-1} + .04601 * \Delta \ln \text{ PFARM} \\
 & \quad (.06903) \quad (.01230) \\
 & + .03502 * \Delta \ln \text{ PMOIL} \\
 & \quad (.00850)
 \end{aligned}$$

$$R^2 = .707 \quad \text{S.E.} = .0084 \quad \text{D.W.} = 1.94 \quad \text{F.P.} = 1967.3-1986.4$$

$$A26 \quad \Delta \ln JEXR = \overset{21}{-} \overset{161}{.00028} + 1.0204 * \Delta \ln \left[\frac{PFOREIGN}{PX} \right]$$

(.00162) (.04802)

$$+ \overset{101}{.10947} * \Delta \ln \left[\frac{PFOREIGN}{PX} \right]_{-1} + \overset{202}{.03442} * \ln \left[\frac{X_{-1}}{M} \right] \left[\frac{(X + NS + GNT)_{-1}}{M + HTRF + GTRF + GINT} \right]$$

(.04593) (.01288)

$$+ \overset{03}{.02138} * \ln \left[\frac{RTB}{RFOR3} \right]$$

(.00736)

$$R^2 = .932 \quad S.E. = .0142 \quad D.W. = 1.88 \quad F.P. = 1973.2-1986.4$$

$$A27 \quad \Delta \ln PGAS = .00991 - .29546 * \Delta \ln PGAS_{-1} + .79639 * \Delta \ln PMOIL$$

(.00492) (.12460) (.09225)

$$R^2 = .787 \quad S.E. = .0252 \quad D.W. = 1.81 \quad F.P. = 1978.2-1985.4$$

$$A28 \quad \Delta \ln PCRUDE = .00225 + .37543 * \Delta \ln POIL$$

(.00189) (.03346)

$$+ .08683 * \Delta \ln PNGAS + .36054 * \Delta \ln POTHRCRU$$

(.06331) (.03410)

$$+ .59037 * \Delta \ln PCRUDE_{-1} - .19588 * \Delta \ln POIL_{-1}$$

(.19341) (.07890)

$$- .08634 * \Delta \ln PNGAS_{-1} - .21457 * \Delta \ln POTHRCRU_{-1}$$

(.06106) (.07833)

$$R^2 = .963 \quad S.E. = .0074 \quad D.W. = 1.80 \quad F.P. = 1978.2-1985.4$$

$$A29 \quad \Delta \ln POIL = .01339 + 1.1194 * \Delta \ln PMOIL$$

(.00583) (.05038)

$$- .07684 * \Delta \ln POIL_{-1} - .95167 * \ln \left[\frac{POIL}{PMOIL} \right]_{-1}$$

(.03841) (.24206)

$$R^2 = .973 \quad S.E. = .0203 \quad D.W. = 1.39 \quad F.P. = 1981.2-1986.4$$

$$A30 \quad JRAUTO = 16.703 + 1.7430 * RG5_{-1} - .46601 * (RAAA - RCPCD)$$

(2.0649) (.40967) (.20708)

$$+ .63035 * RTB_{-1} - .74044 * DAINC1$$

(.32977) (.32828)

$$+ .56137 * (JRAUTO_{-1} + .74044 * DAINC1_{-1})$$

(.04509) (.32828)

$$R^2 = .986 \quad S.E. = 1.621 \quad D.W. = 1.68 \quad F.P. = 1978.2-1989.2$$

$$A31 \quad \ln PIINVO = .00482 + .83628 * \ln PPNF$$

(.25074) (.22570)

$$+ .36378 * \ln PMNOIL - .20398 * \ln PIINVO_{-1}$$

(.17566) (.10319)

$$R^2 = .889 \quad S.E. = .1433 \quad D.W. = 2.19 \quad F.P. = 1967.2-1971.3, 1972.2-1975.2,$$

1976.2-1981.1, 1981.4-1985.3

$$A32 \quad \ln PIINVA = - 6.5322 + 2.4244 * \ln PAUTO$$

(1.4120) (.30750)

$$R^2 = .705 \quad S.E. = .1326 \quad D.W. = 2.13 \quad F.P. = 1979.3-1980.2, 1980.4-1984.2,$$

1984.4-1986.4

B. Productivity and Employment

$$\begin{aligned}
 B1 \quad \Delta \ln QMH77 = & - \frac{.05832}{(.02279)} + \frac{.01116}{(.00297)} * D5467 \\
 & + \frac{.00576}{(.00182)} * D6873 \\
 & - \frac{.05786}{(.00872)} * \ln \left[\frac{JIPM}{JCAP} \right] + \frac{.49865}{(.04836)} * \Delta \ln GNP82 \\
 & + \frac{.00753}{(.00384)} * \sum_{i=1}^6 \beta_i * \ln (IBF82 - IPDAG82)_{-i}
 \end{aligned}$$

$$\beta_i = (.1, .15, .25, .25, .15, .1)$$

$R^2 = .573$ S.E. = .0053 D.W. = 2.06 F.P. = 1955.3-1983.4

$$\begin{aligned}
 B2 \quad \Delta \ln REM = & - \frac{.00373}{(.00032)} + \frac{.28934}{(.03172)} * \Delta \ln GNP82 \\
 & + \frac{.09668}{(.03391)} * \Delta \ln GNP82_{-1} \\
 & + \frac{.03108}{(.00805)} * \frac{RUM_{-1} + RUM_{-2}}{2} * \sum_{i=1}^2 \frac{\Delta \ln GNP82_{-i}}{2} \\
 & - \frac{.05975}{(.04054)} * \Delta \ln QMH77
 \end{aligned}$$

$R^2 = .722$ S.E. = .0026 D.W. = 1.99 F.P. = 1954.4-1983.4

$$- \frac{.00041}{(.00039)} * D5467 - \frac{.00379}{(.00040)} * D7080$$

$$- \frac{.00062}{(.00065)} * D6873 - \frac{.00015}{(.00016)} * D6873 - \frac{.00217}{(.00050)} * D5467$$

$$B3 \quad RUG = .79518 + (.01330 - .00447 * RUM) * TIME$$

(.21603)
(.00314)
(.00053)

$$+ .02868 * RLFSEC * RUM + .9062 * \mu_{-1}$$

(.00098)

$$R^2 = .964^{55} \quad S.E. = .0847^{61} \quad D.W. = 1.95^{2.02} \quad F.P. = 1954.8^{2} - 1983.4^{8}$$

GLS 

$$\Delta RUG = -.01489 + 1.1650 * \Delta RUM$$

(.00857)
(.14623)

$$- .00595 * RLFSEC_{-1} * \Delta RUM$$

(.00000)

$$+.03441 * RUM_{-1} * \Delta RLFSEC$$

(.01077)

C. Expenditure

$$\begin{aligned}
C1 \quad CDVA82 = & \begin{matrix} .08197 & + & 4.6643 & * & DJRAUTO_{-1} & - & 2.8862 \\ (3.6573) & & (1.3841) & & & & (1.4604) \end{matrix} \\
& * \left[(DOPEC1 + DOPEC2) - .92 * (DOPEC1_{-1} + DOPEC2_{-1}) \right] \\
& + \begin{matrix} 4.3199 & * & (DOPEC3 - .92 * DOPEC3_{-1}) & + & 8.3981 & * & (DTAX86 - .92 * DTAX86_{-1}) \\ (2.7290) & & & & (2.0015) & & \end{matrix} \\
& - \begin{matrix} 45.551 & * & \left[\frac{PAUTO}{PC_{-1}} - .92 * \frac{PAUTO_{-1}}{PC_{-2}} \right] \\ (17.796) & & \end{matrix} \\
& + \begin{matrix} (1.5479 - .30809 * DJRAUTO_{-1}) \\ (.45734) \quad (.58207) \end{matrix} \\
& * \left[(RAAA - RCPCD)_{-2} - .92 * (RAAA - RCPCD)_{-3} \right] \\
& - \begin{matrix} 2.7735 & * & (RUM_{-1} - .92 * RUM_{-2}) \\ (.76111) & & \end{matrix} \\
& + \begin{matrix} .21018 & * & (YPERM82 - .91683 * YPERM82_{-1}) \\ (.04020) & & (.01665) \end{matrix} \\
& - \begin{matrix} .67756 & * & DJRAUTO_{-1} * (JRAUTO - .92 * JRAUTO_{-1}) \\ (.13443) & & \end{matrix} \\
& + \begin{matrix} 2.1615 & * & (DASTRIKE - .92 * DASTRIKE_{-1}) \\ (.32148) & & \end{matrix} \\
& + \begin{matrix} 5.0687 & * & (DAINC1 - .92 * DAINC1_{-1}) & + & .52334 & * & CDVA82_{-1} \\ (.51250) & & & & (.05616) & & \end{matrix}
\end{aligned}$$

$$R^2 = .981 \quad S.E. = 2.641 \quad D.W. = 2.27 \quad F.P. = 1955.4-1987.4$$

$$\begin{aligned}
\text{C2} \quad \text{CDVT82} = & - \frac{18.907}{(4.0124)} + \frac{.37640}{(.66427)} * \text{DJRAUTO}_{-1} \\
& - \frac{3.5806}{(4.7020)} * \left[\frac{\text{PCDVT}}{\text{PC}_{-1}} - .91 * \frac{\text{PCDVT}_{-1}}{\text{PC}_{-2}} \right] \\
& + \left[\frac{.38161}{(.17232)} - \frac{.36115}{(.22223)} * \text{DJRAUTO}_{-1} \right] \\
& * \left[(\text{RAAA} - \text{RCPCD})_{-2} - .91 * (\text{RAAA} - \text{RCPCD})_{-3} \right] \\
& + \frac{3.2793}{(.89226)} * (\text{RLFSEC} - .91 * \text{RLFSEC}_{-1}) \\
& - \frac{.16818}{(.05005)} * \text{DJRAUTO}_{-1} * (\text{JRAUTO} - .91 * \text{JRAUTO}_{-1}) \\
& + \frac{.16291}{(.13655)} * (\text{DASTRIKE} - .91 * \text{DASTRIKE}_{-1}) \\
& + \frac{.81605}{(.18838)} * (\text{DAINC1} - .91 * \text{DAINC1}_{-1}) \\
& + \frac{.05305}{(.01384)} * (\text{YPERM82} - .90967 * \text{YPERM82}_{-1}) + \frac{.76084}{(.05503)} * \text{CDVT82}_{-1}
\end{aligned}$$

$$R^2 = .981 \quad \text{S.E.} = 1.012 \quad \text{D.W.} = 2.40 \quad \text{F.P.} = 1967.2-1987.4$$

$$\begin{aligned}
\text{C3} \quad \text{CDVO82} = & - \frac{9.9168}{(2.6792)} - \frac{4.2435}{(1.2915)} * \text{DTAX86}_{-1} + \frac{2.4868}{(1.2678)} * \text{DTAX86} \\
& + \left[\frac{.01345}{(.00335)} + \frac{.00028}{(.00006)} * \sum_{i=1}^2 \frac{(\text{RAAA-RCPCD})_{-i}}{2} \right] * \text{YPERM82} + \frac{.01681}{(.00741)} * \text{YT82} \\
& + \frac{.67772}{(.07872)} * \text{CDVO82}_{-1} - \frac{.22460}{(.09656)} * \Delta \text{CDVO82}_{-1}
\end{aligned}$$

$$R^2 = .990 \quad \text{S.E.} = 1.210 \quad \text{D.W.} = 2.03 \quad \text{F.P.} = 1967.3-1987.4$$

$$\begin{aligned}
\text{C4} \quad \text{CDFE82} = & - \frac{6.6623}{(3.1120)} + \frac{.01080}{(.00494)} * \text{YD82} + \frac{3.1653}{(1.0622)} * \text{DCDFE} \\
& + \frac{.00296}{(.00117)} * \Delta \text{HOUSEX} + \frac{.00681}{(.00174)} * \Delta \text{HOUSCOMP} \\
& - \frac{.27394}{(.12779)} * (\text{RAAA-RCPCD}) + \frac{.82774}{(.08533)} * \text{CDFE82}_{-1}
\end{aligned}$$

$$R^2 = .993 \quad \text{S.E.} = 1.254 \quad \text{D.W.} = 1.87 \quad \text{F.P.} = 1968.2-1983.4$$

$$C5 \quad CDO82 = 2.9598 + .01621 * YD82 - .01394 * YD82_{-1}$$

(2.0422) (.00423) (.00425)

$$- 22.563 * \left[\frac{PCDO}{PC} - \left[\frac{.01394}{.01621} \right] * \left[\frac{PCDO}{PC} \right]_{-1} \right]$$

(7.0644)

$$+ .90206 * CDO82_{-1}$$

(.03675)

$$R^2 = .997 \quad S.E. = .7617 \quad D.W. = 2.29 \quad F.P. = 1954.3-1983.4$$

$$C6 \quad \Delta CNFD82 = 1.5056 + 55.294 * \Delta \left[\frac{PCNCS}{PC} \right]$$

(.49376) (33.626)

$$- 216.72 * \Delta \left[\frac{PCNFD}{PC} \right] + 10.543 * \Delta \left[\frac{PCNFC}{PC} \right]$$

