

Appendix A: Data and Identities for the United States Model

The data and identities for the US model are discussed in this appendix. Tables A-1 through A-4 describe the construction of the variables, and Table A-5 contains the identities. The stochastic equations of the model, which are presented in Chapter 4, are repeated in Table A-5. (The tables are grouped together at the end of this appendix.) Some of the material in these tables was discussed in Section 4.1.2, and the discussion will not be repeated here.

The FFA data were taken from a Flow of Funds tape of data through 1982III. The NIA data prior to 1977I were taken from an NIA tape. The tape consisted of data through 1981I, but the data from 1977I on were preliminary and subject to revision. NIA data for the 1977I–1982I period were taken from the July 1982 issue of the *Survey of Current Business*. In addition, data for a few variables for 1973I–1976IV were taken from this issue (table 3, pp. 131–132) to replace the data taken from the tape. NIA data for 1982II and 1982III were taken from an advance copy of the *Survey of Current Business* tables dated December 1982.

Table A-1 lists the sectors of the model. The notation on the RHS of the table ($H1$, FA , and so on) is used in Table A-2 in the description of the FFA data. The notation on the LHS (h , f , and so on) is used in the model.

Table A-2 contains a description of all the raw-data variables. These variables are used in Table A-4 to construct the actual variables in the model. The units quoted in Table A-2 are the units used for the construction of the variables in Table A-4; they are not necessarily the units from the original sources. The raw-data variables are listed in alphabetic order at the end of Table A-2. This makes it easier to find particular raw-data variables, which one needs to do to see how the variables in Table A-4 are constructed.

The source for the interest rate data is the *Federal Reserve Bulletin*, denoted FRB in the table. Listed in the table for each interest rate variable is the table number in the November 1982 issue of the FRB where the variable can be found. Some of the past data were obtained directly from the Federal Reserve.

The main source for the employment and population data is *Employment and Earnings*, denoted EE in the table. Listed in the table for each variable is the table or page number in the February 1982 issue of EE where the variable can be found. Some of the past data were obtained directly from the Bureau of Labor Statistics (BLS). For two variables, *JF* and *HF*, the relevant data are not published in EE, and they were obtained directly from the BLS.

A few adjustments were made to the raw data, and these are also presented in Table A-2. The quarterly social insurance variables 171–176 were constructed from the annual variables 73–78 and the quarterly variables 33, 54, and 66. Only annual data are available on the breakdown of social insurance contributions between the federal and the state and local governments with respect to the categories “personal,” “government and government enterprises employer,” and “other employer.” It is thus necessary to construct the quarterly variables using the annual data. It is implicitly assumed in this construction that as employers, state and local governments do not contribute to the federal government and vice versa.

The tax variables 177 and 178 concern the breakdown of corporate profit taxes of the financial sector between federal and state and local. Data on this breakdown do not exist. It is implicitly assumed in this construction that the breakdown is the same as it is for the total corporate sector.

Regarding the tax and transfer variables 51 and 56, the tax surcharge of 1968III–1970III and the tax rebate of 1975II were taken out of personal income taxes (*TPG*) and put into personal transfer payments (*TRGH*). The tax surcharge numbers were taken from Okun (1971, table 1, p. 171). The rebate was 7.8 billion dollars at a quarterly rate.

The multiplication factors in Table A-2 pertain to the population, labor force, and employment variables. Official adjustments to the data on *POP*, *POP1*, *POP2*, *CL*, *CL1*, *CL2*, and *CE* were made a few times, and these must be accounted for. This was done as follows. Consider as an example the adjustments to *POP*. In January 1972 the BLS added 787 thousand to *POP* (a .547 percent increase), and in March 1973 it added 13 thousand (a .009 percent increase). To account for the first change, the old data on *POP* for the 1952I–1971IV period were multiplied by 1.00547. To account for the second change, the old data on *POP* (“old” now including the first change) for the 1952I–1972IV period were multiplied by 1.00009 and the old data for 1973I were multiplied by 1.00006. Since the second change occurred in March 1973, the adjustment to the old data for 1973I was only two-thirds of the adjustment for the earlier quarters. The same procedure was followed for the other variables. For four of the variables (*CL*, *CL1*, *CL2*, and *CE*), there was

also an official adjustment in January 1978. All the multiplication factors are presented in Table A-2. The official adjustments are discussed in *Employment and Earnings*, February 1972, April 1973 (note to Table A-1), and February 1978. Some of the official adjustment numbers were obtained directly from the BLS. In the February 1983 issue of *Employment and Earnings* the household data were revised back to 1970 to reflect the information from the 1980 Census. These revisions did not eliminate the need to make the above adjustments, but they did otherwise make the pre- and post-Census data comparable.

Table A-3 contains the checks on the consistency of the NIA and FFA data. The financial savings of the sectors are defined in Eqs. (1)–(6). The savings must sum to zero across sectors, which is Eq. (7). The savings variables are based on NIA data, and they must match the corresponding variables based on FFA data—Eqs. (8)–(13). Equations (14)–(16) are adding-up checks on the FFA data alone.

Table A-4 presents all the variables in the model. With a few exceptions, the variables are either defined in terms of the raw-data variables in Table A-2 or are determined by identities. The construction of each variable is given in brackets. If the variable is determined by an identity, the notation “Def., eq.” appears, where the equation number is the identity in Table A-5 that defines the variable. In a few cases the identity that defines an endogenous variable is not the equation that determines it in the model. For example, Eq. 85 defines LM , whereas stochastic equation 8 determines LM in the model. Equation 85 instead determines E , E being constructed directly from raw-data variables. Also, some of the identities define exogenous variables. For example, the exogenous variable d_{2g} is defined by Eq. 49. In the model Eq. 49 determines T_{fg} , T_{fg} being constructed directly from raw-data variables.

The financial stock variables in the model that are constructed from flow identities need a base quarter and a base quarter starting value. The base quarter values are indicated in the table. The base quarter was taken to be 1971:IV, and the stock values for this quarter were taken from the Flow of Funds tape.

There are also a few internal checks on the data in Table A-4. The variables for which there are both raw data and an identity available are GNP , $GNPR$, M_b , PU_g , PU_s , and π_f . In addition, the savings variables in Table A-3 (SAH , SAF , and so on) must match the savings variables in Table A-4 (S_b , S_f , and so on). The checks on the savings variables are strong because many variables affect savings. Finally, there is one redundant equation in the model, Eq. 80, which the variables must satisfy.

There are a few variables in Table A-4 whose construction needs some explanation. They are discussed in the following sections.

The Variable H_f^*

H_f^* is H_f detrended. The trend factor was obtained from a regression of H_f on a constant and t for the 1952I–1982III period. The estimate of the coefficient of t was $-.56464$, and this is the coefficient that is used in the definition of H_f^* (Eq. 100).

The Variable HO

Data are not available for HO for the first 16 quarters of the sample period (1952I–1955IV). The equation that explains HO in the model has $\log HO$ on the LHS and a constant and H_f^* on the RHS. This equation was estimated for the 1956I–1982III period, and the predicted values from this regression for the (outside sample) 1952I–1955IV period were taken to be the actual data. For this work the equation was estimated under the assumption of no serial correlation of the error term. The equation that is actually used in the model is estimated under the assumption of first-order serial correlation.

The Variable JJ^*

JJ^* is JJ detrended. The trend factor was obtained from a regression of $\log JJ$ on a constant and t for the 1952I–1982III period. The estimate of the coefficient of t was $-.00083312$, which is the coefficient that is used in the definition of JJ^* (Eq. 96).

The Parameter γ_g

γ_g is the progressivity tax parameter in the personal income tax equation for g . It was obtained as follows. The sample period was divided into 15 subperiods, each subperiod corresponding roughly to a period in which there were no major changes in the federal tax laws. The 15 subperiods are 1954I–1963IV, 1964I–1965I, 1965II–1968II, 1968III–1969IV, 1970I–1970IV, 1971I–1971IV, 1972I–1972IV, 1973I–1975I, 1975II, 1975III–1976IV, 1977I, 1977II, 1977III–1980IV, 1981I–1981IV, and 1982I–1982III. Two assumptions were then made about the relationship between T_{hg} , personal income taxes, and YT , taxable income. The first is that within a subperiod T_{hg}/POP is

equal to $[d_1 + \gamma_g(YT/POP)](YT/POP)$ plus a random error term, where d_1 and γ_g are constants. The second is that changes in the tax laws affect d_1 but not γ_g . These two assumptions led to the estimation of the following equation:

$$(A.1) \quad \frac{T_{hg}}{POP} = - .0187 + \sum_{i=1}^{15} \hat{a}_i DUMG_i \frac{YT}{POP} + .015513 \left(\frac{YT}{POP} \right)^2$$

(3.39) (8.84)

$$\hat{a}_1 = .123, \hat{a}_2 = .108, \hat{a}_3 = .108, \hat{a}_4 = .112,$$

(15.12) (14.98) (16.85) (18.52)

$$\hat{a}_5 = .109, \hat{a}_6 = .101, \hat{a}_7 = .108, \hat{a}_8 = .100,$$

(18.23) (17.15) (18.77) (17.77)

$$\hat{a}_9 = .095, \hat{a}_{10} = .092, \hat{a}_{11} = .098, \hat{a}_{12} = .093,$$

(16.13) (16.12) (16.44) (15.59)

$$\hat{a}_{13} = .090, \hat{a}_{14} = .088, \hat{a}_{15} = .080$$

(14.43) (12.67) (11.26)

$$SE = .00355, R^2 = .999, DW = 1.74, 1954I-1982III$$

$DUMG_i$ is a dummy variable that takes on a value of one in subperiod i and zero otherwise. \hat{a}_i is an estimate of d_1 for subperiod i . The estimate of the coefficient of $(YT/POP)^2$, .015513, is the estimate of γ_g . Since (A.1) is only a rough approximation, a constant term was included in the estimated equation even though the above two assumptions do not call for it. When YT is zero, T_{hg} ought to be zero, but the zero-zero point is so far removed from any observation in the sample period that it seemed unwise from the point of view of approximating the tax system to constrain the equation to pass through this point.

Given γ_g , d_{1g} is defined to be $T_{hg}/YT - (\gamma_g YT)/POP$ (see Table A-4). d_{1g} is taken to be exogenous, and T_{hg} is explained (Eq. 47) as $[d_{1g} + (\gamma_g YT)/POP]YT$. This treatment allows a marginal tax rate to be defined (Eq. 90): $d_{1g}^M = d_{1g} + (2\gamma_g YT)/POP$.

