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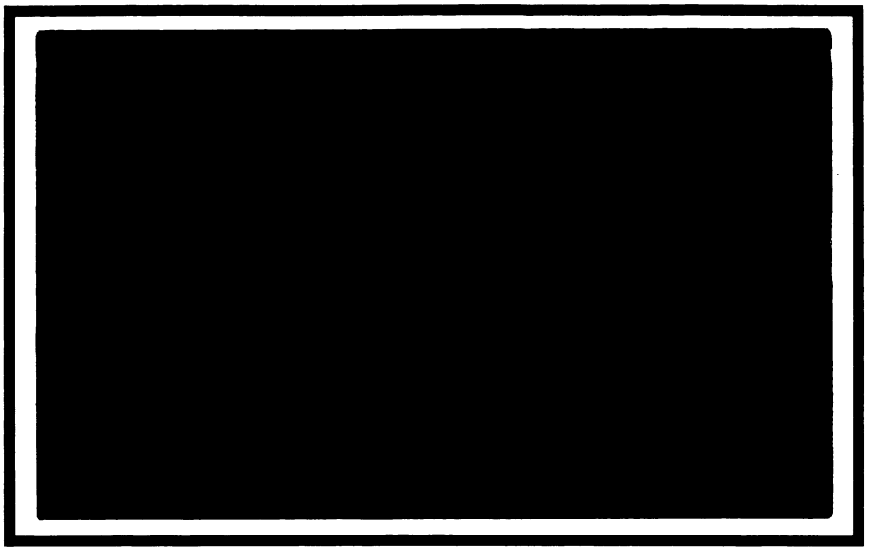

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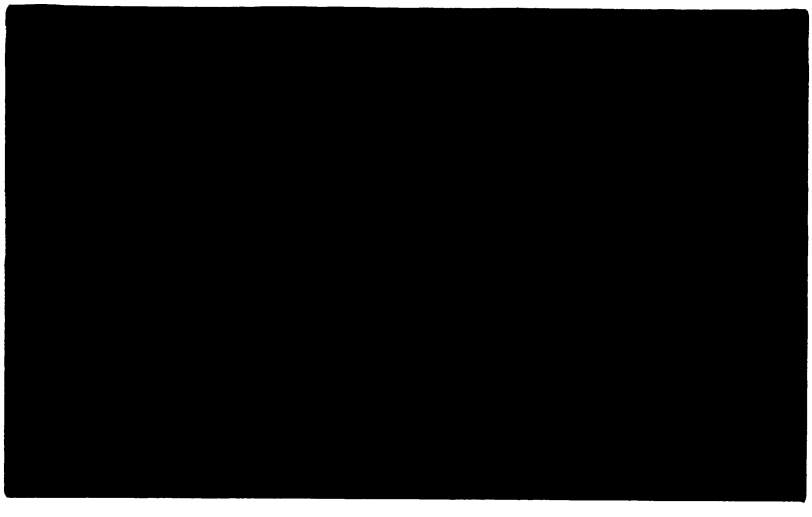

THE MICHIGAN QUARTERLY ECONOMETRIC MODEL OF THE U.S. ECONOMY

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A. Wages and Prices

A1 JCLH - Index of compensation per hour, nonfarm business sector

$$\Delta \ln JCLH = \underset{(.00159)}{.01375} + \underset{(.28755)}{.84768} * \left[\frac{\Delta\ WUSMIN}{JCLH_{-1}}\right]$$

$$+ \underset{(.06670)}{.15102} * \ln\left[\frac{PC_{-1}}{PC_{-3}}\right] + \underset{(.01762)}{.09958} * \ln\left[\frac{2 * \frac{REM_{-1}}{100} + JCU_{-1}}{3}\right]$$

$$+ \underset{(.00911)}{.01965} * \frac{DTSIF}{JCLH_{-1}} + \underset{(.00405)}{.00837} * DFRZ1$$

$$+ \underset{(.15513)}{.59194} * \frac{RPPERM_{-2}}{100}$$

$R^2 = .653$ S.E. = .0040 D.W. = 1.65 F.P. = 1961.4-1989.4

A2 PPNF - Implicit deflator for private nonfarm business output

$$\Delta \ln PPNF = \underset{(.00172)}{.00030} + \underset{(.00408)}{.00762} * \Delta \ln PFARM_{-1}$$

$$+ \underset{(.00763)}{.02851} * \ln\left[\frac{PCRUDE_{-1}}{PCRUDE_{-3}}\right]$$

$$+ \underset{(.00023)}{.00035} * \sum_{i=5}^{6} \beta_i * \left[\frac{1}{1-JCU}\right]_{-i}$$

$$+ \underset{(.00849)}{.03440} * DFROFF + \underset{(.00627)}{.01254} * \ln\left[\frac{RAAA_{-1}}{RAAA_{-3}}\right]$$

$$+ \underset{(.01595)}{.18078} * \left[\ln\left[\frac{JCLH_{-1}}{JCLH_{-5}}\right] - \sum_{i=1}^{4} \frac{JQLHT_{-i}}{4}\right]$$

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

$R^2 = .765$ S.E. = .0036 D.W. = 2.45 F.P. = 1963.3-1989.4

A3 PCDVA - Implicit deflator for personal consumption expenditures, new automobiles

$$\Delta \ln PCDVA = \underset{(.00029)}{.00028} + \underset{(.02211)}{.95624} * \Delta \ln PAUTO$$

$R^2 = .940$ S.E. = .0027 D.W. = 2.60 F.P. = 1959.3-1989.4

A4 PCDVT - Implicit deflator for personal consumption expenditures, new trucks

$$\Delta \ln PCDVT = \underset{(.00103)}{-.00041} + \underset{(.07993)}{.86954} * \Delta \ln PAUTO + \underset{(.04981)}{.11099} * \Delta \ln PTRKL + \underset{(.05760)}{.16215} * \Delta \ln PCDVT_{-1}$$

$R^2 = .768$ S.E. = .0065 D.W. = 1.84 F.P. = 1967.3-1989.4

A5 PCDVO - Implicit deflator for personal consumption expenditures, motor vehicles and parts except new automobiles and trucks

$$\Delta \ln PCDVO = \underset{(.00365)}{.00726} + \underset{(.28910)}{.56134} * \Delta \ln PPNF - \underset{(.29040)}{.50896} * \Delta \ln PPNF_{-1} + \underset{(.15901)}{.37732} * \Delta \ln PAUTO + \underset{(.10292)}{.21566} * \Delta \ln PCDVO_{-1}$$

$R^2 = .171$ S.E. = .0143 D.W. = 1.90 F.P. = 1967.3-1989.4

A6 PCDFE - Implicit deflator for personal consumption expenditures, furniture and household equipment

$$\Delta \ln PCDFE = \underset{(.00116)}{-.00434} + \underset{(.09250)}{.40705} * \Delta \ln PPNF$$

$$+ \underset{(.10188)}{.26303} * \Delta \ln PPNF_{-1} + \underset{(.02503)}{.03560} * \Delta \ln PMNOIL$$

$$+ \underset{(.09526)}{.30101} * \Delta \ln PCDFE_{-1}$$

$R^2 = .719$ S.E. = .0042 D.W. = 2.24 F.P. = 1967.2-1989.4

A7 PCDO - Implicit deflator for personal consumption expenditures, other durables

$$\Delta \ln PCDO = \underset{(.00166)}{.00044} + \underset{(.13583)}{.24557} * \Delta \ln PPNF$$

$$+ \underset{(.05135)}{.16748} * \Delta \ln PMNOIL + \underset{(.10899)}{.49656} * \Delta \ln PCDO_{-1}$$

$R^2 = .631$ S.E. = .0054 D.W. = 2.04 F.P. = 1976.1-1989.4

A8 PCNFD - Implicit deflator for personal consumption expenditures, food

$$\Delta \ln PCNFD = \underset{(.00157)}{.00110} + \underset{(.00762)}{.03584} * \Delta \ln PFARM + \underset{(.00751)}{.01919} * \Delta \ln PFARM_{-1}$$

$$+ \underset{(.13381)}{.51582} * \Delta \ln PPNF + \underset{(.09879)}{.38665} * \Delta \ln PCNFD_{-1}$$

$R^2 = .586$ S.E. = .0063 D.W. = 1.81 F.P. = 1968.2-1989.4

A9 PCNCS - Implicit deflator for personal consumption expenditures, clothing and shoes

$$\Delta \ln PCNCS = \underset{(.00090)}{.00630} + \underset{(.03727)}{.06540} * \Delta \ln PMNOIL_{-4}$$

$$+ \underset{(.01963)}{.05043} * \Delta \ln PCRUDE_{-1}$$

$R^2 = .143$ S.E. = .0064 D.W. = 1.80 F.P. = 1968.2-1989.4

A10 PCNFC - Implicit deflator for personal consumption expenditures, fuel oil and coal

$$\Delta \ln PCNFC = \underset{(.00288)}{.00583} + \underset{(.05360)}{.10432} * \Delta \ln POIL$$

$$+ \underset{(.06446)}{.16857} * \Delta \ln PNGAS + \underset{(.04263)}{.21977} * \Delta \ln PMOIL$$

$$+ \underset{(.06874)}{.13609} * \Delta \ln PCNFC_{-1}$$

$R^2 = .785$ S.E. = .0239 D.W. = 1.97 F.P. = 1968.2-1989.4

A11 PCNGO - Implicit deflator for personal consumption expenditures, gasoline and oil

$$\Delta \ln PCNGO = \underset{(.00029)}{.00002} + \underset{(.00565)}{1.0004} * \Delta \ln PGAS$$

$R^2 = .997$ S.E. = .0026 D.W. = 2.46 F.P. = 1968.2-1989.4

A12 PCNO - Implicit deflator for personal consumption expenditures, other nondurable goods

$$\Delta \ln PCNO = \underset{(.00107)}{.00099} + \underset{(.07498)}{.27088} * \Delta \ln PPNF + \underset{(.02338)}{.06767} * \Delta \ln PMNOIL + \underset{(.07037)}{.60135} * \Delta \ln PCNO_{-1}$$

$R^2 = .703$ S.E. = .0039 D.W. = 1.86 F.P. = 1968.2-1989.4

A13 PCS - Implicit deflator for personal consumption expenditures, services

$$\Delta \ln PCS = \underset{(.00066)}{.00323} + \underset{(.04312)}{.27575} * \Delta \ln PPNF + \left[\underset{(.37046)}{-1.8549} + \underset{(.92869)}{4.6362} * \left[\frac{CS87}{GDP87-G87} \right]_{-1} \right] * \Delta \ln JCLH + \underset{(.00198)}{.00460} * \ln \left[\frac{PNGAS}{PNGAS_{-4}} \right] + \underset{(.06930)}{.40907} * \Delta \ln PCS_{-1}$$

$R^2 = .897$ S.E. = .0020 D.W. = 2.02 F.P. = 1960.1-1989.4

A14 PINC - Implicit deflator for nonresidential construction

$$\Delta \ln PINC = \underset{(.00181)}{-.00183} \underset{(.00964)}{-.02265} * D82Q1 \underset{(.01001)}{-.03479} * D82Q1_{-1} \underset{(.00804)}{-.01103} * D82Q1_{-2}$$

$$+ \underset{(.16460)}{.53476} * \Delta \ln PPNF + \underset{(.04823)}{.10638} * \Delta \ln PMNOIL$$

$$+ \underset{(.11027)}{.19185} * \Delta \ln PINC_{-1} + \underset{(.10485)}{.39397} * \Delta \ln PINC_{-2}$$

$R^2 = .698$ S.E. = .0078 D.W. = 2.08 F.P. = 1967.2-1989.4

A15 PIPDIP - Implicit deflator for investment in producers' durable equipment, information processing equipment

$$\Delta \ln PIPDIP = \underset{(.00355)}{-.01216} + \underset{(.27205)}{.79241} + \Delta \ln PPNF + \underset{(.25874)}{.34228} * \Delta \ln PPNF_{-1}$$

$$+ \underset{(.12603)}{.32544} * \Delta \ln PIPDIP_{-1} \underset{(.09909)}{-.22504} * \Delta \ln PIPDIP_{-2}$$

$R^2 = .449$ S.E. = .0098 D.W. = 2.03 F.P. = 1975.1-1989.4

A16 PIPDIE - Implicit deflator for investment in producers' durable equipment, industrial equipment

$$\Delta \ln PIPDIE = \underset{(.00136)}{-.00357} + \underset{(.12092)}{.18473} * \Delta \ln PPNF + \underset{(.11466)}{.40282} * \Delta \ln PPNF_{-1}$$

$$+ \underset{(.03165)}{.15202} * \Delta \ln PMNOIL - \underset{(.01779)}{.03464} * \Delta \ln PCRUDE$$

$$+ \underset{(.06761)}{.57277} * \Delta \ln PIPDIE_{-1}$$

$R^2 = .813$ S.E. = .0052 D.W. = 2.21 F.P. = 1967.3-1989.4

A17 PIPDAU - Implicit deflator for investment in producers' durable equipment, new automobiles

$$\Delta \ln PIPDAU = \underset{(.00055)}{.00042} + \underset{(.03790)}{.97640} * \Delta \ln PAUTO$$

$$+ \underset{(.09991)}{.41612} * \Delta \ln PAUTO_{-1} - \underset{(.09357)}{.43173} * \Delta \ln PIPDAU_{-1}$$

$R^2 = .906$ S.E. = .0035 D.W. = 2.42 F.P. = 1967.3-1989.4

A18 PIPDT - Implicit deflator for investment in producers' durable equipment, new trucks

$$\Delta \ln PIPDT = \underset{(.00083)}{.00045} + \underset{(.03763)}{.37736} * \Delta \ln PTRKL + \underset{(.03859)}{.13082} * \Delta \ln PTRKL_{-1}$$

$$+ \underset{(.04110)}{.13224} * \Delta \ln PTRKH + \underset{(.03964)}{.29142} * \Delta \ln PTRKH_{-1}$$

$R^2 = .836$ S.E. = .0048 D.W. = 1.91 F.P. = 1967.3-1989.4

A19 PIPDOE - Implicit deflator for investment in producers' durable equipment, other

$$\Delta \ln PIPDOE = - \underset{(.00236)}{.00967} + \underset{(.11478)}{.72145} + \ln\left[\frac{PPNF}{PPNF_{-2}}\right] + \underset{(.02912)}{.09133} * \ln\left[\frac{PMNOIL}{PMNOIL_{-2}}\right]$$

$$- \underset{(.01816)}{.06299} * \ln\left[\frac{PCRUDE}{PCRUDE_{-2}}\right] + \underset{(.08564)}{.22355} * \Delta \ln PIPDOE_{-1}$$

$R^2 = .671$ S.E. = .0085 D.W. = 1.94 F.P. = 1967.3-1989.4

A20 PIRC - Implicit deflator for residential fixed investment

$$\Delta \ell n\ PIRC = \underset{(.00301)}{-\ .01035} + \underset{(.06530)}{.25766} * \ell n\left[\frac{JCLH}{JCLH_{-4}}\right]$$

$$+ \underset{(.00060)}{.00226} * \sum_{i=1}^{4} \beta_i * (RAAA - RCPCD)_{-i}$$

$$+ \underset{(.02678)}{.06216} * \Delta \ell n\ PCRUDE + \underset{(.17425)}{.67192} + \Delta \ell n\ PPNF$$

$$- \underset{(.08222)}{.26913} * \Delta \ell n\ PIRC_{-1}$$

$$\beta_i = (.55, .15, .15, .15)$$

$R^2 = .529$ S.E. = .0085 D.W. = 2.01 F.P. = 1960.1-1989.4

A21 PX - Implicit deflator for exports of goods and services

$$\Delta \ell n\ PX = \underset{(.00234)}{-\ .00339} + \underset{(.20131)}{.95800} * \Delta \ell n\ PPNF - \underset{(.17349)}{.32771} * \Delta \ell n\ PPNF_{-1}$$

$$+ \underset{(.06644)}{.31702} * \Delta \ell n\ PMNOIL + \underset{(.07155)}{.13714} * \Delta \ell n\ PMNOIL_{-1}$$

$$+ \underset{(.00813)}{.03395} * \Delta \ell n\ PMOIL + \underset{(.01090)}{.04091} * \Delta \ell n\ PFARM$$

