Volume Title: Econometric Models of Cyclical Behavior, Volumes 1 and 2

Volume Author/Editor: Bert G. Hickman, ed.

Volume Publisher: NBER

Volume ISBN: 0-870-14232-1

Volume URL: http://www.nber.org/books/hick72-1

Publication Date: 1972

Chapter Title: Appendix to Part 1: Equations and Definitions of Variables for the FRB-MIT-Penn Econometric Model, November 1969

Chapter Author: Albert Ando, Franco Modigliani, Robert Rasche

Chapter URL: http://www.nber.org/chapters/c2785

Chapter pages in book: (p. 543 - 598)

APPENDIX TO PART ONE: EQUATIONS AND DEFINITIONS OF VARIABLES FOR THE FRB-MIT-PENN ECONOMETRIC MODEL, NOVEMBER, 1969

ALBERT ANDO · University of Pennsylvania
FRANCO MODIGLIANI · Massachusetts Institute of Technology
ROBERT RASCHE · University of Pennsylvania

IN what follows, we define the variables and list the equations for a version of the FRB-MIT-Penn Model that was used to generate the simulation results for the analysis by the National Bureau team headed by Professor Victor Zarnowitz. This is also the version of the model used for the analysis reported by Ando and Modigliani in "Econometric Analysis of Stabilization Policies," *Papers and Proceedings of the American Economic Association*, May, 1969.

A substantial revision and reestimation of the model was recently undertaken, the version of the model given below being replaced in the spring of 1970.

The equations are listed as they appear in the coding for computer simulation of the model. The variable on the left of the equality sign is the one for which the equation was normalized. The variables on the right of the equality sign are separated into two groups. The terms between the equality sign and the line of three dots, under the heading "Solve," are the ones that must be solved simultaneously for the model in the current period. The terms to the right of the dotted line under the heading "Constant" contain only exogenous and lagged endogenous variables and constants, and therefore can be taken as given in solving the model for the current period. It should be noted that the form of coding for simulation is not necessarily the form in which the behavior represented by the equation was originally conceptualized and estimated. Thus, for instance, in equation (4), *CON* is listed as the depend-

ent variable, although the theory and estimation were carried out with *CON/N* as dependent (the alphabetical list of definitions begins on page 556). The demand equation for money, equation (87), is expressed with *RTB* as the dependent variable, although the original formulation was with *MD$/XOBE$* as dependent. These alterations for simulation coding will become fairly obvious as the reader becomes familiar with the listing, and he is requested to make the necessary readjustment in order to understand the behavioral hypotheses embodied in each of the equations.

The *a*'s with subscripts represent fixed numerical coefficients. Most of these are estimated from the time series data through a variety of methods, but some of them are fixed a priori in accordance with well-defined theories. The subscripts refer to positions in the coefficient matrix in the simulation program; the numerical values of these coefficients are given at the end of each sector.

R refers to the estimation error of *the previous period* for the equation in which it appears; and, therefore, the coefficient *a* attached to *R* is the autocorrelation coefficient of the error for the equation.

The variables are listed first in their numerical order in the system and then in the alphabetical order of their names. Endogenous variables are given plain numbers, and the number given to a variable corresponds to the number given to the equation explaining that variable. Exogenous variables are given a number preceded by either E or AC. The latter are those policy variables which are most commonly used for stabilization, though not all policy variables in the system are given numbers preceded by AC. The special dummy variables are unnumbered. They are mostly associated with strikes that are in the system but not explicitly carried in our data matrix.

Variables that can be measured in monetary units are either in billions of current dollars (denoted by a dollar sign after the name symbol) or in billions of 1958 dollars (without the dollar sign), except for revenues and transfer payments of governments, which are measured in billions of current dollars but have no dollar sign.

All flow variables are expressed at an annual rate. All ratio variables, such as interest rates and the rate of unemployment, are expressed as percentages.

NUMERICAL LISTING OF VARIABLES: FRB-MIT-PENN MODEL

1	*X*	Gross output
2	*XOBE*	GNP, OBE definition
3	*XB*	Gross private domestic business product
4	*CON*	Consumption
5	*YH*	Household product
6	*EC*	Consumer expenditures on durable goods
7	*WC*	Depreciation of consumer durable goods
8	*KC*	Stock of consumer durables, end of period
9	*YC*	Net imputed rent on consumer durables
10	$D - I$	Nonfarm inventory investment (1958 dollars)
11		
12		
13	*RH*	Rent index for residential structures (taken exogenously)
14		
15	*EH$*	Expenditure on residential construction
16		
17	*OPD*	New orders for producers' durables
18	*KPS*	Net stock of producers' structures, end of period
19	*EPS*	Expenditures on producers' structures
20	*EPD*	Expenditures on producers' durables
21	*SME*	Shipment of machinery and equipment
22	*OME*	Net new orders for machinery and equipment
23	*OUME*	Unfilled orders for machinery and equipment, end of period
24	*RPD*	Cost of capital for producers' durables
25	*RTPD*	Current dollar rent per unit of new producers' durables
26	*XBC*	Production capacity of producers' durables
27	*RPS*	Cost of capital for producers' structures
28	*RTPS*	Current dollar rent per unit of new producers' structures

NOTE: Numbers without definitions or symbols denote vectors in the data matrix which are at present unoccupied.

29	*VWPD*	Present value of depreciation deduction for producers' durables
30	*KPD*	Net stock of producers' durables, end of period
31	*VWPS*	Present value of depreciation, deduction for producers' structures
32	*VPD*	Equilibrium ratio of producers' durables to output, multiplied by a constant
33	*VPS*	Equilibrium ratio of producers' structures to output, multiplied by a constant
34	*WPD$*	Bookkeeping depreciation in producers' durables
35	*WPS$*	Bookkeeping depreciation in producers' structures
36	*EGSC$*	Construction expenditures by state and local government
37	*EGSO$*	Other expenditures on goods and services by state and local government
38	*EGSL$*	Employee compensation by state and local government
39	*I*	Stock of nonfarm business inventory multiplied by 4.0, end of period
40	*XBNF*	Nonfarm business product and product of households
41	*YCR$*	Corporate retained profits
42	*QEIM*	Natural log of imports (*EIM*, 43)
43	*EIM*	Imports
44	*ECO*	Personal consumption expenditures
45	*EGS$*	State and local government expenditure on goods and services
46	*XB$*	Gross private domestic business product
47	*YH$*	Income originating in households
48	*XOBE$*	GNP, OBE definition
49	*EPD$*	Expenditures on producers' durables
50	*EPS$*	Expenditures on producers' structures
51	*ECO$*	Personal consumption expenditures
52	*EC$*	Consumer expenditures on durables
53	*XBNF$*	Nonfarm business product and products of households

54	*YL$*	Labor income, nonfarm business sector
55	*YNI$*	National income, OBE definition
56	*YPG$*	Total profit after depreciation and before income taxes, nonfarm business sector
57	*YPC$*	Net profits before income taxes of corporations
58	*TCIS*	Corporate income tax liability, state and local government
59	*TCIF*	Corporate income tax liability, federal government
60	*YPCT$*	Net corporate profits after taxes
61	*YPCC$*	Cash flow of corporations after taxes
62	*YDV$*	Corporate dividends
63	*QTXF*	Natural log of federal excise taxes (*TXF*, 64)
64	*TXF*	Federal excise taxes
65	*TIBF*	Federal indirect business taxes
66	*TIBS*	State and local government indirect business taxes
67	*QTO*	Natural log of OASI contributions (*TO*, 68)
68	*TO*	OASI contributions
69	*QTU*	Natural log of unemployment insurance contribution (*TU*, 70)
70	*TU*	Unemployment insurance contribution
71	*QGB*	Natural log of unemployment insurance benefits (*GB*, 72)
72	*GB*	Unemployment insurance benefits
73	*GSP*	State and local government transfer payments to persons
74	*YP$*	Personal income
75	*QYTF$*	Natural log of taxable income for federal personal income taxes (1-*YTF$*/*YP$*) (76, 74)
76	*YTF$*	Taxable income for federal personal income taxes
77	*TPF*	Federal personal income tax liability
78	*TPS*	State and local government personal income tax and nontax payments
79	*YD$*	Disposable personal income
80	*YS$*	Gross national product net of federal taxes and transfers

81	*TSC*	State and local government contributions to social insurance
82	*EGSN$*	Net state and local government expenditures
83	*QMC$*	Natural log of currency outside banks (*MC$*, 84)
84	*MC$*	Currency outside banks
85		
86	*MD$*	Demand deposits adjusted at all commercial banks
87	*RTB*	Treasury bill rate
88	*RCP*	Commercial paper rate
89	*MDS$*	Adjusted net demand deposit at all member banks
90	*MRU$*	Unborrowed reserves at all member banks
91	*RCB*	Corporate bond rate
92	*RCL*	Commercial loan rate
93	*DCL$*	Commercial and industrial loans at all commercial banks
94		
95		
96		
97		
98	*QJMSB*	Natural log of blowup factor to convert net adjusted demand deposits at member banks to those at all commercial banks (*JMSB*, 99)
99	*JMSB*	Blowup factor to convert net adjusted demand deposits at member banks to those at all commercial banks
100	*VG$*	Residual in net worth identity, billions of dollars
101	*YSG$*	State and local government income
102	*KSL*	Stock of capital owned by state and local government
103	*RSLG*	Municipal bond rate
104	*RM*	Mortgage rate
105	*ZINT*	Interpolation variable for the passbook savings equation
106	*RTP*	Effective rate on passbook savings deposits at commercial banks

107	*RSL*	Effective rate on savings and loan association shares
108	*RMS*	Effective rate on deposits at mutual savings banks
109	*RCD*	Rate on certificate of deposits
110	*QMPTA$*	Natural log of passbook savings at member banks, seasonally adjusted (*MTPA$*, 111)
111	*MTPA$*	Passbook savings at member banks, seasonally adjusted
112	*MCDA$*	Nonpassbook savings deposits of public at member banks seasonally adjusted
113	*MCD$*	Nonpassbook savings deposits of public at member banks
114	*MTM$*	Total time deposits at member banks
115	*MFR$*	Free reserves at all member banks
116	*QMSL$*	Natural log of savings and loan association shares (*MSL$*, 117)
117	*MSL$*	Savings and loan association shares
118	*QMMS$*	Natural log of mutual savings bank deposits (*MMS$*, 119)
119	*MMS$*	Mutual savings bank deposits
120	*QMIS$*	Natural log of life insurance reserves (*MIS$*, 121)
121	*MIS$*	Life insurance reserves
122	*MT$*	Time deposits at all commercial banks
123	*YD*	Disposable personal income
124	*LU*	Unemployment
125	*LE+LA*	Total employment including armed forces
126	*RDP*	Dividend-price ratio
127	*RCH1*	Cost of capital for single family dwellings
128	*RCH3*	Cost of capital for multifamily dwellings
129	*PXB*	Implicit price deflator for *XB* (3)
130	*POBE*	Implicit deflator of *XOBE* (2)
131	*PC*	Implicit price deflator for *EC* (6)
132	*PCON*	Implicit price deflator for *CON* (4)
133	*PPD*	Implicit price deflator for *EPD* (20)
134	*PRS*	Implicit price deflator for *EH$* (15)
135	*PS*	Implicit price deflator for *EGS* (45)