The Parameter γ_s

γ_s is the progressivity tax parameter in the personal income tax equation for s . The same procedure was used to estimate this parameter as was used to estimate γ_g . There were 19 subperiods: 1954I-1964IV, 1965I-1965IV, 1966I-1966IV, 1967I-1967IV, 1968I-1968IV, 1969I-1969IV, 1970I-1970IV, 1971I-1971IV, 1972I-1972IV, 1973I-1973IV, 1974I-1974IV, 1975I-1975IV, 1976I-1976IV, 1977I-1977IV, 1978I-1978IV, 1979I-

1979IV, 1980I–1980IV, 1981I–1981IV, and 1982I–1982III. The estimated equation was

$$(A.2) \quad \frac{T_{hs}}{POP} = -.0157 + \sum_{i=1}^{19} \hat{b}_i DUMS_i \frac{YT}{POP} + .0022626 \left(\frac{YT}{POP} \right)^2$$

(12.93)
(2.38)

$$\begin{aligned} \hat{b}_1 &= .0352, \hat{b}_2 = .0344, \hat{b}_3 = .0344, \hat{b}_4 = .0351, \\ &\quad (16.79) \quad (17.35) \quad (17.53) \quad (17.91) \\ \hat{b}_5 &= .0362, \hat{b}_6 = .0371, \hat{b}_7 = .0383, \hat{b}_8 = .0398, \\ &\quad (18.44) \quad (18.75) \quad (19.18) \quad (19.78) \\ \hat{b}_9 &= .0431, \hat{b}_{10} = .0408, \hat{b}_{11} = .0398, \hat{b}_{12} = .0408, \\ &\quad (20.93) \quad (19.05) \quad (18.01) \quad (18.10) \\ \hat{b}_{13} &= .0415, \hat{b}_{14} = .0413, \hat{b}_{15} = .0401, \hat{b}_{16} = .0380, \\ &\quad (17.60) \quad (16.56) \quad (14.90) \quad (13.09) \\ \hat{b}_{17} &= .0379, \hat{b}_{18} = .0368, \hat{b}_{19} = .0375 \\ &\quad (12.32) \quad (10.99) \quad (10.82) \end{aligned}$$

$$SE = .000780, R^2 = .999, DW = 1.82, 1954I-1982III$$

As can be seen, the estimate of γ_s is .0022626. d_{1s} is defined to be $T_{hs}/YT - (\gamma_s YT)/POP$ (see Table A-4). The marginal tax rate is defined to be (Eq. 91): $d_{1s}^M = d_{1s} + (2\gamma_s YT)/POP$.

The Variable V

The base quarter for the stock of inventories, V , was taken to be 1980IV. The base quarter value was 340.6, which was taken from the *Survey of Current Business*, July 1981, p. 17.

The Variable KH

KH is an estimate of the stock of housing of the household sector. It is defined by Eq. 59:

$$59. \quad KH = (1 - \delta_H)KH_{-1} + IH_h.$$

Given IH_h , which is constructed from the raw data, KH can be constructed once a base quarter value and a value for the depreciation rate δ_H are chosen. Annual estimates of the stock of housing are available through 1975 from the *Survey of Current Business*, April 1976. The base quarter for KH was taken to be 1963IV, and the base quarter value was taken to be 657.1. This number is

the sum of the last four numbers in the 1963 row in table 8, p. 52, of the April 1976 issue of the *Survey*. Given this starting point, alternative values of δ_H were used to generate different *KH* series from Eq. 59. The aim was to find a value that led to fourth-quarter values of *KH* that were close to the published values. The value of δ_H that was chosen was .00655, which is a depreciation rate of .655 percent per quarter. The generated value of *KH* for 1973IV was 905.4, which compares almost exactly to the published value of 905.9. (Again, the 905.9 number is the sum of the last four numbers in table 8, p. 52, of the *Survey*.) The generated value for 1974IV was 928.1, which compares to the published value of 923.3.

The Variable *KD*

KD is an estimate of the stock of durable goods. It is determined by Eq. 58, which is similar to Eq. 59 for *KH*. Annual estimates of *KD* are available through 1979 from the *Survey*, April 1981. The base quarter was taken to be 1964IV, and the base quarter value was taken to be 249.6, which is the 1964 value in table 4, p. 65, of the April 1981 issue of the *Survey*. The value of the depreciation rate, δ_D , that led to a good approximation to the published series was .0515. The generated value of *KD* for 1979IV was 599.7, which compares to the published value of 598.3.

The Variable *KK*

KK is an estimate of the stock of capital of the firm sector. It is determined by Eq. 92, which is similar to Eqs. 58 and 59 for *KD* and *KH*. Annual estimates of *KK* are available through 1979 from the *Survey*, February 1981. In this case no one depreciation rate could be found that adequately approximated the published data, and in the end two rates were used. The first rate, .0247, was used from 1952I through 1963IV, and the second rate, .0263, was used from 1964I on. The first base quarter was 1952IV, with a value of 290.3, and the second base quarter was 1963IV, with a value of 413.0. The first value is the 1952 value in table 4, p. 60, of the February 1981 issue of the *Survey* under the column heading "Corporate Nonfinancial." The second value is the value of *KK* generated for 1963IV using the first depreciation rate. This value compares closely to the published value of 411.3. The value of *KK* generated for 1979IV (using the second rate) was 812.5, which compares to the published value of 806.0.

TABLE A-1. The six sectors in the model

Sector in the model	Corresponding sector(s) in the Flow of Funds accounts
1. Household (h)	1a. Households, Personal Trusts, and Nonprofit Organizations (H1) 1b. Farms, Corporate and Noncorporate (FA) 1c. Nonfarm Noncorporate Business (NN)
2. Firm (f)	2. Nonfinancial Corporate Business, Excluding Farms (F)
3. Financial (b)	3a. Commercial Banking (B1): (1) U.S. Chartered Commercial Banks (2) Domestic Affiliates of Commercial Banks (3) Foreign Banking Offices in U.S. (4) Banks in U.S. Possessions 3b. Private Nonbank Financial Institutions (B2): (1) Savings and Loan Associations (2) Mutual Savings Banks (3) Credit Unions (4) Life Insurance Companies (5) Private Pension Funds (6) State and Local Government Employee Retirement Funds (7) Other Insurance Companies (8) Finance Companies (9) Real Estate Investment Trusts (10) Open-End Investment Companies (Mutual Funds) (11) Money Market Mutual Funds (12) Security Brokers and Dealers
4. Foreign (x)	4. Foreign Sector (R)
5. Federal Government (g)	5a. U.S. Government (US) 5b. Federally Sponsored Credit Agencies and Mortgage Pools (CA) 5c. Monetary Authority (MA)
6. State and Local Government (s)	6. State and Local Governments (S)

TABLE A-2. The raw-data variables

NIA data from the Survey of Current Business

Variable	Table	Line	Units	Description
1 GNP	1.1	1	SAQR\$	Gross National Product
2 CDZ	"	3	"	Personal Consumption Expenditures, Durable Goods
3 CNZ	"	4	"	Personal Consumption Expenditures, Nondurable Goods
4 CSZ	"	5	"	Personal Consumption Expenditures, Services
5 IKZ	"	8	"	Nonresidential Fixed Investment
6 IHZ	"	11	"	Residential Fixed Investment
7 IVZ	"	15	"	Change in Business Inventories
8 EXZ	"	19	"	Exports
9 IMZ	"	20	"	Imports
10 GNPR	1.2	1	SAQR	Gross National Product
11 CD	"	3	"	Personal Consumption Expenditures, Durable Goods
12 CN	"	4	"	Personal Consumption Expenditures, Nondurable Goods
13 CS	"	5	"	Personal Consumption Expenditures, Services
14 IK	"	8	"	Nonresidential Fixed Investment
15 IH	"	11	"	Residential Fixed Investment
16 IV	"	15	"	Change in Business Inventories
17 EX	"	19	"	Exports
18 IM	"	20	"	Imports
19 PURG	"	22	"	Federal Government Purchases of Goods and Services
20 PURS	"	25	"	State and Local Government Purchases of Goods and Services
21 FAZ	1.5	7	SAQR\$	Farm Gross Product
22 PROGZ	"	13	"	Federal Government Gross Product
23 PROSZ	"	14	"	State and Local Government Gross Product
24 FA	1.6	7	SAQR	Farm Gross Product
25 PROG	"	13	"	Federal Government Gross Product
26 PROS	"	14	"	State and Local Government Gross Product
27 CCF	1.7	2	SAQR\$	CC, Total
28 STAT	"	8	"	Statistical Discrepancy
29 WLDF	"	14	"	Wage Accruals less Disbursements
30 DPER	"	17	"	Personal Dividend Income, Total
31 TRFH	"	18	"	Business Transfer Payments
32 COMPT	1.11	2	SAQR\$	Compensation of Employees, Total
33 SIT	"	7	"	Employer Contributions for Social Insurance, Total
34 DC	"	25	"	Dividends, Corporate
35 INTF	"	29	"	Net Interest, Corporate
36 CCCB	1.13	2	SAQR\$	CC, Corporate Business
37 PIECB	"	10	"	Profits before Tax, Corporate Business
38 TCB	"	11	"	Profits Tax Liability, Corporate Business
39 DCB	"	13	"	Dividends, Corporate Business
40 IVA	"	15	"	Inventory Valuation Adjustment, Corporate Business
41 CCADCB	"	16	"	Capital Consumption Adjustment, Corporate Business
42 CCCBN	"	20	"	CC, Nonfinancial Corporate Business
43 PIECBN	"	28	"	Profits Before Tax, Nonfinancial Corporate Business
44 TCBN	"	29	"	Profits Tax Liability, Nonfinancial Corporate Business
45 DCBN	"	31	"	Dividends, Nonfinancial Corporate Business
46 CCADCBN	"	34	"	Capital Consumption Adjustment, Nonfinancial Corporate Business
47 PRI	2.1	9	SAQR\$	Proprietors' Income with Inventory Valuation and Capital Consumption Adjustments
48 RNT	"	12	"	Rental Income of Persons with Capital Consumption Adjustment
49 UB	"	17	"	Government Unemployment Insurance Benefits
50 TRHR	"	29	"	Personal Transfer Payments to Foreigners (net)

(continued)

TABLE A-2 (continued)

Variable	Table Line	Units	Description
51 TPG	3.2	2 SAQR\$	Personal Tax and Nontax Receipts, Federal Government (See below for adjustments.)
52 TCG	"	6 "	Corporate Profits Tax Accruals, Federal Government
53 IBTG	"	7 "	Indirect Business Tax and Nontax Accruals, Federal Government
54 SIG	"	11 "	Contributions for Social Insurance, Federal Government
55 PURGZ	"	13 "	Purchases of Goods and Services, Federal Government
56 TRGH	"	17 "	Transfer Payments to Persons, Federal Government (See below for adjustments.)
57 TRGR	"	18 "	Transfer Payments to Foreigners, Federal Government
58 TRGS	"	19 "	Grants in Aid to State and Local Governments, Federal Government
59 INTG	"	20 "	Net Interest Paid, Federal Government
60 INTGR	"	23 "	Interest Paid to Foreigners, Federal Government
61 SUBG	"	25 "	Subsidies less Current Surplus of Government Enterprises, Federal Government
62 WLDG	"	28 "	Wage Accruals less Disbursements, Federal Government
63 TPS	3.3	2 SAQR\$	Personal Tax and Nontax Receipts, State and Local Government (S&L)
64 TCS	"	6 "	Corporate Profits Tax Accruals, S&L (Note: TCS = TCB - TCG.)
65 IBTS	"	7 "	Indirect Business Tax and Nontax Accruals, S&L
66 SIS	"	11 "	Contributions for Social Insurance, S&L
67 PURSZ	"	14 "	Purchases of Goods and Services, S&L
68 TRRSH	"	17 "	Transfer Payments to Persons, S&L
69 INTS	"	18 "	Net Interest Paid, S&L
70 SUBS	"	22 "	Subsidies Less Current Surplus of Government Enterprises, S&L
71 WLDS	"	25 "	Wage Accruals less Disbursements, S&L
72 COMPMIL	3.7	8 SAQR\$	Federal Government Compensation of Employees, Military
73 SIHGA	3.13	3 YEAR\$	Personal Contributions for Social Insurance to the Federal Government
74 SIQGA	"	5 "	Government and Government Enterprises Employer Contributions for Social Insurance to the Federal Government
75 SIFGA	"	6 "	Other Employer Contributions for Social Insurance to the Federal Government
76 SIHSA	"	14 "	Personal Contributions for Social Insurance to the S&L Governments
77 SIQSA	"	16 "	Government and Government Enterprises Employer Contributions for Social Insurance to the S&L Governments
78 SIFSA	"	17 "	Other Employer Contributions for Social Insurance to the S&L Governments

Data from the Flow of Funds tape.