$R^2 = .725$ S.E. = .0087 D.W. = 1.81 F.P. = 1967.3-1989.4

A22 PGFD - Implicit deflator for government defense purchases

$$\Delta \ln PGFD = \underset{(.00221)}{-.00062} + \underset{(.17458)}{.43912} * \Delta \ln PPNF + \underset{(.17286)}{.42330} * \Delta \ln PPNF_{-1}$$

$$+ \underset{(.08851)}{.61573} * DGPAY * \Delta \ln \left[\frac{YGWS}{EGOV}\right]$$

$R^2 = .599$ S.E. = .0078 D.W. = 2.19 F.P. = 1972.3-1989.4

A23 PGFO - Implicit deflator for federal government nondefense purchases excluding CCC

$$\Delta \ln PGFO = \underset{(.00211)}{.00316} + \underset{(.16508)}{.26048} * \Delta \ln PPNF$$

$$+ \underset{(.09255)}{.23169} * \Delta \ln PIPD_{-1} + \underset{(.00955)}{.01917} * \Delta \ln POIL_{-1}$$

$$+ \underset{(.08670)}{.81783} * DGPAY * \Delta \ln \left[\frac{YGWS}{EGOV}\right]$$

$R^2 = .674$ S.E. = .0076 D.W. = 2.13 F.P. = 1972.2-1989.4

A24 PGSL - Implicit deflator for state and local government purchases

$$\Delta \ln PGSL = \underset{(.00097)}{.00285} + \underset{(.06431)}{.15053} * \Delta \ln PPNF$$

$$+ \underset{(.07089)}{.30176} * \Delta \ln JCLH + \underset{(.01790)}{.02566} * \Delta \ln PMNOIL$$

$$+ \underset{(.00272)}{.00907} * \Delta \ln PMOIL + \underset{(.07564)}{.33837} * \Delta \ln PGSL_{-1}$$

$R^2 = .772$ S.E. = .0029 D.W. = 1.92 F.P. = 1967.2-1989.4

A25 PXYFAC - Implicit deflator for receipts of factor income from rest of world

$$\Delta \ln PXYFAC = \underset{(.00090)}{.00299} + \underset{(.06180)}{.79418} * \Delta \ln PPNF$$

$R^2 = .876$ S.E. = .0022 D.W. = 1.83 F.P. = 1979.1-1989.4

A26 PMYFAC - Implicit deflator for payments of factor income to rest of world

$$\Delta \ln PMYFAC = \underset{(.00098)}{.00301} + \underset{(.09695)}{.61263} * \Delta \ln PPNF + \underset{(.11240)}{.19719} * \Delta \ln PMYFAC_{-1}$$

$R^2 = .816$ S.E. = .0026 D.W. = 2.11 F.P. = 1979.1-1989.4

A27 JEXR - Index of trade-weighted exchange value of the dollar

$$\Delta \ln JEXR = \underset{(.00406)}{.01276} + \underset{(.10831)}{.87042} * \Delta \ln \left[\frac{PMROW}{PX}\right] + \underset{(.01697)}{.06012} * \ln \left[\frac{(X + KGRANT)_{-1}}{M + HTRF + GTRF}\right] + \underset{(.01018)}{.02866} * \ln \left[\frac{RTB}{RROW3}\right]$$

$R^2 = .885$ S.E. = .0145 D.W. = 1.94 F.P. = 1974.1-1990.4 I.V. estimation

(Predicted $\Delta \ln$ PMROW from equation A29.B used as instrument in estimation)

A28 PCROW - Consumer price index, weighted average of Germany, United Kingdom, Japan, and Canada

A28.A

$$PCROW = \left[1 + \frac{RPCROW}{100} \right]^{.25} * PCROW_{-1}$$

A28.B

$$\Delta \ \ell n\ PCROW = \underset{(.06219)}{-.10582} + \underset{(.01678)}{.03439} * \ell n\ JIPROW_{-1}$$

$$\underset{(.00012)}{-.00035} * TIME + \underset{(.11808)}{.42907} * \Delta \ \ell n\ PCROW_{-1}$$

$R^2 = .535$ S.E. = .0047 D.W. = 2.15 F.P. = 1976.1-1990.4

A29 PMROW - Implicit deflator, denominated in foreign currencies, for goods and services imported by the U.S.

A29.A

$$PMROW = \left[1 + \frac{RPMROW}{100} \right]^{.25} * PMROW_{-1}$$

A29.B

$$\Delta \ln PMROW = \underset{(.00920)}{-.01989} + \underset{(.10383)}{.11689} * \Delta \ln JEXR_{-2}$$

$$+ \underset{(.03298)}{.05486} * \Delta \ln \left[\frac{RTB}{RROW3}\right]_{-1} + \underset{(.73215)}{2.4580} * \Delta \ln PCROW$$

$$- \underset{(.73629)}{.53897} * \Delta \ln PCROW_{-1} + \underset{(.12632)}{.19594} * \Delta \ln PMROW_{-1}$$

$R^2 = .364$ S.E. = .0315 D.W. = 1.95 F.P. = 1973.4-1990.4

A30 PCPI - CPI–U all items

$$\Delta \ln PCPI = \underset{(.00050)}{-.00111} + \underset{(.03863)}{1.1297} * \Delta \ln PC + \underset{(.00046)}{.00285} * \Delta RFHA_{-1}$$

$$- \underset{(.00795)}{.03032} * \Delta \ln \left[\frac{CDV87 + CDFE87 + CDO87}{C87}\right]$$

$R^2 = .905$ S.E. = .0027 D.W. = 2.05 F.P. = 1959.2-1989.4

A31 PGAS - CPI–W for motor fuel, motor oil, coolant and other products

$$\Delta \ln PGAS = \underset{(.00404)}{.00498} + \underset{(.03925)}{.37444} * \Delta \ln POIL + \underset{(.07509)}{.21903} * \Delta \ln PGAS_{-1}$$

$R^2 = .653$ S.E. = .0327 D.W. = 2.19 F.P. = 1972.1-1989.4

A32 PCRUDE - PPI for crude materials less agricultural products

$$\Delta \ln PCRUDE = \underset{(.00171)}{.00213} + \underset{(.01550)}{.25992} * \Delta \ln POIL$$

$$+ \underset{(.04362)}{.17632} * \Delta \ln PNGAS + \underset{(.04153)}{.31811} * \Delta \ln POTHRCRU$$

$$+ \underset{(.12279)}{.31156} * \Delta \ln PCRUDE_{-1} - \underset{(.03808)}{.09333} * \Delta \ln POIL_{-1}$$

$$- \underset{(.05684)}{.07846} * \Delta \ln POTHRCRU_{-1}$$

$R^2 = .950$ S.E. = .0098 D.W. = 1.82 F.P. = 1978.2-1989.4

A33 POIL - PPI for crude petroleum

$$\Delta \ln POIL = \underset{(.10989)}{-.53277} + \underset{(.04355)}{1.0861} * \Delta \ln PMOIL$$

$$- \underset{(.03795)}{.05963} * \Delta \ln POIL_{-1} - \underset{(.18678)}{.90748} * \ln \left[\frac{POIL}{PMOIL}\right]_{-1}$$

$R^2 = .960$ S.E. = .0250 D.W. = 1.80 F.P. = 1981.2-1989.4

A34 JRAUTO - Index of automobile finance rates

$$\begin{aligned} JRAUTO = {} & \underset{(2.0153)}{16.725} + \underset{(.38409)}{1.7869} * RG5_{-1} - \underset{(.20148)}{.47328} * (RAAA - RCPCD) \\ & + \underset{(.31730)}{.60932} * RTB_{-1} - \underset{(.29107)}{.70201} * DAINC1 \\ & + \underset{(.04328)}{.55803} * (JRAUTO_{-1} + \underset{(.29107)}{.70201} * DAINC1_{-1}) \end{aligned}$$

$R^2 = .986$ S.E. = 1.584 D.W. = 1.66 F.P. = 1978.2-1989.4

B. Productivity and Employment

B1 JQLH - Index of output per hour, nonfarm business sector

$$\Delta \ell n\ JQLH = \underset{(.02465)}{-.06655} + \underset{(.00457)}{.01595} * D5467$$

$$+ \underset{(.00303)}{.01061} * D6873 + \underset{(.00169)}{.00362} * D7482$$

$$- \underset{(.01032)}{.06517} * \ell n \left[\frac{JIPM}{JCAP}\right] + \underset{(.05602)}{.53623} * \Delta \ell n\ GDP87$$

$$+ \underset{(.00407)}{.00870} * \sum_{i=1}^{6} \beta_i * \ell n\ IBFPD87_{-i}$$

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

$R^2 = .558$ S.E. = .0052 D.W. = 2.29 F.P. = 1960.3-1989.4

B2 RUM - Civilian adult male unemployment rate

$$\Delta \ln(100-RUM) = \underset{(.00046)}{-.00356} * D5469 \underset{(.00039)}{-.00376} * D7080$$

$$\underset{(.00063)}{-.00350} * D8184 \underset{(.00056)}{-.00288} * D85ON$$

$$\underset{(.03139)}{+.30238} * \Delta \ln GDP87 \underset{(.03349)}{+.07426} * \Delta \ln GDP87_{-1}$$

$$\underset{(.00741)}{+.02568} * \frac{RUM_{-1} + RUM_{-2}}{2} * \sum_{i=1}^{2} \frac{\Delta \ln GDP87_{-i}}{2}$$

$$\underset{(.03779)}{-.07702} * \Delta \ln JQLH$$

$R^2 = .720$ S.E. = .0023 D.W. = 1.98 F.P. = 1959.4-1989.4

B3 RUG - Civilian unemployment rate

$$\Delta RUG = \underset{(.00843)}{-.01337} + \underset{(.14640)}{1.1745} * \Delta RUM \underset{(.00343)}{-.00622} * RLFSEC_{-1} * \Delta RUM$$

$$+ \underset{(.01093)}{.03243} * RUM_{-1} * \Delta RLFSEC$$

$R^2 = .954$ S.E. = .0863 D.W. = 2.06 F.P. = 1954.2-1989.4

C. Expenditures

C1 CDVA87 - Real personal consumption expenditures, new automobiles

$$
\begin{aligned}
CDVA87 = {} & \underset{(5.6029)}{4.4910} + \underset{(1.8620)}{6.1643} * DJRAUTO_{-1} \\
& - \underset{(1.7990)}{3.3693} * [(DOPEC1 + DOPEC2) - .91 * (DOPEC1 + DOPEC2)_{-1}] \\
& + \underset{(3.3455)}{5.5650} * (DOPEC3 - .91 * DOPEC3_{-1}) \\
& + \underset{(2.4503)}{9.3710} * (DTAX86 - .91 * DTAX86_{-1}) \\
& - \underset{(22.940)}{62.728} * \left[\frac{PAUTO}{PC_{-1}} - .91 * \frac{PAUTO_{-1}}{PC_{-2}}\right] \\
& + \underset{(.57531)}{(2.2533} - \underset{(.71789)}{.94525} * DJRAUTO_{-1}) \\
& * [(RAAA - RCPCD)_{-2} - .91 * (RAAA - RCPCD)_{-3}] \\
& - \underset{(1.1499)}{3.9927} * (RUM_{-1} - .91 * RUM_{-2}) \\
& + \underset{(.04013)}{.17903} * (YPERM87 - \underset{(.02140)}{.91124} * YPERM87_{-1}) \\
& - \underset{(.16072)}{.88727} * DJRAUTO_{-1} * (JRAUTO - .91 * JRAUTO_{-1}) \\
& + \underset{(.39403)}{2.6409} * (DASTRIKE - .91 * DASTRIKE_{-1}) \\
& + \underset{(.56682)}{5.8494} * (DAINC1 - .91 * DAINC1_{-1}) + \underset{(.06384)}{.54024} * CDVA87_{-1}
\end{aligned}
$$

$R^2 = .978$ S.E. = 3.223 D.W. = 2.42 F.P. = 1960.4-1989.4

C2 CDVT87 - Real personal consumption expenditures, new trucks

$$CDVT87 = \underset{(5.6657)}{-\ 25.103} + \underset{(.95192)}{.32044} * DJRAUTO_{-1} + \underset{(1.1026)}{3.3959} * (RLFSEC - .89 * RLFSEC_{-1})$$

$$- \underset{(8.5053)}{16.108} * \left[\frac{PTRKL}{PC_{-1}} - .89 * \frac{PTRKL_{-1}}{PC_{-2}}\right]$$

$$+ \left(\underset{(.23778)}{.60759} - \underset{(.30457)}{.65529} * DJRAUTO_{-1}\right)$$

$$* \left[(RAAA - RCPCD)_{-2} - .89 * (RAAA - RCPCD)_{-3}\right]$$

$$- \underset{(.06710)}{.25757} * DJRAUTO_{-1} * (JRAUTO - .89 * JRAUTO_{-1})$$

$$+ \underset{(.18314)}{.25335} * (DASTRIKE - .89 * DASTRIKE_{-1})$$

$$+ \underset{(.23482)}{1.0337} * (DAINC1 - .89 * DAINC1_{-1})$$

$$+ \underset{(.01418)}{.05608} * (YPERM87 - \underset{(.03200)}{.88530} * YPERM87_{-1}) + \underset{(.04514)}{.79366} * CDVT87_{-1}$$

$R^2 = .987$ S.E. = 1.390 D.W. = 2.44 F.P. = 1967.2-1989.4

C3 CDVO87 - Real personal consumption expenditures, motor vehicles and parts except new automobiles and trucks

$$CDVO87 = \underset{(.87630)}{.15921} - \underset{(.55698)}{.99791} * DOPEC2 - \underset{(1.3191)}{5.8844} * DTAX86_{-1}$$

$$+ \left[\underset{(.00116)}{.00404} + \underset{(.00005)}{.00017} * \sum_{i=1}^{2} \frac{(RAAA-RCPCD)_{-i}}{2} \right] * YPERM87 + \underset{(.00608)}{.00909} * YT87$$

$$+ \underset{(.05759)}{.78637} * CDVO87_{-1} - \underset{(.09485)}{.20811} * \Delta\, CDVO87_{-1}$$

$R^2 = .977$ S.E. = 1.282 D.W. = 1.97 F.P. = 1967.3-1989.4

C4 CDFE87 - Real personal consumption expenditures, furniture and household equipment

$$CDFE87 = - \underset{(6.5846)}{18.470} + \underset{(.00343)}{.00906} * YD87$$

$$+ \underset{(.00109)}{.00151} * \Delta\, HOUSEX + \underset{(.00247)}{.00632} * \Delta\, HOUSCOMP$$

$$+ \underset{(.14141)}{1.1384} * CDFE87_{-1} - \underset{(.12980)}{.20538} * CDFE87_{-2}$$