136	*PHC*	Construction cost index
137		
138	*VCN$*	Net worth of households
139	*LMHT*	Man-hours private domestic nonfarm business sector, including proprietors
140	*D − I$*	Nonfarm inventory investment
141	*PPS*	Implicit price deflator for *EPS* (19)
142	*LH*	Total hours per man in nonfarm private domestic business and household sectors
143	*LF+LA*	Labor force, including armed forces
144		
145	*QLMHT*	Natural log of man-hours private domestic nonfarm business sector, including proprietors (*LMHT*, 139)
146	*QLH*	Natural log of total hours per man in nonfarm private domestic business and household sectors (*LH*, 142)
147	*LEBT*	Employment, private domestic nonfarm business sector, including proprietors
148	*LE*	Total civilian employment
149		
150	*ULU*	Unemployment rate
151		
152	*PL*	Employee compensation rate in nonfarm private domestic business
153	*QYPC$*	Natural log of net profits before income taxes of corporations (*YPC$*, 57)
154	*QPXB**	Natural log of price deflator for nonfarm business product (*PXB**, 189)
155	*TSS*	Current surplus of state and local government enterprises
156	*PXBNF*	Implicit deflator for *XBNF* (40)
157	*MTP$*	Passbook savings at member banks
158	*PCO*	Implicit price deflator for *ECO* (44)
159	*IVA$*	Inventory valuation adjustment
160		
161	*GDSF*	Net deficit of federal goverment

162	*GDSS*	Net deficit of state and local government
163	*WCCA$*	Capital consumption allowance, total
164		
165	*YNNP$*	Net national product
166	*YRT$*	Rental income of persons
167	*YII$*	Interest income
168	*PI*	Price deflator for stock of inventories
169	*WCO$*	Corporate capital consumption allowances
170		
171	*UPC*	Exogenous
172	*UPCON*	Exogenous
173	*UPPD*	Exogenous
174	*UPPS*	Exogenous
175	*UPS*	Exogenous
176	*UPHC*	Exogenous
177	*UPRS*	Exogenous
178	*UPI*	Exogenous
179		
180		
181	*QHS1$*	Ln $(HS1\$/((N - N20)*(NS/NA)*PHCA))$, ln $(182/(E5 - E17)*(E88)*(188))$
182	*HS1$*	Housing starts, single dwelling units
183	*QHS3$*	Ln $(HS3\$/((N - N20)*(1 - NS/NA)*PHCA))$ = ln $(184/(E5 - E17)*(1 - E88)*(188))$
184	*HS3$*	Housing starts, multifamily dwelling units
185	*D − DSL*	Flow of funds into savings and loan associations and mutual savings banks
186	*KH1*	Stock of single family houses
187	*KH3*	Stock of multifamily houses
188	*PHCA*	Construction cost adjusted
189	*PXB**	Price deflator for nonfarm business product
E1	*EEX*	Exports
E2	*EGF*	Federal government expenditures on goods and services
E3	*YRW*	Income originating in the rest of the world
E4	*EGFL$*	Compensation of federal government employees
E5	*N*	Population

E6		
E7		
E8		
E9	*UWPS*	Rate of depreciation of producers' structures
E10	*TIME*	Time, 1 in 1947-1
E11	*UDC*	Desired proportion of debt in corporate capital
E12	*UWPD*	Depreciation rate for producers' durable equipment
E13	*ZLNG*	Dummy variable for long amendment on depreciation basis
E14	*D − IF*	Farm inventory investment
E15	*WAPD*	Proportion of new equipment depreciated using accelerated depreciation method
E16	*WAPS*	Proportion of new structures depreciated using accelerated depreciation method
E17	*N20/N*	Ratio of population under 20 to total population
E18	*GFS*	Federal grants-in-aid to state and local governments
E19	*EGPD+*	Federal government defense procurement expenditures, led one period
E20	*NDI*	Number of man-hours idle (>10 million) due to major strikes
E21	*WPIF*	Wholesale price index for rest of world
E22	*JCAA*	Dummy variable for Canadian auto agreement
E23	*YRW$*	Income originating in rest of the world
E24	*TCDF*	Federal customs duties
E25	*JOA*	Dummy variable for OASI coverage change
E26	*JOB*	Dummy variable for OASI coverage change
E27	*JOC*	Dummy variable for OASI coverage change
E28	*JOD*	Dummy variable for OASI coverage change
E29	*TUIC*	Ratio of covered to total labor force
E30	*L26U*	Percentage of unemployed who are unemployed twenty-six weeks or less
E31		
E32	*TEGF*	Federal estate and gift taxes
E33	*GBFC*	Unemployment benefits beyond twenty-six weeks paid by federal government 1958–1961

E34	*GFI*	Federal government interest payments
E35	*GFP*	Federal government transfer payment to persons other than unemployment insurance benefits
E36	*GFG*	Federal government subsidies less surpluses of government enterprises
E37	*TUIB*	Maximum weekly benefits payable under unemployment insurance system
E38	*GSI*	State and local government interest payments
E39	*JS2*	Seasonal dummy variable for the second quarter
E40	*JS3*	Seasonal dummy variable for the third quarter
E41	*JS4*	Seasonal dummy variable for the fourth quarter
E42	*JCD*	Dummy variable for the development of CD's
E43	*JMSA*	Seasonal adjustment factor for *MD$*
E44	*MGF$*	U.S. government deposits at all commercial banks
E45		
E46	*JCLS*	Seasonal adjustment factor for commercial loans
E47		
E48		
E49		
E50	*JCDS*	Seasonal adjustment factor for nonpassbook time deposits at all member banks
E51		
E52		
E53		
E54	*JMT*	Blowup factor to convert time deposits at all member banks to those at all commercial banks
E55	*PGE*	Implicit deflator for compensation of government employees
E56	*PYH*	Implicit deflator for *YH*
E57	*LA*	Armed forces
E58	*N16*	Total noninstitutional population over 16
E59	*JR1*	Productivity time trend for man-hours equation
E60	*JR2*	Productivity time trend for man-hours equation
E61	*JR3*	Productivity time trend for man-hours equation

E62		
E63	*TT60*	Decreasing time trend, 59 in 1947-I, 1 in 1961-II, 0 thereafter
E64	*LEO*	Employment not otherwise classified
E65	*XBF$*	Farm business output
E66	*XBF*	Farm business output
E67	*JTPS*	Seasonal adjustment factor for passbook savings deposits at member banks
E68	*LPRI*	Number of males employed ages 25–65, millions
E69	*JIC*	Dummy variable for 1964 automobile strike
E70	*JSTK*	Dummy variable for 1962 stock market crash
E71	*YRC$*	Interest paid by consumers
E72	*YFT$*	Personal transfer payment to foreigners
E73	*YCRW$*	Corporate profits originating in the rest of the world
E74		
E75	*PEGF*	Price deflator for federal purchases of goods and services
E76	*TOSI*	Contribution to social insurance other than OASI and unemployment insurance
E77	*YSD$*	Statistical discrepancy
E78	*GFR*	Government transfers to rest of world
E79	*YBT$*	Business transfer payments
E80	*YPF$*	Proprietors' income in agriculture
E81		
E82	*YLAG$*	Compensation of employees, agriculture
E83	*JT1*	Strike dummy, man-hours equation
E84	*JT2*	Strike dummy, man-hours equation
E85	*JT3*	Strike dummy, man-hours equation
E86	*JT4*	Strike dummy, man-hours equation
E87	*UTP*	Property tax rate used in housing equation
E88	*NS/NA*	Proportion of persons expected to live in single-family houses
E89	*RFVA*	Average FHA-VA ceilings on mortgage rate
E90	*EHF$*	Expenditure on residential houses, farm
E91		
E92	*PWM*	Raw materials price, imports

E93	*PFM*	Raw materials price, farm
E94		
AC1	*UTC*	Marginal rate of corporate income tax
AC2	*TCPD*	Effective rate of tax credit on investment in producers' durables
AC3	*UTXF*	Index of federal excise-tax rate
AC4	*UTO*	OASI contribution rate, total
AC5	*UTU*	Unemployment insurance contribution rate
AC6	*UTPF*	Effective rate of federal personal income tax
AC7	*ZRD*	Implicit reserve requirement against net demand deposits at all member banks on call date
AC8	*ZRT*	Implicit reserve requirement against time deposits at member banks
AC9	*ZDRA*	Federal Reserve discount rate
AC10	*ZMS*	Unborrowed reserves at member banks plus currency outside of banks
AC11	*ZDR*	Federal Reserve discount rate for the first fifteen days of the quarter
AC12	*JL*	Legal reserve change dummy variable
AC13	*TEX*	Per capita exemption for federal personal income tax
AC14	*ZCT*	Ceiling rate on passbook saving deposits
AC15	*RCDC*	Ceiling rate on single maturity time deposits of one hundred thousand dollars or more
AC16		
AC17		
AC18	*SLPD*	Service life of producers' durable equipment for tax purposes
AC19	*SLPS*	Service life of producers' structures for tax purposes
AC20		

The following variables appear in the coding sheets but have not yet been assigned a position in the data matrix:

C(I)	Denotes a residual used to satisfy an identity
JIA	Dummy variable for 1959 steel strike

JIB	Dummy variable for dock strike
JID	Time trend variable

ALPHABETICAL LISTING OF VARIABLES: FRB-MIT-PENN MODEL

	C(I)	Denotes a residual used to satisfy an identity
4	*CON*	Consumption
93	*DCL$*	Commercial and industrial loans at all commercial banks
185	*D − DSL*	Flow of funds into savings and loan associations and MSB
E14	*D − IF*	Farm inventory investment
140	*D − I$*	Nonfarm inventory investment
10	*D − I*	Nonfarm inventory investment (1958 dollars)
51	*ECO$*	Personal consumption expenditures
44	*ECO*	Personal consumption expenditures
52	*EC$*	Consumer expenditures on durables
6	*EC*	Consumer expenditures on durables
E1	*EEX*	Exports
E4	*EGFL$*	Compensation of federal government employees
E2	*EGF*	Federal government expenditures on goods and services
E19	*EGPD+*	Federal government defense procurement expenditures, led one period
36	*EGSC$*	Construction expenditures by state and local government
38	*EGSL$*	Employee compensation by state and local government
82	*EGSN$*	Net state and local government expenditures
37	*EGSO$*	Other expenditures on goods and services by state and local government
45	*EGS$*	State and local government expenditure on goods and services
E90	*EHF$*	Expenditure on residential houses, farm
15	*EH$*	Expenditure on residential construction
43	*EIM*	Imports
49	*EPD$*	Expenditures on producers' durables