(All flow data are SAQR\$. All stock data are end of quarter in billions of current dollars.)

Variable	Code	Description
79 CDDCF	103020001	Change in Demand Deposits and Currency, F
80 NFIF	105000005	Net Financial Investment, F
81 IHMF	105012205	Residential Construction, Multi-family Units, Nonfinancial Corporate Business
82 IH1F	105012405	Residential Construction, 1-4 Family Structures, Change in Work in Process on Corporate Nonfarm
83 MRS	105030003	Mineral Rights Sales
84 PIEF1	106060005	Profits before Tax, F
85 DISF	107005005	Discrepancy, F
86 CDDCNN	113020003	Change in Demand Deposits and Currency, NN
87 NFINN	115000005	Net Financial Investment, NN
88 IKNN	115013005	Nonresidential Fixed Investment, NN
89 IVNN	115020000	Inventory Investment, NN
90 CCNN	116300005	Capital Consumption, NN. Also, Current Surplus = Gross Saving, NN
91 CDDCFA	133020003	Change in Demand Deposits and Currency, FA
92 NFIFA	135000005	Net Financial Investment, FA

(continued)

TABLE A-2 (continued)

Variable	Code	Description
93 IKFA	135013003	Nonresidential Fixed Investment, FA
94 IVFA	135020003	Inventory Investment, FA
95 PIEFA	136060005	Corporate Profits, FA
96 DFA	136120003	Dividends, FA
97 TFA	136231003	Tax Accruals, FA
98 CCFA	136300103	Capital Consumption, FA
99 CCADFA	136310103	Capital Consumption Adjustment, FA
100 CDDCHI	153020005	Change in Checkable Deposits and Currency, H1
101 MVCE,CCE	153064005	Net Purchases of Corporate Equities of Households MVCE is the market value of the stock. CCE is the change in the stock excluding capital gains and losses.
102 NFIH1	155000005	Net Financial Investment, H1
103 IKH1	155013003	Nonresidential Fixed Investment, Nonprofit Institutions
104 DISH1	157005005	Discrepancy, H1
105 NFIS	205000005	Net Financial Investment, S
106 DISS	207005005	Discrepancy, S
107 CDDCS	213020005	Change in Demand Deposits and Currency, S
108 RET	224090005	Retirement Credits to Households, S
109 CGLDR	263011005	Change in Gold and SDR's, R
110 CDDCR	263020001	Change in U.S. Demand Deposits, R
111 CFXUS	263111005	Change in U.S. Official Foreign Exchange and Net IMF Position
112 NFIR	265000005	Net Financial Investment, R
113 PIEF2	266060001	Net Corporate Earnings Retained Abroad
114 DISR	267005005	Discrepancy, R
115 CGLDFXUS	313011005	Change in Gold, SDR's, and Foreign Exchange, US
116 CDDCUS	313020001	Change in Demand Deposits and Currency, US
117 INS	313154005	Insurance Credits to Households, US
118 NFIUS	315000005	Net Financial Investment, US
119 DISUS	317005005	Discrepancy, US
120 CDDCCA	403020000	Change in Demand Deposits and Currency, CA
121 NIACA	404090005	Net Increase in Financial Assets, CA
122 NILCA	404190005	Net Increase in Liabilities, CA
123 SURCA	406006003	Current Surplus of CA
124 DISCA	407005005	Discrepancy, CA
125 NIDDLB2	493127005	Net Increase in Liabilities in the form of Checkable Deposits, B2
126 IHBZ	645012205	Residential Construction, Multi-family Units, Reits
127 CGD	656120000	Capital Gains Dividend
128 CDDCB2	693020005	Change in Demand Deposits and Currency, B2
129 NIAB2	694090005	Net Increase in Financial Assets, B2
130 NILB2	694190005	Net Increase in Liabilities, B2
131 DISB2	697005005	Discrepancy, B2
132 CGLDFXMA	713011005	Change in Gold and Foreign Exchange, MA
133 CFR1MA	713068000	Change in Federal Reserve Loans to Domestic Banks, MA
134 NILBRMA	713113001	Change in Member Bank Reserves, MA
135 NIDDLRMA	713122605	Change in Liabilities in the form of Demand Deposits and Currency due to Foreign of the MA
136 NIDDLGMA	713123101	Change in Liabilities in the form of Demand Deposits and Currency due to U.S. Government of the MA
137 NILCMA	713125001	Change in Liabilities in the form of Currency Outside Banks of the MA
138 NIAMA	714090005	Net Increase in Financial Assets, MA
139 NILMA	714190005	Net Increase in Liabilities, MA
140 SURMA	716006003	Current Surplus of MA
141 CVCBRB1	723020005	Change in Vault Cash and Member Bank Reserves, B1
142 NILVCMa	723025000	Change in Liabilities in the form of Vault Cash of Commercial Banks of the MA
143 DISB1	727005005	Discrepancy, B1
144 NIDDA1	743020003	Net Increase in Financial Assets in the form of Demand Deposits and Currency of Banks in U.S. Possessions
145 NIDDLB1	763120005	Net Increase in Liabilities in the form of Checkable Deposits, B1
146 NIAB1	764090005	Net Increase in Financial Assets, B1
147 NILB1	764190005	Net Increase in Liabilities, B1
148 IKBZ	795013003	Nonresidential Fixed Investment, Financial Corporations
149 MAILFLT1	903023105	Mail Float, U.S. Government
150 MAILFLT2	903029205	Mail Float, Private Domestic Nonfinancial

(continued)

TABLE A-2 (continued)

Interest rate data	
Variable	Description
151 RS	Three-Month Treasury Bill Rate (Auction Average), percentage points [FRB, A28. Quarterly average of monthly data.]
152 RM	Mortgage Rate, percentage points. [FRB, A40. FHA mortgages (HUD series), secondary markets. Quarterly average of monthly data. Linear interpolation for missing monthly observations.]
153 RB	Aaa Corporate Bond Rate, percentage points. [FRB, A28. Quarterly average of monthly data.]
154 RD	Discount Rate, percentage points. [FRB, A7. Rate at F.R. Bank of N.Y. Quarterly average, inclusive of any surcharge.]
Employment and population data	
Variable	Description
155 CE	Civilian Employment, SA in millions. [EE, A-33. Quarterly average of monthly data. See below for adjustments.]
156 CL	Civilian Labor Force, SA in millions. [EE, A-33. Quarterly average of monthly data. See below for adjustments.]
157 CL1	Civilian Labor Force of Males 25-54, SA in millions. [EE, p. 132. Quarterly average of monthly data. See below for adjustments.]
158 CL2	Civilian Labor Force of Females 25-54, SA in millions. [EE, p. 133. Quarterly average of monthly data. See below for adjustments.]
159 AF	Armed Forces, millions. [EE, A-33. Quarterly average of monthly data.]
160 AF1	Armed Forces of Males 25-54, millions. [EE, A-3. Total labor force - Civilian labor force. Quarterly average of monthly data.]
161 AF2	Armed Forces of Females, 25-54, millions. [EE, A-3. Total labor force - Civilian labor force. Quarterly average of monthly data.]
162 POP	Total noninstitutional population 16 and over, millions. [EE, A-3. Quarterly average of monthly data. See below for adjustments.]
163 POP1	Noninstitutional population of males 25-54, millions. [EE, A-3. Total labor force + Not in labor force. Quarterly average of monthly data. See below for adjustments.]
164 POP2	Noninstitutional population of females 25-54, millions. [EE, A-3. Total labor force + Not in labor force. Quarterly average of monthly data. See below for adjustments.]
165 JF	Employment, Total Private Sector, All Persons, SA in millions. [BLS, unpublished, "Basic Industry Data for the Total Private Sector, All Persons." November 29, 1982.]
166 HF	Average Weekly Hours, Total Private Sector, All Persons, SA. [BLS, unpublished, "Basic Industry Data for the Total Private Sector, All Persons." November 29, 1982.]
167 HO	Average Weekly Overtime Hours in Manufacturing, SA. [EE, C-6. Quarterly average of monthly data.]
168 JQ	Total Government Employment, SA in millions. [EE, B-4. Quarterly average of monthly data.]
169 JG	Federal Government Employment, SA in millions. [EE, B-4. Quarterly average of monthly data.]
170 JHQ	Total Government Employee Hours, SA in millions of hours per quarter. [EE, C-9. Quarterly average of monthly data.]

(continued)

TABLE A-2 (continued)

Adjustments to the raw data

171	SIHG = (SIHGA/(SIHGA + SIHSA)) (SIG + SIS - SIT)
	[Contributions for Social Insurance, h to g.]
172	SIHS = SIG + SIS - SIT - SIHG
	[Contributions for Social Insurance, h to s.]
173	SIFG = (SIFGA/(SIFGA + SIQGA)) (SIG - SIHG)
	[Contributions for Social Insurance, f to g.]
174	SIGG = SIG - SIHG - SIFG
	[Contributions for Social Insurance, g to g.]
175	SIFS = (SIFSA/(SIFSA + SIQSA)) (SIS - SIHS)
	[Contributions for Social Insurance, f to s.]
176	SISS = SIS - SIHS - SIFS
	[Contributions for Social Insurance, s to s.]
177	TBG = (TCG/(TCG + TCS))(TCB - TCBN)
	[Corporate Profit Tax Accruals, b to g.]
178	TBS = TCB - TCBN - TBG
	[Corporate Profit Tax Accruals, b to s.]
51	TPG = TPG from raw data - TAXADJ
56	TRGH = TRGH from raw data + TAXADJ
	[TAXADJ: 1968 III = 1.525, 1968 IV = 1.775, 1969 I = 2.675, 1969 II = 2.725, 1969 III = 1.775, 1969 IV = 1.825, 1970 I = 1.25, 1970 II = 1.25, 1970 III = .1, 1975 II = -7.8.]

Multiplication factors (See the discussion in Appendix A.)

