The Kyoto University Quarterly Model of the Japanese Economy

Chikashi MORIGUCHI*

Introduction

This is a quarterly econometric model of the Japanese Economy developed at the Institute of Economic Research, Kyoto University. It has been used for the short-term forecast as well as policy simulations. The outcomes have been announced for the past several years not only in Japan but also abroad particularly in cooperation with Project Link. The model here is the version in use as of February, 1979.

The new SNA statistics provide more detailed information on expenditures and income than the old national income statistics. But the published statistics of the new system are not yet complete in the sense that we cannot define all of the various balances and identities in a macroeconomic framework. There are no capital consumption allowances broken down by household, government and private corporate firm. Transfers among government, household, non-profit private institution, corporate firms and overseas sector are not complete matrixwise.

The model presented here, therefore, has a certain limitation due to this so that it cannot help being of a somewhat provisional nature.

I The Model

(1) Expenditures in National Income Accounts

Private consumption expenditures

1) $C = 1026.7 + .19572 \dfrac{YD}{PC}$
   (2.81)   (4.46)
   $+ \left(.76080 - .68284 \dfrac{\Delta PC}{PC_{-1}} \right) C_{-1}$
   (12.53) (5.89)
   $R^2/SE/DW = .9980/434.2/1.5230$
   (1966.1–1977.1)

* 森口親司, Institute of Economic Research, Kyoto University

Personal consumption expenditures on food

2) $CF = 1064.8 + .08178 \dfrac{YD}{PCF}$
   (4.68)   (4.86)
   $+ \left(.65542 - .40814 \dfrac{\Delta PCF}{PCF_{-1}} \right) CF_{-1}$
   (8.82)   (4.08)
   $R^2/SE/DW = .9964/165.2/1.4249$
   (1966.1–1977.1)

Public consumption expenditures

3) $CG = CG\yen/PCG$

Housing investment

4) $IH = 1521.3 + 0.3128 \dfrac{YD}{PIH}$
   (3.32)   (2.80)

$$+ .6694\, IH_{-1} + 1.09338\, \frac{DLBH}{PIH}$$
$$(8.50) \qquad (1.42)$$
$$- 203.4\, RLB$$
$$(2.85)$$
$$.9704/259.8/2.2553$$
$$(1966.1-1977.1)$$

Private fixed investment

5) $\quad IF = -10296.2 + .12565 \sum\limits_{0}^{3} GDP_{-i}$
$\qquad\qquad (21.53) \quad\; (39.33)$

$\qquad\quad - .03701 \sum\limits_{1}^{4} KF_{-i}$
$\qquad\qquad (21.19)$

$\qquad\quad + .15552 \sum\limits_{0}^{3} (\dot{O}\cdot GDP)_{-i}$
$\qquad\qquad (8.07)$

$\qquad\quad - .11062 \sum\limits_{0}^{3} (\dot{O}\cdot KF_{-1})_{-i}$
$\qquad\qquad (8.17)$

$$.9932/265.9/1.3533$$
$$(1967.1-1977.1)$$

Public fixed investment

6) $\quad IG = IG¥/PIG$

Private inventory investment

7) $\quad IIP = 1584.9$
$\qquad\qquad (3.79)$

$\qquad\quad + \Big(.18191 - .12171\, \dfrac{\varDelta O}{O_{-1}}$
$\qquad\qquad\;\; (6.33) \quad\; (2.37)$

$\qquad\quad + .0511\, P\dot{W}M \Big) GDP$
$\qquad\qquad (3.82)$

$\qquad\quad - .7033\, KIP_{-1}$
$\qquad\qquad (6.81)$

$$.6330/592.9/1.7256$$
$$(1966.1-1977.1)$$

Exports of goods and services

8) $\quad EGS = EGS¥/PE$

Factor income from abroad

9) $\quad ET = ET¥/P$

10) $\quad E = EGS + ET$

Imports of goods and services

11) $\quad MGS = MGS¥/PM$

Factor income to abroad

12) $\quad MT = MT¥/P$

13) $\quad M = MGS + MT$

Gross domestic products in real terms

14) $\quad GDP = C + CG + IH + IF + IG$
$\qquad\qquad + IIP + IIG + EGS - MGS$

Gross national products in real terms

15) $\quad GNP = GDP + ET - MT$

Private consumption expenditures, current values

16) $\quad C¥ = C \cdot PC$

Housing investment, current values

17) $\quad IH¥ = IH \cdot PIH$

Private fixed investment, current values

18) $\quad IF¥ = IF \cdot PIF$

Private corporate inventory investment, current values

19) $\quad IIP¥ = 27.066 + .00682 \cdot$
$\qquad\qquad (.41) \qquad (25.59)$
$\qquad\quad (PWM + PWM_{-1}) IIP$
$\qquad\qquad .9384/267.3/1.5981$
$\qquad\qquad (1966.1-1977.1)$

Exports of goods and services, current values

20) $\quad EGS¥ = -457.44 + 1.2826\, \dfrac{XB}{REX}$
$\qquad\qquad\; (2.86) \qquad (12.36)$
$\qquad\quad + 2.3530\, \dfrac{XFI + XTO + XSO}{REX}$
$\qquad\qquad (3.63)$
$\qquad\quad + 1501.7\, Q1 + 853.68\, Q2$
$\qquad\qquad (10.39) \qquad\; (6.27)$
$\qquad\quad + 455.00\, Q3$
$\qquad\qquad (3.31)$
$\qquad\qquad .9980/309.6/2.2171$
$\qquad\qquad (1966.1-1977.1)$

Factor income from abroad, current values

21) $\quad ET¥ = 85.63 + 1.6187\, XII/REX$
$\qquad\qquad (8.20) \quad (78.7)$
$\qquad\quad - 76.19\, Q1 - 65.95\, Q3$
$\qquad\qquad (5.66) \qquad\; (4.77)$
$\qquad\qquad .9934/37.39/1.9908$
$\qquad\qquad (1966.1-1977.1)$

22) $\quad E¥ = EGS¥ + ET¥$

Imports of goods and services, current values

23) $\quad MGS¥ - 292.35 + 1.4681\, \dfrac{MB}{REX}$
$\qquad\qquad\; (4.50) \qquad (32.20)$
$\qquad\quad + 1.2669\, \dfrac{MFI + MTO + MSO}{REX}$
$\qquad\qquad (7.64)$

$$+328.27\ Q1+178.37\ Q2$$
$$(5.13)\qquad (2.71)$$
$$424.69\ Q3$$
$$(6.45)$$
$$.9995/152.37/2.4897$$
$$(1966.1-1977.1)$$

Factor income to abroad, current values

24) $MT¥=135.6$
$\quad\quad (7.24)$
$$+1.6616(MII+MSG)/REX$$
$$(60.6)$$
$$-100.94\ Q1-18.95\ Q2$$
$$(4.69)\qquad\quad (.863)$$
$$-85.58\ Q3$$
$$(3.89)$$
$$.9892/51.5/2.2036$$
$$(1966.1-1977.1)$$

25) $M¥=MGS¥+MT¥$

Gross domestic products in current values

26) $GDP¥=C¥+CG¥+IH¥+IF¥$
$$+IG¥+IIP¥+IIG¥$$
$$+EGS¥-MGS¥$$

Gross national products in current values

27) $GNP¥=GDP¥+ET¥-MT¥$

(2) Definition of Stocks

Removal and scrappage, real terms

28) $RF=105.34+.0370\ KF_{-1}$
$\quad\quad (.33)\qquad (12.27)$
$$.7778/743.6/1.4788$$
$$(1966.1-1977.1)$$