20	*EPD*	Expenditures on producers' durables
50	*EPS$*	Expenditures on producers' structures
19	*EPS*	Expenditures on producers' structures
E33	*GBFC*	Unemployment benefits beyond twenty-six weeks paid by federal government 1958–61
72	*GB*	Unemployment insurance benefits
161	*GDSF*	Net deficit of federal government
162	*GDSS*	Net deficit of state and local government
E36	*GFG*	Federal government subsidies less surpluses of government enterprises
E34	*GFI*	Federal government interest payments
E35	*GFP*	Federal government transfer payment to persons other than unemployment insurance benefits
E78	*GFR*	Government transfers to rest of world
E18	*GFS*	Federal grants-in-aid to state and local government
E38	*GSI*	State and local government interest payments
73	*GSP*	State and local government transfer payments to persons
182	*HS1$*	Housing starts, single dwelling units
184	*HS3$*	Housing starts, multifamily dwelling units
159	*IVA$*	Inventory valuation adjustment
39	*I*	Stock of nonfarm business inventory multiplied by 4.0, end of period
E22	*JCAA*	Dummy variable for Canadian auto agreement
E50	*JCDS*	Seasonal adjustment factor for nonpassbook time deposits at all member banks
E42	*JCD*	Dummy variable for the development of CD's
E46	*JCLS*	Seasonal adjustment factor for commercial loans
E69	*JIC*	Dummy variable for 1964 automobile strike
AC12	*JL*	Legal reserve change dummy variable
E43	*JMSA*	Seasonal adjustment factor for *MD$*
99	*JMSB*	Blowup factor to convert net adjusted demand deposits at member banks to those at all commercial banks
E54	*JMT*	Blowup factor to convert time deposits at all

		member banks to those at all commercial banks
E25	*JOA*	Dummy variable for OASI coverage change
E26	*JOB*	Dummy variable for OASI coverage change
E27	*JOC*	Dummy variable for OASI coverage change
E28	*JOD*	Dummy variable for OASI coverage change
E59	*JR1*	Productivity time trend for man-hours equation
E60	*JR2*	Productivity time trend for man-hours equation
E61	*JR3*	Productivity time trend for man-hours equation
E70	*JSTK*	Dummy variable for 1962 stock market crash
E39	*JS2*	Seasonal dummy variable for the second quarter
E40	*JS3*	Seasonal dummy variable for the third quarter
E41	*JS4*	Seasonal dummy variable for the fourth quarter
E67	*JTPS*	Seasonal adjustment factor for passbook savings deposits at member banks
E83	*JT1*	Strike dummy, man-hours equation
E84	*JT2*	Strike dummy, man-hours equation
E85	*JT3*	Strike dummy, man-hours equation
E86	*JT4*	Strike dummy, man-hours equation
8	*KC*	Stock of consumer durables, end of period
186	*KH1*	Stock of single-family houses
187	*KH3*	Stock of multifamily houses
30	*KPD*	Net stock of producers' durables, end of period
18	*KPS*	Net stock of producers' structures, end of period
102	*KSL*	Stock of capital owned by state and local government
E57	*LA*	Armed forces
147	*LEBT*	Employment, private domestic nonfarm business sector, including proprietors
125	*LE+LA*	Total employment including armed forces
E64	*LEO*	Employment not otherwise classified
148	*LE*	Total civilian employment
143	*LF+LA*	Labor force, including armed forces
142	*LH*	Total hours per man in nonfarm private domestic business and household sectors
139	*LMHT*	Man-hours private domestic nonfarm business sector, including proprietors

E68	*LPRI*	Number of males employed ages 25–65, millions
124	*LU*	Unemployment
E30	*L26U*	Percentage of unemployed who are unemployed twenty-six weeks or less
112	*MCDA$*	Nonpassbook savings deposits of public at member banks, seasonally adjusted
113	*MCD$*	Nonpassbook savings deposits of public at member banks
84	*MC$*	Currency outside banks
86	*MD$*	Demand deposits adjusted at all commercial banks
89	*MDS$*	Adjusted net demand deposit at all member banks
115	*MFR$*	Free reserves at all member banks
E44	*MGF$*	U.S. government deposits at all commercial banks
121	*MIS$*	Life insurance reserves
119	*MMS$*	Mutual savings bank deposits
90	*MRU$*	Unborrowed reserves at all member banks
117	*MSL$*	Savings and loan association shares
114	*MTM$*	Total time deposits at member banks
111	*MTPA$*	Passbook savings at member banks, seasonally adjusted
157	*MTP$*	Passbook savings at member banks
122	*MT$*	Time deposits at all commercial banks
E20	*NDI*	Number of man-hours idle (>10 million) due to major strikes
E88	*NS/NA*	Proportion of persons expected to live in single-family houses
E5	*N*	Population
E58	*N16*	Total noninstitutional population over 16
E17	*N20/N*	Ratio of population under 20 to total population
22	*OME*	Net new orders for machinery and equipment
17	*OPD*	New orders for producers' durables
23	*OUME*	Unfilled orders for machinery and equipment, end of period
131	*PC*	Implicit price deflator for *EC* (16)

158	*PCO*	Implicit price deflator for *ECO* (44)
132	*PCON*	Implicit price deflator for *CON* (4)
E75	*PEGF*	Price deflator for federal purchases of goods and services
E93	*PFM*	Raw materials price, farm
E55	*PGE*	Implicit deflator for compensation of government employees
188	*PHCA*	Construction cost adjusted
136	*PHC*	Construction cost index
168	*PI*	Price deflator for stock of inventories
152	*PL*	Employee compensation rate in nonfarm private domestic business
130	*POBE*	Implicit deflator of *XOBE* (2)
133	*PPD*	Implicit price deflator for *EPD* (20)
141	*PPS*	Implicit price deflator for *EPS* (19)
134	*PRS*	Implicit price deflator for *EH$* (15)
135	*PS*	Implicit price deflator for *EGS* (45)
E92	*PWM*	Raw materials price, imports
156	*PXBNF*	Implicit deflator for *XBNF* (40)
189	*PXB**	Price deflator for nonfarm business product
129	*PXB*	Implicit price deflator for *XB* (3)
E56	*PYH*	Implicit deflator for *YH* (5)
42	*QEIM*	Natural log of imports (*EIM*, 43)
71	*QGB*	Natural log of unemployment insurance benefits (*GB*, 72)
181	*QHS1$*	Ln (*HS1$*/((*N* − *N*20)*(*NS*/*NA*)**PHCA*)), ln (182/(*E*5 − *E*17)*(*E*88)*(188))
183	*QHS3$*	Ln (*HS3$*/((*N* − *N*20)*(1 − *NS*/*NA*)**PHCA*)) = ln (184/(*E*5 − *E*17)*(1 − *E*88)*(188))
98	*QJMSB*	Natural log of blowup factor to convert net adjusted demand deposits at member banks to those at all commercial banks (*JMSB*, 99)
146	*QLH*	Natural log of total hours per man in nonfarm private domestic business and household sectors (*LH*, 142)
145	*QLMHT*	Natural log of man-hours private domestic nonfarm business sector, including proprietors (*LMHT*, 139)

83	*QMC$*	Natural log of currency outside banks (*MC$*, 84)
120	*QMIS$*	Natural log of life insurance reserves (*MIS$*, 121)
118	*QMMS$*	Natural log of mutual savings bank deposits (*MMS$*, 119)
110	*QMPTA$*	Ln (*MPTA$*)
116	*QMSL$*	Natural log of savings and loan association shares (*MSL$*, 117)
154	*QPXB**	Natural log of price deflator for nonfarm business product (*PXB**, 189)
67	*QTO*	Natural log of OASI contributions (*TO*, 68)
69	*QTU*	Natural log of unemployment insurance contribution (*TU*, 70)
63	*QTXF*	Natural log of federal excise taxes (*TXF*, 64)
153	*QYPC$*	Natural log of net profits before income taxes of corporations (*YPC$*, 57)
75	*QYTF$*	Ln (1-*YTF$*/*YP$*) (76, 74)
91	*RCB*	Corporate bond rate
AC15	*RCDC*	Ceiling rate on single maturity time deposits of one hundred thousand dollars or more
109	*RCD*	Rate on certificate of deposits
127	*RCH1*	Cost of capital for single family dwellings
128	*RCH3*	Cost of capital for multifamily dwellings
92	*RCL*	Commercial loan rate
88	*RCP*	Commercial paper rate
126	*RDP*	Dividend-price ratio
E89	*RFVA*	Average FHA-VA ceilings on mortgage rate
13	*RH*	Rent index for residential structures
108	*RMS*	Effective rate on deposits at mutual savings banks
104	*RM*	Mortgage rate
24	*RPD*	Cost of capital for producers' durables
27	*RPS*	Cost of capital for producers' structures
103	*RSLG*	Municipal bond rate
107	*RSL*	Effective rate on savings and loan association shares
87	*RTB*	Treasury bill rate

25	*RTPD*	Current dollar rent per unit of new producers' durables
28	*RTPS*	Current dollar rent per unit of new producers' structures
106	*RTP*	Effective rate on passbook savings deposits at commercial banks
AC18	*SLPD*	Service life of producers' durable equipment for tax purposes
AC19	*SLPS*	Service life of producers' structures for tax purposes
21	*SME*	Shipment of machinery and equipment
E24	*TCDF*	Federal customs duties
59	*TCIF*	Corporate income tax liability, federal government
58	*TCIS*	Corporate income tax liability, state and local government
AC2	*TCPD*	Effective rate of tax credit on investment in producers' durables
E32	*TEGF*	Federal estate and gift taxes
AC13	*TEX*	Per capita exemption for federal personal income tax
65	*TIBF*	Federal indirect business taxes
66	*TIBS*	State and local indirect business taxes
E10	*TIME*	Time, 1 in 1947-1
E76	*TOSI*	Contribution to social insurance other than OASI and unemployment insurance
68	*TO*	OASI contributions
77	*TPF*	Federal personal income tax liability
78	*TPS*	State and local government personal income tax and nontax payments
81	*TSC*	State and local government contributions to social insurance
155	*TSS*	Current surplus of state and local government enterprises
E63	*TT60*	Decreasing time trend, 59 in 1947-I, 1 in 1961-II, 0 thereafter
E37	*TUIB*	Maximum weekly benefits payable under unemployment insurance system

E29	*TUIC*	Ratio of covered to total labor force
70	*TU*	Unemployment insurance contribution
64	*TXF*	Federal excise taxes
E11	*UDC*	Desired proportion of debt in corporate capital
150	*ULU*	Unemployment rate
172	*UPCON*	Exogenous
171	*UPC*	Exogenous
176	*UPHC*	Exogenous
178	*UPI*	Exogenous
173	*UPPD*	Exogenous
174	*UPPS*	Exogenous
177	*UPRS*	Exogenous
175	*UPS*	Exogenous
AC1	*UTC*	Marginal rate of corporate income tax
AC4	*UTO*	OASI contribution rate, total
AC6	*UTPF*	Effective rate of federal personal income tax
E87	*UTP*	Property tax rate used in housing equation
AC5	*UTU*	Unemployment insurance contribution rate
AC3	*UTXF*	Index of federal excise-tax rate
E12	*UWPD*	Depreciation rate for producers' durable equipment
E9	*UWPS*	The rate of depreciation of producers' structures
138	*VCN$*	Net worth of households, trillions of dollars
100	*VG$*	Residual in net worth identity, billions of dollars
32	*VPD*	Equilibrium ratio of producers' durables to output, multiplied by a constant
33	*VPS*	Equilibrium ratio of producers' structures to output, multiplied by a constant
29	*VWPD*	Present value of depreciation deduction for producers' durables
31	*VWPS*	Present value of depreciation deduction for producers' structures
E15	*WAPD*	Proportion of new equipment depreciated using accelerated depreciation method
E16	*WAPS*	Proportion of new structures depreciated using accelerated depreciation method
163	*WCCA$*	Capital consumption allowance, total
169	*WCO$*	Corporate capital consumption allowances

7	*WC*	Depreciation of consumer durable goods
34	*WPD$*	Bookkeeping depreciation in producers' durables
E21	*WPIF*	Wholesale price index for rest of world
35	*WPS$*	Bookkeeping depreciation in producers' structures
26	*XBC*	Production capacity of producers' durables
E65	*XBF$*	Farm business output
E66	*XBF*	Farm business output
53	*XBNF$*	Nonfarm business product and households' output
40	*XBNF*	Nonfarm business product and product of households
46	*XB$*	Gross private domestic business product
3	*XB*	Gross private domestic business product
48	*XOBE$*	GNP, OBE definition
2	*XOBE*	GNP, OBE definition
1	*X*	Gross output
E79	*YBT$*	Business transfer payments
41	*YCR$*	Corporate retained profits
E73	*YCRW$*	Corporate profits originating in the rest of the world
9	*YC*	Net imputed rent on consumer durables
79	*YD$*	Disposable personal income
62	*YDV$*	Corporate dividends
123	*YD*	Disposable personal income
E72	*YFT$*	Personal transfer payment to foreigners
47	*YH$*	Income originating in households
5	*YH*	Household product
167	*YII$*	Interest income
E82	*YLAG$*	Compensation of employees, agriculture
54	*YL$*	Labor income, nonfarm business sector
55	*YNI$*	National income, OBE definition
165	*YNNP$*	Net national product
61	*YPCC$*	Cash flow of corporations after taxes
57	*YPC$*	Net profits before income taxes of corporations
60	*YPCT$*	Net corporate profits after taxes