	1952 I - 1971 IV	1952 I - 1972 IV	1973 I	1952 I - 1977 IV
POP	1.00547	1.00009	1.00006	—
POP1	.99880	1.00084	1.00056	—
POP2	1.00251	1.00042	1.00028	—
CL	1.00391	1.00069	1.00046	1.00239
CL1	.99878	1.00078	1.00052	1.00014
CL2	1.00297	1.00107	1.00071	1.00123
CE	1.00375	1.00069	1.00046	1.00268

Abbreviations

BLS	Bureau of Labor Statistics
CC	Capital Consumption Allowances with Capital Consumption Adjustment
EE	Employment and Earnings, February 1982
FRB	Federal Reserve Bulletin, November 1982
SA	Seasonally Adjusted
SAQR	Seasonally Adjusted at Quarterly Rates in Billions of 1972 Dollars
SAQR\$	Seasonally Adjusted at Quarterly Rates in Billions of Current Dollars
YEAR\$	Annual Data, Billions of Current Dollars.
	For the construction of variables 171 - 176, the same yearly observation was used for each quarter of the year.

See Table A-1 for abbreviations: B1, B2, CA, F, FA, H1, MA, NN, R, S, US.

(continued)

TABLE A-2 (continued)

Alphabetical listing of the raw-data variables							
Variable	Number	Variable	Number	Variable	Number	Variable	Number
AF	159	DISCA	124	MAILFLT1	149	RB	153
AF1	160	DISF	85	MAILFLT2	150	RD	154
AF2	161	DISH1	104	MRS	83	RET	108
CCADCB	41	DISR	114	MVCE	101	RM	152
CCADCBN	46	DISS	106	NFIF	80	RNT	48
CCADFA	99	DISUS	119	NFIFA	92	RS	151
CCCB	36	DPER	30	NFIH1	102	SIFG	173
CCCBN	42	EX	17	NFINN	87	SIPGA	75
CCE	101	EXZ	8	NFIR	112	SIFS	175
CCFA	98	FA	24	NFIS	105	SIFSA	78
CGNN	90	FAZ	21	NFIUS	118	SIG	54
CCT	27	GNP	1	NIAB1	146	SIGG	174
CD	11	GNPR	10	NIAB2	129	SIHG	171
CDDCB2	128	HF	166	NIACA	121	SIHGA	73
CDDCCA	120	HO	167	NIAMA	158	SIHS	172
CDDCF	79	IBTG	53	NIDDAB1	144	SIHSA	76
CDDCFA	91	IBTS	65	NIDDLB1	145	SIQGA	74
CDDCH1	100	IH	15	NIDDLB2	125	SIQSA	77
CDDGNN	86	IHBZ	126	NIDDLGMA	156	SIS	66
CUUCR	110	IHMF	81	NIDDLRMA	155	SISS	176
CDDCS	107	IHZ	6	NILBRMA	134	SIT	33
CDDCUS	116	IH1F	82	NILB1	147	STAT	28
CDZ	2	IK	14	NILB2	130	SUBG	61
CE	155	IKB2	148	NILCA	122	SUBS	70
CFRLMA	133	IKFA	93	NILCMA	137	SURCA	123
CFXUS	111	IKH1	103	NILMA	139	SURMA	140
CGD	127	IKNN	88	NILVCMA	142	TBG	177
CGLDFXMA	132	IKZ	5	PIECB	37	TBS	178
CGLDFXUS	115	IM	18	PIECBN	43	TCB	38
CGLDR	109	IMZ	9	PIEFA	95	TCBN	44
CL	156	INS	117	PIEF1	84	TCG	52
CL1	157	INTF	35	PIEF2	113	TCS	64
CL2	158	INTG	59	POP	162	TFA	97
CN	12	INTGR	60	POP1	163	TPG	51
CNZ	3	INTS	69	POP2	164	TPS	63
COMPML	72	IV	16	PRI	47	TRFH	31
CS	13	IYA	40	PROG	25	TRGH	56
CSZ	4	IVFA	94	PROGZ	22	TRGR	57
CVCBRB1	141	IVNN	89	PROS	26	TRGS	58
DC	34	IVZ	7	PROSZ	23	TRHR	50
DCB	39	JF	165	PURG	19	TRRSH	68
DCBN	45	JG	169	PURGZ	55	UB	49
DFA	96	JHQ	170	PURS	20	WLDF	29
DISB1	143	JQ	168	PURSZ	67	WLDG	62
DISB2	131					WLDS	71

TABLE A-3. Links between the NIA and FFA data

1.1	HH	None
1.2	FH	COMPT - PROGZ - PROSZ - (SIT - SIGG - SISS) - WLDF - SUBG - SUBS + PRI + RNT + INTF + TRFH + DCBN + DC - DFA - DCB + PIEFA + CCT - CCCB + CCFA
1.3	BH	DCB - DCBN + CGD
1.4	RH	None
1.5	GH	PROGZ - SIGG - WLDG + TRGH + INS + INTG - INTGR + SUBG
1.6	SH	PROSZ - SISS - WLDS + TRRSH + RET + INTS + DP - DC + SUBS
2.1	HF	CSZ + CNZ + CDZ - IBTG - IBTS - IMZ - PIECB + PIECBN - CCCB + CCCBN - CCACDB + CCADCBN + IHZ - IHIF - IHMF - IHBZ + IKH1 + IKFA + IKNN + IVFA + IVNN
2.2	FF	IHIF + IHMF + IKZ - IKH1 - IKFA - IKNN - IKBZ + IVZ - IVFA - IVNN
2.3	BF	IHEZ + IKBZ
2.4	RF	EXZ
2.5	GF	PURGZ - PROGZ
2.6	SF	PURSZ - PROSZ
3.1	HB	PIECB - PIECBN + CCCB - CCCBN + CCACDB - CCADCBN
3.2	FB	None
3.3	BB	None
3.4	RB	None
3.5	GB	None
3.6	SB	None
4.1	HR	IMZ + TRHR
4.2	FR	None
4.3	BR	None
4.4	RR	None
4.5	GR	TRGR + INTGR
4.6	SR	None
5.1	HC	TPG + TFA + IBTG + SIHG
5.2	FG	TCG - TFA - TBG + MRS + SIFG
5.3	BG	TBG + SURCA + SURMA
5.4	RG	None
5.5	GG	SIGG
5.6	SG	None
6.1	HS	TPS + IBTS + SIHS
6.2	FS	TCE - TCG - TBS + SIFS
6.3	BS	TES
6.4	RS	None
6.5	CS	TRGS
6.6	SS	SISS

Savings of the sectors:

- (1) SAH = FH + BH + GH + SH - (HF + HB + HR + HG + HS)
- (2) SAF = HF + FF + BF + RF + GF + SF - (FH + FF + FG + FS)
- (3) SAB = HB - (BH + BF + BS + BG)
- (4) SAR = HR + GR - RF
- (5) SAG = HG + FG + BG + GG - (GH + GF + GR + GS + GG)
- (6) SAS = HS + FS + BS + GS + SS - (SH + SF + SS)

Checks:

- (7) 0 = SAH + SAF + SAB + SAR + SAG + SAS
- (8) SAH = NIFIH1 + NFIFA + NFINN + DISH1
- (9) SAF = NFIF + DISF + WLDF + STAT
- (10) SAB = NIAB1 - NILB1 + NIAB2 - NILB2 + DISB1 + DISB2
- (11) SAR = NFIR + DISR
- (12) SAG = NFIS + NIACA - NILCA + NIAMA - NILMA + DISUS + DISCA
- (13) SAS = NFIS + DISS
- (14) 0 = -NIDDLB1 + NIDDAB1 + CDDCB2 - NIDDLB2 + CDDCF + MAILFLT1
+ MAILFLT2 + CDDCUS + CDDCCA - NIDDLRMA - NIDDLGMA + CDDCHI
+ CDDCFA + CDDCNN + CDDCR + CDDCS - NILCMA
- (15) 0 = CVCBRB1 - NILBRMA - NILVCMA
- (16) 0 = CGLDR - CFXUS + CGLDFXUS + CGLDFXMA

Notes: • IJ = receipts from I to J; I, J = H, F, B, R, G, S.
• See Table A-2 for the definitions of the variables.

TABLE A-4. The variables of the model in alphabetical order

Name	Equation number	Description
A _b	73	Net financial assets, b, B\$. [Def., eq. 73. Base Period = 1971 IV, Value = 250.697.]
A _f	70	Net financial assets, f, B\$. [Def., eq. 70. Base Period = 1971 IV, Value = -240.261.]
A _g	77	Net financial assets, g, B\$. [Def., eq. 77. Base Period = 1971 IV, Value = -214.404.]
A _h	66	Net financial assets, h, B\$. [Def., eq. 66. Base Period = 1971 IV, Value = 1321.270.]
A _r	75	Net financial assets, r, B\$. [Def., eq. 75. Base Period = 1971 IV, Value = -31.570.]
A _s	79	Net financial assets, s, B\$. [Def., eq. 79. Base Period = 1971 IV, Value = -105.872.]
AA	89	Total net wealth, h, B72\$. [Def., eq. 89.]
BO	22	Bank borrowing from the Fed, B\$. [Sum of CFRLMA. Base Period = 1971 IV, Value = .039.]
BR	57	Total bank reserves, B\$. [Sum of CVCBRRB1. Base Period = 1971 IV, Value = 35.3299.]
C _g	0	Purchases of goods, g, B72\$. [PURG - PROG]
C _s	0	Purchases of goods, s, B72\$. [PURS - PROS]
CC _b	0	Capital consumption, b, B72\$. [(CCCB + CCADCB - CCCBN - CCADCBN)/PX. See below for PX.]
CC _f	21	Capital consumption, f, B\$. [CCCBN + CCADCBN - CCFA - CCADFA]
CC _h	0	Capital consumption, h, B\$. [CCT - CCCB + CCFA]
CD	3	Consumer expenditures for durable goods, B72\$. [CD]
CF	68	Cash flow, f, B\$. [Def., eq. 68.]
CG	25	Capital gains (+) or losses (-) on corporate stocks held by the household sector, B\$. [MVCE - MVCE ₋₁ - CCE]
CN	2	Consumer expenditures for nondurable goods, B72\$. [CN]
CS	1	Consumer expenditures for services, B72\$. [CS]
CUR	26	Currency held outside banks, B\$. [Sum of NILCMA. Base Period = 1971 IV, Value = 53.438.]
d _{1g}	0	Personal income tax parameter, g. [Def., eq. 47.]
d _{1g} ^M	90	Marginal personal income tax rate, g. [Def., eq. 90.]
d _{1s}	0	Personal income tax parameter, s. [Def., eq. 48.]
d _{1s} ^M	91	Marginal personal income tax rate, s. [Def., eq. 91.]
d _{2g}	0	Profit tax rate, g. [Def., eq. 49.]
d _{2s}	0	Profit tax rate, s. [Def., eq. 50.]
d _{3g}	0	Indirect business tax rate, g. [Def., eq. 51.]
d _{3s}	0	Indirect business tax rate, s. [Def., eq. 52.]
d _{4g}	0	Employee social security tax rate, g. [Def., eq. 53.]
d _{4s}	0	Employee social security tax rate, s. [Def., eq. 54.]
d _{5g}	0	Employer social security tax rate, g. [Def., eq. 55.]
d _{5s}	0	Employer social security tax rate, s. [Def., eq. 56.]
D593	0	1 in 1959 III; 0 otherwise.
D594	0	1 in 1959 IV; 0 otherwise.
D601	0	1 in 1960 I; 0 otherwise.
D651	0	1 in 1965 I; 0 otherwise.
D652	0	1 in 1965 II; 0 otherwise.
D691	0	1 in 1969 I; 0 otherwise.
D692	0	1 in 1969 II; 0 otherwise.