$R^2 = .998$ S.E. = 1.183 D.W. = 2.18 F.P. = 1980.1-1989.4

C5 CDO87 - Real personal consumption expenditures, other durable goods

$$\Delta \text{CDO87} = \underset{(9.0418)}{4.3891} + \underset{(1.1943)}{9.6476} * \text{D86Q4}$$

$$- \underset{(11.598)}{20.320} * \Delta\left[\frac{\text{PCDO}}{\text{PC}}\right] - \underset{(6.0320)}{5.3109} * \left[\frac{\text{PCDO}}{\text{PC}}\right]_{-1}$$

$$+ \underset{(.00472)}{.02320} * \text{YT87} + \underset{(.00154)}{.00332} * \text{YD87}_{-1}$$

$$- \underset{(.07842)}{.47592} * \text{CDO87}_{-1} + \underset{(.07872)}{.33577} * \text{CDO87}_{-2}$$

$R^2 = .499$ S.E. = 1.147 D.W. = 1.98 F.P. = 1960.3-1989.4

C6 CNFD87 - Real personal consumption expenditures, food

$$\Delta \text{CNFD87} = \underset{(.55227)}{.94932} + \underset{(36.499)}{35.499} * \Delta\left[\frac{\text{PCNCS}}{\text{PC}}\right]$$

$$- \underset{(43.901)}{233.47} * \Delta\left[\frac{\text{PCNFD}}{\text{PC}}\right] + \underset{(62.289)}{76.248} * \Delta\left[\frac{\text{PCNO}}{\text{PC}}\right]$$

$$+ \underset{(.01147)}{.03000} * \Delta\,\text{YD87} + \underset{(.01209)}{.02101} * \Delta\,\text{YD87}_{-1}$$

$R^2 = .342$ S.E. = 2.882 D.W. = 1.88 F.P. = 1968.2-1989.4

C7 CNCS87 - Real personal consumption expenditures, clothing and shoes

$$\Delta \text{CNCS87} = \underset{(18.710)}{77.778} - \underset{(24.063)}{108.06} * \Delta\left[\frac{\text{PCNCS}}{\text{PC}}\right] - \underset{(9.1286)}{33.992} * \left[\frac{\text{PCNCS}}{\text{PC}}\right]_{-1}$$

$$- \underset{(23.845)}{44.908} * \Delta\left[\frac{\text{PCNFD}}{\text{PC}}\right] - \underset{(8.0112)}{18.864} * \left[\frac{\text{PCNFD}}{\text{PC}}\right]_{-1}$$

$$- \underset{(6.0198)}{13.444} * \Delta\left[\frac{\text{PCNFC}}{\text{PC}}\right] - \underset{(5.2544)}{17.612} * \left[\frac{\text{PCNFC}}{\text{PC}}\right]_{-1}$$

$$+ \underset{(4.9696)}{6.1138} * \Delta\left[\frac{\text{PCNGO}}{\text{PC}}\right] + \underset{(4.5018)}{11.462} * \left[\frac{\text{PCNGO}}{\text{PC}}\right]_{-1}$$

$$+ \underset{(.00588)}{.01783} * \Delta\,\text{YD87} + \underset{(.00430)}{.01190} * \text{YD87}_{-1}$$

$$- \underset{(.07731)}{.32734} * \text{CNCS87}_{-1}$$

R^2 = .504 S.E. = 1.361 D.W. = 2.04 F.P. = 1968.2-1989.4

C8 CNFC87 - Real personal consumption expenditures, fuel oil and coal

$$\Delta \text{ CNFC87} = \underset{(6.2748)}{-\ 18.036} + \underset{(13.139)}{27.321} * \Delta\left[\frac{\text{PCNCS}}{\text{PC}}\right] + \underset{(2.0890)}{6.7779} * \left[\frac{\text{PCNCS}}{\text{PC}}\right]_{-1}$$

$$- \underset{(2.1358)}{7.2268} * \Delta\left[\frac{\text{PCNFC}}{\text{PC}}\right] - \underset{(21.136)}{33.679} * \Delta\left[\frac{\text{PCNO}}{\text{PC}}\right]$$

$$+ \underset{(3.5880)}{6.4826} * \left[\frac{\text{PCNFD}}{\text{PC}}\right]_{-1} + \underset{(.00327)}{.00768} * \Delta \text{ YD87}$$

$$+ \underset{(.00082)}{.00209} * \text{YD87}_{-1} - \underset{(.06291)}{.18685} * \text{CNFC87}_{-1}$$

R^2 = .327 S.E. = .7948 D.W. = 1.77 F.P. = 1968.2-1989.4

C9 CNGO87 - Real personal consumption expenditures, gasoline and oil

$$\Delta \text{ CNGO87} = \underset{(12.015)}{-\ 15.911} - \underset{(20.537)}{29.009} * \Delta\left[\frac{\text{PCNFD}}{\text{PC}}\right]$$

$$+ \underset{(6.7969)}{12.030} * \left[\frac{\text{PCNFD}}{\text{PC}}\right]_{-1} - \underset{(4.1266)}{17.870} * \Delta\left[\frac{\text{PCNGO}}{\text{PC}}\right]$$

$$- \underset{(1.3699)}{1.9768} * \left[\frac{\text{PCNGO}}{\text{PC}}\right]_{-1} + \underset{(4.5693)}{5.2745} * \Delta\left[\frac{\text{PCNFC}}{\text{PC}}\right]$$

$$+ \underset{(4.5505)}{5.4441} * \left[\frac{\text{PCNCS}}{\text{PC}}\right]_{-1} + \underset{(.00535)}{.01058} * \Delta \text{ YD87}$$

$$+ \underset{(.00278)}{.00688} * \text{YD87}_{-1} - \underset{(.07604)}{.26245} * \text{CNGO87}_{-1}$$

R^2 = .430 S.E. = 1.194 D.W. = 2.23 F.P. = 1968.2-1989.4

C10 CNO87 - Real personal consumption expenditures, other nondurable goods

$$\Delta\,CNO87 = \underset{(28.705)}{109.23} - \underset{(20.788)}{24.433} * \Delta\left[\frac{PCNCS}{PC}\right] - \underset{(6.5816)}{25.705} * \left[\frac{PCNCS}{PC}\right]_{-1}$$

$$- \underset{(26.839)}{157.61} * \Delta\left[\frac{PCNO}{PC}\right] - \underset{(14.155)}{28.978} * \left[\frac{PCNO}{PC}\right]_{-1}$$

$$- \underset{(6.6850)}{13.684} * \left[\frac{PCNFD}{PC}\right]_{-1} - \underset{(3.8506)}{9.3974} * \left[\frac{PCNFC}{PC}\right]_{-1}$$

$$+ \underset{(3.4461)}{3.2495} * \left[\frac{PCNGO}{PC}\right]_{-1} + \underset{(.00483)}{.00842} * \Delta\,YD87$$

$$+ \underset{(.00391)}{.00618} * YD87_{-1} - \underset{(.05026)}{.22397} * CNO87_{-1}$$

$R^2 = .625$ S.E. = 1.168 D.W. = 1.62 F.P. = 1968.2-1989.4

C11 CS87 - Real personal consumption expenditures, services

$$CS87 = \underset{(4.8353)}{8.3904} + \underset{(.01788)}{.06694} * \Delta\left[\frac{YD + TSIP}{PC/100}\right]$$

$$+ \underset{(21.000)}{39.171} * \left[\frac{PCS}{PC} - 1\right] + \underset{(.01086)}{.01572} * \left[\frac{YD + TSIP}{PC/100}\right]_{-1}$$

$$+ \underset{(.02223)}{.96833} * CS87_{-1}$$

$R^2 = .9998$ S.E. = 4.572 D.W. = 1.80 F.P. = 1959.2-1989.4

C12 INCWM87 - Real nonresidential fixed investment, mining exploration, shafts, and wells

$$INCWM87 = \underset{(.41554)}{-.99062} + \underset{(.00174)}{.00510} * (GDP87_{-1} - GDP87_{-5})$$

$$+ \underset{(.01565)}{.10722} * \left(\frac{POIL}{PPNF}\right)_{-1} * 100 + \underset{(.09431)}{.69790} * INCWM87_{-1}$$

$$- \underset{(.08018)}{.14584} * INCWM87_{-2}$$

$R^2 = .957$ S.E. = 1.379 D.W. = 2.00 F.P. = 1961.2-1989.4

C13 INCO87 - Real nonresidential fixed investment, structures excluding mining exploration, shafts, and wells

$$INCO87 = \underset{(7.8683)}{20.346} + \underset{(.00576)}{.01837} * (GDP87_{-1} + MNOIL87_{-1} - GDP87_{-3} - MNOIL87_{-3})$$

$$+ (\underset{(.00290)}{-.01078} + \underset{(.00254)}{.00792} * JCU_{-1}) * \left[1 + \frac{TDEPRNC_{-4} - \frac{1}{60}}{4}\right]$$

$$* \sum_{i=2}^{5} \beta_i * (GDP87_{-i} + MNOIL87_{-i}) + \underset{(.02729)}{.06217} * \left[1 + \frac{TDEPRNC_{-4} - \frac{1}{60}}{4}\right]$$

$$* \sum_{i=2}^{5} \beta_i * MNOIL87_{-i} + \underset{(.12357)}{.55356} * INCWM87_{-1} + \underset{(.05071)}{.80806} * INCO87_{-1}$$

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

$R^2 = .983$ S.E. = 3.140 D.W. = 1.74 F.P. = 1968.2-1990.4

C14 IPDIP87 - Real investment in producers' durable equipment, information processing equipment

$$IPDIP87 = \underset{(19.780)}{-\ 18.844} + \underset{(1.1049)}{2.6387} * DUMIP$$

$$+ \underset{(.00829)}{.02361} * DUMIP * [GDP87_{-1} - GDP87_{-3}]$$

$$+ \underset{(.00382)}{.01621} * \left[1 + \frac{TDEPRQ_{-2} - \frac{1}{6} + TITCR_{-2} - .07}{4}\right] * \left[\frac{GDP87_{-1} + GDP87_{-2}}{2}\right]$$

$$- \underset{(7.5606)}{14.373} * \frac{PIPDIP_{-2}}{PPNF_{-1}} - \underset{(.10262)}{.23857} * \Delta\ IPDIP87_{-1}$$

$$+ \underset{(.06486)}{.61073} * IPDIP87_{-1}$$

$R^2 = .998$ S.E. = 1.603 D.W. = 2.06 F.P. = 1975.1-1989.4

C15 IPDIE87 - Real investment in producers' durable equipment, industrial equipment

$$\begin{aligned}
IPDIE87 = {} & \underset{(3.5631)}{4.1209} + \underset{(.00338)}{.01091} * (GDP87_{-1} - GDP87_{-3}) + \underset{(.00348)}{.01319} * (GDP87_{-3} - GDP87_{-5}) \\
& + \left\{ \underset{(.00209)}{.00421} + \underset{(.00164)}{.00429} * JCU_{-1} - \underset{(.01123)}{.03553} * \frac{MNOIL87_{-1} + MNOIL87_{-2}}{GDP87_{-1} + GDP87_{-2}} \right\} \\
& * \left[1 + \frac{TDEPRQ_{-2} - \frac{1}{6} + TITCR_{-2} - .07}{4} \right] \\
& * \sum_{i=1}^{4} \frac{GDP87_{-i} + MNOIL87_{-i}}{4} - \underset{(6.6386)}{11.043} * \frac{PIPDIE}{PPNF_{-1}} \\
& + \underset{(.05671)}{.80192} * IPDIE87_{-1}
\end{aligned}$$

$R^2 = .975$ S.E. = 1.467 D.W. = 1.68 F.P. = 1968.2-1990.4

C16 IPDAU87 - Real investment in producers' durable equipment, new automobiles

$$\begin{aligned}
\Delta\ IPDAU87 = {} & \underset{(.06051)}{.04072} + \left[\underset{(.99034)}{-1.8913} + \underset{(.00059)}{.00420} * GDP87_{-1} \right. \\
& \left. + \underset{(.16035)}{.53458} * RUM_{-1} - \underset{(3.4280)}{11.942} * AUTOSIZE_{-1} \right] * \Delta\ AUTOSB \\
& + \left[\underset{(.00070)}{.00211} * \Delta\ GDP87 + \underset{(.05782)}{.09284} * \Delta\ RUM \right. \\
& \left. - \underset{(.48078)}{1.3848}\ \Delta\ AUTOSIZE \right] * AUTOSB_{-1}
\end{aligned}$$

$R^2 = .973$ S.E. = .4244 D.W. = 2.44 F.P. = 1959.3-1989.4

C17 IPDTRK87 - Real investment in producers' durable equipment, new trucks

$$\begin{aligned}
IPDTRK87 = &- \underset{(2.0881)}{4.6820} + \underset{(.07648)}{.19418} * (RAAA - RCPCD)_{-2} \\
&+ \left[\underset{(.00084)}{.00221} - \underset{(.00388)}{.00740} * \frac{MNOIL87_{-1} + MNOIL87_{-2}}{GDP87_{-1} + GDP87_{-2}} \right] \\
&* \left[1 + \frac{TDEPRAU_{-2} - \frac{1}{6} + TITCR_{-2} - .07}{4} \right] * \sum_{i=1}^{4} \frac{GDP87_{-i} + MNOIL87_{-i}}{4} \\
&+ \underset{(.00181)}{.00287} * (GDP87_{-1} + MNOIL87_{-1} - GDP87_{-4} + MNOIL87_{-4}) \\
&+ \left(- \underset{(35.188)}{34.022} + \underset{(31.726)}{76.087} * \frac{PTRKH}{PIPDT} \right) * TRKH + \underset{(.15904)}{.40712} * DASTRIKE \\
&+ \underset{(.06784)}{.79318} * \left\{ IPDTRK87_{-1} - \underset{(.15904)}{.40712} * DASTRIKE_{-1} \right. \\
&\left. - \left[- \underset{(35.188)}{34.022} + \underset{(31.726)}{76.087} * \left[\frac{PTRKH}{PIPDT} \right]_{-1} \right] * TRKH_{-1} \right\}
\end{aligned}$$

$R^2 = .968$ S.E. = 1.102 D.W. = 1.96 F.P. = 1968.1-1990.4

C18 IPDOE87 - Real investment in producers' durable equipment, other

$$\begin{aligned}
IPDOE87 = &\ \underset{(4.1233)}{13.371} + \underset{(.00682)}{.02938} * (GDP87_{-1} - GDP87_{-3}) + \underset{(.00611)}{.01096} * (GDP87_{-3} - GDP87_{-5}) \\
&- \underset{(11.611)}{28.368} * \left[\frac{UCKPDOE_{-2}}{PPNF_{-1}} \right] + \underset{(.04734)}{.86212} * IPDOE87_{-1} - \underset{(.11688)}{.32281} * \Delta\, IPDOE87_{-1}
\end{aligned}$$