E80	*YPF$*	Proprietors' income in agriculture
56	*YPG$*	Total profit after depreciation and before income taxes, nonfarm business sector
74	*YP$*	Personal income
E71	*YRC$*	Interest paid by consumers
166	*YRT$*	Rental income of persons
E23	*YRW$*	Income originating in rest of the world
E3	*YRW*	Income originating in the rest of the world
E77	*YSD$*	Statistical discrepancy
101	*YSG$*	State and local government income
80	*YS$*	Gross national product net of federal taxes and transfers
76	*YTF$*	Taxable income for federal personal income taxes
AC14	*ZCT*	Ceiling rate on passbook saving deposits
AC9	*ZDRA*	Federal reserve discount rate
AC11	*ZDR*	Federal reserve discount rate for the first fifteen days of the quarter
105	*ZINT*	Interpolation variable for the passbook savings equation
E13	*ZLNG*	Dummy variable for long amendment on depreciation basis
AC10	*ZMS*	Unborrowed reserves at member banks plus currency outside of banks
AC7	*ZRD*	Implicit reserve requirement against net demand deposits at all members banks on call date
AC8	*ZRT*	Implicit reserve requirement against time deposits at member banks

The following variables appear in the coding sheets but have not yet been assigned a position in the data matrix:

C(I)	Denotes a residual used to satisfy an identity
JIA	Dummy variable for 1959 steel strike
JIB	Dummy variable for dock strike
JID	Time trend variable

I. FINAL DEMAND EQUATIONS

A. CONSUMPTION SECTOR

	Normalization	Solve	Constant
(4)	CON	$= a_1*YD + a_{476}*(VCN/(.01*PCON))$	$+ N(a_2*YD_{-1}/N_{-1} + \cdots + a_{12}*YD_{-11}/N_{-11} + a_{477}*(VCN_{-1}/.01*PCON_{-1}*N_{-1}) + \cdots + a_{479}*(VCN_{-3}/.01*PCON_{-3}) + a_{480}R_4)$
(6)	EC	$= a_{491}*YD + CON(a_{495}(PC/PCON)*(.225 + .01RCB) + a_{493} + a_{494}*JIC + a_{496}(PC_{-1}/PCON_{-1})*(.225 + .01RCB_{-1}) + \cdots + a_{500}(PC_{-5}/PCON_{-5})*(.225 + .01RCB_{-5}))$	$+ a_{492}*KC_{-1} + a_{17}N + a_{18}R_6*CON$
(7)	WC	$= .05625*EC$	$+ .225KC_{-1}$
(8)	KC	$= .25*(EC - WC)$	$+ KC_{-1}$
(9)	YC	$= .0379*(EC/8.0)$	$+ .0379*KC_{-1}$
(5)	YH	$= (a_{14}CON + a_{15}YD + a_{16} + a_{405}R_5)*(PCON/PYH)$	

B. INVESTMENT IN EQUIPMENT AND PLANTS

1. Equipment

	Normalization	Solve	Constant
(17)	OPD	$= .01*(a_{43}VPD_{-1}*XB)$	$+ .01((a_{44}*VPD_{-2}*XB_{-1}) + (a_{45}*VPD_{-3}*XB_{-2}) + \cdots + (a_{53}*VPD_{-11}*XB_{-10}) + a_{60}*VPD_{-1}*XB_{-1} + a_{61}*VPD_{-2}*XB_{-2} + \cdots + a_{70}*VPD_{-11}*XB_{-11})$
(20)	EPD	$= (a_{94} + a_{100}(OUME_{-1}/SME_{-1}))*OPD$	$+ (a_{95} + a_{101}(OUME_{-2}/SME_{-2}))*OPD_{-1} + \cdots + (a_{99} + a_{105}(OUME_{-6}/SME_{-6}))*OPD_{-5}$

(24)	RPD	$= (1.0 - UDC*AC_1)*(a_{112}*RCB + a_{113}*RDP)$	$+ a_{114}(1.0 - UDC*AC_1)$	
				$AC_1 = UTC$
(25)	$RTPD$	$= 0.1*PPD(.01*RPD + UWPD)*(1.0 - AC_1*VWPD - ZLNG*AC_2)*(1.0 - AC_2*(1.0 - ZLNG))/(1.0 - AC_1)$		$AC_2 = TCPD$
(29)	$VWPD$	$= (1.0 - WAPD)(1.0 - EXP(-.01*RPD*AC_{18}))/(.01*RPD*AC_{18}) + 2.0*WAPD*(1.0 - (1.0 - EXP(-.01*RPD*AC_{18}))/(.01*RPD*AC_{18}))/(.01*RPD*AC_{18})$		$AC_{18} = SLPD$
(30)	KPD	$= .25EPD$	$+ KPD_{-1}*(1.0 - UWPD/4.0)$	
(32)	VPD	$= ((.01*PXB/(0.1*RTPD)**a_{128})*EXP(a_{129}*(TIME - 46.5))$		
(34)	$WPD\$$	$= (.01*PPD*UWPD*KPD_{-1})/4.0$		

2. Plants

	Normalization	Solve	Constant	
(19)	EPS	$=$	$= .01(a_{77}VPS_{-1}*XB_{-1} + \cdots + a_{87}VPS_{-11}*XB_{-11}) + a_{93}*KPS_{-1} + a_{92}R_{19}$	
(18)	KPS	$= .25EPS$	$+ KPS_{-1}*(1.0 - .25*UWPS)$	
(27)	RPS	$= (1.0 - UDC*AC_1)*(a_{126}RCB + a_{127}*RDP)$	$+ (1.0 - UDC*AC_1)*a_{411}$	
(28)	$RTPS$	$= 0.1*PPS(.01*RPS + UWPS)*(1.0 - AC_1*VWPS - ZLNG*AC_{17})*(1.0 - AC_{17}*(1.0 - ZLNG))/(1.0 - AC_1)$		$AC_{17} = TCPS$

NOTE: Numerical values for coefficients begin p. 588.

(*continued*)

I. FINAL DEMAND EQUATIONS (*continued*)

B. INVESTMENT IN EQUIPMENT AND PLANTS (*continued*)

2. Plants (*continued*)

	Normalization	Solve	Constant
(31)	$VWPS$	$= (1.0 - WAPS)*(1.0 - EXP(-.01*RPS*AC_{19}))/(.01RPS*AC_{19}) + 2.0*WAPS*(1.0 - (1.0 - EXP(-.01*RPS*AC_{19}))/(.01*RPS*AC_{19}))/(.01*RPS*AC_{19})$	$AC_{19} = SLPS$
(33)	VPS	$= ((.01*PXB/(0.1*RTPS))**a_{130})*EXP(a_{131}*(TIME - 46.5))$	
(35)	$WPS\$$	$= (.01*PPS*UWPS*KPS_{-1})/4.0$	

3. Supplementary Equations

	Normalization	Solve	Constant
(21)	SME	$= a_{106}EPD*(PPD*.01)$	$+ a_{107} + a_{108}*R_{21}$
(22)	OME	$= a_{109}*OPD*(PPD*.01)$	$+ a_{110} + a_{111}*R_{22}$
(23)	$OUME$	$= .25OME - .25SME$	$+ OUME_{-1}$
(26)	XBC	$=$	$+ a_{115}XB_{-1} + \cdots + a_{125}XB_{-11} + (1.0 - a_{21})*XBC_{-1}$

C. HOUSING

	Normalization	Solve	Constant

Normalization	Solve	Constant
(181) $\ln(HS1\$/)$	$= a_{571} \ln(CON/.001*N) + a_{572} \ln RCH1$	$+ a_{582} \ln RCH1_{-1} + \cdots + a_{584} \ln RCH1_{-3}$ $+ a_{585} \ln (D - DSL)_{-1} + \cdots + a_{587} \ln (D - DSL)_{-3}$ $+ a_{575} \ln (PCON/PHCA)_{-1} + \cdots$ $+ a_{581} \ln (PCON/PHCA)_{-7} + a_{588}(TIME - 4.0)$ $+ a_{589} + a_{590} \ln ((KH1/(1$ $- N20/N)*NS/NA*N*.001)_{-1}) + a_{591}R_{181}$
(183) $\ln(HS3\$/)$	$= a_{592} \ln(100.0RH/PHCA) + a_{593} \ln(RCH3)$ $+ a_{594} \ln(D\text{-}DSL)$	$+ a_{595} \ln (RCH3)_{-1} + \cdots + a_{601} \ln (RCH3)_{-7}$ $+ a_{602} \ln (100.0RH/PHCA)_{-1} + \cdots$ $+ a_{604} \ln (100.0RH/PHCA)_{-3} + a_{605} \ln (D\text{-}DSL)_{-1}$ $+ \cdots + a_{609} \ln (D\text{-}DSL)_{-5} + a_{610}(TIME - 4.0)$ $+ a_{611} + a_{612}(1.0/KH3_{-1} - 60.0) + a_{613}R_{183}$
(182) $HS1\$$	$= EXP(\ln(HS1\$/))*(1.0$ $- N20/N)*NS/NA*N*PHCA*.001$	
(184) $HS3\$$	$= EXP(\ln(HS3\$/))*(1.0 - N20/N)*(1.0$ $- NS/NA)*N*.001*PHCA$	
(15) $EH\$$	$= a_{614}(HS1\$ + HS3\$)$	
(127) $RCH1$	$= (1.0 - UTPF*.01)*(a_{557}RM + a_{558}RCB)$	$+ a_{615}*(TIME - 4.0) + a_{616}*(HS1\$ + HS3\$)_{-1}$ $+ a_{617}*(HS1\$ + HS3\$)_{-2} + a_{618} + EHF\$ + a_{619}R_{15}$
(128) $RCH3$	$= a_{561}RM + a_{562}RCB$	$+ (1.0 - UTPF*.01)*a_{559}UTP + a_{560}$
(186) $KH1$	$= a_{547}*(a_{548} + a_{549}*(TIME - 4.0))/(4.0*PRS*.01)$	$+ a_{563} + a_{564}UTP$
(187) $KH3$	$= a_{565}*(a_{566} + a_{567}*(TIME - 4.0))/(4.0*PRS*.01)$	$+ a_{546}*KH1_{-1} + (HS1\$/(.01*PRS))_{-1}$ $+ a_{568}*KH3_{-1} + a_{569}*(HS3\$/(PRS*.01))_{-2}$ $+ a_{570}*(HS3\$/(PRS*.01))_{-3}$
(188) $PHCA$	$= \dfrac{PHC*PHCA_{-1}}{PHC_{-1}}$	$+ PHCA_{-1}*(-.0025)$

(*continued*)