Private gross fixed capital stocks, real terms

29) $KF=KF_{-1}+0.25\ (IF-RF)$

Private inventory stocks, real terms

30) $KIP=KIP_{-1}+0.25\ IIP$

Accumulated sum of private savings

31) $KSP=KSP_{-1}+0.25SP$

(3) Commodity Trade

Commodity exports, custom clearance basis, seasonally adjusted

32) $\ln(XC/PEC)$
$$=5.718+1.4811\ln(TW)$$
$$(7.04)\quad (63.8)$$
$$-1.2133\sum_{0}^{5}w_i\ln\left(\frac{PEC}{PEW}\right)_{-i}$$
$$(8.31)$$
$$-.9268\ln\left(\frac{PWM}{PEC/REX}\right)$$
$$(5.04)$$
$$w_0{\sim}w_5:\ .2586,\ .3017,\ .2328,$$
$$.1293,\ .0517,\ .0259$$
$$.9903/.03973/1.528$$
$$(1966.3-1977.4)$$

Commodity exports, balance of payments account

33) $XB=(1.05350-.1607\ Q1$
$\quad\quad (583.87)\quad (64.33)$
$$-.0769\ Q2-.0476\ Q3)XC$$
$$(30.14)\qquad (18.65)$$
$$.9908/.00598/1.8560$$
$$(1966.1-1977.1)$$

Commodity imports, custom clearance basis, seasonally adjusted

Foodstuff

34) $\ln(MC\ 1/PMC\ 1/REX)$
$$=-3.27216$$
$$(2.70)$$
$$+.4331\ln CF+.6812\cdot$$
$$(2.80)\qquad\quad (6.45)$$
$$\ln(MC\ 1/PMC\ 1/REX)_{-1}$$
$$.9696/.05034/1.9813$$
$$(1966.1-1977.1)$$

Textile and other raw materials

35) $\ln(MC\ 24/PMC\ 24/REX)$
$$=.84932+.22792\cdot$$
$$(6.20)\quad (5.69)$$
$$\sum_{0}^{1}\ln(PWC\ 24/PMC\ 24)_{-i}$$
$$+.12428\sum_{0}^{1}\ln O_{-i}+.2764\cdot$$
$$(3.99)\qquad\qquad (2.29)$$
$$\ln(MC24/PMC24/REX)_{-1}$$
$$.9549/.03557/1.8601$$
$$(1966.1-1977.1)$$

Metal ores and scraps

36) $\ln (MC3/PMC3/REX)$

$$= -1.10252 + .2219 \cdot$$
$$\quad\;\;(3.04) \qquad (1.83)$$

$$\ln (PWC3/PMC3)_{-2}$$

$$+.21820 \sum_{0}^{1} \ln O_{-i}$$
$$\;\;(3.39)$$

$$+.1943 \ln (O/O_{-4}) + .5772 \cdot$$
$$\;\;(2.13) \qquad\qquad (5.17)$$

$$\ln (MC3/PMC3/REX)_{-1}$$

$$.9826/.04490/1.8532$$

$$(1966.1 - 1977.1)$$

Mineral fuels

37) $\ln (MC5/PMC5/REX)$

$$= -.66350 + .41359 \sum_{0}^{1} \ln O_{-i}$$
$$\;\;(2.30) \qquad (5.58)$$

$$+.0319 \ln KOIL + .1526 \cdot$$
$$\;\;(2.87) \qquad\qquad (1.08)$$

$$(MC5/PMC5/REX)_{-1}$$

$$.9827/.03849/2.1899$$

$$(1967.1 - 1977.1)$$

Chemicals

38) $\ln (MC6/PMC6/REX)$

$$= -3.87495 + 1.08624 \cdot$$
$$\;\;(17.93) \qquad (15.98)$$

$$\left[\frac{2}{3} \ln (PWC6/PMC6) \right.$$

$$\left. +\frac{1}{3} \ln (PWC6/PMC6)_{-1} \right]$$

$$+1.16175 \left[\frac{3}{5} \ln O \right.$$
$$\;\;(24.34)$$

$$\left. +\frac{2}{5} \ln O_{-1} \right]$$

$$+.3912 \ln (O/O_{-4})$$
$$\;\;(3.08)$$

$$.9755/.07236/1.4109$$

$$(1966.1 - 1977.1)$$

Machinery and other manufactures

39) $\ln (MC78/PMC78/REX)$

$$=1.88579 + .87558 \cdot$$
$$\;\;(2.81) \qquad (5.72)$$

$$\left[\frac{2}{3} \ln (PIF/PMC78) \right.$$

$$\left. +\frac{1}{3} \ln (PIF/PMC78)_{-1} \right]$$

$$+.39568 \sum_{0}^{1} \ln O_{-i} + .3942 \cdot$$
$$\;\;(6.00) \qquad\qquad (4.73)$$

$$\ln (MC78/PMC78/REX)_{-1}$$

$$.9909/.04604/1.6262$$

$$(1966.1 - 1977.1)$$

Total commodity, custom clearance basis

40) $MC = MC1 + MC24 + MC3$
$$\qquad\qquad + MC5 + MC6 + MC78$$

Commodity imports: balance of payments account

41) $MB = (.88028 - .0242\, Q1$
$$\quad\quad\;(181.50)\;\;(3.77)$$

$$+.0100\, Q2 - .0389\, Q3$$
$$\;\;(1.56) \qquad\;\; (6.06)$$

$$+.0375\, D732) \cdot (MC$$
$$\;\;(7.94)$$

$$- RMFI \cdot MFI)$$

$$.7534/.01505/1.4156$$

$$(1966.1 - 1977.1)$$

(4) Trade of Invisibles

Exports/Receipts, not seasonally adjusted
Freight and merchandise insurance

42) $\ln XFI = -.59868$
$$\qquad\qquad\;\;(1.10)$$

$$+.2733 \ln (FRTL \cdot RXCJ \cdot XB/$$
$$\;\;(5.04)$$

$$PE/REX)$$

$$-.1994 \ln (FRTL \cdot RXCJ \cdot XB/$$
$$\;\;(3.23)$$

$$PE/REX)_{-1}$$

$$+.9499 \ln XFI_{-1}$$
$$\;\;(21.53)$$

$$+.0989\, Q2 + .0616\, Q3$$
$$\;\;(5.29) \qquad\;\; (3.20)$$

$$.9963/.04986/1.6292$$

(1966.1–1977.1)

Investment income

43) $\ln XII = -2.747$
$\qquad$ (21.2)

$\qquad +1.0919 \ln\left[\dfrac{RFL3}{100}(KLA\right.$
$\qquad$ (65.8)

$\qquad \left. +KSBA+GFX)_{-1}\right]$

$\qquad +.1838\ Q1+.1733\ Q3$
$\qquad$ (5.25) $\qquad$ (4.80)

$\qquad\qquad .9916/.09321/1.724$

(1967.1–1977.1)

Tourism

44) $\ln(XTO/PC/REX) = -10.195$
$\qquad\qquad$ (3.10)

$\qquad +3.165 \ln(YDUS/PCUS)$
$\qquad$ (3.41)

$\qquad +1.5525 \ln(PCUS/PC/REX)$
$\qquad$ (3.41)

$\qquad +.2481 \ln(XTO/PC/REX)_{-1}$
$\qquad$ (1.43)

$\qquad +.2866\ DEXP-.3607\ Q1$
$\qquad$ (2.58) $\qquad$ (7.88)

$\qquad +.0888\ Q2$
$\qquad$ (1.15)

$\qquad\qquad .8579/.11857/1.8511$

(1966.1–1977.1)

Other services

45) $\ln(XSO/PC/REX) = -5.30191$
$\qquad\qquad$ (2.24)

$\qquad +4.6727 \ln(YDUS/PCUS)$
$\qquad$ (8.24)

$\qquad +.4373 \ln(PCUS/PC/REX)$
$\qquad$ (1.46)

$\qquad -.1324\ Q2$
$\qquad$ (2.89)

$\qquad\qquad .9019/.1320/.6291$

(1966.1–1977.1)

