GENERAL MANUAL OF ENERGY SUPPLY-DEMAND FORECAST III

IMPROVEMENT OF ENERGY SUPPLY-DEMAND FORECAST MODEL

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GENERAL MANUAL OF ENERGY SUPPLY-DEMAND FORECAST III
– IMPROVEMENT OF ENERGY SUPPLY-DEMAND FORECAST MODEL –

In accordance with the implementation of the fiscal 1979 data bank project , a tentative energy supply-demand forecast model was built. In fiscal 1979, a software group was engaged in the development of a series of software required for the operation of the energy supply-demand forecast model, while a data analysis group carried out, with the use of NEEDS-TS prepared by the Nihon Keizai Shimbun, the preparation of a model which could be constructed based on available data. Results of these activities are discussed in the GENERAL MANUALS OF ENERGY SUPPLY-DEMAND FORCAST I AND II.

Described below are objectives related to the preparation of the energy supply-demand forecast model for fiscal 1980.

1. The implementation of the fiscal 1979 data bank project allowed Indonesia to develop software specifically for the model building and supply-demand forecast. In consequence, the energy supply-demand forecast model for fiscal 1980 is to be made without using NEEDS-TS of the Nihon Keizai Shinbun but with the use of software originally developed. To this end, the Indonesian staff are required to master the method to utilize software originally developed.
2. Now that data on the year of 1979 are available, the forecast model is to be rebuilt to include these data and necessary improvements are also to be made, if any. While a concise energy balance table of OECD type was manually prepared last year, the fiscal 1980 version will be prepared automatically by a computer by carefully improving the column and row configuration. Accordingly, the energy supply-demand forecast model is to be rebuilt in accordance with the improved configuration of the concise energy balance table.
3. At present, it is not realistic to build a supply-demand forecast model with the use of a detailed energy balance table because available data on macro-economics are limited and data on energy are considered not so reliable judging from their fluctuations. However, to prepare for the future when a supply-demand forecast model can be built in such a manner, the Indonesian staff are required to learn the method of model building from the medium- and long-term energy supply-demand forecast model of Japan prepared by the Institute of Energy Economics.

With these objectives in mind, staff have been engaged in building of the energy supply-demand forecast model during the second training program held in Tokyo for a month. The most favorable result of the training program is the fact that the Indonesian staff came to get familiar with the program developed by their own group to the level that they could master it.

As for improvements of the model, the configuration of the fiscal 1979 model was funda-

mentally adopted after all though operations were made to change several regression equations. Factors behind the adoptation of the fiscal 1979 model were the lack of macro-economic data which formed a fatal limiting condition and sharp fluctuations in some types of energy data which did not permit significant regression analysis. Also, partly due to the time limit, it was not possible to build a model based on a full recognition of peculiarities and causual relations among individual types of macro-data on the Indonesian economy. However, it is thought that the Indonesian staff have fully understood of the method of model building through the implementation of the fiscal 1979 and 1980 data bank projects.

The implementation of the fiscal 1980 project has already realized construction of the sub-data bank, which permits accumulation of macro-economic data and/or basic energy statistics. Also, the development of software for econometric simulator makes the operation of the supply-demand forecast model much more easier. Now that basic conditions were thus fulfilled, it becomes possible to enter the first stage of the development of a practical energy supply-demand forecast model in the coming days.

Development of a practical energy supply-demand forecast model essentially requires following points.

1. To prepare as reliable statistical data as possible based on accurate totalization of basic energy statistics by making the best use of the energy supply-demand data bank system, and to accumulate the statistical data in the sub-data bank. The data accumulated in the sub-data bank are used for calculations, results of which are used as basic data for building a supply-demand forecast model.
2. To improve data on macro-economics, which are to be accumulated in the sub-data bank.
3. To make thoroughgoing analysis on data on macro-economics and energy final consumption representing the past achievements, and to fully grasp causual relations and peculiarities among individual data on the Indonesian economy.
4. To make regression analysis and build a model based on the results obtained from the aforementioned analysis.
5. The majority of variables incorporated with the existing model are exogenous variables which require additional data to elucidate the model. Hence, those which accept transformation through thoroughgoing analysis are to be transformed into endogenous variables.
6. To set values of exogenous variables at the most appropriate levels with due regard to various factors including future programs.
7. To fully grasp characteristics and reliability of the model built in such a manner as aforementioned by conducting partial, whole and final tests.
8. To conduct simulation of the completed model by changing values of exogenous variables several times, and to fully grasp expected fluctuations in forecast results.