$R^2 = .852$ S.E. = 2.814 D.W. = 1.82 F.P. = 1972.1-1989.4

C19 IRCS87 - Real residential fixed investment, single family structures

$$\begin{aligned}
IRCS87 = {} & \underset{(9.2936)}{6.6940} + \underset{(.55029)}{.72983} * \sum_{i=1}^{4} \gamma_i * (RAAA - RCPCD)_{-i} + \underset{(33.612)}{122.48} * HASSET_{-1} \\
& + \underset{(.02376)}{.01524} * \sum_{i=0}^{3} \beta_i * \Delta\, YD87_{-i} + \underset{(.09918)}{.48393} * \sum_{i=0}^{3} \beta_i * POP20_{-i} \\
& - \underset{(1.6414)}{3.9266} * \sum_{i=0}^{3} \beta_i * \Delta\, RUM_{-i} - \underset{(1.0466)}{2.6738} * \sum_{i=1}^{16} \left[\frac{IRCS87}{POP20}\right]_{-i} \\
& + \Big[\underset{(.10453)}{.14521} - \underset{(.00590)}{.02776} * (1-DRMORT) * RFHA_{-1} \\
& - \underset{(.00442)}{.02132} * DRMORT * RMORT_{-1} \Big] * \sum_{i=1}^{4} \gamma_i * PHOUSN.E_{-i} \\
& + \underset{(.09906)}{.80455} * IRCS87_{-1} - \underset{(.08286)}{.28179} * IRCS87_{-2}
\end{aligned}$$

$$\beta_i = (.55, .15, .15, .15)$$
$$\gamma_i = (.55, ,15, .15, .15)$$

R^2 = .987 S.E. = 2.725 D.W. = 1.81 F.P. = 1973.1-1989.4

C20 IRCM87 - Real residential fixed investment, multifamily structures

$$\frac{IRCM87}{POP20_{-1}} = \underset{(.02962)}{.11895} - \underset{(.00196)}{.00818} * RVAC_{-1} + \underset{(.00062)}{.00272} * (RAAA-RCPCD)_{-1}$$

$$- \underset{(.00206)}{.00642} * \sum_{i=5}^{24} \left[\frac{IRCM87}{POP20}\right]_{-i} - \underset{(.00091)}{.00180} * (1-DRMORT) * RFHA_{-1}$$

$$- \underset{(.00092)}{.00290} * DRMORT * RMORT_{-1}$$

$$+ \underset{(.09121)}{1.4040} * \frac{IRCM87_{-1}}{POP20_{-2}} - \underset{(.09063)}{.48290} * \frac{IRCM87_{-2}}{POP20_{-3}}$$

R^2 = .989 S.E. = .0083 D.W. = 2.09 F.P. = 1973.1-1989.4

C21 IRCO87 - Real residential fixed investment, other

$$IRCO87 = - \underset{(2.0074)}{4.3632} + \underset{(.88776)}{1.9431} * D8488 - \underset{(2.4080)}{9.4698} * D763$$

$$+ \underset{(.00081)}{.00699} * HOUSEX + \underset{(.00184)}{.01123} * (YD87+DYD87)$$

$$- \underset{(.14390)}{.19448} * RG5_{-1} + \underset{(.06735)}{.33668} * IRCO87_{-1}$$

R^2 = .978 S.E. = 2.373 D.W. = 1.94 F.P. = 1968.1-1989.4

C22 IINVA87 - Real change in business inventories, new automobiles

$$\begin{aligned} \text{IINVA87} = &- \underset{(1.4948)}{2.3797} + \underset{(.27160)}{.92878} * \Delta\ \text{MAUTO87} \\ &- \underset{(.03592)}{.11675} * \text{SINVA87}_{-1} + \underset{(.84345)}{3.2356} * \text{DASTRIKE} \\ &- \underset{(.80168)}{1.4713} * \text{DASTRIKE}_{-1} - \underset{(.08744)}{.27538} * \Delta\ \text{CDVA87} \\ &+ \underset{(.03429)}{.11374} * (\text{CDVA87} + \text{IPDAU87} + \text{GOVAU87})_{-1} - \underset{(1.0695)}{4.8021} * \text{DAINC1} \\ &+ \underset{(1.1940)}{.93992} * \text{DAINC1}_{-1} + \underset{(.96064)}{2.4932} * \text{DAINC1}_{-2} \end{aligned}$$

$R^2 = .575$ S.E. = 4.192 D.W. = 2.00 F.P. = 1962.1-1989.4

C23 IINVT87 - Real change in business inventories, new trucks

$$\begin{aligned} \text{IINVT87} = &\ \underset{(1.0180)}{4.6774} - \underset{(.04199)}{.25413} * \text{SINVT87}_{-1} + \underset{(.38910)}{.64485} * \text{DASTRIKE} \\ &- \underset{(.38897)}{.49060} * \text{DASTRIKE}_{-1} - \underset{(.14213)}{.28409} * \Delta\ \text{CDVT87} \\ &+ \underset{(.02752)}{.16590} * (\text{CDVT87} + \text{IPDTRK87} + \text{GOVTRK87})_{-1} \\ &+ \underset{(.40360)}{.39562} * \Delta\ \text{MTRK87} - \underset{(.47265)}{.97314} * \text{DAINC1} \\ &+ \underset{(.47604)}{.27065} * \text{DAINC1}_{-1} + \underset{(.43982)}{.63554} * \text{DAINC1}_{-2} + \underset{(.09216)}{.31725} * \text{IINVT87}_{-1} \end{aligned}$$

$R^2 = .510$ S.E. = 1.848 D.W. = 1.97 F.P. = 1967.2-1989.4

C24 IINVO87 - Real change in nonfarm business inventories, excluding new automobiles and trucks

$$\begin{aligned} IINVO87 = &- \underset{(14.933)}{3.7169} - \underset{(2.2981)}{3.0868} * DM87DOCK \\ &+ \underset{(2.1919)}{3.2072} * DM87DOCK_{-1} - \underset{(8.4904)}{12.826} * DPCRUDE \\ &- \underset{(.02885)}{.07464} * SINVO87_{-1} + \left[\underset{(.04129)}{.10979} + \underset{(.04810)}{.06946} * DPCRUDE * \Delta \ln PCRUDE_{-1} \right. \\ &\left. + \underset{(.02514)}{.06817} * (1 - DPCRUDE) * \Delta \ln POTHRCRU_{-1} \right] * (FS87 - SERVE87)_{-1} \\ &+ \underset{(.16469)}{.61199} * \Delta (M87 - MAUTO87 - MTRK87) + \underset{(.07881)}{.40681} * IINVO87_{-1} \end{aligned}$$

$R^2 = .587$ S.E. = 13.15 D.W. = 2.26 F.P. = 1967.2-1989.4

C25 X87 - Real exports of goods and services

C25.A

$$X87 = \left[1 + \frac{RX87}{100}\right]^{.25} * X87_{-1}$$

C25.B

$$\begin{aligned} \Delta \ln X87 = &\underset{(.00362)}{.00597} + \underset{(.12200)}{.24378} * \Delta \ln X87_{-1} - \underset{(.07604)}{.15454} * \Delta \ln PX_{-1} - \underset{(.07604)}{.15454} * \Delta \ln JEXR_{-1} \\ &+ \underset{(.07604)}{.15454} * \Delta \ln PCROW_{-1} + \underset{(.23864)}{.42718} * \Delta \ln JIPROW \end{aligned}$$

$R^2 = .194$ S.E. = .0230 D.W. = 2.08 F.P. = 1976.1-1990.4

C26 MNOIL87 - Real imports of goods and services excluding petroleum and products

$$\ell n\ MNOIL87 = \underset{(.60094)}{-\ 3.2896} \underset{(.07976)}{-\ .41782} * \ell n \left[\frac{PMNOIL}{PPNF}\right]_{-1}$$

$$+ \left[\ 2 * (1 - \underset{(.05581)}{.69357}) \right.$$

$$+ \underset{(.04675)}{.13829} * \left[\ \ell n\ (SINV87 + GFCCC87) - \ell n\ SINV87_{-1}\ \right] \left.\right] * \ell n\ GDP87$$

$$+ \underset{(.01696)}{.04618} * DM87DOCK$$

$$+ \underset{(.01683)}{.04178} * DM87DOCK_{-1} + \underset{(.05581)}{.69357} * \ell n\ MNOIL87_{-1}$$

$R^2 = .996$ S.E. = .0206 D.W. = 1.76 F.P. = 1976.1-1989.4

C27 MAUTO87 - Real imports of automobiles

$$\ell n\ MAUTO87 = \underset{(.14153)}{.22889} + \underset{(.06549)}{.21005} * \ell n\ AUTOSF + \underset{(.05793)}{.71441} * \ell n\ MAUTO87_{-1}$$

$$+ \underset{(.08670)}{.23567} * \ell n \left[\frac{CDVA87}{AUTOSC}\right]_{-1}$$

$R^2 = .979$ S.E. = .0738 D.W. = 2.12 F.P. = 1967.2-1989.4

C28 JIPROW - Index of industrial production, weighted average of Germany, United Kindom, Japan, and Canada

C28.A

$$JIPROW = \left[1 + \frac{RJIPROW}{100}\right]^{.25} * JIPROW_{-1}$$

C28.B

$$\Delta \ln JIPROW = \underset{(.00307)}{.00633} + \underset{(.03519)}{.08994} * \Delta \ln \left[\frac{MNOIL87}{X87}\right] - \underset{(.08292)}{.15005} * \ln \left[\frac{PCROW_{-1}}{PCROW_{-3}}\right]$$

$$- \underset{(.00091)}{.00189} * [RROW3_{-1} - RROW3_{-3}] + \underset{(.09369)}{.60957} * \Delta \ln JIPROW_{-1}$$

$R^2 = .625$ S.E. = .0094 D.W. = 1.90 F.P. = 1974.1-1990.4

C29 AUTOSB - Unit sales of new automobiles to business

$$\begin{aligned}
AUTOSB = {} & \underset{(.19598)}{.00271} + \underset{(.01118)}{.06882} * (RAAA - RCPCD)_{-2} \\
& + \left[\underset{(.00010)}{.00035} - \underset{(.00050)}{.00114} * \frac{MNOIL87_{-1} + MNOIL87_{-2}}{GDP87_{-1} + GDP87_{-2}} \right] \\
& * \left[1 + \frac{TDEPRAU_{-2} - \frac{1}{6} + TITCR_{-2} - .07}{4} \right] * \sum_{i=1}^{3} \frac{GDP87_{-i} + MNOIL87_{-i}}{3} \\
& + \underset{(.00027)}{.00063} * [GDP87_{-1} + MNOIL87_{-1} - GDP87_{-4} - MNOIL87_{-4}] \\
& + \underset{(.02201)}{.12482} * DAINC + \underset{(.02666)}{.13072} * DASTRIKE \\
& - \underset{(.08977)}{.35693} * (\Delta\, AUTOSB_{-1} - \underset{(.02201)}{.12482} * \Delta\, DAINC_{-1} \\
& - \underset{(.02666)}{.13072} * \Delta\, DASTRIKE_{-1}) \\
& + \underset{(.07658)}{.60479} * (AUTOSB_{-1} - \underset{(.02201)}{.12482} * DAINC_{-1} - \underset{(.02666)}{.13072} * DASTRIKE_{-1})
\end{aligned}$$

$R^2 = .923$ S.E. = .1581 D.W. = 1.84 F.P. = 1968.1-1990.4

C30 AUTOSC - Unit sales of new automobiles to consumers

$$\Delta \text{ CDVA87} = \underset{(.07881)}{.52496} + \left[\underset{(.00070)}{.00746} * \text{YPERM87}_{-1} - \underset{(.02153)}{.07954} * \text{RLFSEC}_{-1} + \underset{(.11469)}{.39507} * \text{RUM}_{-1} - \underset{(2.0390)}{8.4424} * \text{AUTOSIZE}_{-1} \right] * \Delta \text{ AUTOSC} - \underset{(.37905)}{2.1267} * \Delta \text{ AUTOSIZE} * \text{AUTOSC}_{-1}$$

$R^2 = .987$ S.E. = .8164 D.W. = 2.04 F.P. = 1960.3-1989.4

C31 AUTOSD - Unit sales of new domestic automobiles

$$\frac{AUTOSD}{AUTOS} = \underset{(.13353)}{1.0340} - \underset{(.00047)}{.00323} * TIME + \underset{(.00103)}{.00470} * D86Q4ON * (TIME - 132)$$

$$+ \underset{(.00232)}{.01255} * DASTRIKE - \underset{(.04233)}{.23075} * PAUTOD.F$$

$$- \underset{(.01016)}{.01881} * DOPEC1 - \underset{(.00629)}{.00112} * DOPEC2 - \underset{(.00946)}{.03079} * DOPEC3$$

$$- \underset{(.01522)}{.04883} * \ell n\left[\frac{PGAS}{PC_{-1}}\right] + \underset{(.00020)}{.00116} * JICS - \underset{(.00604)}{.02127} * DVRALED$$

$$+ \underset{(.00303)}{.00543} * DAINC1 - \underset{(.00323)}{.00762} * DAINC1_{-1}$$

$$+ \underset{(.08624)}{.30510} * \left[\left[\frac{AUTOSD}{AUTOS}\right]_{-1} - \underset{(.00232)}{.01255} * DASTRIKE_{-1} + \underset{(.00604)}{.02127} * DVRALED_{-1} \right.$$

$$\left. - \underset{(.00303)}{.00543} * DAINC1_{-1} + \underset{(.00323)}{.00762} * DAINC1_{-2} \right]$$

$R^2 = .967$ S.E. = .0130 D.W. = 2.24 F.P. = 1967.2-1989.4

C32 TRKH - Unit sales of new heavy trucks

$$\begin{aligned}
TRKH = {} & .09702 + .00660 * (RAAA - RCPCD)_{-2} \\
& (.03470) \quad (.00160) \\
& + .00012 * (GDP87_{-1} + MNOIL87_{-1} - GDP87_{-3} - MNOIL87_{-3}) \\
& \quad (.00005) \\
& + .00015 * (GDP87_{-3} + MNOIL87_{-3} - GDP87_{-5} - MNOIL87_{-5}) \\
& \quad (.00005) \\
& - .31296 * \left[\frac{UCKPDTH}{PPNF}\right]_{-1} + .00585 * DASTRIKE \\
& \quad (.10225) \qquad\qquad\qquad\qquad (.00348) \\
& + .84863 * \left[TRKH_{-1} - .00585 * DASTRIKE_{-1}\right] \\
& \quad (.04957) \qquad\qquad\qquad\quad (.00348) \\
& - .24871 * \left[\Delta\, TRKH_{-1} - .00585 * \Delta\, DASTRIKE_{-1}\right] \\
& \quad (.10370) \qquad\qquad\qquad\quad (.00348)
\end{aligned}$$

$R^2 = .927$ S.E. = .0225 D.W. = 1.97 F.P. = 1968.2-1990.4

C33 TRKL - Unit sales of new light trucks

$$\begin{aligned}
\Delta\,(TRKL + TRKH) = {} & - .01643 + .08864 * \Delta\, CDVT87 \\
& \quad (.01304) \quad (.00698) \\
& + .03455 * \Delta\, IPDTRK87 + .07439 * \Delta\, GOVTRK87 \\
& \quad (.00775) \qquad\qquad\quad (.01877)
\end{aligned}$$

$R^2 = .899$ S.E. = .0956 D.W. = 1.74 F.P. = 1976.1-1989.4

C34 TRKLD - Unit sales of new domestic light trucks

$$\frac{TRKLD}{TRKL} = \underset{(.20560)}{.20999} - \underset{(.01726)}{.05584} * DOPEC3 + \underset{(.01280)}{.04177} * D86Q4ON_{-1}$$

$$- \underset{(.00893)}{.01164} * DOPEC2 + \underset{(.20312)}{.18258} * \frac{PMTRK_{-1}}{PTRKL}$$

$$- \underset{(.03270)}{.09990} * \ell n\left[\frac{PGAS}{PPNF}\right] + \underset{(.10667)}{.58125} * \left[\frac{TRKLD}{TRKL}\right]_{-1}$$