Total exports of services: balance of payments account

46) $XS = XFI + XTO + XII$
$\qquad +XSO + XSG$

Imports

Freight and merchandise insurance

47) $\ln MFI = -1.86235 + .3263\cdot$
$\qquad$ (6.52) $\qquad$ (6.90)

$\qquad \ln(FRTL\cdot RMCF\cdot MB/PM/$

$\qquad REX)+.6838 \ln MFI_{-1}$
$\qquad$ (14.61)

$\qquad -.0669\ Q1-.0420\ Q2$
$\qquad$ (4.36) $\qquad$ (2.53)

$\qquad -.0233\ Q3$
$\qquad$ (1.48)

$\qquad\qquad .9973/.0366/1.6077$

(1966.1–1977.1)

Tourism

48) $\ln(MTO/PCUS) = -13.7352$
$\qquad\qquad$ (4.91)

$\qquad +1.91878\left[\dfrac{1}{2}\ln(YD/PC)\right.$
$\qquad$ (11.69)

$\qquad \left. +\dfrac{1}{2}\ln(YD/PC)_{-1}\right]-.76976\cdot$
$\qquad\qquad$ (6.58)

$\qquad \sum_0^1 \ln(PCUS/PC/REX)_{-i}$

$\qquad +.2630 \ln(GFX/MB)$
$\qquad$ (6.93)

$\qquad +.0347\ Q2+.0673\ Q3$
$\qquad$ (.87) $\qquad$ (1.69)

$\qquad\qquad .9841/.1082/.9880$

(1966.1–1977.1)

Investment income

49) $\ln MII = -9.07924$
$\qquad\qquad$ (34.43)

$\qquad +.38777 \ln[RFL3\cdot KLL$
$\qquad$ (2.78)

$\qquad +RED(KSNN+KSBL)]$

$\qquad +.8406 \ln[RFL3\cdot KLL$
$\qquad$ (6.09)

$\qquad +RED(KSNN+KSBL)]_{-1}$

$\qquad +.1660\ Q1+.1225\ Q3$
$\qquad$ (4.69) $\qquad$ (3.39)

$\qquad\qquad .9877/.0962/1.4278$

(1966.1–1977.1)

Other services

50) $\ln(MSO/PCUS) = -5.00615$
$\qquad\qquad$ (3.68)

$+1.0780 \ln GNP$
(13.59)

$-1.2337 \ln (PCUS/PC/REX)$
(11.06)

$+.0764 Q1-.0379 Q2$
(2.70) $\qquad$ (1.31)

$+.0375 Q3$
(1.30)

$\qquad$ .9837/.0674/.7511

$(1966.1-1977.1)$

Total imports of services: balance of payments account

51) $MS = MFI + MII + MTO + MSO + MSG$

(5) Wage, Prices and Deflators

Wage income, adjusted by hours worked

52) $\dot{W} = -.76696$
(8.29)

$+1.12332 \sum_{0}^{3} w_i C\dot{P}I_{-i}$
(16.26)

$+.05340 \sum_{0}^{3} w_i (RU+.05)_{-i}^{-1}$
(9.25)

$\qquad$ w_i: 0.4, 0.3, 0.2, 0.1

$\qquad$ .8806/.0240/1.6357

$(1966.4-1977.1)$

Wholesale price index (mfg and mining)

53) $P\dot{W} = -.08134 + .2828 P\dot{M}M$
(9.29) $\qquad$ (31.08)

$+.06173 \sum_{1}^{4} U\dot{L}C_{-i}$
(8.04)

$+.5959 \dot{O} + .3972 P\dot{E}W$
(12.60) $\qquad$ (10.12)

$\qquad$ .9844/.0132/1.0766

$(1967.2-1977.1)$

Wholesale price index (mfg)

54) $P\dot{W}M = -.08892 + .2588 P\dot{M}M$
(8.93) $\qquad$ (24.99)

$+.06024 \sum_{1}^{4} U\dot{L}C_{-i}$
(6.90)

$+.6312 \dot{O} + .4135 P\dot{E}W$
(11.75) $\qquad$ (9.27)

$\qquad$ .9766/.0150/1.0819

$(1967.2-1977.1)$

Wholesale price index of metal products

55) $P\dot{W}C3 = -.07853 + .7032 P\dot{M}C3$
(4.34) $\qquad$ (4.26)

$+.5609 \dot{O} + 1.0528 P\dot{W}M$
(5.45) $\qquad$ (3.58)

$\qquad$ .9078/.0650/.6886

$(1966.1-1977.1)$

Wholesale price index of textiles and miscellaneous products

56) $P\dot{W}C24$

$= -.03303 + .6259 P\dot{M}C24$
(2.91) $\qquad$ (12.69)

$+.1475 \dot{O} + .4038 I\dot{H}$
(1.39) $\qquad$ (4.13)

$\qquad$ .8412/.04866/.9975

$(1966.2-1977.1)$

Wholesale price index of chemical products

57) $P\dot{W}C6 = -.01787 + .0845 P\dot{M}C5$
(3.89) $\qquad$ (7.15)

$+.9746 P\dot{W}M$
(11.70)

$\qquad$ .9678/.0252/1.0097

$(1966.1-1977.1)$

Unit value index of exports (dollar term)

58) $P\dot{E}C = .22155$
(5.41)

$+.7871 P\dot{W}M_{-1} + .5614 R\dot{E}X_{-1}$
(11.40) $\qquad$ (8.47)

$-.9663 KIP \cdot 0.001$
(5.47)

$+.2890 P\dot{E}W$
(3.78)

$\qquad$ .9577/.0220/1.1302

$(1966.1-1977.1)$

Consumer price index

59) $C\dot{P}I = .021 + .4838 \sum_{0}^{1} w_i P\dot{W}_{-i}$
(2.4) $\quad$ (12.5)

$$+.1815 \sum_{0}^{1} w_i C\dot{P}IP_{-i}$$
$$(4.65)$$

$$+.1536 \sum_{0}^{1} w_i \dot{W}_{-i}$$
$$(2.67)$$

$$w_0 = 0.6, \quad w_1 = 0.4$$
$$.9429/.0149/1.2001$$
$$(1967.1-1977.1)$$

Deflator of consumption expenditures

60)　$\dot{PC} = .0324 + .12806 \sum_{0}^{3} w_i \dot{W}_{-i}$
$(4.03)\quad(2.32)$

$$+.44530 \sum_{0}^{3} w_i P\dot{W}_{-i}$$
$$(11.97)$$

$$+.0285\ DD761$$
$$(2.19)$$

$$w_i:\ 0.4,\ 0.3,\ 0.2,\ 0.1\quad i=0,\ 3$$
$$.9376/.0127/1.169$$
$$(1967.1-1977.1)$$