(37.637) (10.955)

$$+ 105.15 * \Delta \left[\frac{PCNOO}{PC} \right] + .03385 * \Delta YD82$$

(55.824) (.01367)

$$+ .01811 * \Delta YD82_{-1}$$

(.01460)

$$R^2 = .451 \quad S.E. = 2.631 \quad D.W. = 1.87 \quad F.P. = 1968.2-1987.3$$

$$\begin{aligned}
C7 \quad \Delta CNCS82 = & \frac{.20079}{(.27156)} - \frac{62.178}{(18.387)} * \Delta \left[\frac{PCNCS}{PC} \right] \\
& - \frac{40.821}{(20.587)} * \Delta \left[\frac{PCNFD}{PC} \right] - \frac{14.656}{(5.9770)} * \Delta \left[\frac{PCNFC}{PC} \right] \\
& - \frac{43.898}{(30.510)} * \Delta \left[\frac{PCNOO}{PC} \right] + \frac{.03209}{(.00781)} * \Delta YD82 \\
& + \frac{.02064}{(.00858)} * \Delta YD82_{-1} - \frac{.18381}{(.10834)} * \Delta CNCS82_{-1}
\end{aligned}$$

$$R^2 = .372 \quad S.E. = 1.435 \quad D.W. = 2.09 \quad F.P. = 1968.2-1987.3$$

$$\begin{aligned}
C8 \quad \Delta CNGO82 = & \frac{.54108}{(.24552)} + \frac{37.481}{(18.875)} * \Delta \left[\frac{PCNCS}{PC} \right] \\
& + \frac{38.677}{(22.924)} * \Delta \left[\frac{PCNFD}{PC} \right] - \frac{28.811}{(6.3007)} * \Delta \left[\frac{PCNGO}{PC} \right] \\
& + \frac{59.848}{(32.875)} * \Delta \left[\frac{PCNOO}{PC} \right] + \frac{.01031}{(.00794)} * \Delta YD82 \\
& - \frac{.22338}{(.09141)} * \Delta CNGO82_{-1}
\end{aligned}$$

$$R^2 = .514 \quad S.E. = 1.502 \quad D.W. = 1.86 \quad F.P. = 1968.2-1987.3$$

$$\begin{aligned}
\text{C9 } \Delta \text{CNOO82} = & .33908 + 28.226 * \Delta \left[\frac{\text{PCNCS}}{\text{PC}} \right] \\
& (.20845) \quad (13.950) \\
& - 4.1154 * \Delta \left[\frac{\text{PCNFC}}{\text{PC}} \right] - 114.61 * \Delta \left[\frac{\text{PCNOO}}{\text{PC}} \right] \\
& (4.3938) \quad (22.913) \\
& + .01102 * \Delta \text{YD82} + .01784 * \Delta \text{YD82}_{-1} \\
& (.00578) \quad (.00599) \\
& + .08490 * \Delta \text{CNOO82}_{-1} \\
& (.09494)
\end{aligned}$$

$$R^2 = .498 \quad \text{S.E.} = 1.084 \quad \text{D.W.} = 2.14 \quad \text{F.P.} = 1968.2-1987.3$$

$$\begin{aligned}
\text{C10 } \Delta \text{CNFC82} = & - .11092 + 29.846 * \Delta \left[\frac{\text{PCNCS}}{\text{PC}} \right] \\
& (.22337) \quad (14.649) \\
& + 11.481 * \Delta \left[\frac{\text{PCNGO}}{\text{PC}} \right] - 17.635 * \Delta \left[\frac{\text{PCNFC}}{\text{PC}} \right] \\
& (7.2102) \quad (7.5468) \\
& + 31.805 * \Delta \left[\frac{\text{PCNOO}}{\text{PC}} \right] + .01302 * \Delta \text{YD82} \\
& (23.754) \quad (.00611) \\
& + .00647 * \Delta \text{YD82}_{-1} + .11645 * \Delta \text{CNFC82}_{-1} \\
& (.00649) \quad (.11062)
\end{aligned}$$

$$R^2 = .294 \quad \text{S.E.} = 1.145 \quad \text{D.W.} = 2.00 \quad \text{F.P.} = 1968.2-1987.3$$

$$\begin{aligned}
\text{C11 } \text{CS82} &= 4.3440 + .10198 * \Delta \left[\frac{\text{YD} + \text{TSIP}}{\text{PC}/100} \right] \\
&\quad (3.7069) \quad (.01758) \\
&+ 28.460 * \left[\frac{\text{PCS}}{\text{PC}} - 1 \right] + .01461 * \left[\frac{\text{YD} + \text{TSIP}}{\text{PC}/100} \right]_{-1} \\
&\quad (23.336) \\
&+ .96734 * \text{CS82}_{-1} \\
&\quad (.01896)
\end{aligned}$$

$$R^2 = .999 \quad \text{S.E.} = 3.050 \quad \text{D.W.} = 2.39 \quad \text{F.P.} = 1954.2-1983.4$$

$$\begin{aligned}
\text{C12 } \text{AUTOSB} &= .16354 + .06068 * (\text{RAAA} - \text{RCPCD})_{-2} \\
&\quad (.07268) \quad (.01032) \\
&+ .00023 * \left[1 + \frac{\text{TDEPRAU}_{-2} - \frac{1}{6} + \text{TITCR}_{-2} - .07}{4} \right] * \sum_{i=1}^3 \frac{\text{GNP82}_{-i}}{3} \\
&\quad (.00007) \\
&+ .00080 (\text{GNP82}_{-1} - \text{GNP82}_{-3}) + .12867 * \text{DAINC} + .13961 * \text{DASTRIKE} \\
&\quad (.00043) \quad (.02211) \quad (.02171) \\
&- .36450 * (\Delta \text{AUTOSB}_{-1} - .12867 * \Delta \text{DAINC}_{-1} - .13961 * \Delta \text{DASTRIKE}_{-1}) \\
&\quad (.08733) \quad (.02211) \quad (.02171) \\
&+ .67817 * (\text{AUTOSB}_{-1} - .12867 * \text{DAINC}_{-1} - .13961 * \text{DASTRIKE}_{-1}) \\
&\quad (.06951) \quad (.02211) \quad (.02171)
\end{aligned}$$

$$R^2 = .946 \quad \text{S.E.} = .149 \quad \text{D.W.} = 1.85 \quad \text{F.P.} = 1962.3-1987.4$$

$$\begin{aligned}
 \text{C13 } \Delta \text{CDVA82} = & .44207 + \left[.00809 * \text{YPERM82}_{-1} - .08802 * \text{RLFSEC}_{-1} \right. \\
 & \left. + .39060 * \text{RUM}_{-1} - 6.8761 * \text{AUTOSIZE}_{-1} \right] * \Delta \text{AUTOSC} \\
 & - 1.8967 * \Delta \text{AUTOSIZE} * \text{AUTOSC}_{-1} \\
 & \left. \begin{array}{l} (.07308) \quad (.00091) \quad (.02287) \\ (.10951) \quad (1.8002) \\ (.32544) \end{array} \right.
 \end{aligned}$$

$$R^2 = .987 \quad \text{S.E.} = .6935 \quad \text{D.W.} = 2.07 \quad \text{F.P.} = 1962.3-1987.4$$

$$\begin{aligned}
 \text{C14 } \frac{\text{AUTOSD}}{\text{AUTOS}} = & 1.0767 - .00339 * \text{TIME} + .00323 * (\text{TIME} - 132) \\
 & + .01256 * \text{DASTRIKE} - .24418 * \text{PAUTOD.F} \\
 & - .02054 * \text{DOPEC1} - .00052 * \text{DOPEC2} - .02925 * \text{DOPEC3} \\
 & - .05548 * \ln \left[\frac{\text{PGAS}}{\text{PC}_{-1}} \right] + .00120 * \text{JICS} - .02046 * \text{DVRALED} \\
 & + .00421 * \text{DAINC1} - .00807 * \text{DAINC1}_{-1} \\
 & + .27126 * \left[\left[\frac{\text{AUTOSD}}{\text{AUTOS}} \right]_{-1} - .01256 * \text{DASTRIKE}_{-1} + .02046 * \text{DVRALED}_{-1} \right. \\
 & \left. - .00421 * \text{DAINC1}_{-1} + .00807 * \text{DAINC1}_{-2} \right] \\
 & \left. \begin{array}{l} (.13710) \quad (.00049) \quad (.00146) \\ (.00237) \quad (.04336) \\ (.01025) \quad (.00632) \quad (.00951) \\ (.01577) \quad (.00021) \quad (.00615) \\ (.00331) \quad (.00328) \\ (.08926) \quad (.00237) \quad (.00615) \\ (.00331) \quad (.00328) \end{array} \right.
 \end{aligned}$$

$$R^2 = .967 \quad \text{S.E.} = .0131 \quad \text{D.W.} = 2.24 \quad \text{F.P.} = 1967.2-1988.4$$

$$\begin{aligned}
\text{C15 TRKH} &= .10469 + 00551 * (\text{RAAA} - \text{RCPCD})_{-2} \\
&\quad (.03488) \quad (.00167) \\
&+ .00014 * (\text{GNP82}_{-1} - \text{GNP82}_{-3}) \\
&\quad (.00007) \\
&+ .00019 * (\text{GNP82}_{-3} - \text{GNP82}_{-5}) \\
&\quad (.00007) \\
&- .34209 * \left[\frac{\text{UCKPDTH}}{\text{PPNF}} \right]_{-1} \\
&\quad (.11693) \\
&+ .00679 * \text{DASTRIKE} + .82121 * \left[\text{TRKH}_{-1} - .00679 * \text{DASTRIKE}_{-1} \right] \\
&\quad (.00325) \quad (.05399) \quad (.00325)
\end{aligned}$$

$$R^2 = .923 \quad \text{S.E.} = .0241 \quad \text{D.W.} = 2.49 \quad \text{F.P.} = 1967.2-1987.4$$

$$\begin{aligned}
\text{C16 } \Delta (\text{TRKL} + \text{TRKH}) &= - .00485 + .12712 * \Delta \text{CDVT82} \\
&\quad (.01360) \quad (.01033) \\
&+ .03900 * \Delta \text{IPDTRK82} + .11426 * \Delta \text{GOVTRK82} \\
&\quad (.00913) \quad (.04144)
\end{aligned}$$

$$R^2 = .914 \quad \text{S.E.} = .093 \quad \text{D.W.} = 2.39 \quad \text{F.P.} = 1976.1-1987.4$$

$$C17 \quad \frac{TRKLD}{TRKL} = .53220 - .04324 * DOPEC3 + .03525 * D86.4_{-1}$$

(.10430)
(.01510)
(.01150)

$$- .19638 * \frac{PTRKL}{PMTRK_{-1}} - .01755 * DOPEC2$$

(.07195)
(.00771)

$$- .07997 * \ln \left[\frac{PGAS}{PPNF} \right] + .59914 * \left[\frac{TRKLD}{TRKL} \right]_{-1}$$

(.02709)
(.08888)

$$R^2 = .903 \quad S.E. = .0184 \quad D.W. = 2.10 \quad F.P. = 1970.2-1988.4$$

$$C18 \quad IBFNC82 = .93367 + .02350 * (GNP82_{-1} - GNP82_{-3})$$

(1.1643)
(.00614)

$$+ (- .00180 + .00673 * JCU_{-1}) * \left[1 + \frac{TDEPRNC_{-4} - \frac{1}{60}}{4} \right]$$

(.00165)
(.00219)

$$* \sum_{i=2}^5 \beta_i * GNP82_{-i} + .90499 * IBFNC82_{-1}$$

(.03644)

$$\beta_i = (.4, .3, .2, ..)$$

$$R^2 = .989 \quad S.E. = 2.619 \quad D.W. = 1.66 \quad F.P. = 1955.2-1985.4$$

$$C19 \quad IPDQ82 = .03878 + .00932 * (GNP82_{-1} - GNP82_{-3})$$

(.78720) (.00328)

$$+ \left\{ \begin{array}{l} .00166 + .00555 * JCU_{-1} \\ (.00102) \quad (.00117) \end{array} \right\} * \left[1 + \frac{TDEPRQ_{-2} - \frac{1}{6} + TITCR_{-2} - .07}{4} \right]$$

$$* \left[\frac{GNP82_{-1} + GNP82_{-2}}{2} \right]$$

$$- \frac{24.578}{(7.7073)} * 0.5 * \left[\left[\frac{UCKPDQ}{PPNF} \right]_{-1} + \left[\frac{UCKPDQ}{PPNF} \right]_{-2} \right]$$

$$+ .76680 * IPDQ82_{-1}$$

(.04582)

$$R^2 = .995 \quad S.E. = 1.201 \quad D.W. = 1.65 \quad F.P. = 1956.3-1985.4$$

$$\text{C20 IPDONV82} = -17.486 + .02880 * (\text{GNP82}_{-1} - \text{GNP82}_{-3})$$

(6.2932) (.00947)

$$+ .02047 * (\text{GNP82}_{-3} - \text{GNP82}_{-5})$$

(.00976)

$$+ .01062 * \left[1 + \frac{\text{TDEPRO}_{-3} - \frac{1}{6} + \text{TITCR}_{-3} - .07}{4} \right]$$

(.00391)

$$* \sum_{i=1}^3 \frac{\text{GNP82}_{-i}}{3} + .84676 * \text{IPDONV82}_{-1}$$

(.05995)

$$R^2 = .985 \quad \text{S.E.} = 4.000 \quad \text{D.W.} = 2.39 \quad \text{F.P.} = 1967.2-1986.4$$

$$\text{C21 IPDAG82} = 1.9010 - 15.493 * \sum_{i=1}^4 \beta_i * \text{UCKIPDAG}_{-i}$$

(.50816) (4.2613)

$$+ .00134 * \left[1 + \frac{\text{TDEPRAG}_{-4} - \frac{1}{6} + \text{TITCR}_{-4} - .07}{4} \right] * \sum_{i=3}^5 \frac{\text{GNP82}_{-i}}{3}$$

(.00040)

$$+ .80852 * \text{IPDAG82}_{-1}$$

(.05063)

$$\beta_i = (.4, .3, .2, .1)$$

$$R^2 = .954 \quad \text{S.E.} = .9034 \quad \text{D.W.} = 1.82 \quad \text{F.P.} = 1955.2-1987.4$$

$$C22 \text{ IPDTRK82} = - 4.4452 + .14339 * (RAAA - RCPCD)_{-2}$$

(1.6582) (.06518)

$$+ .00213 * \left[1 + \frac{TDEPRO_{-2} - \frac{1}{6} + TITCR_{-2} - .07}{4} \right] * \sum_{i=1}^2 \frac{GNP82_{-i}}{2}$$

(.00064)

$$+ .00596 * (GNP82_{-1} - GNP82_{-3})$$

(.00256)

$$+ .00451 * (GNP82_{-3} - GNP82_{-5})$$

(.00261)

$$+ \left(- 29.488 + 76.191 * \frac{PTRKH}{PIPDT} \right) * TRKH + .32964 * DASTRIKE$$