$R^2 = .803$ S.E. = .0205 D.W. = 2.38 F.P. = 1977.2-1989.4

C35 HSSING - Housing starts, single unit structures

$$\Delta\ IRCS87 = \Delta\left(\sum_{i=0}^{3} \beta_i * HSSING_{-i}\right) * \left[\frac{IRCS87}{\sum_{i=0}^{3} \beta_i * HSSING_{-i}}\right]_{-1}$$

$$+ \left[\underset{(.00042)}{.00074} - \underset{(.11986)}{.29627} * \Delta\left[\frac{IRCS87}{\sum_{i=0}^{3} \beta_i * HSSING_{-i}}\right]_{-1} - \underset{(.05951)}{.09481} * \Delta\left[\frac{PIRC}{PC}\right]\right.$$

$$\left. - \underset{(.00111)}{.00265} * \Delta\ RUM_{-1}\right] * \left[\sum_{i=0}^{3} \beta_i * HSSING_{-i}\right]_{-1}$$

$$\beta_i = (.55, .15, .15, .15)$$

$R^2 = .683$ S.E. = 3.563 D.W. = 2.03 F.P. = 1973.1-1989.4

C36 HSMULT - Housing starts, multiunit structures

$$\Delta \text{ HSMULT} = \underset{(7.2994)}{-\ 4.5752} + \underset{(5.5162)}{25.300} * \Delta \text{ IRCM87} - \underset{(.14415)}{.26125} * \Delta \text{ HSMULT}_{-1}$$

$$- \underset{(.07099)}{.15452} * \Delta \left(\text{HSMULT}_{-2} + \text{HSMULT}_{-3} + \text{HSMULT}_{-4}\right)$$

$R^2 = .298$ S.E. = 58.70 D.W. = 1.64 F.P. = 1973.1-1989.4

C37 HOUSEX - Sales of existing single family homes

$$\ell n \text{ HOUSEX} = \underset{(.64288)}{-\ 2.7316} - \underset{(.02373)}{.10506} * \text{D87ON} + \underset{(.32898)}{.94964} * \text{HASSET}$$

$$- \underset{(.06359)}{.10772} * \ell n \text{ RFHA}_{-1} + \underset{(.22480)}{1.0134} * \ell n \text{ POP20}_{-1} + \underset{(.04061)}{.08574} * \Delta \ell n \text{ HSMULT}$$

$$+ \underset{(.06086)}{.37495} * \Delta \ell n \text{ HSSING} + \underset{(.06054)}{.17806} * \ell n \text{ HSSING}_{-1}$$

$$- \underset{(.02003)}{.04202} * \left[\frac{100}{\text{PHOUSN.E}_{-1}}\right] * \ell n \text{ HSSING}_{-1} + \underset{(.08399)}{.61998} * \ell n \text{ HOUSEX}_{-1}$$

$R^2 = .980$ S.E. = .0384 D.W. = 2.13 F.P. = 1970.1-1989.4

C38 RVAC - Vacancy rate for rental housing

$$\text{RVAC} = \underset{(.43231)}{1.2252} - \underset{(.26261)}{.62243} * \Delta \text{ POP20} - \underset{(.27028)}{.32976} * \Delta \text{ POP20}_{-1}$$

$$+ \underset{(.00282)}{.00696} * \text{IRCM87}_{-1} + \underset{(.04335)}{.87529} * \text{RVAC}_{-1}$$

$R^2 = .903$ S.E. = .2688 D.W. = 2.34 F.P. = 1970.1-1989.4

D. Income Flows

D1 YPWS - Private wages and salaries

$$\Delta \ln YPWS = \underset{(.00121)}{.00188} + \underset{(.06930)}{.82278} * \Delta \ln JCLH + \underset{(.06154)}{.98110} * \Delta \ln GDP87 - \underset{(.07231)}{.60729} * \Delta \ln JQLH - \underset{(.01119)}{.03352} * \frac{DTSIF}{JCLH_{-1}}$$

$R^2 = .734$ S.E. = .0049 D.W. = 2.05 F.P. = 1959.2-1990.4

D2 YOL - Other labor income

$$\Delta \ln YOL = \underset{(.00171)}{.00179} + \underset{(.06663)}{.23966} * \Delta \ln YPWS + \underset{(.05275)}{.75636} * \Delta \ln YOL_{-1}$$

$R^2 = .692$ S.E. = .0066 D.W. = 1.89 F.P. = 1959.3-1989.4

D3 YFP - Farm proprietors' income

$$\Delta \ln YFP = \underset{(.03801)}{-.04034} + \underset{(.06923)}{.05738} * DJEXR$$

$$- \underset{(1.0206)}{2.5055} * (1-DJEXR) * \Delta \ln JEXR_{-4}$$

$$+ \underset{(.40009)}{1.9650} * \Delta \ln PFARM + \underset{(.43393)}{1.5579} * \Delta \ln PFARM_{-1}$$

$$- \underset{(.75628)}{2.1349} * \Delta \ln RAAA - \underset{(.08056)}{.35872} * \Delta \ln YFP_{-1}$$

$R^2 = .374$ S.E. = .3423 D.W. = 1.96 F.P. = 1959.3-1983.2, 1984.2-1989.4

D4 YNFP - Nonfarm proprietors' income

$$\Delta \ln YNFP = \underset{(.00389)}{.00776} + \underset{(.19732)}{.40185} * \Delta \ln YPWS$$

$$+ \underset{(.03128)}{.13448} * \Delta \ln YCP - \underset{(.02592)}{.06757} * \ln \left[\frac{RAAA_{-1}}{RAAA_{-3}}\right]$$

$R^2 = .310$ S.E. = .0181 D.W. = 2.17 F.P. = 1959.4-1989.4

D5 YPDIV - Personal dividend income

$$YPDIV = \underset{(.19218)}{-.29388} + \underset{(.00556)}{.02208} * (YCBT - TCF - TCSL)$$

$$+ \underset{(.01184)}{.03962} * IVA + \underset{(.06513)}{1.6454} * YPDIV_{-1} - \underset{(.06516)}{.66963} * YPDIV_{-2}$$

$R^2 = .999$ S.E. = 1.006 D.W. = 1.30 F.P. = 1959.3-1989.4

D6 YPINT - Personal interest income

$$\Delta\ YPINT = \underset{(.46093)}{.19945} * \underset{(.02477)}{.28497} * \left[\frac{YPINT}{RBAR}\right]_{-1} * \Delta\ RBAR$$

$$+ \underset{(.29989)}{.85748} * \frac{RBAR}{100} * \Delta\ M2_{-1}$$

$$+ \underset{(.07448)}{.32333} * \frac{RBAR}{100} * \frac{(RHSAVE * YD)_{-1}}{100}$$

$R^2 = .708$ S.E. = 3,363 D.W. = 1.39 F.P. = 1959.3-1988.4

D7 YUNB - Unemployment benefits

$$\Delta\ \ell n\ YUNB = \underset{(.01692)}{.20090} * \Delta\ RUG + \underset{(.21792)}{.85593} * \Delta\ \ell n \left[\frac{RUM}{RUG}\right]$$

$$+ \underset{(.07466)}{.13314} * \ell n \left[\frac{JCLH}{JCLH_{-4}}\right] + \frac{DUBEXT}{100}$$

$R^2 = .792$ S.E. = .0524 D.W. = 1.85 F.P. = 1960.2-1989.4

D8 KCA - Consumption of fixed capital

$$\Delta \text{ KCA} = \underset{(.53105)}{.08756} + \left[\underset{(.00199)}{.00973} + \underset{(.13229)}{.89307} * \Delta \ \ell n \text{ PIBF}\right] * \text{KCA}_{-1}$$

$$+ \underset{(.04748)}{.07434} * \Delta \text{ IBF}$$

$R^2 = .521$ S.E. = 3.537 D.W. = 2.53 F.P. = 1959.2-1989.4

D9 TPF - Federal personal tax and nontax payments

$$\Delta \text{ TPF} = \underset{(.01801)}{.13479} * \Delta \text{ YPADJ} + \text{DTPF}$$

$$+ \underset{(.02409)}{.02592} * \text{DPRE87} * \Delta \text{ YPADJ}$$

$$- \underset{(.01529)}{.03707} * \text{DINDTPF} * \ell n \left[\frac{\text{PC}_{-2}}{\text{PC}_{-6}}\right] * \left[\sum_{i=1}^{2} .5 * \text{YPADJ87}_{-i}\right]$$

$R^2 = .953$ S.E. = 3.619 D.W. = 1.01 F.P. = 1984.1-1986.4, 1988.2-1990.4

D10 TPSL - State and local personal tax and nontax payments

$$\Delta \text{ TPSL} = \underset{(.09385)}{.03481} + \underset{(.00232)}{.03081} * \Delta \text{ YPADJ} + \text{DTPSL}$$

$R^2 = .855$ S.E. = .6121 D.W. = 2.04 F.P. = 1961.2-1989.4

D11 TCF - Federal corporate profits tax accruals

$$\Delta \text{ TCF} = \underset{(.98977)}{.32718} + \underset{(.08042)}{.36490} * \Delta \text{ (YCBT - TCSL)}$$

$R^2 = .652$ S.E. = 3.556 D.W. = 1.83 F.P. = 1988.2-1991.2

D12 TCSL - State and local corporate profits tax accruals

$$\text{TCSL} = - \underset{(.49872)}{.55849} + \underset{(.63236)}{.66097} * \text{D822844} + \underset{(.86528)}{.39557} * \text{D88Q1ON}$$

$$+ \underset{(.00621)}{.08827} * \text{YCBT} - \underset{(.01008)}{.08160} * \text{YCBT}_{-1} + \underset{(.11916)}{.90101} * \text{TCSL}_{-1}$$

$R^2 = .994$ S.E. = .4886 D.W. = 2.07 F.P. = 1975.2-1979.4, 1982.3-1984.4, 1988.2-1989.4

D13 TIBF - Federal indirect business taxes

$$\Delta \text{ TIBF} = - \underset{(.12727)}{.07937} + \underset{(.00320)}{.00985} * \Delta \left[\text{GDP} + \text{M} - (\text{GFD} + \text{GFND} + \text{GSL}) - \frac{\text{CS87} * \text{PCS}}{100}\right]$$

$$+ \underset{(.04859)}{.90787} * \text{DTIBF}$$

$R^2 = .820$ S.E. = .9023 D.W. = 2.11 F.P. = 1967.1-1989.4

D14 TIBSL - State and local indirect business taxes

$$\Delta \text{ TIBSL} = \underset{(1.3406)}{-\ 3.7710} + \underset{(.00624)}{.02290} * \Delta \left[\text{GDP} - \left(\frac{\text{C87} * \text{PC}}{100} - \frac{\text{CS87} * \text{PCS}}{100}\right)\right]$$

$$+ \underset{(.34361)}{1.1302} * \ell n \text{ TIME} - \underset{(1.2679)}{7.0545} * \text{DPROP13}$$

$$+ \underset{(.01322)}{.08514} * \Delta \left[\frac{\text{C87} * \text{PC}}{100} - \frac{\text{CS87} * \text{PCS}}{100}\right]$$

$R^2 = .697$ S.E. = 1.260 D.W. = 2.22 F.P. = 1959.3-1989.4

D15 TSIF - Federal contributions for social insurance

$$\Delta \ \ell n \text{ TSIF} = \underset{(.00226)}{.00515} + \underset{(.11179)}{.81965} * \Delta \ \ell n \text{ YPWS}$$

$$- \underset{(.01653)}{.26573} * \Delta \ \ell n \left[\frac{\text{YPWS}}{\text{WCEIL}}\right] - \underset{(.00289)}{.00417} * \Delta \text{ RUG}$$

$$+ \underset{(.02841)}{.70549} * \Delta \ \ell n \text{ TSIFR}$$

$R^2 = .928$ S.E. = .0087 D.W. = 2.35 F.P. = 1959.2-1989.4

D16 TSIP - Personal contributions for social insurance

$$\Delta \ \ell n \text{ TSIP} = \underset{(.00102)}{-\ .00254} + \underset{(.02651)}{1.1142} * \Delta \ \ell n \text{ TSI}$$

$R^2 = .936$ S.E. = .0081 D.W. = 2.01 F.P. = 1959.2-1989.4

D17 GINTF - Net interest paid by the federal government

$$\Delta \text{ GINTF} = \underset{(.21574)}{.38785} + \underset{(.12519)}{.40981} * \frac{RG5}{100} * \Delta \text{ GDEBTP}$$

$$+ \underset{(.09132)}{.14022} * \Delta \text{ GINTF}_{-1} + \underset{(.13251)}{.12995} * \left[\frac{RG5}{100}\right]_{-1} * \Delta \text{ GDEBTP}_{-1}$$

$R^2 = .304$ S.E. = 1.849 D.W. = 2.01 F.P. = 1959.2-1989.4

E. Monetary Sector

E1 M2 - Monetary aggregate M2

$$\ell n\ M2 = -\underset{(.01844)}{.05435} + \underset{(.00427)}{.03025} * DM2831 - \underset{(.00349)}{.03778} * \ell n\ RCD + \underset{(.00543)}{.03248} * \ell n\ RAAA$$

$$+ \underset{(.03375)}{.18194} * \ell n\ GDP + \underset{(.05254)}{.19155} * \frac{\Delta\ GDEBTP + IRC + IBF}{GDP}$$

$$+ \underset{(.03311)}{.81180} * \ell n\ M2_{-1} + .3695 * \mu_{-1}$$

$R^2 = .999$ S.E. = .0045 D.W. = 1.90 F.P. = 1963.2-1990.4 GLS

E2 RCD - 90-day certificate of deposit rate

$$\ell n\ RCD = -\underset{(.46395)}{1.3513} + \underset{(.11192)}{1.6889} * \ell n\ RDIS - \underset{(.11470)}{1.1068} * \ell n\ RDIS_{-1} - \underset{(.28306)}{.77085} * \ell n\ MBASE$$

$$+ \underset{(.29642)}{.83744} * \ell n\ M1 + \underset{(.05097)}{.17644} * DSPRD + \underset{(.07027)}{.49069} * \ell n\ RCD_{-1}$$

$R^2 = .958$ S.E. = .0698 D.W. = 1.90 F.P. = 1968.1-1990.4

E3 FDCUR - Change in currency and unborrowed reserves

$$\Delta\ MBASE = \underset{(.05889)}{.11480} + \underset{(.02287)}{.95523} * FDCUR + \underset{(.06293)}{.25630} * \Delta\ (RTB - RDIS)$$

$R^2 = .934$ S.E. = .4297 D.W. = 2.28 F.P. = 1959.2-1990.4

E4 GCBDD - U.S. government deposits except demand deposits at Federal Reserve Banks

$$\Delta \text{GCBDD} = \underset{(.18274)}{.23453} - \underset{(.33058)}{.36454} * \text{DSEAS1} + \underset{(.31778)}{.79225} * \text{DSEAS2}$$

$$+ \underset{(.31801)}{.66880} * \text{DSEAS3} - \underset{(.08016)}{.52204} * \Delta \text{GCBDD}_{-1}$$

$R^2 = .336$ S.E. = 2.012 D.W. = 2.29 F.P. = 1959.3-1989.4

E5 GDEBTP - Par value of gross public debt of the U.S. Treasury held by private investors

$$\Delta \text{GDEBTP} = \underset{(.79879)}{.61559} + \underset{(1.1395)}{4.1199} * \text{DUM75}$$

$$- \Big[1 + \big(\underset{(.20457)}{.05276} - \underset{(.15210)}{.21338} * \text{DGDEBTP3}\big) * \text{DSEAS1}$$

$$+ \big(- \underset{(.15210)}{.28813} + \underset{(.13606)}{.28482} * \text{DGDEBTP3}\big) * \text{DSEAS2}$$

$$+ \big(\underset{(.17270)}{.08781} - \underset{(.12781)}{.14776} * \text{DGDEBTP3}\big) * \text{DSEASE3}\Big] * \frac{\text{NIASF}}{4}$$

$$- (1 - \underset{(1.5821)}{3.9165} * \text{DSEAS1} + \underset{(1.2867)}{2.8954} * \text{DSEAS2}$$

$$+ \underset{(1.5268)}{.86181} * \text{DSEAS3}) * \text{FDCUR} - \underset{(1.7176)}{1.3348} * \text{DSEAS1}$$

$$- \underset{(1.5951)}{6.0105} * \text{DSEAS2} + \underset{(1.8569)}{3.1618} * \text{DSEAS3}$$

$$+ \Delta \text{GCBDD} + \Delta \text{GOLD} + \Delta \text{TCO} + \Delta \text{SDR} + \text{DSLDEBT}$$