(continued)

TABLE A-4 (continued)

Name	Equation number	Description
D714	0	1 in 1971 IV; 0 otherwise.
D721	0	1 in 1972 I; 0 otherwise.
DD793	0	1 from 1979 III on; 0 otherwise.
DD811	0	1 from 1981 I on; 0 otherwise.
D _b	0	Dividends paid, b, B\$. [DCB - DCBN + CGD]
D _f	18	Dividends paid, f, B\$. [DC - DFA - (DCB - DCBN)]
DIS _b	0	Discrepancy for b, B\$. [DISB1 + DISE2]
DIS _f	0	Discrepancy for f, B\$. [DISF]
DIS _g	0	Discrepancy for g, B\$. [DISUS + DISCA]
DIS _h	0	Discrepancy for h, B\$. [DISH1]
DIS _r	0	Discrepancy for r, B\$. [DISR]
DIS _s	0	Discrepancy for s, B\$. [DISs]
DR _s	0	Dividends received by s, B\$. [DC - DPER]
E	85	Total employment, civilian and military, millions. [CE + AF]
EX	0	Exports, B72\$. [EX]
EXP _g	106	Total expenditures, g, B\$. [Def., eq. 106.]
EXP _s	113	Total expenditures, s, B\$. [Def., eq. 113.]
FA	0	Farm gross product, B72\$. [FA]
g _i	0	Reserve requirement ratio. [Def., eq. 57.]
GNP	82	Gross National Product, B\$. [Def., eq. 82, or GNP.]
GNPD	84	GNP deflator. [Def., eq. 84.]
GNPR	83	Gross National Product, B72\$. [Def., eq. 83, or GNPR.]
GNPR*	0	High activity level of GNPR, B72\$. [Peak to peak interpolation of GNPR. Peak quarters are 1952 I - 1953 II, 1955 III, 1960 I, 1962 II, 1966 I, 1968 II - 1969 II, 1973 I, and 1978 IV.]
H _f	14	Average number of hours paid per job, f, hours per quarter. [13·HF]
H _f *	100	H _f detrended. [Def., eq. 100.]
H _g	0	Average number of hours paid per civilian job, g, hours per quarter. [JHQ/JQ]
H _m	0	Average number of hours paid per military job, g, hours per quarter. [520.]
H _s	0	Average number of hours paid per job, s, hours per quarter. [JHQ/JQ]
HN	62	Average number of non overtime hours paid per job, f, hours per quarter. [Def., eq. 62.]
HO	15	Average number of overtime hours paid per job, f, hours per quarter. [13·HO. Constructed values for 1952 I - 1955 IV. See the discussion in Appendix A.]
IBT _g	51	Indirect business taxes, g, B\$. [IBTG]
IBT _s	52	Indirect business taxes, s, B\$. [IBTS]
IH _b	0	Housing investment, b, B72\$. [IHBZ/(IHZ/IH)]
IH _f	0	Housing investment, f, B72\$. [(IH1F + IHMF)/(IHZ/IH)]
IH _h	4	Housing investment, h, B72\$. [(IHZ - IH1F - IHMF - IHBZ)/(IHZ/IH)]

(continued)

TABLE A-4 (continued)

Name	Equation number	Definition
IK_b	0	Plant and equipment investment, b, B72\$. [IKBZ/(IKZ/IK)]
IK_f	12	Plant and equipment investment, f, B72\$. [(IKZ - IKH1 - IKFA - IKNN - IKBZ)/(IKZ/IK)]
IK_h	0	Plant and equipment investment, h, B72\$. [(IKH1 + IKNN + IKFA)/(IKZ/IK)]
IM	27	Imports, B72\$. [IM]
INS	0	Insurance credits to households from g, B\$. [INS]
INT_f	19	Interest payments, f, B\$. [INTF]
INT_g	29	Interest payments, g, B\$. [INTG]
INT_{gr}	0	Interest payments to r from g, B\$. [INTGR]
INT_s	0	Interest payments, s, B\$. [INTS]
IV_f	117	Inventory investment, f, B72\$. [(IVZ - IVFA - IVNN)/PIV]
IV_h	0	Inventory investment, h, B72\$. [(IVFA + IVNN)/PIV]
IVA	20	Inventory valuation adjustment, B\$. [IVA]
J_f	13	Number of jobs, f, millions. [JF]
J_g	0	Number of civilian jobs, g, millions. [JG]
J_m	0	Number of military jobs, g, millions. [AF]
J_s	0	Number of jobs, s, millions. [JQ - JG]
JHMIN	94	Number of worker hours required to produce Y, millions. [Def., eq. 94.]
JJ	95	Ratio of the total number of worker hours paid for to the total population 16 and over. [Def., eq. 95.]
JJ*	96	JJ detrended. [Def., eq. 96.]
KD	58	Stock of durable goods, B72\$. [Def., eq. 58. Base Period = 1964 IV, Value = 249.6, Dep. Rate = .0515.]
KH	59	Stock of housing, h, B72\$. [Def., eq. 59. Base Period = 1963 IV, Value = 657.1, Dep. Rate = .00655.]
KK	92	Stock of capital, f, B72\$. [Def., eq. 92. Base Period 1 = 1952 IV, Value = 290.3, Dep. Rate = .0247; Base Period 2 = 1963 IV, Value = 413.0, Dep. Rate = .0263.]
KKMIN	93	Amount of capital required to produce Y, B72\$. [Def., eq. 93.]
L1	5	Labor force of males 25-54, millions. [CL1 + AF1]
L2	6	Labor force of females, 25-54, millions. [CL2 + AF2]
L3	7	Labor force of all others, millions. [CL + AF - CL1 - AF1 - CL2 - AF2]
LM	8	Number of "moonlighters": difference between the total number of jobs (establishment data) and the total number of people employed (household survey data), millions. [Def., eq. 85.]
M_b	71	Net demand deposits and currency, b, B\$. [Def., eq. 71. Also sum of -NIDDLB1 + NIDDBA1 + CDDCB2 - NIDDLB2. Base Period = 1971 IV, Value = -189.409.]
M_f	17	Demand deposits and currency, f, B\$. [Sum of CDDCF + MAILFLT1 + MAILFLT2. Base Period = 1971 IV, Value = 64.905.]
M_g	0	Demand deposits and currency, g, B\$. [Sum of CDDCUS + CDDCA - NIDDLRMA - NIDDLGMA. Base Period = 1971 IV, Value = 10.530.]
M_h	9	Demand deposits and currency, h, B\$. [Sum of CDDCH1 + CDDCFA + CDDCNN. Base Period = 1971 IV, Value = 149.448.]
M_r	0	Demand deposits and currency, r, B\$. [Sum of CDDCR. Base Period = 1971 IV, Value = 6.503.]

(continued)

TABLE A-4 (continued)

Name	Equation number	Description
M _s	0	Demand deposits and currency, s, B\$. [Sum of CDDCS. Base Period = 1971 IV, Value = 11.966.]
MDIF	0	Net increase in demand deposits and currency of banks in U.S. possessions plus change in demand deposits and currency of private nonbank financial institutions plus change in demand deposits and currency of federally sponsored credit agencies and mortgage pools minus mail float, U.S. government, B\$. [NDDAB1 + CDDCE2 + CDDCCA - MAILFLT1]
MRS	0	Mineral rights sales, B\$. [MRS]
M1	81	Money supply, B\$. [Def., eq. 81. Base Period = 1971 IV, Value = 247.136.]
P _f	10	Price deflator for X - FA. [Def., eq. 31.]
P _g	40	Price deflator for C _g . [(PURGZ - PROGZ)/(PURG - PROG)]
P _h	34	Price deflator for domestic sales exclusive of indirect business taxes. [Def., eq. 34]
P _s	41	Price deflator for C _s . [(PURSZ - PROSZ)/(PURS - PROS)]
PCGNPD	122	Percentage change in GNPD, annual rate, percentage points. [Def., eq. 122.]
PCGNPR	123	Percentage change in GNPR, annual rate, percentage points. [Def., eq. 123.]
PCMI	124	Percentage change in M1, annual rate, percentage points. [Def., eq. 124.]
PCD	37	Price deflator for CD. [CDZ/CD]
PCN	36	Price deflator for CN. [CNZ/CN]
PCS	35	Price deflator for CS. [CSZ/CS]
PD	33	Price deflator for X - EX + IM (domestic sales) [Def., eq. 33.]
PEX	32	Price deflator for EX. [EXZ/EX]
PFA	0	Price deflator for FA. [FAZ/FA]
PIH	38	Price deflator for housing investment. [IHZ/IH]
PIK	39	Price deflator for plant and equipment investment. [IKZ/IK]
PIM	0	Price deflator for IM. [IMZ/IM]
PIV	42	Price deflator for inventory investment, adjusted. [IVZ/IV. The following adjustments were made: 1953 III = .7637, 1958 III = .7981, 1959 III = .7956, 1975 III = 1.4110, 1975 IV = 1.4110, 1979 IV = 1.5000, 1980 I = 1.5000, 1980 II = 1.5000, 1981 I = 3.0000.]
POP	120	Noninstitutional population 16 and over, millions. [POP. POP is the sum of three exogenous variables and so it is in fact exogenous.]
POP1	0	Noninstitutional population of males 25-54, millions. [POP1]
POP2	0	Noninstitutional population of females 25-54, millions. [POP2]
POP3	0	Noninstitutional population of all others, millions. [POP - POP1 - POP2]
PROD	118	Output per paid for worker hour ("productivity"). [Def., eq. 118.]
P _g	104	Purchases of goods and services, g, B\$. [Def., eq. 104, or PURGZ.]
P _s	110	Purchases of goods and services, s, B\$. [Def., eq. 110, or PURSZ.]
PX	31	Price deflator for X. [(CDZ + CNZ + CSZ + IHZ + IKZ + PURGZ - PROGZ + PURSZ - PROSZ + EXZ - IMZ - IBTG - IBTS - IVFA + IVNN)/(CD + CN + CS + IH + IK + PURG - PROG + PURS - PROS + EX - IM + (IVFA + IVNN)/PIV)]
Q	0	Gold and foreign exchange, g, B\$. [Sum of CGLDFXUS + CGLDFXMA. Base Period = 1971 IV, Value = 12.167.]