When built with due regard to the points mentioned above, the model can fully meet practical requirements.

Discussed so far are the outline of operations to improve the energy supply-demand forecast model for fiscal 1980, based on which points forming important factors in the future developments of models are summarized. Described in the following section are operations conducted in fiscal 1980 in relation to the energy supply-demand forecast model.

1. Regression Analysis

1-1 Relations in Macro-Economics

Though regression analysis were made on a variety of macro-econimic data, a total of 17 regression equations listed below were adopted as significant ones.

It should be noted that addition of the fiscal 1979 data resulted in differences in coefficients and that some equations have different explanatory variables from those incorporated with the model built in fiscal 1979. Examples of the new explanatory variables include import deflator PIMP&, national income NI73&, consumer commodity price index CPI73&, government final consumption expenditure deflator PCG&, national income deflator PNI& and index of mining and manufacturing industrial production IIP73&.

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[illegible]
DATE [illegible]
[illegible]  ---------1---------2---------3---------4---------5---------6---------7---------8   [illegible]   [illegible]

    1     [illegible]

                         REGRESSION ANALYSIS REPORT                                   [illegible]
    --- [illegible] ---

    [illegible]
    [illegible]

    YEAR   ESTIMATED   OBSERVED    RESIDUAL
    1971    932.5753   [illegible]  -41.7753
    1972   [illegible] [illegible]  [illegible]
    1973   [illegible] 1354.[illegible] 41.1297
    1974   [illegible] [illegible]  21.1287
    1975   [illegible] [illegible]  -15.4406
    1976   [illegible] [illegible]  -111.5555
    1977   [illegible] [illegible]  77.7338
    1978   [illegible] [illegible]  -13.5732
    1979   [illegible] [illegible]  -5.3276

    [illegible] = -783.269726   2.54276*[illegible]
                         (T =  [illegible])
                         (SD=  [illegible])

    R**2=  [illegible]   SE=  59.[illegible]   D.W.=  2.[illegible]

                    ----- INPUT DATA -----

    YEAR   [illegible]   [illegible]
    1971   [illegible]   [illegible]
    1972   [illegible]   734.339
    1973   [illegible]   [illegible]
    1974   [illegible]   [illegible]
    1975   [illegible]   [illegible]
    1976   [illegible]   [illegible]
    1977   [illegible]   [illegible]
    1978   1776.390      [illegible]
    1979   [illegible]   [illegible]

                    ----- SIMPLE CORRELATION -----

           [illegible]   [illegible]
    [illegible]  1.00000
    [illegible]  [illegible]   1.00000
```

(4)

```
CONTROL DATA AND ERROR REPORT
DATE  80/12/ 2                                                                          PAGE    3
SEQ.NO   ---------1---------2---------3---------4---------5---------6---------7---------8   DATA NO.   ERROR MESSAGES

   1       1972 1979BFV=PVE75I+IEXCOS,LAST(BFV)1;                                              3

                          R E G R E S S I O N   A N A L Y S I S   R E P O R T                  (PSCC 21

     --- DEFINITIONS ---

     BFV =P(N2)
     IV1=PVE75I+IEXCOS
     IV2=LAST(P(N2))

     YEAR      ESTIMATED     OBSERVED      RESIDUAL          O=OBSERVED     E=ESTIMATED    X=COMMON

     1972       97.2378       93.2020       -4.0354
     1973      104.4351      100.0000       -4.4351
     1974      127.6132      137.4300        9.8168
     1975      147.2781      154.3300        7.0519
     1976      155.3967      165.5420       10.1453
     1977      171.4765      169.5080       -1.9685
     1978      175.3755      165.0230      -10.3525
     1979      233.0720      232.5500       -0.5220

     BFV =    39.03612+   0.61176*IV1   + 0.41854*IV2
                         (T =   5.0111)  (T =   2.6493)
                         (SE=   0.1114)  (SE=   0.1533)

     R**2=   0.965410     SE=      9.1201     DW=     1.5687

                     ----- INPUT DATA -----

     YEAR       BFV        IV1        IV2

     1972     93.202     54.000     83.742
     1973    100.000     66.000     93.202
     1974    137.430     92.000    100.000
     1975    154.330    160.000    137.430
     1976    165.542    192.000    154.330
     1977    169.508    110.000    165.542
     1978    165.023    139.540    169.508
     1979    232.550    221.170    165.023