Deflator of public consumption expenditures

61)　$\dot{PCG} = -.005 + .6686 \sum_{0}^{1} w_i \dot{W}_{-i}$
$(0.5)\quad(5.78)$

$$+.0435 \sum_{0}^{1} w_i P\dot{W}_{-i}$$
$$(.54)$$

$$+2.0731\ R\dot{W}G$$
$$(2.51)$$

$$w_0 = 0.6, \quad w_1 = 0.4$$
$$.8716/.0261/2.403$$
$$(1967.1-1977.1)$$

Deflator of private fixed investment

62)　$\dot{PIF} = .0056 + .7984\ P\dot{W}M$
$(1.89)\quad(28.56)$

$$+.0301\ DD7512$$
$$(2.55)$$

$$.9522/.0163/.5763$$
$$(1966.2-1977.1)$$

Deflator of housing investment

63)　$\dot{PIH} = .02467 + .7647\ \dot{PIF}$
$(10.6)\quad(30.5)$

$$+.2966\ P\dot{W}C24$$
$$(24.2)$$

$$.9779/.0118/.7096$$
$$(1966.2-1977.1)$$

Deflator of public fixed investment

64)　$\dot{PIG} = .0217 + .8875\ \dot{PIF}$
$(11.1)\quad(9.64)$

$$+.1549\ P\dot{W}M$$
$$(2.06)$$

$$.9835/.0103/2.313$$
$$(1966.2-1977.1)$$

Deflator of exports

65)　$\dot{PE} = .00839$
(2.57)

$$+.4867(P\dot{W}M + P\dot{W}M_{-1})$$
$$(34.8)$$

$$-.1776(\dot{REX} + \dot{REX}_{-1})$$
$$(8.9)$$

$$-.0679\ DREX$$
$$(10.2)$$

$$.9753/.01572/1.563$$
$$(1966.2-1977.1)$$

Deflator of imports

66)　$\dot{PM} = 0.2(\dot{PEW} - \dot{REX})$

$$+.0088 + .5050\ P\dot{M}M$$
$$(1.96)\quad(37.5)$$

$$.9702/.0275/.7040$$
$$(1966.2-1977.1)$$

GDP deflator

67)　$P = GDP\cancel{\textit{Y}}/GDP$

(6)　Employment and Production

Demand for labor, employees man-hours

68)　$\ln(LW \cdot H)$

$$= 3.927 + .09632 \ln GDP$$
$$(3.78)\quad(2.83)$$

$$+.2003 \ln(O/O_{-1})$$
$$(3.74)$$

$$-.02723 \ln(W/P)_{-1}$$
$$(1.32)$$

$$+.60104 \ln(LW \cdot H)_{-1}$$
$$(5.77)$$

$$.9577/.00878/2.005$$
$$(1966.1-1977.1)$$

Hours worked

69) $\ln H = .9550 - .01591 \ln GDP$
$\quad\quad (3.30)\quad (2.24)$

$\quad\quad + .1764 \ln (O/O_{-1})$
$\quad\quad\quad (4.77)$

$\quad\quad + .8296 \ln H_{-1}$
$\quad\quad\quad (17.3)$

$\quad\quad\quad\quad .9786/.0060/2.626$
$\quad\quad\quad\quad (1966.1-1977.1)$

Number of employees

70) $LW = (LW \cdot H)/H$

Number of non-agricultural self-employed

71) $LSNA = 1.945 + .09010 \ln GDP$
$\quad\quad\quad (3.30)\quad (2.42)$

$\quad\quad + .0619 \ln \left(\dfrac{YSNA/LSNA}{YW/LW} \right)_{-1}$
$\quad\quad\quad (1.93)$

$\quad\quad + .5700 \ln (LSNA)_{-1}$
$\quad\quad\quad (4.04)$

$\quad\quad\quad\quad .9214/.01455/1.595$
$\quad\quad\quad\quad (1966.1-1977.1)$

Number of people at work

72) $L = LW + LSNA + LSA$

Labor supply

73) $NL = 1230.7 + 18.79 \left(\dfrac{YW + YS}{L \cdot P} \right)$
$\quad\quad\quad (3.58)\quad (3.47)$

$\quad\quad + 100.9\, \dot{O} + .7276\, NL_{-1}$
$\quad\quad\quad (2.95)\quad\quad (9.52)$

$\quad\quad\quad\quad .9875/17.8/2.463$
$\quad\quad\quad\quad (1966.1-1977.1)$

Unemployment

74) $U = NL - L$

Rate of unemployment

75) $RU = U/NL$

Industrial production index, 1975 = 100.0

76) $O = 59.36 + .00097[.72\, C$
$\quad\quad (14.91)\ (57.75)$

$\quad\quad + 1.2(IH + IF + IG)$

$\quad\quad + 1.63(IIP + IIG) + 1.65\, EGS$

$\quad\quad + .29\, CG)] - .2063\, \dfrac{KIP_{-1}}{O_{-1}}$
$\quad\quad\quad\quad\quad\quad\quad (13.24)$

$\quad\quad\quad\quad .9888/2.3528/.5437$
$\quad\quad\quad\quad (1966.1-1977.1)$

(7) Income Distribution

Compensation for employees

77) $YW = W(LW \cdot H)$

Income of self-employed, agriculture and fishery

78) YSA/LSA

$\quad = -1.27210 + .2559\, \dfrac{YW}{LW}$
$\quad\quad (1.66)\quad\quad (4.78)$

$\quad\quad + .0770\, PWA - .0286\, PWM$
$\quad\quad\quad (3.51)\quad\quad\quad\quad (1.51)$

$\quad\quad\quad\quad .9740/.4530/1.5736$
$\quad\quad\quad\quad (1966.1-1977.1)$

Income of self-employed, non-agriculture

79) $YSNA = 450.34 + .3291\, GNP\!\!\!\not{Y}$
$\quad\quad\quad (1.27)\quad\quad (6.52)$

$\quad\quad - .3458(YW + YRH$
$\quad\quad\quad (4.87)$

$\quad\quad + YC + YSA)$

$\quad\quad\quad\quad .9614/763.0/1.3337$
$\quad\quad\quad\quad (1966.1-1977.1)$

Income of self-employed, total

80) $YS = YSA + YSNA + YRENT$

Property income of household, excluding dividend receipts

81) YRH

$\quad = 1598.7 + .0106\, RLB \cdot KSP_{-1}$
$\quad\quad (18.38)\quad (67.48)$

$\quad\quad\quad\quad .9906/363.7/.8641$
$\quad\quad\quad\quad (1966.1-1977.1)$

Corporate dividend payments to household

82) $YDIH = 23.83 + .0078(YC + YC_{-1})$
$\quad\quad\quad (.56)\quad (2.66)$

$\quad\quad + .9351\, YDIH_{-2}$
$\quad\quad\quad (31.95)$

$\quad\quad\quad\quad .9734/75.52/1.4593$
$\quad\quad\quad\quad (1966.1-1977.1)$

Personal income

83) $YP = YW + YS + YRH + YDIH$

Personal disposable income

84) $YD = YP + TR + TROH - TP$
$- SI - TRHO$

Personal savings

85) $SP = YD - (C¥ - CNH¥)$

Corporate profit

86) $YC = -650.60 + .2274 \cdot$
$\quad (1.06) \quad (13.28)$
$(\sum_0^1 GNP¥_{-i} - \sum_0^1 YW_{-i})$
$- .0142 RLB \sum_0^1 LB_{-i}$
(11.75)
$.8289/963.65/.8769$
$(1966.1 - 1977.1)$

Corporate profit after dividend payment

87) $YCA = -444.33 + .8933 YC$
$\quad (3.95) \quad (65.84)$
$- 880.46 D741$
(13.07)
$.9908/204.84/1.5248$
$(1966.1 - 1977.1)$

Corporate savings

88) $SC = YCA - TC$

National income

89) $Y = YP + YCA + YRNH + YRG$
$+ YCG - INTG - INTP$

Statistical discrepancy

90) $DISC$
$= GNP¥ - D - TI + SUB - Y$

(8)　Taxes and Fiscal Balance

Personal income tax

91) $TP = 280.83 + .0742(YW$
$\quad (.58) \quad (4.20)$
$+ YDIH + YRH + YSA)$
$+ .1912 YSNA$
(2.39)
$- .0004 LW \cdot EQA$
(1.62)
$+ 1107.13 DLAND$
(2.36)

$.9642/382.91/2.3293$
$(1971.1 - 1977.1)$

Corporate tax

92) $TC = -1418.12$
(6.83)
$+ .1928 RC1 \sum_1^2 YCA_{-i}$
(4.32)
$+ 5.6422 RC2 \sum_0^1 YDIH_{-i}$
(20.99)
$+ 1824.70 DTC$
(6.82)
$.9590/412.90/.7084$
$(1966.1 - 1977.1)$

Indirect tax

93) $TI = 82.77 + (.03551$
$\quad (.82) \quad (55.01)$
$- .0027 D744) \sum_0^1 GNP¥_{-i}$
(6.31)
$.9943/217.2/1.5791$
$(1966.1 - 1977.1)$

Current surplus

94) $SG = TP + TC + TI + SI + YRG$
$- INTG - CG¥ - TR$
$- SUB - TRGP$

Net increase in public borrowing

95) $BG = SG - IG¥ - IIG¥$

(9)　Balance of Payments Account

Trade balance

96) $BT = XB - MB$

Invisible trade balance

97) $BS = XS - MS$

Current account

98) $BC = BT + BS + BU$

Basic balance

99) $BB = BC + \Delta(KLL - KLA)$

Over-all account

100) $BA = BB + \Delta KSNN + BEO$

Gold and foreign exchange reserves

101) $GFX = GFX_{-1} + BA + BONR$

II List of Variable: by Alphabetical Order

BA　　S130　　$10^6$$

Balance of payments, over-all account.