(27.340) (28.861) (.13479)

$$+ .70071 * \left\{ \text{IPDTRK82}_{-1} - .32964 * \text{DASTRIKE}_{-1} \right.$$

(.07334) (.13479)

$$- \left[- 29.488 + 76.191 * \left[\frac{PTRKH}{PIPDT} \right]_{-1} \right] * \text{TRKH}_{-1}$$

(27.340) (28.861)

$$R^2 = .974 \quad \text{S.E.} = .9167 \quad \text{D.W.} = 1.97 \quad \text{F.P.} = 1967.2-1987.4$$

$$\begin{aligned}
\text{C23 } \Delta \text{IPDAU82} = & \frac{.10574}{(.04662)} + \left[-\frac{2.2387}{(1.0339)} + \frac{.00464}{(.00075)} * \text{GNP82}_{-1} \right. \\
& \left. + \frac{.44957}{(.15172)} * \text{RUM}_{-1} - \frac{11.112}{(3.1035)} * \text{AUTOSIZE}_{-1} \right] * \Delta \text{AUTOSB} \\
& + \left[\frac{.00089}{(.00048)} \Delta \text{GNP82} - \frac{1.3034}{(.41815)} \Delta \text{AUTOSIZE} \right] * \text{AUTOSB}_{-1}
\end{aligned}$$

$$R^2 = .974 \quad \text{S.E.} = .3638 \quad \text{D.W.} = 2.31 \quad \text{F.P.} = 1962.3-1987.4$$

$$\begin{aligned}
\text{C24 } \text{IRC82} = & \frac{67.252}{(16.702)} + \frac{1.9551}{(.46514)} * \sum_{i=1}^3 \beta_i * (\text{RAAA-RCPCD})_{-i} \\
& + \frac{.02923}{(.00708)} * \sum_{i=0}^2 \beta_i * (\text{DYD82} + \text{YD82})_{-i} \\
& - \frac{15.147}{(5.2470)} * \text{D763} + \frac{.67617}{(.04482)} * \text{IRC82}_{-1} \\
& - \left[\frac{.30998}{(.14727)} + \frac{.04700}{(.00857)} * (1-\text{DRMORT}) * \text{RFHA}_{-1} + \frac{.03735}{(.00701)} * \text{DRMORT} * \text{RMORT}_{-1} \right] \\
& * \sum_{i=1}^3 \beta_i * \text{PHOUSN.E}_{-i}
\end{aligned}$$

$$\beta_i = (.41, .49, .10)$$

$$R^2 = .971 \quad \text{S.E.} = 4.852 \quad \text{D.W.} = 2.24 \quad \text{F.P.} = 1970.2-1986.4$$

$$\text{C25 } \Delta \text{ HOUSES} = - 10.647 + 16.370 * \Delta \text{ IRC82} + 3.3641 * \Delta \text{ IRC82}_{-1}$$

(10.288) (2.1133) (2.4877)

$$- .36882 * \Delta \text{ HOUSES}_{-1} - .15599 * \Delta \text{ HOUSES}_{-2}$$

(.12462) (.11404)

$$R^2 = .417 \quad \text{S.E.} = 109.0 \quad \text{D.W.} = 2.04 \quad \text{F.P.} = 1954.4-1983.4$$

$$\text{C26 } \ln \text{ HOUSEX} = .37597 + .13249 * \ln \text{ HOUSES}$$

(.23662) (.03017)

$$+ .43858 * \Delta \ln \text{ HOUSES}$$

(.05169)

$$- .07514 * \left[\frac{100}{\text{PHOUSN.E}_{-1}} \right] * \ln \text{ HOUSES}$$

(.02033)

$$+ .89437 * \ln \text{ HOUSEX}_{-1}$$

(.02904)

$$R^2 = .972 \quad \text{S.E.} = .0421 \quad \text{D.W.} = 2.50 \quad \text{F.P.} = 1970.2-1985.4$$

$$\begin{aligned}
 C27 \quad \overset{T}{\Delta} \text{INVO82} &= \overset{47.177}{23.906} - \overset{1.2504}{3.4328} * \text{DM82DOCK} + \overset{4470}{3.4083} * \text{DM82DOCK}_{-1} \\
 &\quad (\overset{10.460}{23.058}) \quad (\overset{1.8894}{0.2418}) \quad (\overset{1.8430}{0.1935}) \\
 &- \overset{7215}{.04480} * (\text{SINVO82}_{-1} - \text{SINVT82})_{-1} - 21.047 * \text{DPCRUDE} \\
 &\quad (\overset{.01266}{2756}) \quad (\overset{10.312}{}) \\
 &+ \left[\overset{4}{.08572} + \overset{7271}{.00038} * \left\{ \text{RTB} - \ln \left[\frac{\text{PPNF}}{\text{PPNF}_{-4}} \right] * 100 \right\} \right] \\
 &\quad (\overset{.02609}{3497}) \quad (\overset{.00036}{2586}) \\
 &+ \overset{.14185}{.09343} * \Delta \ln \text{PCRUDE}_{-1} * (\text{FS82} - \text{SERVE82})_{-1} \\
 &\quad (\overset{.02187}{6200}) \\
 &+ \overset{.38408}{.61665} * \Delta (\text{M82} + \overset{.47664}{.51088} * \overset{T}{\Delta} \text{INVO82}_{-1}) \\
 &\quad (\overset{.11007}{4934}) \quad (\overset{.06658}{8286})
 \end{aligned}$$

$R^2 = .612$ $S.E. = 11.33$ $D.W. = 2.47$ $F.P. = 1955.1-1986.4$

$$\begin{aligned}
 C28 \quad \text{INVA82} &= 2.5938 + 1.0177 * \Delta \text{MAUTO82} \\
 &\quad (1.5780) \quad (.31870) \\
 &- .12200 * \text{SINVA82}_{-1} + 2.7980 * \text{DASTRIKE} \\
 &\quad (.03642) \quad (.68418) \\
 &- 1.2501 * \text{DASTRIKE}_{-1} - .28015 * \Delta \text{CDVA82} \\
 &\quad (.64957) \quad (.08513) \\
 &+ .11229 * (\text{CDVA82} + \text{IPDAU82})_{-1} - 4.2843 * \text{DAINC1} \\
 &\quad (.03372) \quad (.94196) \\
 &+ 1.2248 * \text{DAINC1}_{-1} + 2.9170 * \text{DAINC1}_{-2} \\
 &\quad (1.0040) \quad (.87670)
 \end{aligned}$$

$R^2 = .610$ $S.E. = 3.389$ $D.W. = 2.13$ $F.P. = 1962.1-1987.4$

$$\begin{aligned}
 C29 \quad \ln V82 &= 2.1042 + .27469 * \ln V82_{-1} \\
 &\quad (.83435) \quad (.09646) \\
 &- .24051 * \ln V82_{-1} + .68010 * \text{DASTRIKE} \\
 &\quad (.04439) \quad (.38773) \\
 &- .42475 * \text{DASTRIKE}_{-1} - .40350 * \Delta \text{CDVT82} \\
 &\quad (.38882) \quad (.20843) \\
 &+ .18072 * (\text{CDVT82} + \text{IPDTRK82} + \text{GOVTRK82})_{-1} \\
 &\quad (.03517) \\
 &+ .441431 * \Delta \text{MTRK82} - .74963 * \text{DAINC1} \\
 &\quad (.48697) \quad (.48759) \\
 &+ .57645 * \text{DAINC1}_{-1} + 1.1530 * \text{DAINC1}_{-2} \\
 &\quad (.48585) \quad (.49416)
 \end{aligned}$$

$R^2 = .491$ $S.E. = 1.843$ $D.W. = 1.98$ $F.P. = 1967.2-1987.4$

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$$\begin{aligned}
 C30 \quad \ln \text{MNOH82} &= - \frac{3.6156}{.61816} - \frac{1.75 * (1 - .77436)}{(.05872)} * \ln \left[\frac{\text{PMNOIL}}{\text{PPNF}} \right]_{-1} \\
 &\quad 74013 \quad \frac{.56912}{(.10761)} \\
 &+ \left[2 * (1 - .77436) + \frac{.12993}{(.05641)} * \Delta \ln(\text{SINV82}) \right] * \ln \text{GNP82} \\
 &\quad \frac{.65434}{.450} \quad \frac{.19543}{.122} \\
 &+ .25119 * \Delta \ln \text{JEXR} + .04225 * \text{DM82DOCK} \\
 &\quad (.10512) \quad (.02082) \\
 &+ .03671 * \text{DM82DOCK}_{-1} + .77436 * \ln \text{MNOH82}_{-1} \\
 &\quad (.02076) \quad (.05872)
 \end{aligned}$$

+ (GFCCEY2) - ln SINV82_{-1}

$R^2 = .992^5$ $S.E. = .0258^{28}$ $D.W. = 1.84^{73}$ $F.P. = 1976.1-1986.4^7$

$$\text{C31} \quad \ln \text{MAUTO82} = .10270 + .19114 * \ln \text{AUTOSF} + .72086 * \ln \text{MAUTO82}_{-1}$$

(.14883)
(.06837)
(.05941)

$$+ .27545 * \ln \left[\frac{\text{CDVA82}}{\text{AUTOSC}} \right]_{-1}$$

(.09550)

$$R^2 = .976 \quad \text{S.E.} = .0755 \quad \text{D.W.} = 2.16 \quad \text{F.P.} = 1967.2-1987.4$$

$$\text{C32} \quad \Delta \ln \text{X82} = .875 * \Delta \ln \text{X82}_{-1} - .1 * \Delta \ln \text{PX}_{-1} - .1 * \Delta \ln \text{JEXR}_{-1}$$

$$+ .1 * \Delta \ln \text{PCFOR}_{-1} + .25 * \Delta \ln \text{JIPFOR}$$

D. Income Flows

$$\begin{aligned}
 \text{D1} \quad \Delta \ln \text{YPWS} = & - .00056 + .89246 * \Delta \ln \text{JCMH} \\
 & \quad (.00127) \quad (.07641) \\
 & + 1.0854 * \Delta \ln \text{GNP82} - .75786 * \Delta \ln \text{QMH77} \\
 & \quad (.05680) \quad (.07393) \\
 & - .05672 * \frac{\text{DTSI}}{\text{JCMH}_{-1}} \\
 & \quad (.01902)
 \end{aligned}$$

$$R^2 = .779 \quad \text{S.E.} = .0033 \quad \text{D.W.} = 2.30 \quad \text{F.P.} = 1954.2-1987.4$$

$$\begin{aligned}
 \text{D2} \quad \Delta \ln \text{YOL} = & .00753 + .36745 * \Delta \ln \text{YPWS} \\
 & \quad (.00206) \quad (.07345) \\
 & + .51283 * \Delta \ln \text{YOL}_{-1} \\
 & \quad (.06725)
 \end{aligned}$$

$$R^2 = .528 \quad \text{S.E.} = .0081 \quad \text{D.W.} = 1.74 \quad \text{F.P.} = 1954.3-1983.4$$

$$\begin{aligned}
 \text{D3} \quad \Delta \ln \text{YNFP} = & .01014 + .29576 * \Delta \ln \text{YPWS} \\
 & \quad (.00281) \quad (.14434) \\
 & + .10681 * \Delta \ln \text{YCP} - .08482 * \ln \left[\frac{\text{RAAA}_{-1}}{\text{RAAA}_{-3}} \right] \\
 & \quad (.02612) \quad (.02318)
 \end{aligned}$$

$$R^2 = .392 \quad \text{S.E.} = .0147 \quad \text{D.W.} = 1.57 \quad \text{F.P.} = 1954.4-1983.4$$

$$\begin{aligned}
 \text{D4 } \Delta \ln \text{ YFP} = & - .02560 - .58817 * \text{DYFP83.3} \\
 & \quad (.01400) \quad (.11193) \\
 & + 1.1169 * \text{DYFP83.4} + .02362 * \text{DJEXR} \\
 & \quad (.10715) \quad (.01998) \\
 & - 1.2512 * (1-\text{DJEXR}) * \Delta \ln \text{ JEXR}_{-4} \\
 & \quad (.44644) \\
 & + 1.3828 * \Delta \ln \text{ PFARM} + .51578 * \Delta \ln \text{ PFARM}_{-1} \\
 & \quad (.14846) \quad (.15066) \\
 & - .33213 * \Delta \ln \text{ RAAA} \\
 & \quad (.24596)
 \end{aligned}$$

$$R^2 = .701 \quad \text{S.E.} = .1050 \quad \text{D.W.} = 2.23 \quad \text{F.P.} = 1955.2-1983.4$$

$$\begin{aligned}
 \text{D5 } \Delta \text{ YPINT} = & .32057 + .31443 * \frac{\Delta \text{RBAR}}{\text{RBAR}_{-1}} * \text{YPINT}_{-1} \\
 & \quad (.41997) \quad (.02769) \\
 & + 1.1590 * \frac{\text{RBAR}}{100} * \Delta \text{M2PLUS}_{-1} \\
 & \quad (.09732) \\
 & + .18359 * \frac{\text{RBAR}}{100} * \frac{(\text{RHSAVE} * \text{YD})}{100} - 1 \\
 & \quad (.09732)
 \end{aligned}$$

$$R^2 = .741 \quad \text{S.E.} = 2.907 \quad \text{D.W.} = 2.20 \quad \text{F.P.} = 1959.3-1985.4$$

$$D6 \quad \Delta \ln YUNB = .14515 + .21837 * \Delta RUG \\ (.27513) \quad (.01772)$$

$$+ .88697 * \Delta \ln \left[\frac{RUM}{RUG} \right] \\ (.24342)$$

$$+ .14741 * \left[\ln \left[\frac{JCMH}{JCMH_{-4}} \right] - 1 \right] + .55407 * DUBEXT \\ (.29312) \quad (.14371)$$