(continued)

TABLE A-4 (continued)

Name	Equation number	Definition
RB	23	Bond rate, percentage points. [RB]
RD	0	Discount rate, percentage points. [RD]
REC _g	105	Total receipts, g, B\$. [Def., eq. 105.]
REC _s	112	Total receipts, s, B\$. [Def., eq. 112.]
RET	0	Retirement credits to households from s, B\$. [RET]
RM	24	Mortgage rate, percentage points. [RM]
RMA	128	After tax mortgage rate, percentage points. [Def., eq. 128.]
RNT	0	Rental income, h, B\$. [RNT]
RS	30	Three month bill rate, percentage points. [RS]
RSA	130	After tax bill rate, percentage points. [Def., eq. 130.]
S _b	72	Savings, b, B\$. [Def., eq. 72.]
S _f	69	Savings, f, B\$. [Def., eq. 69.]
S _g	76	Savings, g, B\$. [Def., eq. 76.]
S _g ¹	107	NIA surplus (+) or deficit (-), g, B\$. [Def., eq. 107.]
S _h	65	Savings, h, B\$. [Def., eq. 65.]
S _r	74	Savings, r, B\$. [Def., eq. 74.]
S _s	78	Savings, s, B\$. [Def., eq. 78.]
S _s ¹	114	NIA surplus (+) or deficit (-), s, B\$. [Def., eq. 114.]
SHR _{π_f}	121	Ratio of after tax profits to the wage bill net of employer social security taxes. [Def., eq. 121.]
SI _g	103	Total social insurance contributions to g, B\$. [SIG]
SI _s	109	Total social insurance contributions to s, B\$. [SIS]
SI _{fg}	55	Social insurance contributions, f to g, B\$. [SIFG]
SI _{fs}	56	Social insurance contributions, f to s, B\$. [SIFS]
SI _{gg}	0	Social insurance contributions, g to g, B\$. [SIGG]
SI _{hg}	53	Social insurance contributions, h to g, B\$. [SIMG]
SI _{hs}	54	Social insurance contributions, h to s, B\$. [SIHS]
SI _{ss}	0	Social insurance contributions, s to s, B\$. [SISS]
SP	-	Stock price, B\$. [Sum of CG. Base Period = 1971 IV, Value = 832.806. This variable is only used for the USRE2 model in Section 11.7. See equation (11.21).]
SR	116	Savings rate, h. [Def., eq. 116.]
STAT	0	Statistical discrepancy, B\$. [STAT]
SUB _g	0	Subsidies less current surplus of government enterprises, g, B\$. [SUBG]
SUB _s	0	Subsidies less current surplus of government enterprises, s, B\$. [SUBS]
SUR	0	Current surplus of federally sponsored credit agencies and mortgage pools and of the monetary authority, B\$. [SURCA + SURMA]
t	0	1 in 1952 I, 2 in 1952 II, etc.

(continued)

TABLE A-4. (continued)

Name	Equation number	Definition
T_{bg}	0	Corporate profit taxes, b to g, B\$. [TBG]
T_{bs}	0	Corporate profit taxes, b to s, B\$. [TBS]
T_{fg}	49	Corporate profit taxes, f to g, B\$. [Def., eq. 102.]
T_{fs}	50	Corporate profit taxes, f to s, B\$. [Def., eq. 108.]
T_{hg}	47	Personal income taxes, h to g, B\$. [Def., eq. 101.]
T_{hs}	48	Personal income taxes, h to s, B\$. [TPS]
TC_g	102	Corporate profit tax receipts, g, B\$. [TCG]
TC_s	108	Corporate profit tax receipts, s, B\$. [TCS]
TFA	0	Farm taxes, B\$. [TFA]
TP_g	101	Personal income tax receipts, g, B\$. [TPG]
TR_{fh}	0	Transfer payments, f to h, B\$. [TRFH]
TR_{gh}	0	Transfer payments, g to h, B\$. [TRGH]
TR_{gr}	0	Transfer payments, g to r, B\$. [TRGR]
TR_{gs}	0	Transfer payments, g to s, B\$. [TRGS]
TR_{hr}	0	Transfer payments, h to r, B\$. [TRHR]
TR_{sh}	0	Transfer payments, s to h, excluding unemployment insurance benefits, B\$. [Def., eq. 111.]
TRR_{sh}	111	Total transfer payments, s to h, B\$. [TRRSH]
U	86	Number of people unemployed, millions. [Def., eq. 86.]
UB	28	Unemployment insurance benefits, B\$. [UB]
UBR	125	Unborrowed reserves, B\$. [Def., eq. 125.]
UR	87	Civilian unemployment rate. [Def., eq. 87.]
V	63	Stock of inventories, f, B72\$. [Def., eq. 117. Base Period \approx 1980 IV, Value = 340.6.]
W_f	16	Average hourly earnings excluding overtime of workers in f. [(COMPT - PROGZ - PROSZ - (SIT - SIGG - SISS) - WLDF + PRI)/(JF(HF + .5HO))]
W_g	44	Average hourly earnings of civilian workers in g. [(PROGZ - COMPIL - SIGG - WLDG)/(JG(JHQ/JQ))]
W_h	43	Average hourly earnings excluding overtime of all workers. [Def., eq. 43.]
W_m	45	Average hourly earnings of military workers. [COMPML/(520*AF)]
W_s	46	Average hourly earnings of workers in s. [(PROSZ - SISS - WLDS)/((JQ - JG)(JHQ/JQ))]
WA	126	After tax wage rate. [Def., eq. 126.]
WLD_f	0	Wage accruals less disbursements, f, B\$. [WLDF]
WLD_g	0	Wage accruals less disbursements, g, B\$. [WLDG]
WLD_s	0	Wage accruals less disbursements, s, B\$. [WLDS]
WR	119	Real wage rate of workers in f. [Def., eq. 119.]
X	60	Total sales, f, B72\$. [Def., eq. 60.]

(continued)

TABLE A-4 (continued)

Name	Equation number	Definition
XX	61	Total sales, f, B\$. [Def., eq. 61.]
Y	11	Production, f, B72\$. [Def., eq. 65.]
YD	115	Disposable income, h, B\$. [Def., eq. 115.]
YN	88	After tax nonlabor income, h, B\$. [Def., eq. 88.]
YT	64	Taxable income, h, B\$. [Def., eq. 64.]
YTR	99	Transfer payments, g and s to h, B\$. [Def., eq. 99.]
Z	97	Labor constraint variable. [Def., eq. 97.]
ZZ	98	Demand pressure variable. [Def., eq. 98.]
π_b	0	Before tax profits, b, B\$. [(PIECB - PIECBN)/PX. See above for PX.]
π_f	67	Before tax profits, f, B\$. [Def., eq. 67, or PIEF1 + PIEF2.]
π_h	0	Before tax profits, h, B\$. [PIEFA]
δ_D	0	Physical depreciation rate of the stock of durable goods, rate per quarter. [.0515]
δ_H	0	Physical depreciation rate of the stock of housing, rate per quarter. [.00655]
δ_K	0	Physical depreciation rate of the stock of capital, rate per quarter. [.0247 through 1963 III, .0263 thereafter.]
λ	0	Amount of output capable of being produced per worker hour. [Peak to peak interpolation of $Y/(J_F^H F)$. Peak quarters are 1952 I, 1953 II, 1955 I, 1966 I, 1973 I, and 1977 I.]
$\mu\bar{H}$	0	Amount of output capable of being produced per unit of capital. [Peak to peak interpolation of Y/KK . Peak quarters are 1953 II, 1966 I, 1973 I, and 1978 IV.]
ψ_1	0	Ratio of PEX to PX. [Def., eq. 32.]
ψ_2	0	Ratio of PCS to $(1 + d_{3g} + d_{3s})PD$. [Def., eq. 35.]
ψ_3	0	Ratio of PCN to $(1 + d_{3g} + d_{3s})PD$. [Def., eq. 36.]
ψ_4	0	Ratio of PCD to $(1 + d_{3g} + d_{3s})PD$. [Def., eq. 37.]
ψ_5	0	Ratio of PIH to PD. [Def., eq. 38.]
ψ_6	0	Ratio of PIK to PD. [Def., eq. 39.]
ψ_7	0	Ratio of P_g to PD. [Def., eq. 40.]
ψ_8	0	Ratio of P_s to PD. [Def., eq. 41.]
ψ_9	0	Ratio of PIV to PD. [Def., eq. 42.]
ψ_{10}	0	Ratio of W_g to W_f . [Def., eq. 44.]
ψ_{11}	0	Ratio of W_m to W_f . [Def., eq. 45.]
ψ_{12}	0	Ratio of W_s to W_f . [Def., eq. 46.]
ψ_{13}	0	Ratio of gross product of g and s to total employee hours of g and s. [(PROG + PROS)/(JHQ + 520·AF)]
γ_g	0	Progressivity tax parameter in personal income tax equation for g. [Determined from a regression. See the discussion in Appendix A.]
γ_s	0	Progressivity tax parameter in personal income tax equation for s. [Determined from a regression. See the discussion in Appendix A.]

Note: 0 = Variable is exogenous.

TABLE A-5. The equations of the US model

Stochastic equations (2SLS estimates in Chapter 4. Estimation period = 1954 I - 1982 III.)

Household sector:

$$1. CS: \frac{CS}{POP} = .000188 + .986 \left(\frac{CS}{POP} \right)_{-1} + .000554 \left(\frac{AA}{POP} \right)_{-1} + .0198 WA \\ + .00714 \frac{YN}{POP \cdot P_h} - .00126 RSA + .0231 Z \\ (0.06) (61.48) (2.40) (2.07) \\ (0.36) (5.87) (1.92)$$

[consumer expenditures
for services]

$$2. CN: \frac{CN}{POP} = .109 + .666 \left(\frac{CN}{POP} \right)_{-1} + .00227 \left(\frac{AA}{POP} \right)_{-1} + .185 WA \\ - .0469 PCN + .0637 \frac{YN}{POP \cdot P_h} - .000610 RSA + .0829 Z \\ (3.96) (10.03) (5.05) (2.48) \\ (2.16) (2.14) (1.05) (3.54)$$

[consumer expenditures
for nondurable goods]

$$3. CD: \frac{CD}{POP} = .0735 + .458 \left(\frac{CD}{POP} \right)_{-1} + .00235 \left(\frac{AA}{POP} \right)_{-1} + .405 WA \\ - .104 PCD + .0668 \frac{YTR}{POP \cdot P_h} - .00617 RMA + .123 Z \\ (3.57) (5.95) (6.18) (4.08) \\ (3.12) (1.19) (7.96) (3.38)$$

[consumer expenditures
for durable goods]

$$4. IH_h: \frac{IH_h}{POP} = .0650 + .738 \left(\frac{IH_h}{POP} \right)_{-1} - .0157 \left(\frac{KH}{POP} \right)_{-1} + .00182 \left(\frac{AA}{POP} \right)_{-1} \\ + .159 WA_{-1} - .0178 PIH_{-1} + .0356 \left(\frac{YN}{POP \cdot P_h} \right)_{-1} \\ - .00367 RMA_{-1}, \hat{\rho} = .551 \\ (3.89) (9.86) (3.18) (3.73) (2.61) (1.88) (0.99) (5.19) (4.65)$$

[housing investment, h]

$$5. L1: \frac{L1}{POP1} = .230 + .769 \left(\frac{L1}{POP1} \right)_{-1} - .0278 \left(\frac{YN}{POP \cdot P_h} \right)_{-1}$$