I. FINAL DEMAND EQUATIONS (*concluded*)

D. STATE AND LOCAL GOVERNMENT EXPENDITURE

Normalization	Solve	Constant

(36) $EGSC\$$

$$= \left[a_{700} + a_{701}*\left[\frac{YS\$}{N*POBE*.00001}\right] + \cdots \right. \qquad + a_{726}*GFS$$

$$+ a_{712}*\left[\frac{YS\$}{N*POBE*.00001}\right]_{-12}$$

$$+ a_{713}*\left[\frac{YS\$}{N*POBE*.00001}\right](RSLG) + \cdots$$

$$+ a_{715}*\left[\frac{YS\$}{N*POBE*.00001}\right]_{-3} * (RSLG_{-3})$$

$$+ a_{716}*\left[\frac{YS\$}{N*POBE*.00001}\right]\left[\frac{100(PS - PS_{-4})}{PS_{-4}}\right] + \cdots$$

$$+ a_{725}\left[\frac{YS\$}{N*POBE*.00001}\right]_{-9}\left[\frac{100(PS_{-9} - PS_{-13})}{PS_{-13}}\right]$$

$$+ a_{727}\left[\frac{YS\$}{N*POBE*.00001}\right] * \left[\frac{PS}{POBE}\right]$$

$$+ a_{728}\left[\frac{YS\$}{N*POBE*.00001}\right](N20/N)$$

$$\left. + a_{729}\frac{KSL_{-1}}{N}\right] * PS*.0001*N$$

(102)	KSL	$= .25*EGSC\$/(.01*PS)$	$+ .9956KSL_{-1}$
(37)	$EGSO\$$	$= (a_{161}*YS\$/(.01*POBE) + a_{162}*(YS\$/(.01*POBE))*(PS/POBE) + a_{163}*(YS\$/(.01*POBE))*N20/N + a_{164}*(.001*N) + a_{166}*(.001*N)*R_{37})*(.01*PS)$	$+ a_{165}*GFS$
(38)	$EGSL\$$	$= (a_{168}*YS\$/(.01*POBE) + a_{169}*(YS\$/(.01*POBE))*(PS/POBE) + a_{170}*(YS\$/(.01*POBE))*N20/N + a_{171}*(.001*N) + a_{172}*(.001*N)*R_{38})*(.01*PS)$	$+ a_{173}*GFS$
(45)	$EGS\$$	$= EGSC\$ + EGSL\$ + EGSO\$$	
(82)	$EGSN\$$	$= EGSL\$ + EGSO\$ + GSP\$ - TSC$	$+ GSI - .70*GFS$

E. INVENTORY INVESTMENT

	Normalization	Solve	Constant
(39)	I	$= a_{177}ECO + a_{186}OPD$	$+ a_{178}ECO_{-1} + a_{179}ECO_{-2} + a_{180}I_{-1} + a_{181}I_{-2} + a_{182}EGDP + a_{183}EGDP_{-1} + a_{184}NDI + a_{185}NDI_{-1} + a_{187}OPD_{-1} + \cdots + a_{191}OPD_{-5}$
(10)	$D\text{-}I$	$= I$	$- I_{-1}$

F. IMPORTS

	Normalization	Solve	Constant
(42)	$\ln(EIM)$	$= a_{192} \ln(XOBE) + a_{193} \ln(1.0/(1 - XB/XBC))$	$+ a_{194} + a_{195}JCAA + a_{196} \ln(JID) + a_{488}JIA + a_{489}JIB$
(43)	EIM	$= EXP(.01*\ln(EIM))$	

II. DISTRIBUTION OF INCOME

A. DEFINITION OF OUTPUTS

	Normalization	Solve	Constant
(1)	X	$= CON + EC + EH\$/(.01*PRS) + EPD + I + EPS + EGS\$/(.01*PS) - EIM$	$+ EEX + EGF - I_{-1} + D\text{-}IF$
(2)	$XOBE$	$= X - YC - WC$	
(3)	XB	$= XOBE - EGSL\$/(.01*PGE) - YH$	$- YRW - EGFL\$/(.01*PGE)$
(40)	$XBNF$	$= XB + YH$	$- XBF$
(44)	ECO	$= CON + EC - YC - WC$	

B. NET NATIONAL PRODUCT AND NATIONAL INCOME

	Normalization	Solve	Constant
(165)	$YNNP\$$	$= XOBE\$ - WCCA\$$	
(55)	$YNI\$$	$= YNNP\$ - TIBS - TIBF - TSS$	$- YBT\$ - YSD\$ + GFG$

C. LABOR INCOME

	Normalization	Solve	Constant
(54)	$YL\$$	$= (.01*PL)*LMHT$	

D. NONLABOR INCOME

	Normalization	Solve	Constant
(56)	$YPG\$$	$= YNI\$ - YL\$ - EGSL\$ - YRT\$ - YII\$$	$- YLAG\$ - EGFL\$ - YPF\$$

E. CORPORATE PROFITS, CASH FLOWS AND DIVIDENDS

	Normalization	Solve	Constant
(153)	$\ln (YPC\$)$	$= a_{482} \ln (YPG\$) + a_{443} \ln (XB/XBC)$	$+ a_{444} \ln (XB/XBC)_{-1} + a_{445} TIME + a_{446} + a_{481} R_{153}$
(57)	$YPC\$$	$= EXP(.01 * \ln YPC\$)$	
(60)	$YPCT\$$	$= YPC\$ - TCIF - TCIS$	
(61)	$YPCC\$$	$= YPCT\$ + WCO\$$	
(169)	$WCO\$$	$= WCCA\$ - .04 * PRS(a_{546} * KH1_{-1} + a_{568} KH3_{-1})$	$+ C(169)$
(62)	$YDV\$$	$= a_{205} YPCC\$$	$+ a_{206} + a_{208} YPCC\$_{-1} + \cdots + a_{215} YPCC\$_{-8} + a_{408} R_{62}$
(41)	$YCR\$$	$= YPC\$ - YDV\$ - TCIF - TCIS - IVA\$$	

F. PERSONAL INCOME AND DISPOSABLE INCOME

	Normalization	Solve	Constant
(74)	$YP\$$	$= YNI\$ - YPC\$ - TO - TU + YDV\$ + GB + GSP - TSC$	$- TOSI + GSI + GFI + GFP + YRC\$ + YBT\$$
(79)	$YD\$$	$= YP\$ - TPF - TPS + .01 * RCB * (KC_{-1} * PC + EC\$/8.0)$	$- TEGF - YRC\$$

(*continued*)

II. DISTRIBUTION OF INCOME (*concluded*)

G. INVENTORY VALUATION ADJUSTMENT

	Normalization	Solve	Constant
(159)	$IVA\$$	$= a_{507}*PI + a_{508}*PI*I_{-1}$	$- a_{508}PI_{-1}*I_{-1} - a_{507}PI_{-1} + a_{509}$
(140)	$D\text{-}I\$$	$= .01*I*PI + IVA\$$	$- I_{-1}*.01*PI_{-1}$

H. SAVING AND NET-WORTH IDENTITY

	Normalization	Solve	Constant
(138)	$VCN\$$	$= .05*(YDV\$/RDP)$	$+ VCN\$_{-1} + (.25*(YD\$_{-1} - CON_{-1}*.01*PCON_{-1}) + .01*(PRS_{-1} - PRS_{-2})*(KH1_{-2} + KH3_{-2}) + .01*(PC_{-1} - PC_{-2})*KC_{-2} - 50.0*YDV\$_{-2}/RDP_{-2} + VG\$_{-1})*.001$

I. MISCELLANEOUS ITEMS

	Normalization	Solve	Constant
(80)	$YS\$$	$= XOBE\$ - TCIF - TIBF - TO - TPF - TU + GB$	$+ GFI + GFP + GFG - TEGF - TOSI$
(166)	$YRT\$$	$= .0414*RH*KH1_{-1}*C(166)$	
(167)	$YII\$$	$= EXOGENOUS$	
(163)	$WCCA\$$	$= (WPD\$ + WPS\$)*4.0 + .04*PRS*(a_{546}KH1_{-1} + a_{568}KH3_{-1})$	$+ C(163)$

III. TAXES AND TRANSFERS

A. CORPORATE INCOME TAXES

	Normalization	Solve	Constant	
(58)	$TCIS$	$= a_{197}(YPC\$ - IVA\$) + a_{198}EGSN\$$	$+ a_{199} + a_{200}R_{58}$	
(59)	$TCIF$	$= a_{202}{*}AC_1{*}YPC\$ + a_{203}{*}AC_2{*}EPD\$$	$+ a_{204} + a_{207}R_{59}$	$AC_1 = UTC$

B. INDIRECT BUSINESS TAXES

	Normalization	Solve	Constant	
(63)	$\ln TXF$	$= a_{216} \ln ECO\$$	$+ a_{217} \ln (AC_3) + a_{218} + a_{167}R_{63}$	$AC_3 = UTXF$
(64)	TXF	$= EXP(.01 \ln TXF)$		
(65)	$TIBF$	$= TXF$	$+ TCDF$	
(66)	$TIBS$	$= a_{219}YS\$ + a_{220}EGSN\$$	$+ (a_{223} + a_{224}(YS\$_{-1}/(.001{*}N_{-1})$ $+ a_{225}(EGSN\$_{-1}/(.001{*}N_{-1}) + a_{221}{*}R_{66}){*}(.001{*}N)$	

C. PERSONAL INCOME TAXES

	Normalization	Solve	Constant	
(75)	$\ln\left(1 - \frac{YTF\$}{YP\$}\right)$	$= a_{249} \ln YP\$$	$- a_{249} \ln N + a_{250} \ln (AC_{13}) + a_{251}$	$AC_{13} = TEX$

(*continued*)

III. TAXES AND TRANSFERS (*concluded*)

C. PERSONAL INCOME TAXES (*continued*)

	Normalization	Solve	Constant	
(76)	$YTF\$$	$= (-EXP\left(\ln\left(1 - \frac{YTF\$}{YP\$}\right)\right) + 1) * YP\$$		
(77)	TPF	$= AC_6 * YTF\$/100.0$		$AC_6 = UPTF$
(78)	TPS	$= a_{252} YP\$ + a_{253} EGSN\$$	$+ a_{255} * N * .001$	

D. CONTRIBUTIONS TO SOCIAL INSURANCE

	Normalization	Solve	Constant	
(67)	$\ln(TO)$	$= a_{226} \ln YP\$$	$+ a_{227} JOA + a_{228} JOB + a_{229} JOC + a_{230} JOD + a_{231} + a_{232} \ln(AC_4)$	
				$AC_4 = UTO$
(68)	TO	$= EXP(\ln TO)$		
(69)	$\ln TU$	$= a_{233} \ln YP\$$	$+ a_{234} \ln(TUIC) + a_{235} + a_{236} \ln(AC_5)$	$AC_5 = UTU$
(70)	TU	$= EXP(\ln TU)$		
(81)	TSC	$= a_{257} * EGSL\$$	$+ a_{417} + a_{256} R_{81}$	

E. TRANSFER PAYMENTS

	Normalization	Solve	Constant
(71)	$\ln GB$	$= a_{237} \ln (LU)$	$+ a_{238} \ln (TUIC) + a_{239} \ln TUIB + a_{240} \ln (L26U) + a_{241} + a_{409} R_{71}$
(72)	GB	$= EXP(.01 * \ln GB)$	
(73)	GSP	$= (a_{242} YS\$/(.01 * POBE) + a_{243}(LE+LA/N)YS\$/(.01 * POBE) + a_{246} + a_{247} R_{73}) * (.00001 * N * PS)$	$+ a_{245} GFS$
(155)	TSS	$= a_{501} * YS\$ + a_{502} * EGSN\$$	$+ a_{505} + a_{506} * YS\$_{-1} + a_{503} R_{155}$

F. NET DEFICIT OF GOVERNMENT

	Normalization	Solve	Constant
(161)	$GDSF$	$= TPF + TCIF + T + TO + TU - GB$	$+ TEGF + TOSI - EGF\$ - GFP - GFS - GFI - GFG - GFR$
(162)	$GDSS$	$= TPS + TCIS + TIBS + TSC - EGS\$ - GSP + TSS$	$+ GFS - GSI$