$$R^2 = .790 \quad S.E. = .0621 \quad D.W. = 2.11 \quad F.P. = 1955.1-1983.4$$

$$D7.A \quad \Delta (YCP+KCAC) = -.80719 + .65345 * \Delta \left[PPNF * \left[\frac{GNP}{PGNP} - \frac{YGWS}{PG} - \frac{YFP}{PFARM} \right] \right] \\ (.58172) \quad (.03290)$$

$$- .25375 * \Delta \left[ULC77 * \left[\frac{GNP}{PGNP} - \frac{YGWS}{PG} - \frac{YFP}{PFARM} \right] \right] \\ (.02457)$$

$$- .00791 * \Delta \left[PCRUDE * \left[\frac{GNP}{PGNP} - \frac{YGWS}{PG} - \frac{YFP}{PFARM} \right] \right] \\ (.00201)$$

$$- .03860 * \sum_{i=1}^2 \left[\frac{RAAA}{100} * IBF \right]_{-i} \\ (.01603)$$

$$R^2 = .851 \quad S.E. = 3.582 \quad D.W. = 2.09 \quad F.P. = 1959.2-1983.4$$

$$\text{D7.B } YCP = GNP - KCA - TIBF - TIBSL - WALD + SLCSF + SLCSSL \\ - STAT - TSI + YPDIV + GTRP - NINT + YPINT - YP$$

$$\text{D8 } \Delta KCA = - .09666 + \left[\begin{array}{l} .01290 + .86334 * \Delta \ln \text{ PIBF} \\ (.18569) \quad (.00136) \quad (.06010) \end{array} \right] * KCA_{-1} \\ + .03847 * \Delta \text{ IBF} \\ (.02181)$$

$$R^2 = .860 \quad \text{S.E.} = 1.302 \quad \text{D.W.} = 2.51 \quad \text{F.P.} = 1954.2-1983.4$$

$$\text{D9 } \Delta KCAC = - .07545 + \left[\begin{array}{l} .00451 + .32672 * \Delta \ln \text{ PIBF} \\ (.05052) \quad (.00070) \quad (.03973) \end{array} \right] * KCAC_{-1} \\ + .42853 * \Delta KCA \\ (.02169)$$

$$R^2 = .981 \quad \text{S.E.} = .3079 \quad \text{D.W.} = 2.17 \quad \text{F.P.} = 1959.2-1983.4$$

$$\text{D10 } YPDIV = - .22957 + .01870 * (\text{YCBT} - \text{TCF} - \text{TCSL}) \\ (.10895) \quad (.00397) \\ + .01553 * \text{IVA} + .98555 * YPDIV_{-1} \\ (.00800) \quad (.00797)$$

$$R^2 = .999 \quad \text{S.E.} = .5869 \quad \text{D.W.} = 1.25 \quad \text{F.P.} = 1954.2-1983.4$$

$$\begin{aligned}
 \text{D11 } \Delta \text{ TIBF} = & - .07961 + (.00646 + .02782 * \text{DEX65}) * \Delta \text{ GNP} \\
 & \quad (.12314) \quad (.00309) \quad (.01578) \\
 & + .86580 * \text{DTIB} \\
 & \quad (.05137)
 \end{aligned}$$

$$R^2 = .768 \quad \text{S.E.} = .8036 \quad \text{D.W.} = 2.06 \quad \text{F.P.} = 1954.2-1983.4$$

$$\begin{aligned}
 \text{D12 } \Delta \text{ TIBSL} = & - .19082 + .07158 * \Delta \text{ C} \\
 & \quad (.27906) \quad (.00459) \\
 & + .12119 * \ln \text{ TIME} - 6.9107 * \text{DPROP13} \\
 & \quad (.08523) \quad (.53153) \\
 & + .21561 * \Delta \text{ TIBSL}_{-1} \\
 & \quad (.04475)
 \end{aligned}$$

$$R^2 = .902 \quad \text{S.E.} = .5208 \quad \text{D.W.} = 1.62 \quad \text{F.P.} = 1954.3-1983.4$$

$$\begin{aligned}
 \text{D13 } \Delta \ln \text{ TSIF} = & .00730 + .76690 * \Delta \ln \text{ YPWS} \\
 & \quad (.00274) \quad (.13386) \\
 & - .27502 * \Delta \ln \left[\frac{\text{YPWS}}{\text{WCEIL}} \right] - .00535 * \Delta \text{ RUG} \\
 & \quad (.02050) \quad \quad \quad (.00355) \\
 & + .70132 * \Delta \ln \text{ TSIFR} \\
 & \quad (.03379)
 \end{aligned}$$

$$R^2 = .905 \quad \text{S.E.} = .0112 \quad \text{D.W.} = 2.63 \quad \text{F.P.} = 1954.2-1983.4$$

$$D14 \quad \Delta \ln TSIP = - \begin{matrix} .00303 \\ (.00115) \end{matrix} + \begin{matrix} 1.0895 \\ (.02767) \end{matrix} * \Delta \ln TSI$$

$$R^2 = .930 \quad S.E. = .0093 \quad D.W. = 2.26 \quad F.P. = 1954.2-1983.4$$

$$D15 \quad TCF = 4.9737 + \begin{matrix} .03064 \\ (.77682) \end{matrix} + \begin{matrix} .60790 \\ (.06621) \end{matrix} * TCFR$$

$$+ \begin{matrix} .00022 \\ (.00006) \end{matrix} * \Delta (YCBT-TCSL) * (YCBT-TCSL)$$

$$- \begin{matrix} (.20588 \\ (.08541) \end{matrix} * TITCR_{-1} + \begin{matrix} .16568 \\ (.12507) \end{matrix} * \Delta TITCR) * IBFPD$$

$$+ .6525 * \mu_{-1}$$

$$R^2 = .978 \quad S.E. = 1.050 \quad D.W. = 2.26 \quad F.P. = 1954.3-1983.4 \quad GLS$$

$$D16 \quad \Delta TCSL = \begin{matrix} .07123 \\ (.04597) \end{matrix} + \begin{matrix} (.00941 \\ (.02316) \end{matrix} + \begin{matrix} .00048 \\ (.00023) \end{matrix} * TIME) * \Delta YCBT$$

$$R^2 = .601 \quad S.E. = .4839 \quad D.W. = 2.46 \quad F.P. = 1954.2-1983.4$$

$$D17 \quad \Delta TPSL = \begin{matrix} .04606 \\ (.08531) \end{matrix} + \begin{matrix} .02761 \\ (.00426) \end{matrix} * \Delta (YP-GTROF-GTRSL-YUNB+TSIP)$$

$$+ \begin{matrix} .30877 \\ (.19174) \end{matrix} * D674 + \begin{matrix} .54511 \\ (.21186) \end{matrix} * D711$$

$$R^2 = .687 \quad S.E. = .5936 \quad D.W. = 1.42 \quad F.P. = 1954.3-1983.4$$

$$D18 \quad \Delta TPF = .12338 * \Delta YPADJ + D87TPF + DTPF$$

(.01279)

$$+ .05356 * DPRE87 * \Delta YPADJ$$

(.02035)

$$- .05056 * DINDTPF * \ln \left[\frac{PC_{-2}}{PC_{-6}} \right] * \left[\frac{YPADJ82_{-1} + YPADJ82_{-2}}{2} \right]$$

(.02036)

$$R^2 = .978 \quad S.E. = 3.111 \quad D.W. = 1.38 \quad F.P. = 1984.1-1989.3$$

$$D19 \quad \Delta GINTF = .21820 + .46788 * \frac{RG5}{100} * \Delta GDEBTP$$

(.12916) (.10295)

$$+ .28408 * \Delta GINTF_{-1} + .07540 * \left[\frac{RG5}{100} \right]_{-1} * \Delta GDEBTP_{-1}$$

(.08845) (.11852)

$$R^2 = .441 \quad S.E. = 1.205 \quad D.W. = 1.99 \quad F.P. = 1954.4-1983.4$$

E. Monetary Sector

$$\begin{aligned}
 \text{E1 } \ln \text{ M2PLUS} = & - .09405 + .02319 * \text{DM2P83.1} - .02723 * \ln \text{ RG5} \\
 & \quad (.02103) \quad (.00513) \quad \quad \quad (.00636) \\
 & + .14078 * \ln \text{ GNP} + .87461 * \ln \text{ M2PLUS}_{-1} \\
 & \quad (.03171) \quad \quad \quad (.03065) \\
 & + .26335 * \frac{\Delta \text{ GDEBTP}}{\text{GNP}} + .3981 * \mu_{-1} \\
 & \quad (.09328)
 \end{aligned}$$

$$R^2 = .999 \quad \text{S.E.} = .0055 \quad \text{D.W.} = 2.06 \quad \text{F.P.} = 1959.3-1985.4 \quad \text{GLS}$$

$$\begin{aligned}
 \text{E2 } \ln \text{ RTB} = & - .84493 + 1.4677 * \ln \text{ RDIS} \\
 & \quad (.22016) \quad (.09791) \\
 & - .93734 * \ln \text{ RDIS}_{-1} - .88058 * \ln \text{ MBASE} \\
 & \quad (.10513) \quad \quad \quad (.25968) \\
 & + .69554 * \ln \text{ M2PLUS} + .49391 * \ln \text{ RTB}_{-1} \\
 & \quad (.19958) \quad \quad \quad (.07489)
 \end{aligned}$$

$$R^2 = .979 \quad \text{S.E.} = .0687 \quad \text{D.W.} = 1.72 \quad \text{F.P.} = 1959.2-1986.4$$

$$\text{E3 } \Delta \text{ MBASE} = .14548 + .92681 * \text{FDCUR} + .31723 * \Delta (\text{RTB} - \text{RDIS}) \\
 \quad \quad \quad (.06379) \quad (.02791) \quad \quad \quad (.06444)$$

$$R^2 = .911 \quad \text{S.E.} = .4285 \quad \text{D.W.} = 2.33 \quad \text{F.P.} = 1959.2-1986.4$$

$$\begin{aligned}
E4 \quad \Delta GDEBTP = & .68071 + 3.9603 * DUM75 \\
& (.58170) \quad (.87937) \\
& - [1 + (.06466 - .30167 * DGDEBTP3) * DSEAS1 \\
& \quad (.14413) \quad (.10852) \\
& + (- .21633 + .33048 * DGDEBTP3) * DSEAS2 \\
& \quad (.14091) \quad (.10132) \\
& + (.04594 - .17159 * DGDEBTP3) * DSEAS3] * \frac{NIASF}{4} \\
& \quad (.12283) \quad (.09149) \\
& - (1 - 4.3269 * DSEAS1 + 3.6661 * DSEAS2 \\
& \quad (1.1151) \quad (1.0676) \\
& + .25085 * DSEAS3) * FDCUR - 2.5477 * DSEAS1 \\
& \quad (1.0912) \quad (1.2768) \\
& - 4.4393 * DSEAS2 + 2.3435 * DSEAS3 \\
& \quad (1.2597) \quad (1.3913) \\
& + \Delta GCBDD + \Delta GOLD + \Delta TCO + \Delta SDR
\end{aligned}$$

$$R^2 = .949 \quad S.E. = 4.553 \quad D.W. = 1.89 \quad F.P. = 1959.2-1986.4$$

$$\begin{aligned}
E5 \quad \Delta GCBDD = & 1.4180 + .25789 * DSEAS1 + .36354 * DSEAS2 \\
& (.47819) \quad (.31514) \quad (.30966) \\
& + .12338 * DSEAS3 - .18301 * GCBDD_{-1} \\
& \quad (.30987) \quad (.06060)
\end{aligned}$$

$$R^2 = .151 \quad S.E. = 1.783 \quad D.W. = 2.46 \quad F.P. = 1959.2-1983.4$$

$$\begin{aligned}
\text{E6} \quad \text{RG5} = & - .04100 - .01606 \quad \text{SEAS1} + .05408 * \text{DSEAS2} \\
& (.04331) \quad (.02816) \quad \quad \quad (.02826) \\
& + .07543 * \text{DSEAS3} + .03691 * \text{RTB}_{-1} \\
& (.02806) \quad \quad \quad (.02811) \\
& + .21595 * \Delta R \quad .19046 * \text{RAAA}_{-1} \\
& (.02854) \quad \quad \quad (.04526) \\
& + 1.0368 * \Delta \text{RAAA} + .007 * \text{RG5}_{-1} \\
& (.07404) \quad \quad \quad (.00002)
\end{aligned}$$

$$R^2 = .997 \quad \text{S.E.} = .1727 \quad \text{D.W.} = 1.75 \quad \text{F.P.} = 1955.1-1983.4$$

$$\begin{aligned}
\text{E7} \quad \text{RAAA} = & .15027 + .30567 * \text{RTB} - .17334 * \text{RTB}_{-1} \\
& (.05524) \quad (.02267) \quad \quad \quad (.02722) \\
& + .02561 * \ln \left[\frac{\text{PPNF}_{-3}}{\text{PPNF}_{-7}} \right] * 100 + .86639 * \text{RAAA}_{-1} \\
& (.01256) \quad \quad \quad \quad \quad \quad \quad \quad \quad (.02038)
\end{aligned}$$

$$R^2 = .995 \quad \text{S.E.} = .2231 \quad \text{D.W.} = 1.83 \quad \text{F.P.} = 1954.3-1983.4$$

$$\begin{aligned}
\text{E8} \quad \text{RCP} = & .40222 + .93328 * \text{RCD} + .6256 * \mu_{-1} \\
& (.04630) \quad (.00532)
\end{aligned}$$

$$R^2 = .997 \quad \text{S.E.} = .0820 \quad \text{D.W.} = 2.03 \quad \text{F.P.} = 1963.1-1983.4 \quad \text{GLS}$$

$$\begin{aligned}
 E8' \text{ RCP} = & 4.7867 + 1.0278 * \text{RTB} - .45880 * \text{RTB}_{-1} \\
 & \quad (.12181) \quad (.03850) \quad (.08793) \\
 & - .07074 * \text{DSEAS1} + .06936 * \text{DSEAS2} + .04151 * \text{DSEAS3} \\
 & \quad (.03725) \quad (.03705) \quad (.03752) \\
 & + 1.6523 * \text{DSPRD} - 4.6561 * \frac{\text{PPNF}}{\text{PPNF}_{-4}} + .51707 * \text{RCP}_{-1} \\
 & \quad (.15998) \quad (1.2257) \quad (.05904)
 \end{aligned}$$