$R^2 = .911$ S.E. = 6.273 D.W. = 2.31 F.P. = 1959.2-1989.4

E6 RAAA - Aaa corporate bond rate

$$\underset{}{RAAA} = \underset{(.10001)}{.10049} + \underset{(.02482)}{.25860} * RCD - \underset{(.02897)}{.16983} * RCD_{-1}$$

$$+ \underset{(.01474)}{.02378} * \ell n \left[\frac{PPNF_{-1}}{PPNF_{-5}}\right] * 100 + \underset{(.01918)}{.89918} * RAAA_{-1}$$

$R^2 = .988$ S.E. = .3058 D.W. = 1.81 F.P. = 1963.2-1989.4

E7 RTB - 90-day Treasury bill rate

$$\underset{}{RTB} = \underset{(.09072)}{.06651} - \underset{(.21325)}{1.3476} * DSPRD + \underset{(.02452)}{.82293} * RCD - \underset{(.05728)}{.41666} * RCD_{-1}$$

$$+ \underset{(1.1677)}{3.8993} * \Delta \ell n\ GDEBTP + \underset{(.07058)}{.52117} * RTB_{-1}$$

$R^2 = .990$ S.E. = .2716 D.W. = 2.21 F.P. = 1968.1-1989.4

E8 RG5 - 5-year government bond rate

$$\begin{aligned} RG5 = &- .05108 \underset{(.04056)}{} + .00419 \underset{(.02591)}{} * DSEAS1 + .05986 \underset{(.02611)}{} * DSEAS2 \\ &+ .04786 \underset{(.02587)}{} * DSEAS3 + .02209 \underset{(.02216)}{} * RTB_{-1} \\ &+ .23100 \underset{(.02480)}{} * \Delta RTB + .15595 \underset{(.03582)}{} * RAAA_{-1} \\ &+ 1.0385 \underset{(.05627)}{} * \Delta RAAA + .81607 \underset{(.05080)}{} * RG5_{-1} \end{aligned}$$

$R^2 = .997$ S.E. = .1753 D.W. = 1.77 F.P. = 1955.1-1989.4

E9 RG30 - 30-year government bond rate

$$\begin{aligned} RG30 = &- .04769 \underset{(.13137)}{} - .70669 \underset{(.12781)}{} * D862 \\ &+ .00926 \underset{(.05357)}{} * RG5_{-1} + .28054 \underset{(.07349)}{} * \Delta RG5 \\ &+ .20404 \underset{(.05649)}{} * RAAA_{-1} + .68060 \underset{(.10328)}{} * \Delta RAAA \\ &+ .77832 \underset{(.08193)}{} * RG30_{-1} \end{aligned}$$

$R^2 = .997$ S.E. = .1238 D.W. = 1.81 F.P. = 1977.3-1989.4

E10 RFHA - Secondary market yield on FHA mortgages

$$\begin{aligned} RFHA = &- \underset{(.18160)}{.04899} + \underset{(.05957)}{1.2292} * RAAA - \underset{(.09680)}{.36265} * RAAA_{-1} \\ &+ \underset{(.07135)}{.22538} * RMORT_{-1} - \underset{(.03312)}{.07086} * (RAAA - RCPCD) \\ &- \underset{(.03325)}{.02266} * (RAAA - RCPCD)_{-1} \end{aligned}$$

$R^2 = .993$ S.E. = .2188 D.W. = 1.79 F.P. = 1976.2-1989.4

E11 RMORT - Conventional mortgage rate

$$\begin{aligned} RMORT = &\ \underset{(.24159)}{.11584} + \underset{(.07884)}{.74211} * RAAA - \underset{(.19607)}{.30532} * RAAA_{-1} \\ &+ \underset{(.17709)}{.50520} * RFHA_{-1} - \underset{(.04343)}{.01994} * (RAAA - RCPCD) \\ &- \underset{(.04424)}{.11666} * (RAAA - RCPCD)_{-1} + \underset{(.09776)}{.11822} * RMORT_{-1} \end{aligned}$$

$R^2 = .989$ S.E. = .2835 D.W. = 2.11 F.P. = 1976.2-1989.4

E12 M1 - Monetary aggregate M1

$$\ell n\left[\frac{M1}{M2}\right] = \underset{(.00652)}{-.01610} \underset{(.00697)}{-.04281} * DM2831 \underset{(.00638)}{+.02076} * DM2832$$

$$\underset{(.00041)}{+.00084} * RCD_{-1} \underset{(.00187)}{-.00803} * RAAA_{-1} \underset{(.00163)}{+.00665} * RAAA_{-2}$$

$$\underset{(.07692)}{+1.5711} * \ell n\left[\frac{M1}{M2}\right]_{-1} \underset{(.07429)}{-.58746} * \ell n\left[\frac{M1}{M2}\right]_{-2}$$

$R^2 = .999$ S.E. = .0061 D.W. = 2.28 F.P. = 1963.2-1990.4

F. Output Composition

F1 SERVE87 - Real service output

$$\Delta \text{SERVE87} = \underset{(.82271)}{3.9504} + \underset{(.07052)}{.89059} * \Delta \text{CS87} + \underset{(.11137)}{.19415} * \Delta (\text{EGOV} * 25.123)$$

$R^2 = .566$ S.E. = 4.178 D.W. = 2.11 F.P. = 1959.3-1990.4

F2 JIPM - Index of industrial production, manufacturing

$$\text{JIPM} = - \underset{(1.8382)}{13.052} + \underset{(.00431)}{.02439} * \text{FSMF87}$$

$$+ \underset{(.00498)}{.02723} * \text{CN87} + \underset{(.00371)}{.01870} * \text{FSNMF87}$$

$$+ \left[\underset{(.00613)}{.02124} - \underset{(.00004)}{.00011} * \sum_{i=1}^{4} (\text{IINV87} - \text{IINVF87})_{-i} \right] * \Delta (\text{FS87} - \text{SERVE87})$$

$$+ \underset{(.00507)}{.02729} * \text{IINVO87} + \underset{(.00998)}{.05728} * \text{IINVV87} + \underset{(.06361)}{.55978} * \text{JIPM}_{-1}$$

$R^2 = .998$ S.E. = .7430 D.W. = 1.53 F.P. = 1967.1-1989.4

F3 JCAP - Index of available capacity, manufacturing

$$\Delta \ln JCAP = \underset{(.01293)}{.07405} - \underset{(.00094)}{.00267} * D5864 + \underset{(.00046)}{.00317} * D6569$$

$$+ \underset{(.00163)}{.00415} * \sum_{i=0}^{1} \beta_i * \ln INCO87_{-i} + \underset{(.00136)}{.00557} * \sum_{i=0}^{1} \beta_i * \ln IPDIE87_{-i}$$

$$+ \underset{(.00120)}{.00747} * \sum_{i=0}^{1} \beta_i * \ln IPDIP87_{-i} - \underset{(.00317)}{.03071} * \ln JCAP_{-1}$$

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

$R^2 = .877$ S.E. = .0010 D.W. = 1.43 F.P. = 1959.2-1989.4

F4 GAUTO87 - Real auto output

$$\Delta GAUTO87 = - \underset{(.05844)}{.10636} + \underset{(.01634)}{1.0928} * \Delta CDVA87$$

$$+ \underset{(.04119)}{.94073} * \Delta IPDAU87 + \underset{(.46237)}{1.0666} * \Delta GOVAU87$$

$$+ \underset{(.00721)}{1.0190} * \Delta IINVA87 + \underset{(.04004)}{1.0327} * \Delta (XAUTO87 - MAUTO87)$$

$R^2 = .996$ S.E. = .6363 D.W. = 1.89 F.P. = 1959.2-1989.4

G. Miscellaneous Definitions

G1 JCLHD - Index of real compensation per hour, nonfarm business sector

$$JCLHD = \frac{JCLH}{PC} * 100$$

G2 JULC - Index of unit labor cost, nonfarm business sector

$$JULC = \frac{JCLH}{JQLH} * 100$$

G3 PGDP - Implicit deflator for gross domestic product

$$PGDP = \frac{GDP}{GDP87} * 100$$

G4 PC - Implicit deflator for personal consumption expenditures

$$PC = \frac{C}{C87} * 100$$

G5 PCDV - Implicit deflator for personal consumption expenditures, motor vehicles and parts

$$PCDV = \frac{PCDVA * CDVA87 + PCDVT * CDVT87 + PCDVO * CDVO87}{CDV87}$$

G6 PCN - Implicit deflator for personal consumption expenditures, nondurable goods

$$PCN = (PCNCS * CNCS87 + PCNFC * CNFC87 + PCNFD * CNFD87 + PCNGO * CNGO87 + PCNO * CNO87)/CN87$$

G7 PIBF - Implicit deflator for nonresidential fixed investment

$$PIBF = \frac{IBF}{IBF87} * 100$$

G8 PIPD - Implicit deflator for investment in producers' durable equipment

$$PIPD = (IPDIP87 * PIPDIP + IPDIE87 * PIPDIE + IPDOE87 * PIPDOE + IPDAU87 * PIPDAU + IPDTRK87 * PIPDT)/IBFPD87$$

G9 PM - Implicit deflator for imports of goods and services

$$PM = PMOIL * \frac{MOIL87}{M87} + PMNOIL * \frac{MNOIL87}{M87}$$

G10 PMNOIL - Implicit deflator for imports of goods and services excluding petroleum and products

$$PMNOIL = \frac{PMROW}{JEXR} * 100$$

G11 PG - Implicit deflator for government purchases

$$PG = (GFD + GFND + GSL)/G87 * 100$$

G12 PGNP - Implicit deflator for gross national product

$$PGNP = \frac{GNP}{GNP87} * 100$$

G13 UCKNC - User cost of capital investment in nonresidential structures

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

G14 UCKPDIP - User cost of capital investment in producers' durable equipment, information procesing equipment

$$UCKPDIP = PIPDIP * \left[\frac{RAAA}{100} + \frac{1}{6}\right]$$

G15 UCKPDIE - User cost of capital investment in producers' durable equipment, industrial equipment

$$UCKPDIE = PIPDIE * \left[\frac{RAAA}{100} - \left[\frac{PPNF_{-1}}{PPNF_{-5}} - 1\right] + \frac{1}{6}\right]$$

G16 UCKPDOE - User cost of capital investment in producers' durable equipment, other

$$UCKPDOE = PIPDOE * \left[\frac{RAAA}{100} - \left[\frac{PPNF_{-1}}{PPNF_{-5}} - 1\right] + \frac{1}{6}\right]$$

G17 UCKPDTH - User cost of capitalinvestment in heavy trucks

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

G18 HASSET - Value of housing units as an asset

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

G19 RPPERM - Permanent rate of inflation

$$RPPERM = \sum_{i=1}^{8} \beta_i * 100 * \Delta \ \ell n \ PC_{-i}$$

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

G20 JQLHT - Trend growth rate of productivity

$$JQLHT = .5 * \sum_{i=1}^{8} \Bigg[- .06655 + .01595 * D5467$$

$$+ .01061 * D6873 + .00362 * D7482$$

$$- .06517 * \overline{\ell n \left[\frac{JIPM}{JCAP}\right]} + .53623 * \overline{\Delta \ \ell n \ GDP87}$$

$$+ .00870 * \sum_{j=1}^{6} \beta_j \ \ell n \ IBFPD87_{-j} \Bigg]_{-i}$$

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

$$\overline{\ell n \left[\frac{JIPM}{JCAP}\right]} = \sum_{i=1960.3}^{1989.4} \frac{\ell n \left[\frac{JIPM}{JCAP}\right]_i}{118}$$

$$\overline{\Delta \ \ell n \ GDP87} = \sum_{i=1960.3}^{1989.4} \frac{\Delta \ \ell n \ GDP87_i}{118}$$

G21 REM - Civilian adult male employment rate

$$REM = 100 - RUM$$

G22 POP20 - Civilian noninstitutional population age 20 and over

$$POP20 = \left[1 + \frac{RPOP20}{100}\right]^{25} * POP20_{-1}$$

G23 GDP87 - Real gross domestic product

$$GDP87 = C87 + IBF87 + IRC87 + IINV87 + G87 + X87 - M87$$

G24 GDP - Gross domestic product

$$GDP = C + IBF + IRC + IINV + GFD + GFND + GSL + X - M$$

G25 C87 - Real personal consumption expenditures

$$C87 = CDV87 + CDFE87 + CDO87 + CN87 + CS87$$

G26 C - Personal consumption expenditures

$$C = \frac{PCDV}{100} * CDV87 + \frac{PCDFE}{100} * CDFE87 + \frac{PCDO}{100} * CDO87 + \frac{PCN}{100} * CN87 + \frac{PCS}{100} * CS87$$

G27 CD87 - Real personal consumption expenditures, durable goods

$$CD87 = CDV87 + CDFE87 + CDO87$$

G28 CDV87 - Real personal consumption expenditures, motor vehicles and parts

$$CDV87 = CDVA87 + CDVT87 + CDVO87$$

G29 CN87 - Real personal consumption expenditures, nondurable goods

$$CN87 = CNCS87 + CNFC87 + CNFD87 + CNGO87 + CNO87$$

G30 IBF87 - Real nonresidential fixed investment

$$IBF87 = IBFPD87 + IBFNC87$$

G31 IBF - Nonresidential fixed investment

$$IBF = IBFPD + IBFNC$$

G32 IBFNC87 - Real nonresidential fixed investment in structures

$$IBFNC87 = INCWM87 + INCO87$$

G33 IBFNC - Nonresidential fixed investment in structures

$$IBFNC = IBFNC87 * \frac{PINC}{100}$$

G34 IBFPD87 - Real investment in producers' durable equipment

$$IBFPD87 = IPDIP87 + IPDIE87 + IPDOE87 + IPDAU87 + IPDTRK87$$

G35 IBFPD - Nonresidential fixed investment in producers' durable equipment

$$IBFPD = IBFPD87 * \frac{PIPD}{100}$$

G36 IRC87 - Real residential investment

$$IRC87 = IRCS87 + IRCM87 + IRCO87$$

G37 IRC - Residential fixed investment

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

G38 IINV87 - Real change in business inventories

$$IINVF87 + IINVA87 + IINVT87 + IINVO87$$

G39 IINV - Change in business inventories

$$IINV = IINVV87 * \frac{PINVV}{100} + IINVF + IINVO87 * \frac{PINVO}{100}$$

G40 IINVV87 - Real change in business inventories, new auto and new trucks

$$IINVV87 = IINVA87 + IINVT87$$

G41 IINVF87 - Real change in farm inventories

$$IINVF87 = IINVFC87 - GFCCC87$$

G42 IINVF - Change in farm inventories

$$IINVF = IINVFC - GFCCC$$

G43 X - Exports of goods and services

$$X = X87 * \frac{PX}{100}$$

G44 M87 - Real imports of goods and services

$$M87 = MOIL87 + MNOIL87$$

G45 M - Imports of goods and services

$$M = M87 * \frac{PM}{100}$$

G46 G87 - Real government purchases

$$G87 = GF87 + GSL87$$

G47 GF87 - Real federal government purchases

$$GF87 = \frac{GFD}{PGFD} * 100 + \frac{GFO}{PGFO} * 100 + GFCCC87$$

G48 GFCCC87 - Real Commodity Credit Corporation inventory change

$$GFCCC87 = GFCCC * IINVFC87/IINVFC$$

G49 GFND - Federal government nondefense purchases

GFND = GFO + GFCCC

G50 GSL87 - Real state and local government purchases

GSL87 = GSL/PGSL * 100

G51 FS87 - Real final sales

FS87 = GDP87 - IINV87

G52 FS - Final sales

FS = GDP - IINV

G53 FSMF87 - Real final sales of manufactured goods

FSMF87 = CDV87 + CDFE87 + CDO87 + IBFPD87

+ X87 - M87 + G87 - EGOV * 25.123

G54 FSNMF87 - Real final sales of non-manufactured goods

FSNMF87 = FS87 - SERVE87 - CN87 - FSMF87

G55 FSDP87 - Real final sales to domestic purchasers

FSDP87 = FS87 - X87 + M87

G56 FSDP - Final sales to domestic purchasers

$$FSDP = FS - X + M$$

G57 FSO87 - Real final sales excluding automobiles, trucks, and services

$$FSO87 = FS87 - CDVA87 - IPDAU87 - GOVAU87 - CDVT87 - IPDTRK87 - GOVTRK87 - SERVE87$$

G58 GNP87 - Real gross national product

$$GNP97 = GDP87 + XYFAC87 - MYFAC87$$

G59 GNP - Gross national product

$$GNP = GDP + XYFAC - MYFAC$$

G60 XYFAC87 - Real receipts of factor income from rest of world

$$XYFAC87 = \frac{XYFAC}{PXYFAC} * 100$$

G61 MYFAC87 - Real payments of factor income to real of world

$$MYFAC87 = \frac{MYFAC}{PMYFAC} * 100$$

G62 GTRP - Government transfer payments to persons

$$GTRP = GTROF + GTRSL + YUNB$$

G63 YCP - Corporate profits

$$YCP = GNP - KCA - TIBF - TIBSL - BTRF - WALD + SLCSF + SLCSSL - STAT - TSI + YPDIV + GTRP - NINT + YPINT - YP$$

G64 YCBT - Corporate profits before tax

$$YCBT = YCP - IVA - KCCA$$

G65 NINT - Net interest

$$NINT = YPINT - GINTF - GINTSL - HINT$$

G66 YP - Personal income

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

G67 YPERM87 - Real permanent personal income

$$YPERM87 = \sum_{i=0}^{5} \beta_i * \left[YD87_{-i} + \left[\frac{TPNS - GTRP}{PC/100} \right]_{-i} \right]$$