[labor force of males
25-54]

$$6. L2: \frac{L2}{POP2} = .0605 + .832 \left(\frac{L2}{POP2} \right)_{-1} + .160 WA - .0200 P_h + .0364 Z \\ (3.75) (17.98) (3.77) (2.95) (2.86)$$

[labor force of females
25-54]

$$7. L3: \frac{L3}{POP3} = .133 + .782 \left(\frac{L3}{POP3} \right)_{-1} - .00121 \left(\frac{AA}{POP} \right)_{-1} + .0930 WA \\ - .0318 P_h + .0738 Z \\ (5.02) (17.53) (3.76) (4.14) \\ (4.25) (4.81)$$

[labor force of all
others 16 and over]

$$8. LM: \frac{LM}{POP} = .0150 + .634 \left(\frac{LM}{POP} \right)_{-1} + .00676 WA_{-1} - .00374 P_{h-1} + .0580 Z \\ (7.17) (11.96) (0.90) (1.48) (6.40)$$

[number of moon-
lighters]

$$9. M_h: \log \frac{M_h}{POP \cdot P_h} = .0297 - .000698 t + .835 \log \left(\frac{M_h}{POP \cdot P_h} \right)_{-1} \\ + .123 \log \frac{YT}{POP \cdot P_h} - .00416 RSA \\ (3.63) (2.64) (19.22) (3.13) (3.81)$$

[demand deposits and
currency, h]

(continued)

TABLE A-5 (continued)

Firm sector:

10. P_f : $\log P_f = .187 + .922 \log P_{f-1} + .0339 \log W_f(1 + d_{5g} + d_{5s})$
 (7.32) (82.62) (6.95)
 $+ .0339 \log PIM - .0810 Z_{-1}$
 (8.56) (4.22)
- [price deflator for X-FA]
11. Y : $Y = 11.4 + .162 Y_{-1} + 1.011 X - .193 V_{-1} - 2.06 D593$
 (4.36) (3.67) (19.59) (4.44) (1.86)
 $+ .793 D594 + 2.10 D601, \hat{\rho} = .605$
 (0.64) (1.89) (6.73)
- [production, f]
12. IK_f : $\Delta IK_f = -.0146 - .0130 (KK - KMIN)_{-1} + .0967 \Delta Y + .0004 \Delta Y_{-1}$
 (0.11) (2.85) (5.70) (0.02)
 $+ .0140 \Delta Y_{-2} + .0196 \Delta Y_{-3} - .107 IK_{f-1} + .167 \delta_{KK}$
 (0.88) (1.24) (2.48) (2.59)
- [plant and equipment investment, f]
13. J_f : $\Delta \log J_f = -.885 - .141 \log \frac{J_{f-1}}{JMIN_{-1}} + .000176 t + .281 \Delta \log Y$
 (3.76) (3.75) (4.28) (8.33)
 $+ .119 \Delta \log Y_{-1} + .033 \Delta \log Y_{-2} - .00967 D593$
 (3.03) (1.02) (2.70)
 $+ .00174 D594, \hat{\rho} = .447$
 (0.50) (4.44)
- [number of jobs, f]
14. H_f : $\Delta \log H_f = 1.37 - .284 \log H_{f-1} - .0659 \log \frac{J_{f-1}}{JMIN_{-1}}$
 (4.95) (5.16) (3.55)
 $- .000250 t + .120 \Delta \log Y$
 (4.94) (4.40)
- [average number of hours paid per job, f]
15. HO : $\log HO = -8.34 + .0223 H_f^*, \hat{\rho} = .909$
 (5.15) (7.38) (21.38)
- [average number of overtime hours paid per job, f]
16. W_f : $\log W_f = -.423 + .929 \log W_{f-1} + .427 \log PX - .382 \log PX_{-1}$
 (3.52) (45.75) (3.50)
 $+ .000671 t - .0760 UR$
 (4.31) (1.53)
- [average hourly earnings excluding overtime of workers in f]
17. M_f : $\log \frac{M_f}{PX} = .106 + .920 \log \left(\frac{M_f}{PX} \right)_{-1} + .0477 \log X$
 (1.04) (26.10) (2.39)
 $- .00700 RS(1 - d_{2g} - d_{2s})$
 (3.26)
- [demand deposits and currency, f]
18. D_f : $D_f = -.0227 + .978 D_{f-1} + .0201 (\Pi_f - T_{fg} - T_{fs})$
 (1.05) (108.28) (5.64)
- [dividends paid, f]
19. INT_f : $INT_f = -3.59 + .746 INT_{f-1} + .0200 (-A_f) + .467 RB,$
 (1.96) (8.59) (1.91) (4.25)
 $\hat{\rho} = .954$
 (25.41)
- [interest payments, f]
20. IVA : $IVA = 1.52 - 95.2 PX + 92.2 PX_{-1}, \hat{\rho} = .801$
 (0.98) (3.51) (3.34) (12.45)
- [inventory valuation adjustment]
21. CC_f : $CC_f = -.0930 + .966 CC_{f-1} + .0447 PIK \cdot IK_f + .562 DD811$
 (3.69) (67.13) (4.69) (6.29)
- [capital consumption, f]

(continued)

TABLE A-5 (continued)

Financial sector:

$$22. BO: \frac{BO}{BR} = .0148 + .00455 (RS-RD), \hat{\rho} = .606$$

(3.79) (1.34) (7.93)

[bank borrowing from the Fed]

$$23. RB: RB = .114 + .889 RB_{-1} + .277 RS - .218 RS_{-1} + .074 RS_{-2}$$

(2.54) (53.00) (10.82) (6.48) (3.48)

[bond rate]

$$24. RM: RM = .543 + .846 RM_{-1} + .178 RS + .041 RS_{-1} - .043 RS_{-2}$$

(3.36) (29.00) (4.64) (0.80) (1.23)

[mortgage rate]

$$25. CG: CG = 10.9 - 24.4 \Delta RB + 3.75 \Delta(CF - T_{fg} - T_{fs})$$

(2.25) (1.26) (1.49)

$$+ 4.07 \Delta(CF - T_{fg} - T_{fs})_{-1}$$

(2.08)

[capital gains or losses on corporate stocks held by h]

$$26. CUR: \log \frac{CUR}{POP \cdot PX} = -.106 - .000133 t + .897 \log \left(\frac{CUR}{POP \cdot PX} \right)_{-1}$$

(3.87) (0.79) (32.88)

$$+ .0801 \log \frac{X}{POP} - .00313 RSA$$

(2.36) (4.00)

[currency held outside banks]

Foreign sector:

$$27. IM: \frac{IM}{POP} = -.0277 + .752 \frac{IM}{POP}_{-1} + .0256 \frac{X}{POP} - .0114 PIM_{-1} + .0393 PX_{-1}$$

(4.44) (15.31) (4.10) (3.90) (4.64)

$$- .00126 RMA_{-1} - .00654 D651 + .00356 D652 - .0109 D691$$

(2.59) (2.18) (1.17) (3.65)

$$+ .0166 D692 - .00798 D714 + .0123 D721$$

(5.42) (2.64) (4.10)

[imports]

S&L government sector:

$$28. UB: \log UB = .369 + 1.58 \log U + .465 \log W_f, \hat{\rho} = .761$$

(0.69) (18.00) (6.06) (12.59)

[unemployment insurance benefits]

Federal government sector

$$29. INT_g: \log INT_g = -.870 + .873 \log INT_{g-1} + .148 \log(-A_g) + .0572 \log RS$$

(4.77) (29.65) (4.95) (5.54)

$$+ .0818 \log RB$$

(2.18)

[interest payments, g]

$$30. RS: RS = -9.46 + .858 RS_{-1} + .0687 \dot{P}D + .0296 JJ^* + .0597 \dot{GNPR}$$

(2.99) (25.55) (2.11) (2.99) (2.92)

$$+ .032 \dot{M}1_{-1} + .131 DD793 \cdot \dot{M}1_{-1}$$

(1.71) (4.20)

[three month bill rate]

(continued)

TABLE A-5 (continued)

Identities

31. $PX = \frac{P_f(X-FA) + PFA \cdot FA}{X}$	
32. $PEX = \psi_1 PX$	[price deflator for X]
33. $PD = \frac{PX \cdot X - PEX \cdot EX + PIM \cdot IM}{X - EX + IM}$	[price deflator for EX]
34. $P_h = PD + \frac{IBT_g + IBT_s}{X - EX + IM}$	[price deflator for domestic sales]
35. $PCS = \psi_2(1 + d_{3g} + d_{3s})PD$	[price deflator for CS]
36. $PCN = \psi_3(1 + d_{3g} + d_{3s})PD$	[price deflator for CN]
37. $PCD = \psi_4(1 + d_{3g} + d_{3s})PD$	[price deflator for CD]
38. $PIH = \psi_5 PD$	[price deflator for housing investment]
39. $PIK = \psi_6 PD$	[price deflator for plant and equipment investment]
40. $P_g = \psi_7 PD$	[price deflator for C_g]
41. $P_s = \psi_8 PD$	[price deflator for C_s]
42. $PIV = \psi_9 PD$	[price deflator for inventory investment]
43. $W_h = 100 \frac{W_f J_f (HN + 1.5HO) + W_g J_g H_g + W_m J_m H_m + W_s J_s H_s}{J_f (HN + 1.5HO) + J_g H_g + J_m H_m + J_s H_s}$	[average hourly earnings excluding overtime of all workers]
44. $W_g = \psi_{10} W_f$	[average hourly earnings of civilian workers in g]
45. $W_m = \psi_{11} W_f$	[average hourly earnings of military workers]
46. $W_s = \psi_{12} W_f$	[average hourly earnings of workers in s]
47. $T_{hg} = \left[d_{1g} + \frac{\gamma_g YT}{POP} \right] YT$	[personal income taxes, h to g]
48. $T_{hs} = \left[d_{1s} + \frac{\gamma_s YT}{POP} \right] YT$	[personal income taxes, h to s]
49. $T_{fg} = d_{2g} \pi_f$	[corporate profits taxes, f to g]
50. $T_{fs} = d_{2s} \pi_f$	[corporate profits taxes, f to s]
51. $IBT_g = \frac{d_{3g}}{1 + d_{3g}} (PCS \cdot CS + PCN \cdot CN + PCD \cdot CD - IBT_s)$	[indirect business taxes, g]
52. $IBT_s = \frac{d_{3s}}{1 + d_{3s}} (PCS \cdot CS + PCN \cdot CN + PCD \cdot CD - IBT_g)$	[indirect business taxes, s]
53. $SI_{hg} = d_{4g} W_f J_f (HN + 1.5HO)$	[social insurance contributions, h to g]

(continued)

TABLE A-5 (continued)