BB　　S149　　$10^6$$

Balance of payments, basic balance.

BC　　S129　　$10^6$$

Balance of payments, current account.

BEO　　E38　　$10^6$$

Errors and omission in balance of payments.

BG　　S92

Government demand for funds, saar.

BONR　　E40　　$10^6$$

Balance of official, non-reserve transactions.

BS　　S128　　$10^6$$

Balance of invisible trade.

BT　　S127　　$10^6$$

Balance of trade.

BU　　E77　　$10^6$$

Balance of unilateral transfer.

C　　S1　　10^9¥

Private consumption, real term, saar.

C¥　　S46　　10^9¥

Private consumption, current value, saar.

CF　　S11　　10^9¥

Personal consumption on food, real, saar.

CG　　S2　　10^9¥

Government consumption, real, saar.

CG¥　　E7　　10^9¥

Government consumption, current, saar.

CNH¥　　E5　　10^9¥

Current consumption expenditures by

private non-profit institution, saar.

CPI　　S29

Consumer price index, 1975=100.

CPIP　　E64

Index of regulated consumer prices, 1975=100.

D　　E2　　10^9¥

Total depreciation allowance in NIA, current, saar.

D741　　E78

Dummy, =1.0 for 1974.1 and after, 0.0 otherwise.

DD761　　E84

Dummy, =1.0 for 1976.1 only, and 0.0 otherwise.

(Similar dummy variables should read like this.)

DEXP　　E92

Dummy variable, =1.0 in 1970.2 and 1970.4, =0.0 otherwise.

DISC　　S82　　10^9¥

Statistical discrepancy in NIA, saar.

DLAND　　E94

Dummy variable, =1.0 in 1974.1 and 1974.2, =0.0 otherwise.

DLBH　　E26　　10^9¥

Increase in housing loans from private banks, sa.

DREX　　E97

Dummy variable, =1.0 after 1975.3.

DTC　　E93

Dummy variable, =1.0 in 1974.3 and 1975.1, =0.0 otherwise.

E　　S7　　10^9¥

Exports and income from abroad in NIA, real, saar.

E¥　　S50　　10^9¥

Exports and income from abroad in NIA, current, saar.

EGS　　S107　　10^9¥

Exports of goods and services in NIA, real, saar.

EGS¥　　S137　　10^9¥

Exports of goods and services in NIA, current, saar.

EQA　　E19　　10^5¥

Level of income tax exemption for a household of four persons.

ET　　S142　　10^9¥

Factor income from abroad in NIA, real, saar.

ET¥　　S140　　10^9¥

Factor income from abroad in NIA, current, saar.

FRTL　　E75

Liner freight rate (the Bremen index), 1965＝100.

GDP　　S67　　10^9¥

Gross Domestic Product, real, saar.

GDP¥　　S68　　10^9¥

Gross Domestic Product, current, saar.

GFX　　S131　　$10^6$$

Gold and foreign exchange reserves.

GNP　　S9　　10^9¥

Real GNP, saar.

GNP¥　　S52　　10^9¥

Current GNP, saar.

H　　S16

House worked, 1975＝100.

IF　　S4　　10^9¥

Business fixed investment, real, saar.

IF¥　　S48　　10^9¥

Business fixed investment, current, saar.

IG　　S5　　10^9¥

Government fixed investment, real, saar.

IG¥　　E6　　10^9¥

Government fixed investment, current, saar.

IH　　S3　　10^9¥

Private housing investment, real, saar.

IH¥　　S47　　10^9¥

Private housing investment, current, saar.

IIG　　E9　　10^9¥

Government inventory investment, real, saar.

IIG¥　　E8　　10^9¥

Government inventory investment, current, saar.

IIP　　S6　　10^9¥

Private corporate inventory investment, real, saar.

IIP¥　　S49　　10^9¥

Private corporate inventory investment, current, saar.

INTP　　E47　　10^9¥

Interest payment on consumer's loan, current, saar.

INTG　　E48　　10^9¥

Government interest payments on bond, current, saar.

KF　　S96　　10^9¥

Gross fixed capital stock (net of *RF*), real, sa.

KIP　　S97　　10^9¥

Private corporate inventory stock, real,

sa.

KLA   E33 $10^6\$$

Outstandings of long-term assets overseas.

KLL   E34 $10^6\$$

Outstandings of long-term liabilities overseas.

KOIL   E46 10^4kl

Stock of imported crude oil.

KSBA   E36 $10^6\$$

Foreign short-term assets of foreign exchange banks.

KSBL   E37 $10^6\$$

Foreign short-term liabilities of foreign exchange banks.

KSNN   E35 $10^6\$$

Net outstandings of overseas short-term assets (net of liabilities) in private non-banking sector.

KSP   S98 10^9¥

Accumulated personal savings.

L   S19 10^4

Total population at work, sa.

LB   E25 10^9¥

Loan outstandings from private banks.

LSA   E14 10^4

Number of self-employed, agriculture and fishery, sa.

LSNA   S18 10^4

Number of self-employed, non-agricultural, sa.

LW   S17 10^4

Number of employees, sa.

M   S8 10^9¥

Imports and income paid to abroad, NIA, real, saar.

M¥   S51 10^9¥

Imports and income paid to abroad, NIA, current, saar.

MB   S120 $10^6\$$

Merchandise imports, balance of payments basis.

MC   S119 $10^6\$$

Commodity imports, custom clearance basis, sa.

MC1   S113 $10^6\$$

Imports of food and beverage, custom clearance basis, sa.

MC24   S114 $10^6\$$

Imports of crude materials, custom clearance basis, sa.

MC3   S115 $10^6\$$

Imports of metal ores and scraps, custom clearance basis, sa.

MC5   S116 $10^6\$$

Imports of mineral fuels, custom clearance basis, sa.

MC6   S117 $10^6\$$

Imports of chemical products, custom clearance basis, sa.

MC78   S118 $10^6\$$

Imports of machineries and other mfg products, custom clearance basis, sa.

MFI   S122 $10^6\$$

Payments of freight and merchandise insurance.

MGS   S121 10^9¥

Imports of goods and services, NIA, real, saar.

MGS¥   S138 10^9¥

Imports of goods and services, NIA, current, saar.

MII   S124 $10^6\$$

Payments of investment income to abroad.

MS   S126 $10^6\$$

Total service imports, balance of payments basis.

MSG   E31 10^6\$

Payments for overseas government services.

MSO   S125 10^6\$

Payments for other services including non-merchandise insurance.

MT   S143 10^9¥

Factor income paid to abroad, NIA, real, saar.

MT¥   S141 10^9¥

Factor income paid to abroad, NIA, current, saar.

MTO   S123 10^6\$

Payments for tourism.

NL   S20 10^4

Total labor force.

O   S10

Industrial production index, 1975 = 100.