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

G68 YT87 - Real transitory personal income

$$YT87 = YD87 + \left[\frac{TPNS - GTRP}{PC/100} \right] - YPERM87$$

G69 YD87 - Real disposable personal income

$$YD87 = \frac{YD}{PC} * 100$$

G70 YD - Disposable personal income

$$YD = YP - TP$$

G71 RHSAVE - Personal saving rate

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

G72 YPADJ - Adjusted gross income

$$YPADJ = YP - GTROF - GTRSL - YUNB - YPRENT + TSIP$$

G73 YPADJ87 - Real adjusted gross income

$$YPADJ87 = YPADJ/PC * 100$$

G74 TP - Personal tax and nontax payments

$$TP = TPF + TPSL$$

G75 TIB - Indirect business tax and nontax accruals

$$TIB = TIBF + TIBSL$$

G76 TSI - Contributions for social insurance

$$TSI = TSIF + TSISL$$

G77 TC - Corporate profits tax accruals

$$TC = TCF + TCSL$$

G78 GINTFF - Interest paid by government to foreigners

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

G79 NIASF - Federal government budget surplus

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

G80 NIASSL - State and localgovernment budget surplus

$$NIASSL = TPSL + TCSL + TIBSL + TSISL + GAID - (GSL + GTRSL + GINTSL + SLCSSL - GWALDSL - GDIVSL)$$

G81 INETFOR - Net foreign investment

$$INETFOR = X + XYFAC + KGRANT - (M + HTRF + GTRF + BTRF + MYFAC)$$

G82 SINV87 - Four times the real stock of business inventories

$$SINV87 = SINV87_{-1} + IINV87$$

G83 SINVA87 - Four times the real stock of business inventories, new cars

SINVA87 = $SINVA87_{-1}$ + IINVA87

G84 SINVT87 - Four times the real stock of business inventories, new trucks

SINVT87 = $SINVT87_{-1}$ + IINVT87

G85 SINVO87 - Four times the real stock of business inventories, excluding farm, new automobiles, and new trucks

SINVO87 = $SINVO87_{-1}$ + IINVO87

G86 SINVF87 - Four times the real stock of farm inventories

SINVF87 = $SINVF87_{-1}$ + IINVF87

G87 STKSLA - Real inventory stock to sales ratio, new automobiles

STKSLA = 3 * SINVA87/(CDVA87 + IPDAU87 + GOVAU87)

G88 STKSLT - Real inventory stock to sales ratio, new trucks

STKSLT = 3 * SINVT87/(CDVT87 + IPDTRK87 + GOVTRK87)

G89 STKSLO - Real inventory stock to sales ratio, other

STKSLO = SINVO87/FSO87

G90 RM2 - Growth rate of M2

$$RM2 = \left[\left[\frac{M2}{M2_{-1}}\right]^{4} - 1\right] * 100$$

G91 MBASE - Monetary base

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

G92 GDEBTM - Market value of federal debt held by private investors

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

G93 RCPCD - RCP before 1963.1, RCD otherwise

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

G94 RFOR3 - Trade-weighted, 3-month foreign interest rate

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

G95 RBAR - Average interest rate

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

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

G96 AUTOS - Unit sales of new autos

AUTOS = AUTOSC + AUTOSB + AUTOSG

G97 AUTOSF - Unit sales of new imported autos

AUTOSF = AUTOS - AUTOSD

G98 RAUTOSF - Import share of new auto sales

$$\text{RAUTOSF} = \frac{\text{AUTOSF}}{\text{AUTOS}} * 100$$

G99 TRKLF - Unit sales of new imported light trucks

TRKLF = TRKL - TRKLD

G100 RTRKLF - Import share of new light truck sales

$$\text{RTRKLF} = \frac{\text{TRKLF}}{\text{TRKL}} * 100$$

G101 VEHL - Unit sales of new light vehicles

VEHL = TRKL + AUTOS

G102 HS - Housing starts

HS = HSSING + HSMULT

G103 HOUSCOMP - Housing completions

$$\text{HOUSCOMP} = \sum_{i=0}^{2} \beta_i * \text{HS}_{-i}$$

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

G104 JCU - Index of capacity utilization in manufacturing

$$\text{JCU} = \frac{\text{JIPM}}{\text{JCAP}}$$

G105 GTRUCK87 - Real truck output

$$\Delta\ \text{GTRUCK87} = \Delta\ \text{CDVT87} + \Delta\ \text{IPDTRK87} + \Delta\ \text{GOVTRK87}$$

$$+ \Delta\ (\text{XTRK87} - \text{MTRK87}) + \Delta\ \text{IINVT87}$$

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 "87", 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.
BTRF	Business transfer payments to foreigners, billions of current dollars.
BTRP	Business transfer payments, billions of current dollars.
*C	Personal consumption expenditures, total; billions of current dollars.
*CDFE87	Personal consumption expenditures, furniture and household equipment; billions of 1987 dollars.
*CDO87	Personal consumption expenditures, durable goods except motor vehicles and parts and furniture and household equipment; billions of 1987 dollars.
*CDVA87	Personal consumption expenditures, new automobiles; billions of 1987 dollars.
*CDVO87	Personal consumption expenditures, motor vehicles and parts excluding new autos and new trucks, billions of 1987 dollars.
*CDVT87	Personal consumption expenditures, new trucks; billions of 1987 dollars.
*CDV87	Personal consumption expenditures, motor vehicles and parts; billions of 1987 dollars.
*CD87	Personal consumption expenditures, durable goods; billions of 1987 dollars.
*CNCS87	Personal consumption expenditures, clothing and shoes; billions of 1987 dollars.
*CNFC87	Personal consumption expenditures, fuel oil and coal; billions of 1987 dollars.
*CNFD87	Personal consumption expenditures, food; billions of 1987 dollars.
*CNGO87	Personal consumption expenditures, gasoline and oil; billions of 1987 dollars.
*CNO87	Personal consumption expenditures, nondurable goods not elsewhere classified; billions of 1987 dollars.
*CN87	Personal consumption expenditures, nondurable goods; billions of 1987 dollars.
*CS87	Personal consumption expenditures, services; billions of 1987 dollars.
*C87	Personal consumption expenditures, total; billions of 1987 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.
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.
DM2831	Dummy variable for effect of money market deposit accounts; equals 1.0 in 1983.1, 0 otherwise.
DM2832	Dummy variable for effect of money market deposit accounts; equals 1.0 in 1983.2, 0 otherwise.
DM87DOCK	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	Dummy variable for use of PCRUDE in inventory investment equation; equals 1.0 1954.1-1974.2, 0 otherwise.
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.
DSLDEBT	Increase in GDEBTP due to S&L bailout transactions, billions of dollars.
DSPRD	Dummy variable for anomaly in spread between RCD 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.
DTIBF	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.
DTPSL	Dummy variable to reflect changes in state and local personal taxes, values defined in the Appendix.

DTSIF	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.
DUMIP	Dummy variable in IPDIP87 equation; equals 0 in 1954.1-1982.4, 1 otherwise.
DUM75	Dummy variable in GDEBTP equation; equals 0 in 1954.1-1974.4, 1 otherwise.
DVRALED	Dummy variable for the impact of the Voluntary Restraint Agreement on auto sales, values defined in the Appendix.
DYD87	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.
DYFP	Dummy variable in YFP equation to allow simulation over quarter with negative YFP: equals -6.0 in 1983.3, 1.0 otherwise.
D5467	Dummy variable for change in trend growth of productivity; equals 1 in 1954.1-1967.4, 0 otherwise.
D5469	Dummy variable for change in adult male labor force growth; equals 1.0 1954.1-1969.4, 0 otherwise.
D5864	Dummy variable in JCAP equation; equals 1 in 1958.1-1964.4, 0 otherwise.
D6569	Dummy variable in JCAP equation; equals 1 in 1965.1-1969.4, 0 otherwise.
D6873	Dummy variable for change in trend growth of productivity; equals 1 in 1968.1-1973.4, 0 otherwise.
D7080	Dummy variable for change in adult male labor force growth; equals 1.0 1970.1-1980.4, 0 otherwise.
D7482	Dummy variable for change in trend growth of productivity; equals 1 in 1974.1-1982.4, 0 otherwise.
D763	Dummy variable for IRCO87 equation; equals 1 in 1976.3, 0 otherwise.
D8184	Dummy variable for change in adult male labor force growth; equals 1.0 1981.1-1984.4, 0 otherwise.
D82Q1	Dummy variable for PINC equation; equals 1 in 1982.1, 0 otherwise.
D822844	Dummy variable for TCSL equation, equals 1 in 1982.2-1984.4, 0 otherwise.
D8488	Dummy variable for IRCO82 equation, equals 1 in 1984.1-1988.4, 0 otherwise.
D85ON	Dummy variable for change in adult male labor force growth; equals 0 1954.1-1984.4, 1.0 otherwise.
D86Q4	Dummy variable for CDO87 equation, equals 1 in 1986.4, 0 otherwise.
D86Q4ON	Dummy variable to reflect the impact of auto and light truck transplants; equals 0 before 1986.4, 1 otherwise.
D862	Dummy variable for anomaly in relationship among long-term interest rates; equals 1 in 1986.2, 0 otherwise.
D87ON	Dummy variable in HOUSEX equation; equals 0 before 1987.1, 1 otherwise.
D88Q1ON	Dummy variable in TCSL equation; equals 0 before 1988.1, 1 otherwise.
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.
*FSDP87	Final sales to domestic purchasers, billions of 1987 dollars.
*FSMF87	Final sales of manufactured goods, billions of 1987 dollars.
*FSNMF87	Final sales of non-manufactured goods, billions of 1987 dollars.
*FSO87	Final sales excluding personal consumption expenditure on new automobiles and

	new trucks, nonresidential fixed investment in producers' durable equipment in new autos and new trucks, and the services component of real GNP, billions of 1987 dollars.
*FS87	Final sales; billions of 1987 dollars.
GAID	Grants-in-aid to state and local governments, billions of dollars.
*GAUTO87	Gross auto product, billions of 1987 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.
*GDP	Gross domestic product, billions of current dollars.
*GDP87	Gross domestic product, billions of 1987 dollars.
GFCCC	Commodity Credit Corporation inventory change, billions of current dollars.
**GFCCC87	Commodity Credit Corporation inventory change, billions of 1987 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.
*GF87	Federal government purchases of goods and services, billions of 1987 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.
*GNP87	Gross national product, billions of 1987 dollars.
GOLD	Gold stock, billions of current dollars N.S.A., last day of quarter.
GOVAU87	Government purchases of new automobiles, billions of 1987 dollars.
GOVTRK87	Government purchases of new trucks, billions of 1987 dollars.
GSL	State and local government purchases of goods and services, billions of current dollars.
*GSL87	State and local government purchases of goods and services, billions of 1987 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.
*GTRUCK87	Gross truck product, billions of 1987 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.
*G87	Government purchases of goods and services, billions of 1987 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.
*HOUSEX	Sales of existing single family homes, thousands of units, SAAR.
*HS	Private housing starts, thousands of units, SAAR.
*HSMULT	Private housing starts, multi unit, thousands of units, SAAR.
*HSSING	Private housing starts, single unit, 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.
*IBFNC87	Nonresidential fixed investment, structures; billions of 1987 dollars.
*IBFPD	Nonresidential fixed investment, producers' durable equipment; billions of current dollars.
*IBFPD87	Nonresidential fixed investment, producers' durable equipment; billions of 1987 dollars.
*IBF87	Business fixed investment, billions of 1987 dollars.
*IINV	Change in business inventories, billions of current dollars.
*IINVA87	Change in business inventories, new autos; billions of 1987 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.
IINVFC87	Change in farm business inventories plus Commodity Credit Corporation inventory change; billions of 1987 dollars.
**IINVF87	Change in business inventories, farm; billions of 1987 dollars.
*IINVO87	Change in business inventories excluding farm, new autos, and new trucks, billions of 1987 dollars.
*IINVT87	Change in business inventories, new trucks; billions of 1987 dollars.
*IINVV87	Change in business inventories, new autos and new trucks; billions of 1987 dollars.
*IINV87	Change in business inventories, billions of 1987 dollars.
*INCO87	Nonresidential fixed investment, structures excluding mining exploration, shafts, and wells; billions of 1987 dollars.
*INCWM87	Nonresidential fixed investment, structures in mining exploration, shafts, and wells; billions of 1987 dollars.
*INETFOR	Net foreign investment, billions of current dollars.
*IPDAU87	Nonresidential fixed investment, producers' durable equipment in new autos; billions of 1987 dollars.
*IPDIE87	Nonresidential fixed investment, producers' durable equipment in industrial equipment; billions of 1987 dollars.
*IPDIP87	Nonresidential fixed investment, producers' durable equipment in information processing equipment; billions of 1987 dollars.
*IPDOE87	Nonresidential fixed investment, producers' durable equipment excluding information processing equipment, industrial equipment, new autos and new trucks; billions of 1987 dollars.
*IPDTRK87	Nonresidential fixed investment, producers' durable equipment in new trucks; billions of 1987 dollars.
*IRC	Residential construction expenditures, billions of current dollars.
*IRCM87	Residential construction expenditures, multi unit structures, billions of 1987 dollars.
*IRCO87	Residential construction expenditures, other, billions of 1987 dollars.
*IRCS87	Residential construction expenditures, single unit structures, billions of 1987