$$R^2 = .993 \quad \text{S.E.} = .2072 \quad \text{D.W.} = 1.47 \quad \text{F.P.} = 1955.1-1979.4$$

$$\begin{aligned}
 E9 \text{ RCD} = & - .11235 + 1.1171 * \text{RTB} - .45779 * \text{RTB}_{-1} \\
 & \quad (.08308) \quad (.03357) \quad (.10023) \\
 & - .17809 * \text{DSEAS1} + .06963 * \text{DSEAS2} + .09427 * \text{DSEAS3} \\
 & \quad (.05863) \quad (.06054) \quad (.05759) \\
 & + .42983 * \text{RCD}_{-1} + 1.7896 * \text{DSPRD} \\
 & \quad (.07494) \quad (.23101)
 \end{aligned}$$

$$R^2 = .993 \quad \text{S.E.} = .3018 \quad \text{D.W.} = 1.85 \quad \text{F.P.} = 1963.2-1983.4$$

$$\begin{aligned}
 E10 \text{ RFHA} = & - .00571 + 1.2114 * \text{RAAA} - .43224 * \text{RAAA}_{-1} \\
 & \quad (.21454) \quad (.07390) \quad (.17862) \\
 & + .22146 * \text{RMORT}_{-1} - .06719 * (\text{RAAA} - \text{RCPCD}) \\
 & \quad (.08342) \quad (.03834) \\
 & - .01766 * (\text{RAAA} - \text{RCPCD})_{-1} + .07888 * \text{RFHA}_{-1} \\
 & \quad (.03732) \quad (.15534)
 \end{aligned}$$

$$R^2 = .993 \quad \text{S.E.} = .2326 \quad \text{D.W.} = 1.82 \quad \text{F.P.} = 1976.2-1986.4$$

$$\begin{aligned}
 \text{E11 } \text{RMORT} &= .31533 + .62268 * \text{RAAA} - .22656 * \text{RAAA}_{-1} \\
 &\quad (.23971) \quad (.08257) \quad (.19957) \\
 &+ .58803 * \text{RFHA}_{-1} - .04567 * (\text{RAAA-RCPCD}) \\
 &\quad (.17356) \quad (.04284) \\
 &- .11147 * (\text{RAAA-RCPCD})_{-1} + .06186 * \text{RMORT}_{-1} \\
 &\quad (.04170) \quad (.09321)
 \end{aligned}$$

$$R^2 = .992 \quad \text{S.E.} = .2599 \quad \text{D.W.} = 2.21 \quad \text{F.P.} = 1976.2-1986.4$$

$$\begin{aligned}
 \text{E12 } \ln \left[\frac{\text{M1PLUS}}{\text{M2PLUS}} \right] &= .00592 - .00549 * \text{RTB} - .00102 * \Delta \text{RTB}_{-1} \\
 &\quad (.00195) \quad (.00080) \quad (.00134) \\
 &+ .00269 * \text{RTB}_{-2} + 1.2878 * \ln \left[\frac{\text{M1PLUS}}{\text{M2PLUS}} \right]_{-1} \\
 &\quad (.00095) \quad (.09107) \\
 &- .30203 * \ln \left[\frac{\text{M1PLUS}}{\text{M2PLUS}} \right]_{-2} \\
 &\quad (.08923) \\
 &- .08543 * \text{DM2P83.1} + .01971 * \text{DM2P83.2} \\
 &\quad (.00794) \quad (.01049)
 \end{aligned}$$

$$R^2 = .999 \quad \text{S.E.} = .0077 \quad \text{D.W.} = 1.83 \quad \text{F.P.} = 1959.3-1986.4$$

F. Output Composition

$$\begin{aligned}
 \text{F1 } \Delta \text{SERVE82} &= 4.1356 + .81517 * \Delta \text{CS82} \\
 &\quad (.91243) \quad (.10399) \\
 &+ .05167 * \Delta (\text{GNP82} - \text{CS82} - \text{EGOV} * 17.2878) \\
 &\quad (.01533) \\
 &- .16168 * \Delta \text{SERVE82}_{-1} + .34284 * \Delta (\text{EGOV} * 17.2878) \\
 &\quad (.07460) \quad (.16074)
 \end{aligned}$$

$$R^2 = .442 \quad \text{S.E.} = 3.992 \quad \text{D.W.} = 2.09 \quad \text{F.P.} = 1954.3-1983.4$$

$$\begin{aligned}
 \text{F2 } \text{JIPM} &= - 18.750 + .04871 * \text{FSMF82} \\
 &\quad (1.9015) \quad (.00682) \\
 &+ .04563 * \text{CN82} + .05545 * \text{FSNMF82} \\
 &\quad (.00630) \quad (.00901) \\
 &+ (.02531 - .00032 * \sum_{i=1}^4 \text{IINV82}_{-i}) * \Delta (\text{FS82-SERVE82}) \\
 &\quad (.00940) \quad (.00008) \\
 &+ .04742 * \text{IINV82} + .43066 * \text{JIPM}_{-1} \\
 &\quad (.00733) \quad (.05855)
 \end{aligned}$$

$$R^2 = .998 \quad \text{S.E.} = 1.061 \quad \text{D.W.} = 1.57 \quad \text{F.P.} = 1955.1-1983.4$$

$$F3 \quad \Delta \ln JCAP = .02946 - .00523 * D5864 - .00172 * D7074$$

(.00665)
(.00065)
(.00035)

$$+ \left[\begin{array}{c} .01431 + .00149 * \frac{JCU_{-1} + JCU_{-2}}{2} \\ (.00376) \quad (.00093) \end{array} \right]$$

$$* \sum_{i=0}^1 \beta_i * \ln(IBFNC82 + IPDQ82)_{-i}$$

$$- .02108 * \ln JCAP_{-1}$$

(.00255)

$$\beta_1 = (.7, .3)$$

$$R^2 = .838 \quad S.E. = .0013 \quad D.W. = 1.34 \quad F.P. = 1958.4-1983.4$$

$$F4 \quad \Delta GAUTO82 = - .04601 + 1.0745 * \Delta CDVA82$$

(.04928)
(.01579)

$$+ .94032 * \Delta IPDAU82 + 10.965 * \Delta AUTOSG$$

(.04022)
(3.3650)

$$+ 1.0103 * IINVA82 + .98108 * NETXA82$$

(.00636)
(.04014)

$$R^2 = .998 \quad S.E. = .4291 \quad D.W. = 2.49 \quad F.P. = 1967.2-1987.4$$

$$F5 \quad \Delta GTRUCK82 = \Delta CDVT82 + \Delta IPDTRK82 + \Delta GOVTRK82 + \Delta NETXT82 + \Delta IINVT82$$

G. Miscellaneous Definitions

$$G1 \quad ULC77 = \frac{JCMH}{QMH77} * 100$$

$$G2 \quad RUM = 100 - REM$$

$$G3 \quad GTRP = GTROF + GTRSL + YUNB$$

$$G4 \quad YP = YPWS + YGWS + YOL + YFP + YNFP + YPRENT + YPDIV + YPINT \\ + GTRP + BTRP - TSIP$$

$$G5 \quad YD = YP - TP$$

$$G6 \quad YD82 = \frac{YD}{PC} * 100$$

$$G7 \quad YPERM82 = \sum_{i=0}^5 \beta_i * \left[YD82_{-i} + \left[\frac{TPNS - GTRP}{PC/100} \right]_{-i} \right]$$

$$\beta_1 = (.271, .217, .173, .139, .111, .089)$$

$$G8 \quad YT82 = YD82 + \left[\frac{TPNS - GTRP}{PC/100} \right] - YPERM82$$

$$G9 \quad RHSAVE = \frac{(YD - C - HINT - HTRF)}{YD} * 100$$

$$G10 \quad YCBT = YCP - IVA - KCCA$$

$$G11.A \quad STAT = GNP - KCA - TIBF - TIBSL - WALD + SLCSF + SLCSSL - YCP \\ - TSI + YPDIV + GTRP - NINT + YPINT - YP$$

G11.B STAT is exogenous

$$G12 \quad TIB = TIBF + TIBSL$$

$$G13 \quad TSI = TSIF + TSISL$$

$$G14 \quad TC = TCF + TC SL$$

$$G15 \quad NIASF = TPF + TCF + TIBF + TSIF - (GFD + GFND + GTROF + YUNB \\ + GTRF + GAID + GINTF + SLCSF - GWALDF)$$

$$G16 \quad NIASSL = TPSL + TC SL + TIBSL + TSISL + GAID - (GSL + GTRSL + GINTSL \\ + SLCSSL - GWALDSL - GDIVSL)$$

$$G17 \quad CDV82 = CDVA82 + CDVT82 + CDVO82$$

$$G18 \quad CN82 = CNCS82 + CNFC82 + CNFD82 + CNGO82 + CNOO82$$

$$G19 \quad C82 = CDV82 + CDFE82 + CDO82 + CN82 + CS82$$

$$G20 \quad PCN = (PCNCS * CNCS82 + PCNFC * CNFC82 + PCNFD * CNFD82 \\ + PCNGO * CNGO82 + PCNOO * CNOO82)/CN82$$

$$G21 \quad PCDV = \frac{PCDVA * CDVA82 + PCDVT * CDVT82 + PCDVO * CDVO82}{CDV82}$$

$$G22 \quad C = \frac{PCDV}{100} * CDV82 + \frac{PCDFE}{100} * CDFE82 + \frac{PCDO}{100} * CDO82 \\ + \frac{PCN}{100} * CN82 + \frac{PCS}{100} * CS82$$

$$G23 \quad PC = \frac{C}{C82} * 100$$

$$G24 \quad PIPD = (IPDQ82 * PIPDQ + IPDO82 * PIPDO$$

$$+ IPDAG82 * PIPDAG) / IBFPD82$$

$$G25 \quad JCMHD = \frac{JCMH}{PC} * 100$$

$$G26 \quad IPDONA82 = IPDONV82 + IPDTRK82$$

$$G27 \quad IPDO82 = IPDONA82 + IPDAU82$$

$$G28 \quad IBFPD82 = IPDQ82 + IPDO82 + IPDAG82$$

$$G29 \quad IBF82 = IBFPD82 + IBFNC82$$

$$G30 \quad IBFNC = IBFNC82 * \frac{PINC}{100}$$

$$G31 \quad IBFPD = IBFPD82 * \frac{PIPD}{100}$$

$$G32 \quad IBF = IBFPD + IBFNC$$

$$G33 \quad PIBF = \frac{IBF}{IBF82} * 100$$

$$G34 \quad UCKNC = PINC * \left[\frac{RAAA}{100} + .06 \right]$$

$$G35 \quad UCKIPDAG = \frac{PIPDAG}{PFARM} * \left[\frac{RAAA}{100} + \frac{1}{6} \right]$$

$$G36 \quad UCKPDQ = PIPDQ * \left[RAAA/100 - \left[\frac{PPNF_{-1}}{PPNF_{-5}} - 1 \right] + \frac{1}{6} \right]$$

Handwritten notes:
 20 100 100
 100 100 100
 100 100 100

$$G37 \quad UCKPDTH = PTRKH * \left[RAAA/100 - \left[\frac{PPNF_{-1}}{PPNF_{-5}} - 1 \right] + \frac{1}{6} \right]$$

$$G38 \quad IRC = IRC82 * \frac{PIRC}{100}$$

$$G39 \quad HOUSCOMP = \sum_{i=0}^2 \beta_i * HOUSES_{-i}$$

$$\beta_i = (.41, .49, .10)$$

$$G40 \quad HASSET = .5 * \ln \left[\frac{PHOUSEX}{PHOUSEX_{-8}} \right] - \frac{1}{8} * \sum_{i=1}^8 \frac{RCPCD_{-i}}{100}$$

$$G41 \quad IINV = IINVA + IINVF + IINVO$$

$$G42 \quad SINV82 = SINV82_{-1} + IINV82$$

$$G43 \quad M82 = MOIL82 + MNOIL82$$

$$G43 \quad MNOIL82 = MNOFY82 + MYFAC82$$

$$G44 \quad PMNOIL = \frac{PFOREIGN}{JEXR} * 100$$

$$G45 \quad PM = PMOIL * \frac{MOIL82}{M82} + PMNOIL * \frac{MNOIL82}{M82}$$

$$G46 \quad M = M82 * \frac{PM}{100}$$

$$G47 \quad X = X82 * \frac{PX}{100}$$

$$G48 \quad GNP82 = C82 + IBF82 + IRC82 + IINV82 + G82$$

$$+ X82 - M82$$

$$G49 \quad GNP = C + IBF + IRC + IINV + GFD + GFND + GSL + X - M$$

$$G50 \quad \text{PGNP} = \frac{\text{GNP}}{\text{GNP82}} * 100$$

$$G51 \quad \text{FS82} = \text{GNP82} - \text{IINV82}$$

$$G52 \quad \text{FS} = \text{GNP} - \text{IINV}$$

$$G53 \quad \text{FSMF82} = \text{CDV82} + \text{CDFE82} + \text{CDO82} + \text{IBFPD82}$$

$$+ \text{X82} - \text{M82} + \text{G82} - \text{EGOV} * 17.2878$$

$$G54 \quad \text{FSNMF82} = \text{FS82} - \text{SERVE82} - \text{CN82} - \text{FSMF82}$$

$$G55 \quad \text{GNPERM82} = \sum_{i=0}^4 \beta_i * \text{GNP82}_{-i}$$

$$\beta_i = (.297, .238, .190, .153, .122)$$

$$G56 \quad \text{GDEBTM} = \frac{\text{GINTF}}{4} * \left[\sum_{i=0}^{15} \frac{1}{\left[1 + \frac{\text{RG5}}{400} \right]^i} \right] + \frac{\text{GDEBTP}}{\left[1 + \frac{\text{RG5}}{400} \right]^{15}}$$