IV. LABOR MARKET

A. DEMAND FOR MAN-HOURS AND HOURS/MAN AND EMPLOYMENT

	Normalization	Solve	Constant
(139)	$LMHT$	$= EXP(.01*\ln LMHT)$	
(145)	$\ln (LMHT)$	$= \ln (XBNF) + a_{458} \ln (XB/XBC) + a_{459} \ln (ULU) + a_{460} \ln (XBNF)$	$- a_{460} \ln (XBNF_{-1}) + a_{461} JR1 + a_{462} JR2 + a_{463} JR3 + a_{468} JT1 + a_{469} JT2 + a_{470} JT3 + a_{471} JT4 + a_{486} + a_{465} R_{145}$
(142)	LH	$= EXP(.01*\ln (LH))$	
(146)	$\ln (LH)$	$= a_{466} \ln (LMHT)$	$- a_{466} \ln (LMHT)_{-1} + a_{467} \ln (LH_{-1}) + a_{473} TT60 + a_{474} + a_{475} R_{146}$
(147)	$LEBT$	$= LMHT/LH$	
(148)	LE	$= LEBT$	$+ LEO$
(125)	$(LE+LA)$	$= LE$	$+ LA$

B. SUPPLY OF LABOR AND UNEMPLOYMENT

	Normalization	Solve	Constant
(143)	$LF+LA$	$= a_{447}*(LE+LA)*\left(1.0 - \frac{LPRI}{N16}\right)$	$N16*(a_{448}* \frac{(LE+LA)_{-1}}{N16_{-1}}* \left(1.0 - \frac{LPRI}{N16}\right)_{-1} + \cdots + a_{455}* \frac{(LE+LA)_{-8}}{N16_{-8}}* \left(1.0 - \frac{LPRI}{N16}\right)_{-8} + a_{456} + a_{457}* \ln (TIME + 88.0) + a_{487}* \left(1.0 - \frac{LPRI}{N16}\right) + a_{485} R_{143})$
(124)	LU	$= (LF+LA) - (LE+LA)$	
(150)	ULU	$= (LU/(LF+LA))*100.0$	

V. PRICES

A. THE WAGE RATE

	Normalization	Solve	Constant
(152)	PL	$= (a_{635}/(ULU + ULU_{-1}) + a_{636}*YPCC\$/(YPCC\$_{-1} + YPCC\$_{-2}))*PL_{-2}$	$(1.0 + a_{637}*(PCON_{-2} - PCON_{-4})/PCON_{-4} + a_{638} + a_{639}R_{152})*PL_{-2} + a_{640}(UTO - UTO_{-2})*PL_{-2}$

B. THE GENERAL PRICE LEVEL

	Normalization	Solve	Constant
(154)	$QPXB$	$= \ln(PL) - a_{621} \ln(PL) + a_{622}(OUME/SME)*EXP(.002698(TIME - 80.0)) + a_{624}(\ln XBNF - \ln LMHT)$	$+ a_{625} + a_{621}QPXB_{-1} + a_{627}\Delta \ln(31.91*PWM + 68.09*PFM) + a_{628}[(OUME/SME)*EXP(.002698(TIME - 80))]_{-1} + a_{629}JS1 + a_{630}JS2 + a_{631}JS3 + a_{632}TIME$
(189)	$PXB*$	$= EXP(QPXB)/(1.0 - (TIBF/XB\$))$	

C. ALL OTHER PRICES ARE DEFINED IN TERMS OF PROPORTIONALITY TO THE GENERAL PRICE AND THESE PROPORTIONALITIES ARE TAKEN AS EXOGENOUS IN THE CURRENT VERSION OF THE MODEL, AS FOLLOWS:

	Normalization	Solve	Constant
(156)	$PXBNF$	$= 100.0*(.01*PXB*(XBNF - YH) + YH\$)/XBNF$	
(129)	PXB	$= 100.0*(XBNF\$ - YH\$ + XBF\$)/(XBNF - YH + XBF)$	

(*continued*)

V. PRICES (*concluded*)

C. ALL OTHER PRICES ARE DEFINED IN TERMS OF PROPORTIONALITY TO THE GENERAL PRICE AND THESE PROPORTIONALITIES ARE TAKEN AS EXOGENOUS IN THE CURRENT VERSION OF THE MODEL, AS FOLLOWS: (*continued*)

	Normalization	Solve	Constant
(130)	*POBE*	$= \frac{100.0*(XB\$ + EGSL\$ + YH\$ + YRW\$ + EGFL\$)}{(XB + (EGSL\$/PGE) + YH + (EGFL\$/PGE) + YRW)}$	
(131)	*PC*	$= UPC*PXBNF$	
(171)	*UPC*	$= EXOGENOUS$	
(132)	*PCON*	$= UPCON*PXBNF$	
(172)	*UPCON*	$= EXOGENOUS$	
(158)	*PCO*	$= PCON*(ECO - EC + WC + .0379*(KC_{-1} + EC/8.0))/ECO - PC*(-EC + WC + .01*RCB*(KC_{-1} + EC/8.0))/ECO$	
(133)	*PPD*	$= UPPD*PXBNF$	
(173)	*UPPD*	$= EXOGENOUS$	
(134)	*PRS*	$= UPRS*PXBNF$	
(177)	*UPRS*	$= EXOGENOUS$	
(135)	*PS*	$= UPS*PXBNF$	
(175)	*UPS*	$= EXOGENOUS$	

(136) *PHC* = *UPHC***PXBNF*

(176) *UPHC* = *EXOGENOUS*

(141) *PPS* = *UPPS***PXBNF*

(174) *UPPS* = *EXOGENOUS*

(168) *PI* = *UPI***PXBNF*

(178) *UPI* = *EXOGENOUS*

D. TRANSFORMATION BETWEEN THE CURRENT DOLLAR VARIABLES AND REAL VARIABLES

	Normalization	Solve	Constant
(46)	*XB$*	= *XB**(*PXB**.01)	
(47)	*YH$*	= *YH**(*PYH**.01)	
(48)	*XOBE$*	= *XOBE**(*POBE**.01)	
(49)	*EPD$*	= *EPD**(*PPD**.01)	
(50)	*EPS$*	= *EPS**(*PPS**.01)	
(51)	*ECO$*	= *ECO**(*PCO**.01)	
(52)	*EC$*	= *EC**(*PC**.01)	
(53)	*XBNF$*	= *XBNF**(*PXBNF**.01)	
(123)	*YD*	= *YD$*/(.01**PCON*)	

VI. FINANCIAL SECTOR

A. MONEY MARKET

1. Demand for Currency

	Normalization	Solve	Constant
(83)	$\ln MC\$$	$= (1.0 - a_{258}) \ln ECO\$ + a_{259} \ln RTP$	$+ a_{260} + a_{258}(\ln MC\$)_{-1} + a_{261}R_{83}$
(84)	$MC\$$	$= EXP(.01*\ln MC\$)$	

2. Demand for Demand Deposits

	Normalization	Solve	Constant
(87)	RTB	$= a_{262}*MD\$/XOBE\$ + a_{263}*RTD + a_{264}(.01*POBE*N)/XOBE\$ + a_{265}*MD\$_{-1}/XOBE\$$	$+ a_{266} + a_{267}R_{87}$
(86)	$MD\$$	$= (MDS\$*JMSB*JMSA)$	$- MGF\$*JMSA$

3. Demand for Free Reserves

	Normalization	Solve	Constant
(115)	$MFR\$$	$= a_{268}*(1.0 - AC_7)*MRU\$ + a_{274}*\left(\sum_{i=1}^{4} .25MDS\$_{-i}\right)*RTB + a_{277}*AC_7*DCL\$*JCLS$	$- a_{268}*(1.0 - AC_7)*MRU\$_{-1} + a_{269}*((AC_8 - AC_{8,-1})*MTM\$_{-1} + (AC_7 - AC_{7-1})*MDS\$_{-1}) + (a_{270} + a_{271}*JS1 + a_{272}*JS2 + a_{273}*JS3 + a_{275}*ZDRA)*\left(\sum_{i=1}^{4} .25MDS\$_{-i}\right) + a_{276}MFR\$_{-1}$

$$- a_{277}*AC_7*DCL\$_{-1}*JCLS_{-1}$$
$$+ a_{278}R_{115}\left(\sum_{i=1}^{4} .25MDS\$_{-i}\right)$$

4. Relation Between the Treasury Bill Rate and Commercial Paper Rate

	Normalization	Solve	Constant
(88)	RCP	$= (a_{279} - a_{280})RTB$	$+ a_{280}RTB_{-1} + a_{281}JCD + a_{410}$

5. Reserve and Commercial Bank Balance Sheet Identities

	Normalization	Solve	Constant	
(89)	$MDS\$$	$= (MRU\$ - MFR\$ - AC_8*MTM\$)/AC_7$		
(90)	$MRU\$$	$= -MC\$$	$+ AC_{10}$	$AC_{10} = ZMS$

6. Supplementary Equations

	Normalization	Solve	Constant
(98)	$\ln (JMSB)$	$= a_{323}*\ln (MDS\$)$	$+ a_{324} + a_{325}JS2 + a_{326}JS3 + a_{327}JS4$ $+ a_{328} \ln (MDS\$)_{-1} + a_{329} \ln (JMSB)_{-1}$
(99)	$JMSB$	$= EXP(.01*\ln JMSB)$	

(*continued*)

VI. FINANCIAL SECTOR (*continued*)

B. TERM STRUCTURE EQUATION FOR CORPORATE BOND RATE

	Normalization	Solve	Constant
(91)	RCB	$= a_{282}RCP$	$+ a_{283}RCP_{-1} + \cdots + a_{300}RCP_{-18} + a_{400} + a_{401}R_{91}$

C. COMMERCIAL LOAN MARKET

	Normalization	Solve	Constant
(92)	RCL	$= a_{302}{*}DCL\$/(MD\$ + MT\$ - DCL\$) + a_{303}RCB + a_{304}(MCDA\$/(MD\$ + MT\$))$	$+ a_{305}AC_{11} + (a_{306} - a_{305})AC_{11,-1} - a_{306}AC_{11,-2} + a_{307}RCL_{-1} + a_{308}JS2 + a_{309}JS3 + a_{310}JS4 + a_{311}$
			$AC_{11} = ZDR$
(93)	$DCL\$$	$= a_{312}(D - I\$) + a_{313}EPD\$ - .25{*}a_{315}{*}EPS\$ + a_{316}(XBNF\$ - YH\$ - (D\text{-}I\$) + (a_{318}{*}(RTB - RCL) + a_{416}{*}(RCB - RCL)){*}(XBNF\$ - YH\$ - XBNF\$_{-1} + YH\$_{-1}) + a_{314}WCO\$$	$+ a_{315}.25{*}(D - I\$_{-1} + EPD\$_{-1} + EPS\$_{-1} - WCO\$_{-1}) + (1 - a_{315})DCL\$_{-1} + a_{315}DCL\$_{-2} + (a_{317} - a_{316}){*}(XBNF\$_{-1} - YH\$_{-1} - (D\text{-}I\$)_{-1}) - a_{317}{*}(XBNF\$_{-2} - YH\$_{-2} - (D\text{-}I\$)_{-2})$

D. MUNICIPAL BOND RATE

	Normalization	Solve	Constant
(103)	$RSLG$	$= a_{770}{*}RCB + a_{772}DCL\$/MT\$$	$+ a_{769} + a_{771}{*}RCB_{-1} + a_{773}R_{103}$