	dollars.
*IRC87	Residential construction expenditures, billions of 1987 dollars.
IVA	Inventory valuation adjustment for corporate profits, billions of current dollars.
*JCAP	Index of available capacity in manufacturing, expressed as a percentage of 1987 actual output.
*JCLH	Compensation per hour, private nonfarm sector; index, 1987 = 100.
*JCLHD	Real compensation per hour; JCLH deflated by personal consumption expenditures implicit deflator.
*JCU	Capacity utilization rate in manufacturing, fraction of capacity.
*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.
*JIPM	Index of industrial production in manufacturing, 1987 = 100.
**JIPROW	Index of industrial production, weighted average of Germany (.125), United Kingdom (.125), Japan (.25), and Canada (.5), 1977 = 100.
*JQLH	Output per hour, private nonfarm sector; index 1982 = 100.
*JQMLT	Trend growth rate of productivity.
*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.
*JULC	Unit labor cost, private nonfarm sector; 1982 = 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.
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.
*MAUTO87	Imports of autos as they appear in the Auto Output table of the National Income and Product Accounts, billions of 1987 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.
*MNOIL87	Non-petroleum imports of goods and services, billions of 1987 dollars.
MOIL87	Petroleum and products imports, billions of 1987 dollars.
MTRK87	Imports of new trucks, billions of 1987 dollars.
MYFAC	Payments of factor income to rest of world, billions of current dollars.
*MYFAC87	Payments of factor income to rest of world, billions of 1987 dollars.
*M1	M1 (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.
*M2	M2 (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.
*M87	Imports of goods and services, billions of 1987 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, 1987 = 100.
*PCDFE	Personal consumption expenditures implicit deflator, furniture and household equipment; 1987 = 100.
*PCDO	Personal consumption expenditures implicit deflator, durables excluding motor vehicles and parts and furniture and household equipment; 1987 = 100.
*PCDV	Personal consumption expenditures implicit deflator, motor vehicles and parts; 1987 = 100.
*PCDVA	Personal consumption expenditures implicit deflator, new autos; 1987 = 100.
*PCDVO	Personal consumption expenditures implicit deflator, motor vehicles and parts excluding new autos and new trucks; 1987 = 100.
*PCDVT	Personal consumption expenditures implicit deflator, new trucks; 1987 = 100.
*PCN	Personal consumption expenditures implicit deflator, non-durable goods; 1987 = 100.
*PCNCS	Personal consumption expenditures implicit deflator, clothing and shoes; 1987 = 100.
*PCNFC	Personal consumption expenditures implicit deflator, fuel oil and coal; 1987 = 100.
*PCNFD	Personal consumption expenditures implicit deflator, food; 1987 = 100.
*PCNGO	Personal consumption expenditures implicit deflator, gasoline and oil; 1987 = 100.
*PCNO	Personal consumption expenditures implicit deflator, nondurable goods not elsewhere classified; 1987 = 100.
*PCPI	CPI-U: all items, 1982-84 = 100, N.S.A.
*PCROW	Consumer price index, weighted average of West Germany (.125), United Kingdom (.125), Japan (.25), and Canada (.5), 1982-84 = 100, N.S.A.
*PCRUDE	Producer price index for crude materials less agricultural products; 1987 = 100, S.A.
*PCS	Personal consumption expenditures implicit deflator, services; 1987 = 100.
PFARM	Gross farm product implicit deflator, 1987 = 100.
*PG	Government purchases of goods and services implicit deflator, 1987 = 100.
*PGAS	CPI-W: Motor fuel, motor oil, coolant, and other products; 1982-84 = 100, S.A.
*PGDP	Gross domestic product implicit deflator, 1987 = 100.
*PGFD	Implicit deflator, federal government purchases of goods and services, defense; 1987 = 100.
*PGFO	Implicit deflator, federal government purchases of goods and services, nondefense excluding commodity credit corporation inventory change; 1987 = 100.
*PGNP	Implicit deflator, gross national product; 1987 = 100.
*PGSL	Implicit deflator, state and local government purchases of goods and services; 1987 = 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, 1987 = 100.
PIINVO	Implicit deflator, change in business inventories excluding farm, new autos, and new trucks calculated as 100 times the ratio of current dollar to constant dollar change in business inventories excluding farm, new autos, and new trucks;

	1987 = 100.
PIINVV	Implicit deflator, change in business inventories, new autos and new trucks, calculated as 100 times the ratio of current dollar to constant dollar change in business inventories, new autos and new trucks; 1987 = 100.
*PINC	Implicit price deflator, business fixed investment, non-residential structures; 1987 = 100.
*PIPD	Implicit price deflator, nonresidential fixed investment, producers' durable equipment; 1987 = 100.
*PIPDAU	Implicit price deflator, nonresidential fixed investment, producers' durable equipment, new autos; 1987 = 100.
*PIPDIE	Implicit price deflator, nonresidential fixed investment, producers' durable equipment in industrial equipment; 1987 = 100
*PIPDIP	Implicit price deflator, nonresidential fixed investment, producers' durable equipment in information processing equipment; 1987 = 100.
*PIPDOE	Implicit price deflator, nonresidential fixed investment, producers' durable equipment excluding information processing equipment, industrial equipment, new cars, and new trucks; 1987 = 100.
*PIPDT	Implicit price deflator, nonresidential fixed investment, producers' durable equipment, new trucks; 1987 = 100.
*PIRC	Residential construction expenditures implicit deflator, 1987 = 100.
*PM	Import implicit deflator, 1987 = 100.
*PMNOIL	Non-petroleum imports of goods and services implicit deflator, 1987 = 100.
PMOIL	Imports of petroleum and products implicit deflator, 1987 = 100.
PMROW	Implicit deflator for non-petroleum goods and services imported by the U.S. and denominated in foreign currencies; equals PMNOIL * JEXR/100.
PMTRK	Implicit price deflator, new truck imports; 1987 = 100.
*PMYFAC	Implicit deflator, payments of factor income to rest of world; 1987 = 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.
**POP20	Civilian noninstitutional population age 20 and over; millions of persons.
POTHRCRU	Producer price index for crude nonfood materials less energy, 1982 = 100, S.A.
*PPNF	Private nonfarm GDP implicit deflator, 1987 = 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.
*PXYFAC	Implicit deflator, receipts of factor income from rest of world; 1987 = 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.
*RG30	Yield on U.S. government taxable securities, 30 year issues, percent.
*RG5	Yield on U.S. government taxable securities, 5 year issues, percent.
*RHSAVE	Personal saving rate, percent.
RJIPROW	Growth rate of JIPROW, percent annual rate.
RLFSEC	Share of the labor force which is not males twenty and over, percent.
*RMORT	Conventional mortgage rate, percent.
*RM2	Growth rate of M2, percent annual rate.
RPCROW	Growth rate of PCROW, percent annual rate.
RPMROW	Growth rate of PMROW, percent annual rate.
RPOP20	Growth rate of POP20, percent annual rate.
*RPPERM	"Permanent" rate of inflation, quarterly rate percent.
*RROW3	Trade-weighted, 3-month foreign interest rate, percent.
*RTB	90 day Treasury bill rate, daily average of secondary 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.
*RVAC	Rental housing vacancy rate, percent.
RX87	Growth rate of X87, percent annual rate.
SDR	Allowance for Special Drawing Rights, billions of current dollars, N.S.A., last day of quarter.
*SERVE87	Services component of real GNP, billions of 1987 dollars.
*SINVA87	Four times the stock of business inventories, new autos; billions of 1987 dollars, end of quarter.
**SINVF87	Four times the stock of business inventories, farm; billions of 1987 dollars, end of quarter.
*SINVO87	Four times the stock of business inventories, excluding farm, new autos, and new trucks; billions of 1987 dollars, end of quarter.
*SINVT87	Four times the stock of business inventories, new trucks; billions of 1987 dollars, end of quarter.
*SINV87	Four times the stock of business inventories, billions of 1987 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 twelve times the stock of business inventories in new autos, end of quarter, to final sales of new autos.
*STKSLO	Ratio of twelve times the stock of business inventories excluding farm, new autos, and new trucks, end of quarter, to final sales excluding personal consumption expenditure on new autos, and new trucks nonresidential fixed investment in producers' durable equipment in new autos and new trucks, government expenditure on new autos and new trucks and the services component of real GDP.
*STKSLT	Ratio of twelve times the stock of business inventories in new trucks, end of

	quarter, to final sales of new trucks, SAAR; thousands of 1987 dollars per unit.
*TC	Total corporate profits tax accruals, billions of current dollars.
*TCF	Corporate profits tax accruals, federal; billions of current dollars.
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.
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.
*UCKNC	User cost of capital investment in nonresidential structures.
*UCKPDIE	User cost of capital investment in nonresidential producers' durable equipment, industrial equipment.
*UCKPDIP	User cost of capital investment in nonresidential producers' durable equipment, information processing equipment.
*UCKPDOE	User cost of capital investment in nonresidential producers' durable equipment excluding information processing equipment, industrial equipment, new cars and new trucks.
*UCKPDTH	User cost of capital investment in heavy trucks.
*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.
XAUTO87	Exports of autos as they appear in the Auto Output table of the National Income and Product Accounts, billions of 1987 dollars.
XTRK87	Exports of new trucks, billions of 1987 dollars.
XYFAC	Receipts of factor income from rest or world, billions of current dollars.
*XYFAC87	Receipts of factor income from rest of world, billions of 1987 dollars.
*X87	Exports of goods and services, billions of 1987 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.
*YD87	Disposable personal income, billions of 1987 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.
*YPADJ87	Adjusted gross income, billions of 1987 dollars.
*YPDIV	Corporate dividend payments to persons, billions of current dollars.
*YPERM87	Permanent disposable income, billions of 1987 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 1987 dollars.
*YUNB	Total unemployment benefits paid, billions of current dollars.

APPENDIX

This appendix notes only non-zero values of the dummy variables listed. Unspecified values within the sample period may be assumed to be zero.

DAINC

1974.3	0.5
1974.4	-0.3
1975.1	0.3
1975.2	-0.3
1975.3	-0.2
1982.1	1.0
1982.2	-0.6
1982.3	-0.4
1982.4	1.0
1983.1	-0.6
1983.2	0.6
1983.3	-0.6
1983.4	-0.4
1985.3	2.0
1985.4	-1.2
1986.1	-0.8
1986.3	3.0
1986.4	-0.8
1987.1	-1.8
1987.2	-0.4
1987.3	2.0
1987.4	-1.2
1988.1	0.2
1988.2	-0.6
1988.3	-0.4
1989.3	1.0
1989.4	-2.1

DAINC1

1974.3	0.5
1975.1	0.5
1982.1	1.0
1982.4	1.0
1983.2	1.0
1985.3	2.0
1986.3	3.0
1986.4	1.0
1987.3	2.0
1988.1	1.0
1989.3	1.0
1989.4	-1.5

DASTRIKE

1964.4	-2.0
1965.1	1.2
1965.2	0.8
1967.4	-1.0
1968.1	0.75
1968.2	0.25
1970.4	-3.6
1971.1	2.4
1971.2	1.2
1973.4	-0.5
1974.1	0.375
1974.2	0.125
1976.4	-1.0
1977.1	0.75
1977.2	0.25
1984.3	-1.0
1984.4	0.75
1985.1	0.25

DGPAY

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	1.0
1984.1	1.0
1985.1	1.0
1987.1	1.0
1988.1	1.0
1989.1	1.0

DM87DOCK

1969.1	-3.0
1969.2	2.5
1969.3	0.5
1971.3	-1.0
1971.4	-3.0
1972.1	4.0
1977.3	-1.0
1977.4	1.0

DINDTPF

1985.1	1.0
1986.1	1.0
1989.1	1.0
1990.1	1.0

DTIBF

1968.1	0.474
1971.2-1971.3	-0.634
1972.1	-1.276
1975.2-1975.3	0.831
1976.1	-3.2
1976.4	-0.1
1978.1	-0.35
1979.1	-0.4
1980.1	-2.4
1980.2	6.8
1980.3	3.0
1980.4	2.9
1981.1	13.6
1981.2	2.2
1981.3	-2.0
1981.4	-1.0
1982.1	-2.7
1982.3	0.3
1982.4	0.5
1983.1	4.6
1983.2	5.2
1983.3	0.1
1983.4	0.1
1984.1	0.5
1984.2	0.1
1984.3	-0.3
1984.4	0.1
1985.2	3.1
1985.3	-4.2
1985.4	0.3
1986.1	-3.0
1986.4	1.0
1987.1	1.0
1987.2	1.0

DTPF

1984.1	-5.5
1984.2	-3.3
1984.3	1.0
1984.4	-2.9
1985.1	26.6
1985.2	-56.5
1985.3	24.1
1985.4	-3.5
1986.1	-6.6
1986.2	-2.0
1988.2	6.1
1988.3	-14.0
1988.4	-0.1
1989.1	17.6
1989.2	7.9
1989.3	-14.8
1990.2	6.0
1990.3	-6.0

DTPSL

1974.1	-1.01
1980.2	1.28
1982.3	2.33
1986.3	1.98
1986.4	3.43
1987.2	7.97
1987.3	-9.06
1989.2	4.68

DTSIF

1960.1	2.2
1962.1	1.4
1963.1	1.6
1966.1	5.0
1967.1	1.5
1968.1	2.2
1969.1	2.0
1971.1	3.4
1972.1	3.5
1973.1	11.5
1974.1	4.3
1975.1	1.5
1977.1	2.7
1978.1	5.9
1979.1	9.2
1980.1	3.6
1981.1	16.0
1982.1	4.3
1983.1	3.0
1984.1	7.3
1985.1	7.9
1986.1	5.8
1987.1	1.7
1988.1	15.0
1989.1	3.5

DUBEXT

1961.2	16.581
1972.1	7.750
1975.1	9.183
1975.2	14.408
1975.3	9.543
1976.1	7.207
1983.2	10.916
1983.3	-16.267

DVRALED

1982.1	1.0
1982.4	1.0
1983.4	1.0
1984.4	1.0
1985.4	1.0

TPNS

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

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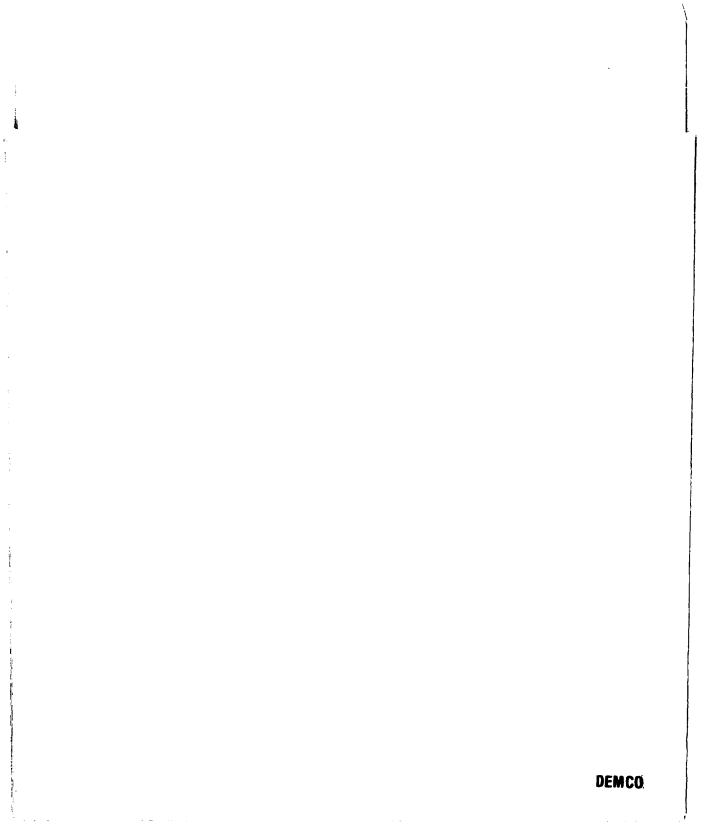
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