$$G57 \quad \text{MBASE} = \left[1 + \frac{\text{RBASE}}{100} \right]^{.25} * \text{MBASE}_{-1}$$

$$G58 \quad \text{RM2PLUS} = \left[\left[\frac{\text{M2PLUS}}{\text{M2PLUS}_{-1}} \right]^4 - 1 \right] * 100$$

$$G59 \quad RCPCD = \begin{cases} RCP \text{ from } 1954.1-1962.4 \\ RCD \text{ from } 1963.1-\text{present} \end{cases}$$

$$G60 \quad RPPERM = \sum_{i=1}^8 \beta_i * 100 * \Delta \ln PC_{-i}$$

$$\beta_i = (.241, .192, .154, .123, .098, .079, .063, .05)$$

$$G61 \quad JCU = \frac{JIPM}{JCAP}$$

$$G62 \quad QMHT = .5 * \sum_{i=1}^8 [-.05832 + .01116 * D5467 + .00576 * D6873$$

$$- .05786 * \overline{\ln \left[\frac{JIPM}{JCAP} \right]}$$

$$+ .49865 * \overline{(\Delta \ln GNP82)}$$

$$+ .00753 * \sum_{j=1}^6 \beta_j * \ln(IBF82 - IPDAG82)_{-j}]_{-i}$$

$$\beta_j = (.1, .15, .25, .25, .15, .1)$$

$$\overline{\ln \left[\frac{JIPM}{JCAP} \right]} = \frac{1983.4}{\sum_{i=1955.3} \ln \left[\frac{JIPM}{JCAP} \right]_i} \frac{1}{114}$$

$$\overline{(\Delta \ln GNP72)} = \frac{1983.4}{\sum_{i=1955.3} (\Delta \ln GNP82)_i} \frac{1}{114}$$

$$G63 \quad GINTFF = \frac{RFGINTF}{100} * GINTF$$

$$G64 \quad NINT = YPINT - (GINTF - GINTFF) - GINTSL - HINT$$

$$G65 \quad TP = TPF + TPSL$$

$$G66 \quad YPADJ = YP - GTROF - GTRSL - YUNB + TSIP$$

$$G67 \quad YPADJ82 = YPADJ/PC * 100$$

$$G68 \quad GFCCC82 = GFCCC * IINVFC82/IINVFC$$

$$G69 \quad IINV82 = IINVFC82 - GFCCC82$$

$$G70 \quad SINVO82 = SINVO82_{-1} + IINVO82$$

$$G71 \quad SINVNA82 = SINVO82 + SINVF82$$

$$G72 \quad SINVF82 = SINVF82_{-1} + IINV82$$

$$G73 \quad SINVA82 = SINVA82_{-1} + IINVA82$$

$$G74 \quad SINVT82 = SINVT82_{-1} + IINVT82$$

$$G75 \quad IINVNA82 = IINVO82 + IINV82$$

$$G76 \quad IINV82 = IINVNA82 + IINVA82$$

$$G77 \quad IINVO = PIINVO/100 * IINVO82$$

$$G78 \quad IINVA = PIINVA/100 * IINVA82$$

$$G79 \quad IINVFC = IINVFC - GFCCC$$

$$G80 \quad GFND = GFO + GFCCC$$

$$G81 \quad G82 = GF82 + GSL82$$

$$G82 \quad GSL82 = GSL/PGSL * 100$$

$$G83 \quad GF82 = \frac{GFD}{PGFD} * 100 + \frac{GFO}{PGFO} * 100 + GFCCC82$$

$$G84 \quad PG = (GFD + GFND + GSL)/G82 * 100$$

$$G85 \quad RFOR3 = \frac{RTB}{JUS.FOR}$$

$$G86 \quad FSDP = FS-X+M$$

$$G87 \quad FSDP82 = FS82-X82+M82$$

$$G88 \quad RBAR = .4 * \sum_{i=0}^1 \frac{RCPCD_{-i}}{2} + .6 * \sum_{i=0}^2 \beta_i * RAAA_{-i}$$

$$\beta_i = (.2, .4, .4)$$

$$G89 \quad AUTOS = AUTOSC + AUTOSB + AUTOSG$$

$$G90 \quad VEHL = TRKL + AUTOS$$

$$G91 \quad AUTOSF = AUTOS - AUTOSD$$

$$G92 \quad TRKLF = TRKL - TRKLD$$

$$G93 \quad NETXA82 = XAUTO82 - MAUTO82$$

$$G94 \quad NETXT82 = XTRK82 - MTRK82$$

$$G95 \quad RAUTOSF = \frac{AUTOSF}{AUTOS} * 100$$

$$G96 \quad RTRKLF = \frac{TRKLF}{TRKL} * 100$$

$$G97 \quad PCFOR = \left[1 + \frac{RPCFOR}{100} \right]^{.25} * PCFOR_{-1}$$

$$G98 \quad JIPFOR = \left[1 + \frac{RJIPFOR}{100} \right]^{.25} * JIPFOR_{-1}$$

$$G99 \quad INETFOR = X + KGRANT - (M + HTRF + GTRF + GINTFF)$$

$$G100 \quad FSO82 = FS82 - CDVA82 - IPDAU82 - SERVE82$$

$$G101 \quad STKSLA = SINVA82/AUTOS$$

$$G102 \quad STKSLO = SINVO82/FSO82$$

$$G103 \quad STKSLT = SINVT82/(TRKL + TRKH)$$

NOTATION

Most variables are denoted by a suggestive mnemonic. The following rules are followed throughout: i) the same mnemonic is used to represent current and constant dollar expenditure variables, except that the constant dollar version ends with "82", ii) price deflators are represented by a leading "P" followed by the category mnemonic, iii) all mnemonics for consumption expenditure variables begin with a "C", iv) all mnemonics for investment expenditure variables begin with an "I", v) all mnemonics for dummy variables begin with a "D", vi) all mnemonics for tax variables or tax rates begin with "T", vii) all mnemonics beginning with "R" represent variables scaled in percentage point units.

In the following list, a variable preceded by * is endogenous to the Michigan Model. A variable preceded by ** is a definition involving exogenous variables only.

*AUTOS	Units of retail new car sales; millions of units, SAAR.
*AUTOSB	Units of retail new car sales to businesses; millions of units, SAAR.
*AUTOSC	Units of retail new car sales to consumers; millions of units, SAAR.
*AUTOSD	Units of retail new car sales, domestic; millions of units, SAAR.
*AUTOSF	Units of retail new car sales, foreign; millions of units, SAAR.
AUTOSG	Units of retail new car sales to government; millions of units, SAAR.
AUTOSIZE	Ratio of the number of small car sales (domestic and foreign) to total new car sales.
BTRP	Business transfer payments, billions of current dollars.
*C	Personal consumption expenditures, total; billions of current dollars.
*CDFE82	Personal consumption expenditures, furniture and household equipment; billions of 1972 dollars.
*CDO82	Personal consumption expenditures, durable goods except motor vehicles and parts and furniture and household equipment; billions of 1982 dollars.
*CDVA82	Personal consumption expenditures, new automobiles; billions of 1982 dollars.
*CDVO82	Personal consumption expenditures, motor vehicles and parts excluding new autos and new trucks, billions of 1982 dollars.
*CDVT82	Personal consumption expenditures, new trucks; billions of 1982 dollars.
*CDV82	Personal consumption expenditures, motor vehicles and parts; billions of 1982 dollars.
*CNCS82	Personal consumption expenditures, clothing and shoes; billions of 1982 dollars.
*CNFC82	Personal consumption expenditures, fuel oil and coal; billions of 1982 dollars.
*CNFD82	Personal consumption expenditures, food; billions of 1982 dollars.
*CNGO82	Personal consumption expenditures, gasoline and oil; billions of 1982 dollars.

*CNOO82	Personal consumption expenditures, nondurable goods not elsewhere classified; billions of 1982 dollars.
*CN82	Personal consumption expenditures, nondurable goods; billions of 1982 dollars.
*CS82	Personal consumption expenditures, services; billions of 1982 dollars.
*C82	Personal consumption expenditures, total; billions of 1982 dollars.
DAINC	Dummy variable for auto sales incentive programs, values defined in the Appendix.
DAINC1	Dummy variable for auto sales incentive programs, values defined in the Appendix.
DASTRIKE	Dummy variable for auto strikes, values defined in the Appendix.
DATE	Quarterly calendar date.
DCDFE	Dummy variable in CDFE82 equation; equals 0 in 1954.1-1983.2, 1.0 otherwise.
DEX65	Dummy variable for the change in federal excise tax law, equals 1 from 1954.1-1964.1, 0 otherwise.
DFROFF	Dummy variable for removal of price controls; equals .25 in 1974.2-1975.1, 0 otherwise.
DFRZ1	Dummy variable to reflect price freeze; equals -1.0 in 1971.4, 0 otherwise.
DGDEBTP3	Dummy variable for change in seasonality in GDEBTP equation; equals 0 in 1954.1-1982.4, 1.0 otherwise.
DGPAY	Dummy variable to reflect government pay increases, values defined in the Appendix.
DINDTPF	Dummy variable for indexing of personal income taxes, values defined in the Appendix.
DJEXR	Dummy variable for the availability of the JEXR series; equals 1.0 1954.1-1968.1, 0 otherwise.
DJRAUTO	Dummy variable for availability of JRAUTO series; equals 0 from 1954.1 to 1977.4, 1.0 otherwise.
DM2P83.1	Dummy variable for effect of money market deposit accounts; equals 1.0 in 1983.1, 0 otherwise.
DM2P83.2	Dummy variable for effect of money market deposit accounts; equals 1.0 in 1983.2, 0 otherwise.
DM82DOCK	Dummy variable for dock strikes, values defined in the Appendix.
DOPEC1	Dummy variables to reflect effect of oil price shocks on auto and light truck sales.
DOPEC2	DOPEC1 equals 1.0 from 1973.4 to 1974.2.
DOPEC3	DOPEC2 equals 1.0 from 1978.4 to 1980.2.
	DOPEC3 equals 1.0 from 1986.1 to the present.
DPCRUDE	
DPRE87	Dummy variable for period prior to 1987; equals 1 in 1954.1-1986.4, 0 otherwise.

DPROP13	Dummy variable for the effect of Proposition 13 on state and local indirect business taxes; equals 1 in 1978.3, 0 otherwise.
DRMORT	Dummy variable for the availability of RMORT; equals zero from 1954.1-1976.1, 1 otherwise.
DSEAS1	Dummy variable equal to 1 in the first quarter, -1 in the fourth quarter, zero otherwise.
DSEAS2	Dummy variable equal to 1 in the second quarter, -1 in the fourth quarter, zero otherwise.
DSEAS3	Dummy variable equal to 1 in the third quarter, -1 in the fourth quarter, zero otherwise.
DSPRD	Dummy variable for anomaly in spread between RCP and RTB; equals 1.0 in 1974.2 and 1974.3, zero otherwise.
DTAX86	Dummy variable for the effects of elimination of the sales tax deduction, equals 1 in 1986.4, 0 otherwise.
DTCF	Revenue effect of federal tax law changes on federal corporate taxes, billions of current dollars.
DTEX	Dummy variable to reflect direct price effects of changes in excise tax laws in 1965, values defined in the Appendix.
DTIB	Dummy variable to reflect changes in indirect business taxes, values defined in the Appendix.
DTPF	Dummy variable to reflect changes in federal personal taxes, values defined in the Appendix.
DTSI	Dummy variable which assumes values equal to the revenue effect of changes in social insurance tax law, values defined in the Appendix.
DUBEXT	Dummy variable for the extension of unemployment benefits beyond 20 weeks, values defined in the Appendix.
DUM75	Dummy variable in GDEBTP equation; equals 0 in 1954.1-1974.4, 1 otherwise.
^{INN} DVRLED	Dummy variable for the impact of the Voluntary Restraint Agreement on auto sales, values defined in the Appendix.
DYD82	Dummy variable for effect of the federal tax refund delay in 1985; equals 25.0 in 1985.1, -25.0 in 1985.2, 0 otherwise.
DYFP83.3	Dummy variable to reflect the PIK program; equals 1.0 in 1983.3, 0 otherwise.
DYFP83.4	Dummy variable to reflect the PIK program; equals 1.0 in 1983.4, 0 otherwise.
D5467	Dummy variable for change in trend growth of productivity; equals 1 in 1954.1-1967.4, 0 otherwise.
^{D-4-1} D5864	Dummy variable in JCAP equation; equals 1 in 1958.1-1964.4, 0 otherwise.
D66	Dummy variable in M1PLUS equation; equals 0 in 1954.1-1965.4, 1 otherwise.
D674	Dummy variable for state income tax law changes; equals 0 in 1954.1-1967.3, 1 otherwise.

- D6873 Dummy variable for change in trend growth of productivity; equals 1 in 1968.1-1973.4, 0 otherwise.
- D7074 Dummy variable in JCAP equation; equals 1 in 1970.1-1974.2, 0 otherwise.
D7080
- D711 Dummy variable for state personal income tax law changes; equals 0 in 1954.1-1970.4, 1 otherwise.
- D763 Dummy variable for IRC82 equation; equals 1 in 1976.3, 0 otherwise.
- D86.4 $\left\{ \begin{array}{l} D8184 \\ D85 \\ D861 \end{array} \right.$ Dummy variable to reflect the impact of auto and light truck transplants; equals 0 before 1986.4, 1 otherwise.
- D87TPF Dummy variable for transition year effects of Tax Reform Act of 1986, values defined in the Appendix.
- EGOV Government employment, including armed forces; millions of persons.
- *FDCUR Change from previous quarter in currency held by the public plus unborrowed reserves plus extended credit, billions of current dollars, S.A.
- *FS Final sales, billions of current dollars.
- *FSDP Final sales to domestic purchasers, billions of current dollars.
- *FSDP82 Final sales to domestic purchasers, billions of 1982 dollars.
- *FSMF82 Final sales of manufactured goods, billions of 1982 dollars.
- *FSNMF82 Final sales of non-manufactured goods, billions of 1982 dollars.
- *FSO82 Final sales excluding personal consumption expenditure on new automobiles, nonresidential fixed investment in producers' durable equipment in new autos, and the services component of real GNP, billions of 1982 dollars.
- *FS82 Final sales; billions of 1982 dollars.
- GAID Grants-in-aid to state and local governments, billions of dollars.
- *GAUTO82 Gross auto product, billions of 1982 dollars.
- *GCBDD U.S. government deposits except demand deposits at Federal Reserve Banks, N.S.A., average for last month of the quarter.
- *GDEBTM Market value of federal debt held by private investors, billions of current dollars, N.S.A.
- *GDEBTP Gross public debt of the U.S. Treasury held by private investors, billions of current dollars N.S.A., last day of quarter.
- GDIVSL Dividends received by government, billions of current dollars.
- GFCCC Commodity Credit Corporation inventory change, billions of current dollars.
- **GFCCC82 Commodity Credit Corporation inventory change, billions of 1982 dollars.