P   S53

GDP deflator, 1970 = 1.00, sa.

PC   S35

Consumption deflator, 1970 = 1.00, sa.

PCF   S55

Food consumption deflator, 1970 = 1.00, sa.

PCG   S37

Government consumption deflator, 1970 = 1.00, sa.

PCUS   E68

Consumption deflator in U.S., NIA, 1967 = 100.0, sa.

PE   S45

Deflator of goods and service exports,

1970 = 1.0, sa.

PEC   S135

Unit value index of commodity export in dollar term, 1975 = 1.00.

PEW   E63

Price index of world manufacturing export, 1970 = 1.0.

PIF   S71

Fixed investment deflator, 1970 = 1.00, sa.

PIG   S43

Government capital formation deflator, 1970 = 1.00, sa.

PIH   S41

Housing investment deflator, 1965 = 1.00, sa.

PM   S136

Deflator of goods and service imports, 1970 = 1.00, sa.

PMC1   E54

Unit value index of foodstuff imports, 1975 = 100.

PMC2   E55

Unit value index of *MC2* imports, 1975 = 100.

PMC3   E56

Unit value index of *MC3* imports, 1975 = 100.

PMC4   E57

Unit value index of *MC4* imports, 1975 = 100.

PMC5   E58

Unit value index of *MC5* imports, 1975 = 100.

PMC6   E59

Unit value index of *MC6* imports, 1975 = 100.

PMC7   E60

Unit value index of *MC7* imports,

1975=100.

PMC8   E61

Unit value index of *MC8* imports, 1975=100.

PMC24   S132

Deflator for *MC2*+*MC4*, derived from *PMC2* and *PMC4* price index, 1975=100.

PMC78   S133

Deflator for *MC7*+*MC8*, derived from *PMC7* and *PMC8* price index, 1975=100.

PMM   S62

Price index of imported materials (SITC0-4), 1975=100.

PW   S31

Wholesale price index (mining and mfg), 1975=100.

PWA   S65

Wholesale price index for foodstuffs and inedible agricultural product, 1975=100.

PWC3   S57

Wholesale price index for metal products, 1975=100.

PWC24   S59

Wholesale price index for textiles and miscellaneous products, 1975=100.

PWC6   S61

Wholesale price index for chemical products, 1975=100.

PWM   S33

Wholesale price index for manufacturing products, 1975=100.

Q1   E80

Seasonal dummy for the first quarter.

Q2   E81

Seasonal dummy for the second quarter.

Q3   E82

Seasonal dummy for the third quarter.

RC1   E17

Corporate income tax rate.

RC2   E18

Corporate income tax rate as applied to dividend payment credit.

RED   E71

Euro-dollar rate.

REX   E69

Index of yen value against U.S. dollar, 1.0 before 1971.3.

RF   S95 10^9¥

Removal and scrappage of capital stock, real, saar.

RFL3   E70

Average of long-term bond yield (U.S., U.K. and G.E.).

RLB   E28

Average loan rate by bank, percentage.

RMCF   E74

Ratio of import cargo shipped by foreign vessels, per cent.

RMF   E76

Ratio of payments for merchandise freight and insurance to total payments of freight and insurance.

RU   S22

Rate of unemployment = U/NL.

RWG   E16

Ratio of wage bills in government consumption (estimate from annual statistics).

RXCJ   E73

Ratio of export cargo shipped by Japanese vessels, per cent.

SC　　　S89
Corporate saving, current, saar.

SG　　　S91
Government current surplus, saar.

SI　　　E4　　　10^9¥
Personal contributions to social insurance, NIA, saar.

SP　　　S88　　　10^9¥
Personal saving, saar.

SUB　　　E20　　　10^9¥
Government subsidy to firms, NIA, saar.

TC　　　S86　　　10^9¥
Corporate tax (private corporations), NIA, saar.

TI　　　S84　　　10^9¥
Indirect tax, NIA, saar.

TP　　　S85　　　10^9¥
Personal income tax, NIA, saar.

TR　　　E3　　　10^9¥
Social security benefit to persons, NIA, saar.

TRGP　　　E27　　　10^9¥
Net Transfer from government to private sector, other than social security benefit, NIA, saar.

TRHO　　　E12　　　10^9¥
Transfer payments by household other than *SI* and *TP*, NIA, saar.

TROH　　　E1　　　10^9¥
Transfer receipts by household other than *TR*, NIA, saar.

TW　　　E43
Quantum index of world manufacturing export, 1975 = 100.

U　　　S21　　　10^4
Number of unemployment.

ULC　　　S26
Unit labor cost, $ULC = YW/O$.

W　　　S25
Wage income employee, saar, adjusted by index of hours worked, $W = YW/LW/H$.

XB　　　S106　　　10^6\$
Merchandise exports, balance of payments basis.

XC　　　S105　　　10^6\$
Commodity exports, custom clearance basis, sa.

XFI　　　S108　　　10^6\$
Receipts of freight and merchandise insurance.

XII　　　S110　　　10^6\$
Receipts of investment income from abroad.

XS　　　S112　　　10^6\$
Total service exports, balance of payments basis.

XSG　　　E30　　　10^6\$
Government receipts of services from abroad.

XSO　　　S111　　　10^6\$
Receipts of other services including non-merchandise insurance.

XTO　　　S109　　　10^6\$
Receipts from tourism.

Y　　　S72　　　10^9¥
National income, NIA, saar.

YC　　　S80　　　10^9¥
Corporate income, NIA, saar.

YCA　　　S100　　　10^9¥
Corporate income after dividend payment, NIA, saar.

YCG   E10 10^9 ¥

Income of government enterprise, saar
(Government payments of interests
on public debt).

YD   S87 10^9 ¥

Personal disposable income, NIA, saar.

YDUS   E67 10^9 $

Personal disposable income, USA, saar.

YDIH   S81 10^9 ¥

Corporate dividend payments to household, NIA, saar.

YP   S83 10^9 ¥

Personal income, saar.

YRENT   E44 10^9 ¥

Imputed rent of household, NIA, saar.

YRG   E10 10^9 ¥

Property income of general government, NIA, saar.

YRH   S77 10^9 ¥

Household's property income excluding

YDIH, NIA, saar.

YRNH   E45 10^9 ¥

Property income of private non-profit institution, NIA, saar.

YS   S76 10^9 ¥

Income of self-employed, saar.

YSA   S74 10^9 ¥

Income of self-employed, agriculture and fishery, saar.

YSNA   S74 10^9 ¥

Income of self-employed, non-agricultural, saar.

YW   S73 10^9 ¥

Compensation of employees, saar.

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saar : seasonally adjusted at annual rate.

sa : seasonally adjusted at quarterly rate.

NIA: National Income Account.

Real terms in NIA are expressed in 1970 yen.

III   The Forecast of the Japanese Economy: 1978–1979

Since 1977, particularly at the time of LINK Kyoto Meeting, major economic policy issues in Japan have been (1) accelerating domestic activity and (2) narrowing of trade surplus, namely, a persuit of double targets which are in trade-off relations. The economy has been virtually free from inflation since the latter half of 1977. The substantial upvaluation of the currency seems to have stabilized domestic prices and completely destroyed the public's inflationary expectation. From the viewpoint of a textbook macroeconomic theory, the economy has no dilemma or trilemma in her persuing both domestic and external equilibria. But in practice the Government's heavy reliance on deficit financing has come to a "limit," and a fairly conservative view on the fiscal deficit is being shared in common by not only Government bureaucrats, especially those of Ministry of Finance and the governmental party, but also by most of the opposition parties.