54. $SI_{hs} = d_{4s} W_f J_f (HN + 1.5HO)$	[social insurance contributions, h to s]
55. $SI_{fg} = d_{5g} W_f J_f (HN + 1.5HO)$	[social insurance contributions, f to g]
56. $SI_{fs} = d_{5s} W_f J_f (HN + 1.5HO)$	[social insurance contributions, f to s]
57. $BR = -g_1 M_b$	[total bank reserves]
58. $KD = (1 - \delta_0) KD_{-1} + CD$	[stock of durable goods]
59. $KH = (1 - \delta_H) KH_{-1} + IH_h$	[stock of housing, h]
60. $X = CS + CN + CD + IH_h + IK_f + EX - IM + C_g + C_s + IK_h + IK_b + IH_f$ $+ IH_b + IV_h - \pi_b - CC_b$	[total sales, f]
61. $XX = PCS \cdot CS + PCN \cdot CN + PCD \cdot CD + PIH \cdot IH_h + PIK \cdot IK_f + PEX \cdot EX - PIM \cdot IM$ $+ P_g C_g + P_s C_s + PIK(IK_h + IK_b) + PIH(IH_f + IH_b) + PIV \cdot IV_h$ $- PX(\pi_b + CC_b) - IBT_g - IBT_s$	[total nominal sales, f]
62. $HN = H_f - HO$	[average number of non overtime hours paid per job, f]
63. $V = V_{-1} + Y - X$	[stock of inventories, f]
64. $YT = W_f J_f (HN + 1.5HO) + W_g J_g H_g + W_m J_m H_m + W_s J_s H_s + D_f + D_b - DR_s$ $+ INT_f + INT_g - INT_{gr} + INT_s + RNT + TR_{fh} + \pi_h + SI_{hg} + SI_{hs}$	[taxable income, h]
65. $S_h = YT - SI_{hg} - SI_{hs} + CC_h - PCS \cdot CS - PCN \cdot CN - PCD \cdot CD - PIH \cdot IH_h$ $- PIK \cdot IK_h - PIV \cdot IV_h - TR_{hr} - T_{hg} - SI_{hg} + TR_{gh} - T_{hs} - SI_{hs}$ $+ TR_{sh} + UR + INS + RET$	[savings, h]
66. $0 = S_h - \Delta A_h - \Delta M_h + CG - DIS_h$	[budget constraint, h: determines A_h]
67. $\pi_f = XX + PIV(V - V_{-1}) - W_f(1 + d_{5g} + d_{5s})J_f(HN + 1.5HO) - RNT - TR_{fh}$ $- \pi_h - CC_h + SUB_g + SUB_s - INT_f - CC_f - IVA - WLD_f - STAT$	[before tax profits, f]
68. $CF = XX - W_f(1 + d_{5g} + d_{5s})J_f(HN + 1.5HO) - RNT - TR_{fh} - \pi_h - CC_h$ $+ SUB_g + SUB_s - INT_f - PIK \cdot IK_f - PIH \cdot IH_f - MRS$	[cash flow, f]
69. $S_f = CF - T_{fg} - T_{fs} - D_f$	[savings, f]
70. $0 = S_f - \Delta A_f - \Delta M_f - DIS_f - WLD_f - STAT$	[budget constraint, f: determines A_f]
71. $0 = \Delta M_b + \Delta M_h + \Delta M_f + \Delta M_r + \Delta M_g + \Delta M_s - \Delta CUR$	[demand deposit identity: determines M_b]
72. $S_b = PX(\pi_b + CC_b) - PIK \cdot IK_b - PIH \cdot IH_b - D_b - T_{bg} - T_{bs} - SUR$	[savings, b]
73. $0 = S_b - \Delta A_b - \Delta M_b - \Delta(BR-BO) - DIS_b$	[budget constraint, b: determines A_b]
74. $S_r = PIM \cdot IM + TR_{hr} + TR_{gr} + INT_{gr} - PEX \cdot EX$	[savings, r]

(continued)

TABLE A-5 (continued)

75. $0 = S_r - \Delta A_r - \Delta M_r + \Delta Q - DIS_r$	[budget constraint, r: determines A_r]
76. $S_g = T_{hg} + IBT_g + T_{fg} + T_{bg} + SUR + SI_{hg} + SI_{fg} + MRS - P_g C_g$ $- W_g J_g H_g - W_m J_m H_m - INT_g - TR_{gr} - TR_{gh} - TR_{gs} - SUB_g - INS$	[savings, g]
77. $0 = S_g - \Delta A_g - \Delta M_g + \Delta CUR + \Delta(BR-BO) - \Delta Q - DIS_g$	[budget constraint, g: determines A_g unless equation 30 is not included in the model]
78. $S_s = T_{hs} + IBT_s + T_{fs} + T_{bs} + SI_{hs} + SI_{fs} + TR_{gs} + DR_s - P_s C_s$ $- W_s J_s H_s - INT_s - SUB_s - TR_{sh} - UB - RET$	[savings, s]
79. $0 = S_s - \Delta A_s - \Delta M_s - DIS_s$	[budget constraint, s: determines A_s]
80. $0 = \Delta A_r + \Delta A_f + \Delta A_b + \Delta A_g + \Delta A_s + \Delta A_r - CG + DIS_h + DIS_f + DIS_b$ $+ DIS_g + DIS_s + DIS_r + WLD_f + STAT$	[asset identity: redundant equation]
81. $M1 = M1_{-1} + \Delta M_h + \Delta M_f + \Delta M_r + \Delta M_s + MDIF$	[money supply]
82. $GNP = 4 \cdot \left(XX + PIV(V - V_{-1}) + IBT_g + IBT_s + W_g J_g H_g + W_m J_m H_m + W_s J_s H_s \right.$ $\left. + WLD_g + WLD_s + PX(\pi_b + CC_b) + SI_{gg} + SI_{ss} \right)$	[nominal GNP, annual rate]
83. $GNPR = 4 \cdot \left(Y + \pi_b + CC_b + \psi_{13}(J_g H_g + J_m H_m + J_s H_s) \right)$	[real GNP, annual rate]
84. $GNPD = \frac{GNP}{GNPR}$	[GNP deflator]
85. $E = J_f + J_g + J_m + J_s - LM$	[total employment, civilian and military]
86. $U = L1 + L2 + L3 - E$	[number of people unemployed]
87. $UR = \frac{U}{L1 + L2 + L3 - J_m}$	[civilian unemployment rate]
88. $YN = \left(1 - d_{1g} - d_{1s} - \frac{(Y_g + Y_s)YT}{POP} \right) (D_f + D_b - DR_s + INT_f + INT_g - INT_{gr}$ $+ INT_s + RNT + TR_{fh} + \pi_h) + TR_{gh} + TR_{sh} + UB$	[after tax nonlabor income, h]
89. $AA = \frac{A_h + M_h}{P_h} + KH$	[total net wealth, h]
90. $d_{1g}^M = d_{1g} + \frac{2Y_g YT}{POP}$	[marginal personal income tax rate, g]
91. $d_{1s}^M = d_{1s} + \frac{2Y_s YT}{POP}$	[marginal personal income tax rate, s]
92. $KK = (1 - \delta_K)KK_{-1} + IK_f$	[stock of capital, f]
93. $KKMIN = \frac{Y}{\mu H}$	[amount of capital required to produce Y]
94. $JHMIN = \frac{Y}{\lambda}$	[number of worker hours required to produce Y]

(continued)

TABLE A-5 (continued)

95. $JJ = \frac{J_f H_f + J_g H_g + J_m H_m + J_s H_s}{POP}$	[ratio of the total number of worker hours paid for to the total population 16 and over]
96. $JJ^* = \frac{JJ}{\exp(-.00083312t)}$	[JJ detrended]
97. $Z = 1 - \frac{337.0}{JJ^*}$	[labor constraint variable]
98. $ZZ = \frac{GNPR^* - GNPR}{GNPR^*}$	[demand pressure variable]
99. $YTR = TR_{gh} + TR_{sh} + UB$	[transfer payments, g and s to h]
100. $H_f^* = H_f + .56464t$	[H_f detrended]
101. $TP_g = T_{hg} - TFA$	[personal income tax receipts, g]
102. $TC_g = T_{fg} + TFA + T_{bg}$	[corporate profit tax receipts, g]
103. $SI_g = SI_{hg} + SI_{fg} + SI_{gg}$	[total social insurance contributions to g]
104. $PU_g = P_g C_g + W_g J_g H_g + W_m J_m H_m + SI_{gg} + WLD_g$	[purchases of goods and services, g]
105. $REC_g = TP_g + TC_g + IBT_g + SI_g$	[total receipts, g]
106. $EXP_g = PU_g + TR_{gh} + TR_{gr} + TR_{gs} + INT_g + SUB_g - WLD_g$	[total expenditures, g]
107. $S'_g = REC_g - EXP_g$	[NIA surplus or deficit, g]
108. $TC_s = T_{fs} + T_{bs}$	[corporate profit tax receipts, s]
109. $SI_s = SI_{hs} + SI_{fs} + SI_{ss}$	[total social insurance contributions to s]
110. $PU_s = P_s C_s + W_s J_s H_s + SI_{ss} + WLD_s$	[purchases of goods and services, s]
111. $TRR_{sh} = TR_{sh} + UB$	[total transfer payments, s to h]
112. $REC_s = T_{hs} + TC_s + IBT_s + SI_s + TR_{gs}$	[total receipts, s]
113. $EXP_s = PU_s + TRR_{sh} + INT_s + DR_s + SUB_s - WLD_s$	[total expenditures, s]
114. $S'_s = REC_s - EXP_s$	[NIA surplus or deficit, s]
115. $YD = W_f J_f (HN + 1.SHO) + W_g J_g H_g + W_m J_m H_m + W_s J_s H_s + RNT + D_f + D_b$ $- DR_s + INT_f + INT_g - INT_{gr} + INT_s + TR_{fh} + TR_{gh} + TR_{sh} + UB$ $- SI_{hg} - SI_{hs} - T_{hg} - TFA - T_{hs} - TR_{hr}$	[disposable income, h]
116. $SR = \frac{YD - PCS \cdot CS - PCN \cdot CN - PCD \cdot CD}{YD}$	[savings rate, h]

(continued)

TABLE A-5 (continued)

117. $IV_f = V - V_{-1}$	[inventory investment, f]
118. $PROD = \frac{Y}{J_f H_f}$	[output per paid for worker hour: "productivity"]
119. $WR = \frac{W_f}{PX}$	[real wage rate of workers in f]
120. $POP = POP1 + POP2 + POP3$	[noninstitutional population 16 and over]
121. $SHR\pi = \frac{(1 - d_{2g} - d_{2s})\pi_f}{W_f J_f (HN + 1.5HO)}$	[ratio of after tax profits to the wage bill net of employer social security taxes]
122. $PCGNPR = 100 \left[\left(\frac{GNPR}{GNPR_{-1}} \right)^4 - 1 \right]$	[percentage change in GNPR]
123. $PCGNPD = 100 \left[\left(\frac{GNPD}{GNPD_{-1}} \right)^4 - 1 \right]$	[percentage change in GNPD]
124. $PCMI = 100 \left[\left(\frac{MI}{MI_{-1}} \right)^4 - 1 \right]$	[percentage change in MI]
125. $UBR = BR - BO$	[unborrowed reserves]
126. $WA = W_h (1 - d_{1g}^M - d_{1s}^M - d_{4g} - d_{4s})$	[after tax wage rate]
127. $RSA = RS (1 - d_{1g}^M - d_{1s}^M)$	[after tax bill rate]
128. $RMA = RM (1 - d_{1g}^M - d_{1s}^M)$	[after tax mortgage rate]