GFD	Federal defense purchases of goods and services, billions of current dollars.
**GFND	Federal government nondefense purchases of goods and services, billions of current dollars.
GFO	Federal government nondefense purchases of goods and services, excluding Commodity Credit Corporation inventory change; billions of current dollars.
*GF82	Federal government purchases of goods and services, billions of 1982 dollars.
*GINTF	Net interest paid by federal government, billions of current dollars.
*GINTFF	Interest paid by government to foreigners, billions of current dollars.
GINTSL	Net interest paid by state and local government, billions of current dollars.
*GNP	Gross national product, billions of current dollars.
*GNPERM82	"Permanent" GNP, billions of 1982 dollars.
*GNP82	Gross national product, billions of 1982 dollars.
GOLD	Gold stock, billions of current dollars N.S.A., last day of quarter.
GOVTRK82	Government purchases of new trucks, billions of 1982 dollars.
GSL	State and local government purchases of goods and services, billions of current dollars.
*GSL82	State and local government purchases of goods and services, billions of 1982 dollars.
GTRF	Federal government transfer payments to foreigners, billions of current dollars.
GTROF	GTRP minus YUNB minus GTRSL, billions of current dollars.
*GTRP	Government transfer payments to persons, total; billions of current dollars.
GTRSL	State and local government transfer payments to persons, billions of current dollars.
*GTRUCK82	Gross truck product, billions of 1982 dollars.
GWALDF	Government wage accruals less disbursements, federal; billions of current dollars.
GWALDSL	Government wage accruals less disbursements, state and local; billions of current dollars.
*G82	Government purchases of goods and services, billions of 1982 dollars.
*HASSET	The value of housing units as an asset measured by the inflation rate for existing housing prices less the interest rate.
HINT	Interest paid by consumers to business, billions of current dollars.
*HOUSCOMP	Housing completions, thousands of units, SAAR.
*HOUSES	Private housing starts, thousands of units, SAAR.

*HOUSEX	Sales of existing single family homes, thousands of units, SAAR.
HTRF	Personal transfers to foreigners, billions of current dollars.
*IBF	Business fixed investment, billions of current dollars.
*IBFNC	Nonresidential fixed investment, structures; billions of current dollars.
*IBFNC82	Nonresidential fixed investment, structures; billions of 1982 dollars.
*IBFPD	Nonresidential fixed investment, producers' durable equipment; billions of current dollars.
*IBFPD82	Nonresidential fixed investment, producers' durable equipment; billions of 1982 dollars.
*IBF82	Business fixed investment, billions of 1982 dollars.
*IINV	Change in business inventories, billions of current dollars.
*IINVA	Change in business inventories, new autos; billions of current dollars.
*IINVA82	Change in business inventories, new autos; billions of 1982 dollars.
**IINVF	Change in business inventories, farm; billions of current dollars.
IINVFC	Change in farm business inventories plus Commodity Credit Corporation inventory change; billions of current dollars.
IINVFC82	Change in farm business inventories plus Commodity Credit Corporation inventory change; billions of 1982 dollars.
**IINVF82	Change in business inventories, farm; billions of 1982 dollars.
*IINVNA82	Change in business inventories, except new autos; billions of 1982 dollars.
*IINVO	Change in business inventories excluding farm and new autos, billions of current dollars.
* IINVO7 82	
*IINVO82	Change in business inventories excluding farm and new autos, billions of 1982 dollars.
*IINVT82	Change in business inventories, new trucks; billions of 1982 dollars.
*IINV82	Change in business inventories, billions of 1982 dollars.
*INETFOR	Net foreign investment, billions of current dollars.
*IPDAG82	Nonresidential fixed investment, producers' durable equipment in agriculture; billions of 1982 dollars.
*IPDAU82	Nonresidential fixed investment, producers' durable equipment in new autos; billions of 1982 dollars.
*IPDONA82	Nonresidential fixed investment, producers' durable equipment except in agriculture, production and new autos; billions of 1982 dollars.

*IPDONV82	Nonresidential fixed investment, producers' durable equipment except in agriculture, production, new autos and new trucks; billions of 1982 dollars.
*IPDO82	Nonresidential fixed investment, producers' durable equipment except in agriculture and production; billions of 1982 dollars.
*IPDQ82	Nonresidential fixed investment, producers' durable equipment in production; billions of 1982 dollars.
*IPDTRK82	Nonresidential fixed investment, producers' durable equipment in new trucks; billions of 1982 dollars.
*IRC	Residential construction expenditures, billions of current dollars.
*IRC82	Residential construction expenditures, billions of 1982 dollars.
IVA	Inventory valuation adjustment for corporate profits, billions of current dollars.
*JCAP	Index of available capacity in manufacturing, expressed as a percentage of 1977 actual output.
*JCMH	Compensation per manhour, private nonfarm sector; index, 1977=100.
*JCMHD	Real compensation per manhour; JCMH deflated by personal consumption expenditures implicit deflator.
*JCU	Federal Reserve Board index of capacity utilization in Manufacturing, expressed as index between zero and unity (based on 1977 output = 1.0).
*JEXR	Index of trade-weighted exchange value of the dollar against currencies of other G-10 countries plus Switzerland, March 1973=100.
JICS	Index of consumer sentiment, February 1960=100.
*JIPFOR	Index of industrial production, weighted average of West Germany (.125), United Kingdom (.125), Japan (.25), and Canada (.5), 1977=100.
*JIPM	Manufacturing index of industrial production, 1977=100.
*JRAUTO	Index of the ratio of CPI-U: automobile finance charges, N.S.A., 1982-1984=100, to CPI-U: new cars, N.S.A., 1982-84=100.
JUS.FOR	Ratio of the 3-month treasury bill rate to the trade-weighted 3-month foreign interest rate.
*KCA	Total capital consumption allowances with capital consumption adjustments, billions of current dollars.
*KCAC	Corporate capital consumption allowances with capital consumption adjustments, billions of current dollars.
KCCA	Corporate capital consumption adjustment, billions of current dollars.
KGRANT	Capital grants received by the United States (net), billions of current dollars.
*M	Imports of goods and services, billions of current dollars.

*MAUTO82	Imports of autos as they appear in the Auto Output table of the National Income and Product Accounts, billions of 1982 dollars.
*MBASE	Monetary base, adjusted by the Federal Reserve for changes in reserve requirements; billions of current dollars, S.A., average for last month of quarter.
*MNOIL82	Non-petroleum imports of goods and services, billions of 1982 dollars.
*MOIL82	Petroleum and products imports, billions of 1982 dollars.
MTRK82	Imports of new trucks, billions of 1982 dollars.
*M1PLUS	M1 plus total savings at all depository institutions (billions of \$'s; S.A. average for last month of quarter), where M1 equals currency plus demand deposits at commercial banks plus other checkable deposits at all depository institutions including Now accounts, ATS, credit union share drafts and demand deposits at mutual savings banks.
*M2PLUS	M2 plus short term treasury securities (billions of \$'s; S.A. average for last month of quarter), where M2 equals M1 plus savings and small denomination time deposits at all depository institutions, overnight RP's at commercial banks, overnight Eurodollars held by U.S. residents, and money market mutual fund shares. Short term treasury securities are defined as U.S. Treasury Bills and coupons with remaining maturity of less than 12 months held by the nonbank public less such securities held by money market mutual funds.
*M82	Imports of goods and services, billions of 1982 dollars.
*NETXA82	Net exports of auto product, billions of 1982 dollars.
*NETXT82	Net exports of truck product, billions of 1982 dollars.
*NIASF	Federal government budget surplus (National Income and Product Accounts Basis), billions of current dollars.
*NIASSL	State and local government budget surplus (National Income and Product Accounts Basis), billions of current dollars.
*NINT	Net interest, billions of current dollars.
PAUTO	CPI-W: new cars, 1982-84=100, S.A.
PAUTOD.F	Ratio of average expenditure per domestic new car sold to average expenditure per foreign new car sold.
*PC	Personal consumption expenditures implicit deflator, 1982=100.
*PCDFE	Personal consumption expenditures implicit deflator, furniture and household equipment; 1982=100.
*PCDO	Personal consumption expenditures implicit deflator, durables excluding motor vehicles and parts and furniture and household equipment; 1982=100.
*PCDV	Personal consumption expenditures implicit deflator, motor vehicles and parts; 1982=100.
*PCDVA	Personal consumption expenditures implicit deflator, new autos; 1982=100.

*PCDVO	Personal consumption expenditures implicit deflator, motor vehicles and parts excluding new autos and new trucks; 1982=100.
*PCDVT	Personal consumption expenditures implicit deflator, new trucks; 1982=100.
*PCFOR	Consumer prices, weighted average of West Germany (.125), United Kingdom (.125), Japan (.25), and Canada (.5), 1982-84 = 100, N.S.A.
*PCN	Personal consumption expenditures implicit deflator, non-durable goods; 1982=100.
*PCNCS	Personal consumption expenditures implicit deflator, clothing and shoes; 1982=100.
*PCNFC	Personal consumption expenditures implicit deflator, fuel oil and coal; 1982=100.
*PCNFD	Personal consumption expenditures implicit deflator, food; 1982=100.
*PCNGO	Personal consumption expenditures implicit deflator, gasoline and oil; 1982=100.
*PCNOO	Personal consumption expenditures implicit deflator, nondurable goods not elsewhere classified; 1982=100.
*PCPI	CPI-U: all items, 1982-84=100, N.S.A.
*PCRUDE	Producer price index for crude materials less agricultural products; 1982=100, S.A.
*PCS	Personal consumption expenditures implicit deflator, services; 1982=100.
PFARM	Gross farm product implicit deflator, 1982=100.
PFOREIGN	Implicit deflator for non-petroleum goods and services imported by the U.S. and denominated in foreign currencies; equals PMNOIL * JEXR/100.
*PG	Government purchases of goods and services implicit deflator, 1982=100.
*PGAS	CPI-W: Motor fuel, motor oil, coolant, and other products; 1982-84=100, S.A.
*PGFD	Implicit deflator, federal government purchases of goods and services, defense; 1982=100.
*PGFO	Implicit deflator, federal government purchases of goods and services, nondefense excluding commodity credit corporation inventory change; 1982=100.
*PGNP	Gross national product implicit deflator, 1982=100.
*PGSL	Implicit deflator, state and local government purchases of goods and services; 1982=100.
PHOUSEX	Median price for existing single family home sales, thousands of dollars.
*PHOUSN.E	Ratio of the median price of a new home to the median price of an existing home multiplied by 100.
*PIBF	Business fixed investment implicit deflator, 1982=100.
*PIINVA	Implicit deflator, change in business inventories, new autos, calculated as 100 times the ratio of current dollar to constant dollar change in business inventories, new autos; 1982=100.

*PIINVO	Implicit deflator, change in business inventories excluding farm and new autos, calculated as 100 times the ratio of current dollar to constant dollar change in business inventories excluding farm and new autos; 1982=100.
*PINC	Implicit price deflator, business fixed investment, non-residential structures; 1982=100.
*PIPD	Implicit price deflator, nonresidential fixed investment, producers' durable equipment; 1982=100.
*PIPDAG	Implicit price deflator, nonresidential fixed investment, producers' durable equipment in agriculture; 1982=100.
*PIPDO	Implicit price deflator, nonresidential fixed investment, producers' durable equipment except in agriculture and production; 1982=100.
*PIPDQ	Implicit price deflator, nonresidential fixed investment, producers' durable equipment in production; 1982=100.
*PIPDT	Implicit price deflator, nonresidential fixed investment, producers' durable equipment, new trucks; 1982=100.
*PIRC	Residential construction expenditures implicit deflator, 1982=100.
*PM	Import implicit deflator, 1982=100.
*PMNOIL	Non-petroleum imports of goods and services implicit deflator, 1982=100.
PMOIL	Imports of petroleum and products implicit deflator, 1982=100.
PMTRK	Implicit price deflator, new truck imports; 1982=100.
PNGAS	Producer price index for gas fuels; 1982=100 N.S.A.
*POIL	Producer price index for crude petroleum; 1982=100, N.S.A.
POTHRCRU	Producer price index for crude nonfood materials less energy, 1982=100, S.A.
*PPNF	Private nonfarm GNP implicit deflator, 1982=100.
PTRKH	Producer price index for trucks, over 10,000 lbs. gross vehicle weight; 1982=100, S.A.
PTRKL	Producer price index for trucks, 10,000 lbs. and under gross vehicle weight; 1982=100, S.A.
*PX	Export implicit deflator, 1982=100.
*QMHT	Trend growth rate of productivity.
*QMH77	Output per hour, private nonfarm sector; index 1977=100.
*RAAA	Corporate Aaa bond interest rate, percent.
*RAUTOSF	Import share of unit new auto sales, percent.
*RBAR	Average interest rate used in YPINT equation, percent.