In the fiscal 1978 which is about to conclude, the Government adopted one of the most expansionary budget in the modern history of Japan, with 33 per cent of its revenue dependent upon bond issuance. Besides, some additional spending was added last Fall, when Mr. Fukuda

realized that it would be utterly difficult to keep his words given at the Bonn Summit. Towards the end of fiscal 1978, the growth rate is rising. However, the rate of growth for the whole fiscal 1978 is likely to end up close to 6 per cent. This is way below the original target posted by the Fukuda Cabinet, but I should say (and have been contending) that the original target was unrealistic from the start. Judging from a recent change in the trend of trade balance; that is, a fast shrinking of trade surplus in real terms (National Income Account), more than 7 per cent growth of the domestic aggregate demand could not bring about 6 per cent growth of GNP. However, with the present rate of modest expansion, domestic situation in employment/unemployment is not likely to worsen further. Then why did Mr. Fukuda insist with 7 per cent? Perhaps there was a certain confusion in identifying policy targets and policy instruments.

The long-waited change in the balance of payments has taken place. As shown by Table 1 upward trend in imports and downward one in exports (both in quantity) are clear. Durable consumption

goods to be shipped to the U.S. have been declining in number of units. Imports of various manufactured goods are growing at the annual rate of 30 per cent in values. A tight control by the Government on foodstuff import is being undermined by increasing 'semi-processed' food products that are not under the control. Clearly, with certain time lags, the balance of payments in current account has begun to contract. As long as the Government successfully manage the pressure for protecting domestic industries from competitive imports, this tendency will add a momentum.

Bright aspect in the private sector is P & E investment. A recent survey of corporate investment plans indicates that majority firms are revising upward their planned capital outlays. Power industry has been a leader in picking-up P & E investment, followed by service industries. It is observed that investment surveys tend to underestimate recent trend mainly because these surveys heavily rely on large corporations while their relative share in the total capital spending has been dwindling. Fiscal 1978 will have seen an increase in private real fixed

Table 1   Recent Trend of Trade and Balance of Payments in Japan

	1977.4	1978.1	2	3	4	1979 Jan.
Goods exports value	21.03	23.12	23.24	24.37	24.98	—
Volume change (%)	1.1	1.5	—5.7	—0.2	0.3	—5.0
Goods imports, fob	15.85	16.27	16.48	17.56	20.63	—
Volume change (%)	1.2	2.5	1.8	1.7	5.7	2.3
Trade balance	5.17	6.89	6.75	6.81	4.35	0.94
Current account	3.74	5.07	4.80	4.60	2.19	0.34
Basic balance	2.57	5.41	1.18	0.58	—2.81	0.14
Over-all account	3.18	6.04	0.91	1.10	—2.07	0.77
Exchange rate (¥/$)	251	240	220	191	190	197

investment by 7–8 per cent over fiscal 1979. As for 1979, views are divided, but an optimistic view seems to be obtaining more supports among economists and forecasting institutions. Some of the factors that reinforce optimism of P & E investment outlook are: 1) stagnant period has lasted long enough and technical obsolescence has proceeded; 2) in view of high energy cost and related price system change some industries have "dead stocks" to be written-off while they are still counted as "productive capacity" which causes an under estimation in capacity utilization.

Housing investment is not so promising. Housing starts (for private dwelling units) have been hovering around one and half million for the past three years, despite the Governments' effort for stimulating it. The well-known high price of land tends to shift peoples' preference to urban multiplex from single houses with small land site. Thanks to the Government's stimulus, housing loans have become cheaper, and average age of young family that starts to buy dwelling units has come down. However, a lack of public control on land use and a potentially strong price expectation on land, supply of medium priced multiplex is limited. We foresee that the number of housing starts will remain at the present level and that only growth factor in this market is growth in size and interior outlay per unit.

Let us proceed to discussing 1979

budget that starts from this April. Mr. Ohira's budget plan, now in the Diet, was drawn up under the strong fear of further rising fiscal deficit. The planned spending seems to be only slightly expansionary (11.0 per cent increase over the 1978 budget while the anticipated rate of current GNP growth is 9.9 per cent). Among the spending items a heavy stress is put on public investment. Public fixed investment in N.I.A. is assumed to grow at about 15 per cent, while public consumption at 9. With this modest spending plan, fiscal 1979 will see further increase in the dependency ratio on bond issuance, from 33 to 37 per cent.

Overall outlook of the economy this year is not as good as last year. Major differences are seen in (1) weaker public expenditure and (2) contraction of trade surplus. General public's pessimistic view on the future economy has not improved. It might be reinforced by the unfavorable situation in labor market where unemployment rate among male workforce with family, age of 45 and up, is rising. Hence it is unlikely that we will see a further decline in personal saving ratio as long as there is no improvement in labor market.

The details of our forecast for the years 1979 and 1980 are presented in the following tables from 2 to 11. They are made in February, 1979.

Forecast by Kyoto University Quarterly Model, Feb., 1979.

Table 2 Real Expenditures, Production and Unemployment

		1978CY	1979CY	1980CY
C	P. Consp	56.527	59.276	61.877
	%	5.24	4.86	4.39
IH	Hous. I	7.355	7.644	8.212
	%	9.33	3.94	7.42
IF	Fixed I	16.067	17.324	18.525
	%	4.88	7.83	6.93
IIP	Inv. Chg.	1.500	1.898	2.021
	%	−16.05	26.58	6.44
IG	Gov. I	11.774	13.333	14.583
	%	17.47	13.25	9.37
CG	Gov. Csptn	9.221	9.536	9.758
	%	6.41	3.41	2.33
IIG	Gov. Inv. Chg.	0.238	0.262	0.212
	%	35.38	10.06	−19.05
E	Export	18.601	18.185	19.069
	%	2.20	−2.24	4.86
M	Import	12.518	13.413	14.536
	%	6.17	7.15	8.37
GNP		108.764	114.045	119.720
	%	6.07	4.86	4.98
O	Prod. Ind.	138.981	146.669	156.885
	% 1970=100	6.62	5.53	6.96
U	Unemp. (10⁴)	122.352	126.720	114.282

Table 3 Current Values of Expenditures

		1978CY	1979CY	1980CY
C¥		114.365	125.275	137.991
	%	10.20	9.54	10.15
IH¥		14.171	15.420	17.267
	%	10.92	8.81	11.98
IF¥		25.129	28.194	31.614
	%	6.69	12.20	12.13
IIF¥		2.152	2.863	3.171
	%	−29.38	33.05	10.77
IG¥		20.407	24.058	27.567
	%	20.11	17.89	14.59
CG¥		22.038	23.933	26.037
	%	8.81	8.60	8.79
IIG¥		0.323	0.325	0.300
	%	−13.30	0.54	−7.69
E¥		24.174	22.956	24.347
	%	−5.52	−5.04	6.06
M¥		20.245	21.226	23.081
	%	−10.34	4.85	8.74
GNP¥		202.513	221.797	245.211
	%	10.19	9.52	10.56

Table 4 Trade and Balance of Payments

		1978CY	1979CY	1980CY
XC	Exp. fob	96.700	100.454	112.825
	%	20.80	3.88	12.31
MC	Imp. cif	77.426	90.009	104.303
	%	9.40	16.25	15.88
MC1	foodstuff	10.780	12.357	13.523
	%	6.48	14.63	9.44
MC24	Oth. Mat	9.403	9.662	10.385
	%	−2.04	2.75	7.49
MC3	Met. Ore.	4.850	5.226	5.612
	%	2.07	7.75	7.38
MC5	Min. Fuel	32.089	37.639	43.079
	%	3.36	17.30	14.45
MC6	Chemical	3.331	3.725	4.344
	%	10.65	11.82	16.60
MC78	Mach & Oth Mfc.	16.971	21.399	27.360
	%	40.39	26.09	27.85
XB	Exp.	95.430	99.282	111.563
	%	20.34	4.04	12.37
MB	Imf. fob	67.838	78.648	90.684
	%	9.75	15.94	15.30
BT	Trade Bal.	27.592	20.634	20.879
XSNA	Exp. Serv.	19.183	22.133	25.279
	%	17.30	15.38	14.21
MSNA	Imp. Serv.	27.833	32.823	38.109
	%	24.18	17.93	16.11
BS	Bal. Invisible	−8.651	−10.690	−12.831
BC	Current Ac.	18.369	9.444	7.649