E. DETERMINATION OF MORTGAGE RATE

	Normalization	Solve	Constant
(104)	RM	$= a_{550}RCB$	$+ a_{551}RCB_{-1} + a_{552}RCB_{-2} + a_{553}RCB_{-3} + a_{554}JCD_{-3} + a_{555} + a_{556}R_{104}$

F. TIME DEPOSITS AT COMMERCIAL BANKS

1. Passbook Savings Accounts

	Normalization	Solve	Constant
(106)	RTP	$= a_{350}RM + a_{351}ZINT$	$+ a_{352}RTP_{-1} + a_{415}$
(157)	$MTP\$$	$= MTPA\$ * JTPS$	
(105)	$ZINT$	$=$	$= .5333(AC_{14} - AC_{14,-1} + ZINT_{-1})$ $AC_{14} = ZCT$
(110)	$\ln (MTPA\$)$	$= a_{363} \ln RTP + a_{364} \ln RSL + a_{365} \ln RCB + a_{366} \ln (.01 * PCON) + (1.0 - a_{367}) \ln (VCN\$ * 1000)$	$+ a_{368} \ln MTP\$_{-1} + a_{369} \ln (.01 * PCON_{-1}) + a_{370}$
(111)	$MTPA\$$	$= EXP(.01 * \ln MTPA\$)$	

2. Nonpassbook Time Deposits

	Normalization	Solve	Constant
(109)	RCD	$= a_{360}RTB$	$+ a_{361}RCD_{-1} + a_{362}$
(112)	$MCDA\$$	$= EXOGENOUS$	
(113)	$MCD\$$	$= JCDS * MCDA\$$	

(*continued*)

VI. FINANCIAL SECTOR (*concluded*)

F. TIME DEPOSITS AT COMMERCIAL BANKS (*continued*)

3. Accounting Identity

	Normalization	Solve	Constant
(114)	$MTM\$$	$= MCD\$ + MTP\$$	
(122)	$MT\$$	$= JMT * MTM\$$	

G. SAVINGS AND LOAN ASSOCIATIONS

	Normalization	Solve	Constant
(107)	RSL	$= a_{353} RTP + a_{354} RM$	$+ a_{355} RSL_{-1} + a_{356}$
(116)	$\ln MSL\$$	$= a_{374} \ln RTP + a_{375} \ln RSL + a_{376} \ln RCB + a_{377} \ln (.01 * PCON) + (1.0 - a_{378}) \ln (VCN\$ * 1000)$	$+ a_{379} \ln MSL\$_{-1} + a_{380} \ln (.01 * PCON_{-1}) + a_{381}$
(117)	$MSL\$$	$= EXP(.01 * \ln MSL\$)$	

H. MUTUAL SAVINGS BANKS

	Normalization	Solve	Constant
(108)	RMS	$= a_{357} RSL$	$+ a_{358} RMS_{-1} + a_{359}$
(118)	$\ln MMS\$$	$= a_{382} \ln RSL + a_{383} \ln RMS + a_{384} \ln RCB + (a_{385} + a_{386} + a_{387}) \ln (VCN\$ * 1000) + (a_{388} + a_{389}) \ln (.01 * PCON)$	$+ a_{390} \ln MMS\$_{-1} + a_{391} \ln N + a_{392} \ln (.01 * PCON) + a_{393}$
(119)	$MMS\$$	$= EXP(.01 * \ln MMS\$)$	

I. LIFE INSURANCE RESERVES

	Normalization	Solve	Constant
(120)	$\ln MIS\$$	$= a_{394} \ln RCP + (1.0 - a_{395}) \ln (VCN\$*1000) + a_{396} \ln (.01*PCON)$	$+ a_{397} \ln MIS\$_{-1} + a_{398} \ln (.01*PCON_{-1}) + a_{399}$
(121)	$MIS\$$	$= EXP(.01*\ln MIS\$)$	

J. DIVIDEND PRICE RATIO

	Normalization	Solve	Constant
(126)	RDP	$= a_{425}*RCB$	$+ a_{426}*RCB_{-1} + a_{427}*RCB_{-2} + a_{428}*RCB_{-3} + a_{429}RCB_{-4} + a_{430}*RCB_{-5} + a_{431}*RCB_{-6} + (-a_{432} - a_{433} - a_{434} - a_{435} - a_{436} - a_{437} - \cdots - a_{441}) + a_{432}(PCO_{-4}/PCO_{-5}) + \cdots + a_{441}(PCO_{-13}/PCO_{-14}) + a_{421} JSTK + a_{422} \frac{1.0}{(TIME - 3.0)} + a_{423} + a_{484} R_{126}$

K. SAVINGS FLOWS FOR HOUSING STARTS

	Normalization	Solve	Constant
(185)	$D\text{-}DSL$	$= \frac{11.0*(MSL\$ + MMS\$)}{1.12(MSL\$_{-1} + MMS\$_{-1} - MSL\$_{-12} - MMS\$_{-12})}$	$\frac{-11.0*(MSL\$_{-1} + MMS\$_{-1})}{1.12(MSL\$_{-1} + MMS\$_{-1} - MSL\$_{-12} - MMS\$_{-12})}$

NUMERICAL VALUES FOR COEFFICIENTS (TABLE I)

I. A.

(4)	$a_1 =$	.0794	$a_8 =$	.0448
	$a_{476} =$	37.9982	$a_9 =$	.0372
	$a_{404} =$	.0954	$a_{10} =$	.0289
	$a_2 =$	.0764	$a_{11} =$	.0199
	$a_3 =$	.0728	$a_{12} =$	.0103
	$a_4 =$	.0686	$a_{477} =$	17.1962
	$a_5 =$	.0636	$a_{478} =$	2.1265
	$a_6 =$	.0580	$a_{479} =$	.000
	$a_7 =$	.0517	$a_{480} =$	.6055
(6)	$a_{491} =$	.3588	$a_{498} =$	−.0011
	$a_{495} =$	−.0008	$a_{499} =$	−.0009
	$a_{493} =$	.2119	$a_{500} =$	−.0005
	$a_{494} =$	−.0030	$a_{492} =$	−.3312
	$a_{496} =$	−.0010	$a_{17} =$	−.2612
	$a_{497} =$	−.0011	$a_{18} =$	.6342
(5)	$a_{14} =$	.0791	$a_{16} =$	−6.4838
	$a_{15} =$	−.0168	$a_{405} =$	.4435

B. 1.

(17)	$a_{43} =$	11.3460	$a_{61} =$	−10.1810
	$a_{44} =$	10.4400	$a_{62} =$	−8.9030
	$a_{45} =$	9.4480	$a_{63} =$	−7.7250
	$a_{46} =$	8.3890	$a_{64} =$	−6.6330
	$a_{47} =$	7.2780	$a_{65} =$	−5.6080
	$a_{48} =$	6.1580	$a_{66} =$	−4.6350
	$a_{49} =$	5.0250	$a_{67} =$	−3.7000
	$a_{50} =$	3.9080	$a_{68} =$	−2.7830
	$a_{51} =$	2.8250	$a_{69} =$	−1.8720
	$a_{52} =$	1.8000	$a_{70} =$	−.9500
	$a_{53} =$	.8510		
	$a_{60} =$	−11.5750		

(20) $a_{94} = .6475$ $a_{98} = .0090$
$a_{100} = -.7150$ $a_{102} = .2122$
$a_{95} = .2555$ $a_{103} = .3562$
$a_{101} = -.1448$ $a_{104} = .2862$
$a_{96} = .0598$ $a_{99} = .0302$
$a_{97} = -.0018$ $a_{105} = .0044$

(24) $a_{112} = 2.1010$
$a_{113} = 1.3775$
$a_{114} = 3.5539$

(32) $a_{128} = 1.0000$
$a_{129} = 0.0$

2.

(19) $a_{77} = .3512$ $a_{84} = .3183$
$a_{78} = .5328$ $a_{85} = .2865$
$a_{79} = .5822$ $a_{86} = .2457$
$a_{80} = .5537$ $a_{87} = .1647$
$a_{81} = .4894$ $a_{93} = -.2067$
$a_{82} = .4190$ $a_{92} = .5792$
$a_{83} = .3602$

(27) $a_{126} = .0263$
$a_{127} = .7258$
$a_{411} = -1.8330$

(33) $a_{130} = .4500$
$a_{131} = -.0029$

3.

(21) $a_{106} = .8941$
$a_{107} = 7.2440$
$a_{108} = .7693$

(22) $a_{109} = .8941$
$a_{110} = 7.2440$
$a_{111} = .7693$

(26)	$a_{115} =$	0.0	$a_{121} =$	.0025
	$a_{116} =$	−.0004	$a_{122} =$	.0020
	$a_{117} =$	.0013	$a_{123} =$	.0022
	$a_{118} =$	.0023	$a_{124} =$	.0008
	$a_{119} =$	.0028	$a_{125} =$	.0002
	$a_{120} =$	.0028	$a_{21} =$	.0400

C.

(181)	$a_{571} =$	2.1213	$a_{576} =$	.1541
	$a_{572} =$	−.8447	$a_{577} =$	.7927
	$a_{573} =$	.0600	$a_{578} =$	1.1656
	$a_{574} =$	−1.9201	$a_{579} =$	1.2728
	$a_{582} =$	−0.9502	$a_{580} =$	1.1142
	$a_{583} =$	−0.8445	$a_{581} =$	.6900
	$a_{584} =$	−0.5278	$a_{588} =$	.0050
	$a_{585} =$	.0590	$a_{589} =$	10.7379
	$a_{586} =$	.0486	$a_{590} =$	−2.1213
	$a_{587} =$	.0290	$a_{591} =$	.6465
	$a_{575} =$	−.7501		
(183)	$a_{592} =$	−1.8011	$a_{603} =$	2.8911
	$a_{593} =$	−.7765	$a_{604} =$	2.3934
	$a_{594} =$	.0622	$a_{605} =$	.1157
	$a_{595} =$	−.4423	$a_{606} =$	.1436
	$a_{596} =$	−.1759	$a_{607} =$	.1460
	$a_{597} =$	.0228	$a_{608} =$	.1229
	$a_{598} =$	.1538	$a_{609} =$	.0742
	$a_{599} =$	.2170	$a_{610} =$	.0050
	$a_{600} =$	.2124	$a_{611} =$	4.4551
	$a_{601} =$	.1401	$a_{612} =$	−3.5173
	$a_{602} =$	1.4929	$a_{613} =$	.6114
(15)	$a_{614} =$	2.0771	$a_{617} =$	.7631
	$a_{615} =$	.0184	$a_{618} =$	2.9980
	$a_{616} =$	1.6145	$a_{619} =$	.3247
(127)	$a_{557} =$	.7000	$a_{559} =$	80.000
	$a_{558} =$	.3000	$a_{560} =$	−1.1400

(128)	$a_{561} =$	.9500	$a_{563} =$	−2.4400
	$a_{562} =$	.0500	$a_{564} =$	80.000
(186)	$a_{547} =$	.8500	$a_{549} =$	.0408
	$a_{548} =$	2.9658	$a_{546} =$	.9933
(187)	$a_{565} =$	.1500	$a_{568} =$	.9950
	$a_{566} =$	2.9658	$a_{569} =$	.6667
	$a_{567} =$	.0408	$a_{570} =$	.3333

D.