RBASE	Growth rate of the monetary base, percent annual rate.
*RCD	90 day certificate of deposit rate, percent.
*RCP	Interest rate on 4-6 month prime commercial paper, percent.
*RCPCD	RCP from 1954.1 to 1962.4 and RCD from 1963.1 to present, percent.
RDIS	Discount rate, Federal Reserve Bank of New York; percent.
*REM	Employment rate, males 20 years and over, percent.
RFGINTF	Share of net federal government interest payments which is paid to foreigners, percent.
*RFHA	Secondary market yield on FHA mortgages, percent.
*RFOR3	Trade-weighted, 3-month foreign interest rate, percent.
*RG5	Yield on U.S. government taxable securities, 5 year issues, percent.
*RHSAVE	Personal savings rate, percent.
RJIPFOR	Growth rate of JIPFOR, percent annual rate.
RLFSEC	Share of the labor force which is not males twenty and over, percent.
*RMORT	Conventional mortgage rate, percent.
*RM2PLUS	Growth rate of M2PLUS, percent annual rate.
RPCFOR	Growth rate of PCFOR, percent annual rate.
*RPPERM	"Permanent" rate of inflation, quarterly rate percent.
*RTB	90 Day Treasury bill rate, daily average of market yield; percent.
*RTRKLF	Import share of unit new light truck sales, percent.
*RUG	Civilian unemployment rate, percent.
*RUM	Unemployment rate, males 20 years and over; percent.
SDR	Allowance for Special Drawing Rights, billions of current dollars, N.S.A., last day of quarter.
*SERVE82	Services component of real GNP, billions of 1982 dollars.
*SINVA82	Four times the stock of business inventories, new autos; billions of 1982 dollars, end of quarter.
**SINVF82	Four times the stock of business inventories, farm; billions of 1982 dollars, end of quarter.
*SINVNA82	Four times the stock of business inventories except new autos; billions of 1982 dollars, end of quarter.

*SINVO82	Four times the stock of business inventories, excluding farm and new autos; billions of 1982 dollars, end of quarter.
*SINVT82	Four times the stock of business inventories, new trucks; billions of 1982 dollars, end of quarter.
*SINV82	Four times the stock of business inventories, billions of 1982 dollars, end of quarter.
SLCSF	Subsidies less current surplus of government enterprise, federal; billions of current dollars.
SLCSSL	Subsidies less current surplus of government enterprise, state and local, billions of current dollars.
STAT	Statistical discrepancy in National Income and Product Accounts, billions of current dollars.
*STKSLA	Ratio of four times the stock of business inventories in new autos, end of quarter, to units of retail new car sales, SAAR; thousands of 1982 dollars per unit.
*STKSLO	Ratio of four times the stock of business inventories excluding farm and new autos, end of quarter, to final sales excluding personal consumption expenditure on new autos, nonresidential fixed investment in producers' durable equipment in new autos, and the services component of real GNP.
*STKSLT	Ratio of four times the stock of business inventories in new trucks, end of quarter, to units of new truck sales, SAAR; thousands of 1982 dollars per unit.
*TC	Total corporate profits tax accruals, billions of current dollars.
*TCF	Corporate profits tax accruals, federal; billions of current dollars.
TCFR	Federal statutory corporate tax rate.
TCO	Treasury currency outstanding, billions of current dollars, N.S.A., last day of quarter.
*TCSL	Corporate profits tax accruals, state and local; billions of current dollars.
TDEPRAG	Tax depreciation rate for agricultural equipment.
TDEPRAU	Tax depreciation rate for vehicles.
TDEPRNC	Tax depreciation rate for non-residential structures.
TDEPRO	Tax depreciation rate for other equipment.
TDEPRQ	Tax depreciation rate for production equipment.
*TIB	Indirect business tax and nontax accruals, billions of current dollars.
*TIBF	Indirect business tax and nontax accruals, federal; billions of current dollars.
*TIBSL	Indirect business tax and nontax accruals, state and local; billions of current dollars.
TIME	Time trend equal to 1 in 1954.1 and increasing by 1 per quarter.

TITCR	Tax rate for investment tax credit.
*TP	Total personal tax and nontax payments, billions of current dollars.
*TPF	Personal tax and nontax payments, federal; billions of current dollars.
TPNS	Nonwithheld component of 1968-69 personal income tax surcharge, values defined in the Appendix.
*TPSL	Personal tax and nontax payments, state and local; billions of current dollars.
*TRKH	Unit retail sales of new heavy (over 10,000 lbs. gross vehicle weight) trucks; millions of units, SAAR.
*TRKL	Unit retail sales of new light (10,000 lbs. gross vehicle weight and under) trucks; millions of units, SAAR.
*TRKLD	Unit retail sales of new light (10,000 lbs. gross vehicle weight and under) trucks, domestic; millions of units, SAAR.
*TRKLF	Unit retail sales of new light (10,000 lbs. gross vehicle weight and under) trucks, foreign; millions of units, SAAR.
*TSI	Total contributions for social insurance, billions of current dollars.
*TSIF	Contributions for social insurance, federal; billions of current dollars.
TSIFR	Total social security tax rate.
*TSIP	Personal contributions for social insurance, billions of current dollars.
TSISL	Contributions for social insurance, state and local; billions of current dollars.
μ	A regression residual, used in equations which were estimated with correction for first order autocorrelation of residuals.
*UCKIPDAG	User cost of capital investment in nonresidential producers' durable equipment, agriculture.
*UCKNC	User cost of capital investment in non-residential structures.
*UCKPDQ	User cost of capital investment in nonresidential producers' durable equipment, production.
*UCKPDTH	User cost of capital investment in heavy trucks.
*ULC77	Unit labor cost, private nonfarm sector; 1977 = 100.
*VEHL	Unit retail sales of new light vehicles (autos plus trucks 14,000 lbs. and under); millions of units, SAAR.
WALD	Wage accruals less disbursements, total; billions of current dollars.
WCEIL	Wage ceiling for social security taxes, thousands of current dollars.
WUSMIN	Minimum hourly wage, current dollars.

*X	Exports of goods and services, billions of current dollars.
XAUTO82	Exports of autos as they appear in the Auto Output table of the National Income and Product Accounts, billions of 1982 dollars.
XTRK82	Exports of new trucks, billions of 1982 dollars.
*X82	Exports of goods and services, billions of 1982 dollars.
*YCBT	Corporate profits before taxes; billions of current dollars.
*YCP	Corporate profits with inventory valuation adjustment and capital consumption adjustment; billions of current dollars.
*YD	Disposable personal income, billions of current dollars.
*YD82	Disposable personal income, billions of 1982 dollars.
*YFP	Farm proprietors' income with inventory valuation and capital consumption adjustments, billions of current dollars.
YGWS	Government wage and salary disbursements, including military; billions of current dollars.
*YNFP	Nonfarm proprietors' income with inventory valuation and capital consumption adjustments, billions of current dollars.
*YOL	Other labor income, billions of current dollars.
*YP	Personal income, billions of current dollars.
*YPADJ	Adjusted gross income, billions of current dollars.
*YPADJ82	Adjusted gross income, billions of 1982 dollars.
*YPDIV	Corporate dividend payments to persons, billions of current dollars.
*YPERM82	Permanent disposable income, billions of 1982 dollars.
*YPINT	Personal interest income, billions of current dollars.
YPRENT	Rental income of persons with capital consumption adjustment, billions of current dollars.
*YPWS	Private wages and salaries, billions of current dollars.
*YT82	Transitory income, billions of 1982 dollars.
*YUNB	Total unemployment benefits paid, billions of current dollars.

APPENDIX

This appendix notes only non-zero values of dummy variables. All unspecified values may be assumed to be zero.

<u>DM82DOCK</u>		<u>DASTRIKE</u>		<u>DGPAY</u>	
-1.0	1965.1	-2.0	1964.4	1.0	1955.2
1.0	1965.2	1.2	1965.1	1.0	1955.4
-3.0	1969.1	0.8	1965.2	1.0	1956.3
2.5	1969.2	-1.0	1967.4	1.0	1957.3
0.5	1969.3	0.75	1968.1	1.0	1960.1-1960.3
-1.0	1971.3	0.25	1968.2	1.0	1961.4
-3.0	1971.4	-3.6	1970.4	1.0	1962.4
4.0	1972.1	2.4	1971.1	1.0	1963.4
-1.0	1977.3	1.2	1971.2	1.0	1964.3
1.0	1977.4	-0.5	1973.4	1.0	1965.4
		0.375	1974.1	1.0	1967.4
		0.125	1974.2	1.0	1968.3
		-1.0	1976.4	1.0	1969.3
		0.75	1977.1	1.0	1970.1
		0.25	1977.2	1.0	1971.1
				1.0	1972.1
				1.0	1973.1
				1.0	1973.4
				1.0	1974.4
				1.0	1975.4
				1.0	1976.4
				1.0	1977.4
				1.0	1978.4
				1.0	1979.4
				1.0	1980.4
				1.0	1981.4
				1.0	1982.4

<u>DTP</u>		<u>DTEX</u>		<u>DTIB</u>	
-5.5	1984.1	-0.6	1965.2	-0.496	1958.3
-3.3	1984.2	-1.8	1965.3	-0.339	1959.2
1.0	1984.3	-0.6	1965.4	0.339	1959.3
-2.9	1984.4	-1.8	1966.1	-0.971	1965.2-1965.3
26.6	1985.1	0.3	1966.2-1966.3	-1.452	1966.1
-56.5	1985.2	0.3	1970.3	0.474	1968.1
24.1	1985.3	-0.8	1971.3	-0.634	1971.2-1971.3
-3.5	1985.4	-1.3	1971.4	-1.276	1972.1
-6.6	1986.1	-0.1	1972.1	0.831	1975.2-1975.3
-2.0	1986.2	-0.1	1973.1	-3.2	1976.1
-21.7	1987.1	-0.1	1974.1	-0.1	1976.4
38.6	1987.2	-0.1	1975.1	-0.35	1978.1
-30.0	1987.3	-0.4	1977.1	-0.4	1979.1
0.2	1987.4			-2.4	1980.1
-22.7	1988.1			6.8	1980.2
6.1	1988.2			3.0	1980.3
-14.0	1988.3			4.9	1980.4
-0.1	1988.4			11.6	1981.1
17.6	1989.1			2.2	1981.2
				-2.0	1981.3
				2.1	1981.4
				-1.6	1982.1
				0.3	1982.3
				0.5	1982.4
				4.6	1983.1
				5.2	1983.2
				0.1	1983.3
				0.1	1983.4

D87TPF

7.282	1987.1
8.435	1987.2
6.013	1987.3
-2.131	1987.4

DINDTPF

1.0	1985.1
1.0	1986.1
1.0	1989.1

DTSI

1.1	1957.1
1.6	1959.1
2.2	1960.1
1.4	1962.1
1.6	1963.1
5.0	1966.1
1.5	1967.1
2.2	1968.1
2.0	1969.1
3.4	1971.1
3.5	1972.1
11.5	1973.1
4.3	1974.1
1.5	1975.1
2.7	1977.1
5.9	1978.1
9.2	1979.1
3.6	1980.1
16.0	1981.1
4.3	1982.1
3.0	1983.1

DUBEXT

0.133	1958.3
0.220	1961.2
0.230	1972.1
0.212	1975.1
0.162	1975.2
0.117	1975.3
0.022	1975.4
0.011	1976.1
0.027	1977.1

TPNS

0.8	1968.3-1968.4
4.2	1969.1-1969.2
0.2	1969.3-1969.4
1.4	1970.1-1970.2
0.4	1970.3-1970.4

DAINC

1974.3	.5
1974.4	-.3
1975.1	.3
1975.2	-.3
1975.3	-.2
1982.1	1.0
1982.2	-.6
1982.3	-.4
1982.4	1.0
1983.1	-.6
1983.2	.6
1983.3	-.6
1983.4	-.4
1985.3	2.0
1985.4	-1.2
1986.1	-.8
1986.3	3.0
1986.4	-.8

DAINC1

1974.3	.5
1975.1	.5
1982.1	1.0
1982.4	1.0
1983.2	1.0
1985.3	2.0
1986.3	3.0
1986.4	1.0

DVRALED

1982.1	1.0
1982.4	1.0
1983.4	1.0
1984.4	1.0
1985.4	1.0

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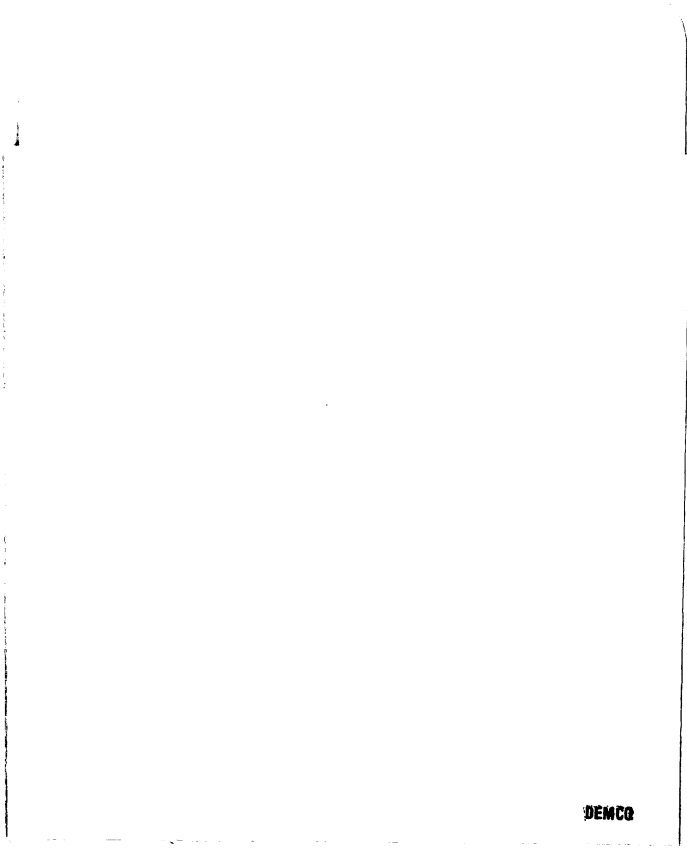
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DEMCO