Table 5 Price Index and Deflators

		1978CY	1979CY	1980CY
PW	Wholesale	164.320	166.053	170.146
	%	−2.53	1.05	2.46
PC	Cons. Def.	2.023	2.113	2.230
	%	4.16	4.46	5.52
PIF	Def. IF	1.564	1.627	1.706
	%	1.73	4.02	4.87
PIH	Def. IH	1.927	2.016	2.102
	%	1.46	4.61	4.26
PE	Def. Exp.	1.298	1.262	1.277
	%	−7.65	−2.76	1.15
PIM	Def. Imp.	1.620	1.582	1.588
	%	−15.41	−2.31	0.34
PIG	Def. IG	1.733	1.804	1.890
	%	2.23	4.07	4.76
PCG	Def. CG	2.390	2.510	2.668
	%	2.04	5.01	6.33

Table 6 Wage and Income Distribution

		1978CY	1979CY	1980CY
W	Wage Earng	0.299	0.315	0.336
	%	6.26	5.41	6.54
YW	Wage Income	106.454	113.180	122.063
	%	7.43	6.32	7.85
YS	Self Emp.	23.837	26.150	28.635
	%	7.60	9.70	9.51
YR	Rentier's	22.402	24.875	28.369
	%	8.98	11.04	14.04
YC	Corporate	19.117	21.425	26.844
	%	30.34	12.07	25.29
YP	Personal	173.139	188.373	206.624
	%	9.15	8.80	9.69
YD	Disposabl	150.907	163.719	179.424
	%	8.41	8.49	9.59
YDI	Dividend	1.603	1.907	2.312
	%	9.77	18.98	21.24
YG	Gov. Corp.	1.729	1.875	2.017
	%	11.04	8.46	7.60
Y	Nat. Income	167.573	183.519	202.956
	%	10.07	9.52	10.59

Table 7 Fiscal Balance

		1978CY	1979CY	1980CY
TP	Pers. Tax	9.774	10.847	12.228
	%	9.42	10.98	12.73
TC	Corp. Tax	8.079	10.205	13.110
	%	11.79	26.31	28.47
TI	Indirect T.	14.049	15.334	16.874
	%	10.37	9.14	10.04
SI	Soc. Ins.	12.458	13.807	14.971
	% Contrib.	18.84	10.83	8.43
YG		1.729	1.875	2.017
	%	11.04	8.46	7.60
CG¥		22.038	23.933	26.037
	%	8.81	8.60	8.79
TR	Transfer	18.843	22.262	25.244
	%	22.68	18.15	13.40
TRGA		0.090	0.090	0.090
	%	6.47	−0.83	0.28
INTG	Gov. Int.	4.847	6.102	7.364
	% on Bond	36.37	25.91	20.68
SG	Gov. Sav.	0.271	−0.319	0.465
	%	−86.94	−217.69	−245.95
DG	Gov. Dep.	2.107	2.418	2.731
	%	19.33	14.77	12.92
IG¥		20.407	24.058	27.567
	%	20.11	17.89	14.59
IIG¥		0.323	0.325	0.300
	%	−13.30	0.54	−7.69
BG	Dem. For.	−18.352	−22.283	−24.670
	% Ext. Fund	33.42	21.42	10.71

Table 8 Saving and Investment Balance

		1978CY	1979CY	1980CY
SC	Corp. Sav.	9.435	9.313	11.421
	%	57.79	−1.30	22.64
SP	Pers. Sav.	36.542	38.444	41.433
	%	10.60	5.20	7.78
SG	Gov. Sav.	0.271	−0.319	0.465
	%	−86.94	−217.69	−245.95
DF	CCA Fixed	17.452	18.823	20.509
	%	7.77	7.86	8.95
DH	CCA Hous.	3.938	4.466	5.052
	%	13.75	13.41	13.13
DG	CCA Gov.	2.107	2.418	2.731
	%	19.33	14.77	12.92
IG¥		20.407	24.058	27.567
	%	20.11	17.89	14.59
IIG¥		0.323	0.325	0.300
	%	−13.30	0.54	−7.69
IH¥		14.171	15.420	17.267
	%	10.92	8.81	11.98
IF¥		25.129	28.194	31.614
	%	6.69	12.20	12.13
IIP¥		2.152	2.863	3.171
	%	−29.38	33.05	10.77

Table 9 Labor Supply, Market

		1978CY	1979CY	1980CY
NL	Work Force	5508.809	5552.484	5588.074
	%	1.05	0.79	0.64
LW	Employee	3812.014	3845.988	3893.064
	%	1.15	0.89	1.22
LSA	Self. Emplyd	584.791	579.000	571.000
	% Agric.	−0.50	−0.99	−1.38
LSNA	Self Emplyd	989.657	1000.781	1009.733
	% Non-Agric.	0.49	1.12	0.89
L	Total at Work	5386.457	5425.766	5473.793
	%	0.84	0.73	0.89
U		122.352	126.720	114.282
	%	10.98	3.57	−9.81
RU		0.022	0.023	0.020
	%	9.84	2.75	−10.38
H	Hours Worked	93.452	93.423	93.423
	%	−0.04	−0.03	0.0

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Table 10　Exogenous Variables

		1978CY	1979CY	1980CY
IG¥		20.407	24.058	27.567
	%	20.11	17.89	14.59
CG¥		22.038	23.933	26.037
	%	8.81	8.60	8.79
TR		18.843	22.262	25.244
	%	22.68	18.15	13.40
SI		12.458	13.807	14.971
	%	18.84	10.83	8.43
LSA		584.791	579.000	571.000
	%	−0.50	−0.99	−1.38
LB	Bank Loan	1278.881	1404.139	1562.788
	% outstdgs	9.37	9.79	11.30
RLB	B. Loan Rate	6.400	6.000	6.037
	%	−15.36	−6.25	0.62
DLBH	Hous. Loan	937.268	1037.250	996.685
	% New	12.46	10.67	−3.91
TW	World Exp.	482.325	503.075	526.925
	% Index	6.18	4.30	4.74
PEW	MFG. Exp.	2.090	2.277	2.472
	% Priced Ind.	9.51	8.95	8.55
RECHUS	Exch.	207.663	187.451	176.687
	% Rate	28.67	10.78	6.09
PMC1	Imp. Pric	240.500	256.369	271.033
	% Ind. Food	6.74	6.60	5.72
PMC2	Text. Mat	247.000	248.490	261.754
	%	−3.00	0.60	5.34
PMC3	Metal	150.000	155.625	161.050
	%	−0.19	3.75	3.49
PMC4	Oth. Mat	221.400	227.257	241.120
	%	−3.35	2.65	6.10
PMC5	Min. Fuel	610.000	680.925	732.625
	%	1.42	11.63	7.59
PMC6	Chemical	173.125	182.265	194.296
	%	6.23	5.28	6.60
PMC7	Machin.	157.372	170.773	184.478
	%	4.88	8.52	8.03
PMC8	Oth. Mfc	196.850	212.600	228.000
	%	11.81	8.00	7.24

Table 11　Great Ratios

	1978CY	1979CY	1980CY
CY/YD	0.758	0.765	0.769
YW/Y	0.635	0.617	0.601
YC/Y	0.114	0.117	0.132
IF/GNP	0.148	0.152	0.155
KF/GNP	1.369	1.382	1.394
GNP/L	0.020	0.021	0.022
%	5.18	4.10	4.05
O/LW	0.036	0.038	0.040
%	5.41	4.60	5.67