(36)	$a_{700} =$	−61.9952	$a_{716} =$	.0001
	$a_{701} =$	−.0085	$a_{117} =$	.0001
	$a_{702} =$	−.0043	$a_{718} =$	.0001
	$a_{703} =$	−.0007	$a_{719} =$	.0001
	$a_{704} =$	.0023	$a_{720} =$	.0001
	$a_{705} =$	.0046	$a_{721} =$	.0001
	$a_{706} =$	.0063	$a_{722} =$	.0001
	$a_{707} =$	.0073	$a_{723} =$	.0001
	$a_{708} =$	.0077	$a_{724} =$	.0001
	$a_{709} =$	.0075	$a_{725} =$	.0001
	$a_{710} =$	.0066	$a_{726} =$	.3763
	$a_{711} =$	.0050	$a_{727} =$	−.0537
	$a_{712} =$	.0028	$a_{728} =$	.2341
	$a_{713} =$	−.0011	$a_{729} =$	−.0482
	$a_{714} =$	−.0006		
	$a_{715} =$	−.0002		
(37)	$a_{161} =$	.0250	$a_{164} =$	−25.0807
	$a_{162} =$	−.0098	$a_{166} =$	.6000
	$a_{163} =$	.0231	$a_{165} =$	.2815
(38)	$a_{168} =$	−.0705	$a_{171} =$	51.4739
	$a_{169} =$	.0607	$a_{172} =$	.5000
	$a_{170} =$	.0926	$a_{173} =$	.4310

E.

(39)	$a_{177} =$	−.1380	$a_{184} =$	−27.6000
	$a_{186} =$	−.0200	$a_{185} =$	27.6000
	$a_{178} =$	.7110	$a_{187} =$	.2340
	$a_{179} =$	−.5730	$a_{188} =$	.1170
	$a_{180} =$	1.4240	$a_{189} =$	.0040
	$a_{181} =$	−.4240	$a_{190} =$	−.1110
	$a_{182} =$	.3870	$a_{191} =$	−.2240
	$a_{183} =$	−.3870		

F.

(42)	$a_{192} =$	1.0148	$a_{196} =$	.0817
	$a_{193} =$	.1349	$a_{488} =$	.0751
	$a_{194} =$	−3.3794	$a_{489} =$	.0518
	$a_{195} =$	−.0170		
(169)	$a_{546} =$	.0050		
	$a_{568} =$	.0067		

NUMERICAL VALUES FOR COEFFICIENTS (TABLE II)

II. E.

(153)	$a_{482} =$	.9638	$a_{445} =$	.0019
	$a_{443} =$	.3867	$a_{446} =$	−.0316
	$a_{444} =$	−.1059	$a_{481} =$	.9090
(62)	$a_{205} =$	.0623	$a_{212} =$	.0203
	$a_{206} =$	.2151	$a_{213} =$	.0137
	$a_{208} =$	.0518	$a_{214} =$	.0070
	$a_{209} =$	.0426	$a_{215} =$	0.0
	$a_{210} =$	.0345	$a_{408} =$	.2570
	$a_{211} =$	.0272		
(169)	$a_{546} =$	.0067		
	$a_{568} =$	.0050		

G.

(159) $a_{507} = 0.0$
$a_{508} = -.0103$
$a_{509} = -.0513$

I.

(163) $a_{546} = .0067$
$a_{568} = .0050$

NUMERICAL VALUES FOR COEFFICIENTS (TABLE III)

III. A.

(58) $a_{197} = .0150$ $a_{199} = -.3599$
$a_{198} = .0277$ $a_{200} = .4792$

(59) $a_{202} = .8908$ $a_{204} = -1.6475$
$a_{203} = -.1786$ $a_{207} = .8971$

B.

(63) $a_{216} = .5995$
$a_{217} = 1.0000$
$a_{218} = .7653$
$a_{167} = .6300$

(66) $a_{219} = .0322$ $a_{223} = 13.6903$
$a_{220} = .1314$ $a_{224} = .0167$
$a_{221} = .95$ $a_{225} = .1573$

C.

(75) $a_{249} = -.3225$
$a_{250} = .2751$
$a_{251} = -2.1074$

(78) $a_{252} = .0187$
$a_{253} = .1629$
$a_{255} = -30.8473$

D.

(67)	$a_{226} =$	.8611	$a_{230} =$	−.1169
	$a_{227} =$	−.2642	$a_{231} =$	−4.5190
	$a_{228} =$	−.2751	$a_{232} =$	1.0000
	$a_{229} =$	−.1045		
(69)	$a_{233} =$	.5412	$a_{235} =$	−6.9292
	$a_{234} =$	.9974	$a_{236} =$	1.0000
(81)	$a_{257} =$	.0780		
	$a_{417} =$	1.1956		
	$a_{256} =$	.9500		

E.

(71)	$a_{237} =$	1.3956	$a_{240} =$	.8480
	$a_{238} =$	1.0000	$a_{241} =$	−9.7437
	$a_{239} =$	.2443	$a_{409} =$	.6341
(73)	$a_{242} =$	.0207	$a_{246} =$	4.6314
	$a_{243} =$	−.0315	$a_{247} =$	.9022
	$a_{245} =$	.0257		
(155)	$a_{501} =$	−.0010	$a_{505} =$	1.2159
	$a_{502} =$	.0133	$a_{506} =$	.0029
	$a_{503} =$	.9500		

NUMERICAL VALUES FOR COEFFICIENTS (TABLE IV)

IV. A.

(145)	$a_{458} =$	−.4360	$a_{468} =$	−.0044
	$a_{459} =$	−.0293	$a_{469} =$	−.0058
	$a_{460} =$	−.2750	$a_{470} =$	−.0033
	$a_{461} =$	−.0079	$a_{471} =$	−.0025
	$a_{462} =$	−.0059	$a_{486} =$	−.9629
	$a_{463} =$	−.0066	$a_{465} =$	.6022

(146) $a_{466} = .2986$ $a_{474} = .2525$
$a_{467} = .6362$ $a_{475} = 0.0$
$a_{473} = .0003$

(143) $a_{447} = .2695$ $a_{454} = -.0116$
$a_{448} = .1905$ $a_{455} = 0.0$
$a_{449} = .1244$ $a_{456} = .8369$
$a_{450} = .0714$ $a_{457} = .0510$
$a_{451} = .0312$ $a_{485} = .5868$
$a_{452} = .0040$ $a_{487} = -1.0526$
$a_{453} = -.0103$

NUMERICAL VALUES FOR COEFFICIENTS (TABLE V)

V. A.

(152) $a_{635} = .2185$ $a_{638} = -.0324$
$a_{636} = .0542$ $a_{639} = .5288$
$a_{637} = .4238$ $a_{640} = .3261$

B.

(154) $a_{621} = .7472$ $a_{627} = -.0512$
$a_{622} = .0806$ $a_{628} = -.0390$
$a_{624} = -.1090$ $a_{629} = 0.0$
$a_{625} = -.0409$ $a_{630} = -.0013$
$a_{621} = .7472$ $a_{631} = -.0012$
$a_{632} = -.0016$

NUMERICAL VALUES FOR COEFFICIENTS (TABLE VI)

VI. A. 1.

(83) $a_{258} = .8117$ $a_{260} = -.4013$
$a_{259} = -.0467$ $a_{261} = .7518$

2.

(87)

a_{262} =	−212.5539	a_{265} =	139.9768
a_{263} =	−2.0931	a_{266} =	27.1245
a_{264} =	−6.1365	a_{267} =	.6821

(115)

a_{268} =	.6573	a_{274} =	−.0016
a_{269} =	−.3464	a_{275} =	.0013
a_{270} =	.0027	a_{276} =	.6484
a_{271} =	−.0020	a_{277} =	−.5124
a_{272} =	−.0023	a_{278} =	.2271
a_{273} =	−.0022		

4.

(88)

a_{279} =	1.0486	a_{281} =	−.2346
a_{280} =	.3331	a_{410} =	.5463

6.

(98)

a_{323} =	−.0946	a_{327} =	−.0008
a_{324} =	−.3326	a_{328} =	.1765
a_{325} =	−.0028	a_{329} =	.6514
a_{326} =	−.0010		

B.

(91)

a_{282} =	.3082	a_{293} =	.0371
a_{283} =	−.0328	a_{294} =	.0323
a_{284} =	.0121	a_{295} =	.0286
a_{285} =	.0413	a_{296} =	.0257
a_{286} =	.0581	a_{297} =	.0228
a_{287} =	.0657	a_{298} =	.0186
a_{288} =	.0665	a_{299} =	.0117
a_{289} =	.0630	a_{300} =	0.0
a_{290} =	.0571	a_{400} =	1.1709
a_{291} =	.0500	a_{401} =	.7364
a_{292} =	.0432		

C.

(92) $a_{302} = 1.9060$ $a_{307} = .7274$
$a_{303} = .1884$ $a_{308} = .0582$
$a_{304} = -2.1317$ $a_{309} = .0527$
$a_{305} = .2636$ $a_{310} = .0457$
$a_{306} = .1304$ $a_{311} = .0063$

(93) $a_{312} = .2018$ $a_{318} = .0175$
$a_{313} = .0861$ $a_{416} = .0583$
$a_{315} = -.3187$ $a_{314} = -.3057$
$a_{316} = .0495$ $a_{317} = -.0246$

D.

(103) $a_{769} = -.8332$ $a_{772} = 1.7044$
$a_{770} = .8661$ $a_{773} = .5000$
$a_{771} = -.1624$

E.

(104) $a_{551} = .2204$ $a_{554} = -.2273$
$a_{552} = .1728$ $a_{555} = 2.9001$
$a_{553} = .0993$ $a_{556} = .7000$

F. 1.

(106) $a_{350} = .0486$ $a_{352} = .9650$
$a_{351} = .4243$ $a_{415} = .1590$

(110) $a_{363} = .1230$ $a_{367} = .9125$
$a_{364} = .000$ $a_{368} = .9125$
$a_{365} = -.1334$ $a_{369} = -.9125$
$a_{366} = .9125$ $a_{370} = -.1986$

2.

(109) $a_{360} = .9485$
$a_{361} = .2143$
$a_{362} = -.3110$

G.

(107)	a_{353} =	.0742	a_{355} =	.8581
	a_{354} =	.0815	a_{356} =	−.1195
(116)	a_{374} =	−.0040	a_{378} =	.9529
	a_{375} =	.1002	a_{379} =	.9529
	a_{376} =	−.0400	a_{380} =	−.9529
	a_{377} =	.9529	a_{381} =	−.2018

H.

(108)	a_{357} =	.1568		
	a_{358} =	.8581		
	a_{359} =	−.0673		
(118)	a_{382} =	−.0230	a_{388} =	.9982
	a_{383} =	.0937	a_{389} =	.0653
	a_{384} =	−.0497	a_{390} =	.9982
	a_{385} =	1.0000	a_{391} =	.0653
	a_{386} =	−.9982	a_{392} =	−.9982
	a_{387} =	−.0653	a_{393} =	−.1669

I.

(120)	a_{394} =	−.0117	a_{397} =	.9297
	a_{395} =	.9297	a_{398} =	−.9297
	a_{396} =	.9297	a_{399} =	−.1798

J.

(126)	a_{425} =	.2291	a_{436} =	−5.6400
	a_{426} =	.2192	a_{437} =	−4.6700
	a_{427} =	.1980	a_{438} =	−3.4500
	a_{428} =	.1655	a_{439} =	−2.1600
	a_{429} =	.1217	a_{440} =	−.9800
	a_{430} =	.0666	a_{441} =	.0900
	a_{431} =	0.0	a_{421} =	.4991
	a_{432} =	−3.1400	a_{422} =	169.0089
	a_{433} =	−5.1000	a_{423} =	−3.9299
	a_{434} =	−6.0300	a_{484} =	.7883
	a_{435} =	−6.1500		