                     ----- SIMPLE CORRELATION -----

               BFV        IV1        IV2

     BFV     1.00000
     IV1     0.95730    1.00000
     IV2     0.85122    0.73169    1.00000
```

CONTROLL DATA AND ERROR REPORT
DATE 83/12/ 2 | PAGE 4
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

4 1971 1979E1734=E3F738; 4

R E G R E S S I O N A N A L Y S I S R E P O R T PAGE(3)

--- DEFINITIONS ---

GFP =E1734
INV1=E3F738

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED	+=ESTIMATED	X=COMMON
1971	4793.7084	4832.6310	38.9226	.X		
1972	5202.3812	5207.5090	5.1188	.	X	
1973	5741.3183	5749.6990	-0.7193	.	X	
1974	6145.4112	6075.8310	-70.4192	.	+*	
1975	6430.6165	6403.8989	-26.7125	.	+*	
1976	6943.3974	6959.8989	16.5014	.		X
1977	7404.7225	7440.8010	36.0785	.		*+
1978	7876.2656	7881.8010	5.5346	.		X
1979	8241.5398	8239.3920	-2.1320	.		X.

GFP = 436.51504+ 0.78551*INV1
(T = 94.738)
(SD= 0.008)

R**2= 0.997221 SE= 35.2510 DWS= 1.2783

----- INPUT DATA -----

YEAR	GFP	INV1
1971	4832.631	5549.619
1972	5207.509	6087.197
1973	5749.699	6753.318
1974	6075.831	7269.089
1975	6403.898	7630.091
1976	6959.898	8156.361
1977	7440.801	8870.878
1978	7881.801	9471.197
1979	8239.398	9936.197

----- SIMPLE CORRELATION -----

	GFP	INV1
GFP	1.00000	
INV1	0.99761	1.00000

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CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8

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DATA NO. ERROR MESSAGES

5 1971 1979WP1731=PINPA,ORD;

5

REGRESSION ANALYSIS REPORT

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--- DEFINITIONS ---

DEV =WP1731
INV1=PINPA
INV2=ORD

*=OBSERVED +=ESTIMATED X=COMMON

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	61.8179	63.6940	1.8761
1972	23.1422	22.6110	-0.5312
1973	91.9575	100.0000	8.0425
1974	140.5556	147.7730	7.2174
1975	163.2832	157.3250	-5.9582
1976	199.4123	189.2550	-10.1573
1977	210.6843	205.7330	-4.9513
1978	232.9291	225.4760	-7.4531
1979	331.8949	343.3100	11.4151

DEV = -11.451241 0.57251*INV1 0.00976*INV2
(T = 2.155) (T = 4.159)
(SE= 0.266) (SE= 0.002)

R**2= 0.992142 SE= 8.9170 DW= 3.4118

----- INPUT DATA -----

YEAR	DEV	INV1	INV2
1971	63.694	83.747	3137.600
1972	22.611	93.202	3871.920
1973	100.000	103.060	5719.650
1974	147.773	137.430	9957.870
1975	157.325	154.330	10745.891
1976	189.255	165.542	13337.457
1977	205.733	169.500	16250.878
1978	225.476	165.823	18658.500
1979	343.310	232.950	26204.301

----- SIMPLE CORRELATION -----

	DEV	INV1	INV2
DEV	1.00000		
INV1	0.96976	1.00000	
INV2	0.99249	0.96879	1.00000

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CONTROLL DATA AND ERROR REPORT                                                         PAGE    6
DATE  80/12/ 2                                                                         DATA NO.     ERROR MESSAGES
SEQ.NO   ---------1---------2---------3---------4---------5---------6---------7---------8

  6      1972 1979(CP1731=SP1738,LAG1(CP1738))                                           6
```

R E G R E S S I O N   A N A L Y S I S   R E P O R T

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--- DEFINITIONS ---

```
DPV =CP1738
IDV1=SP1738
IDV2=LAG1(CP1738)
```

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1972	88.3789	76.3620	-12.0169
1973	100.5210	100.0490	-0.5210
1974	132.5913	140.7440	8.1127
1975	144.4036	147.5440	3.1404
1976	190.7982	200.8700	9.9718
1977	222.4563	222.7650	0.3087
1978	244.3372	240.8370	-3.4992
1979	295.0675	289.9120	-5.1555

*=OBSERVED +=ESTIMATED X=COMMON

```
DPV =   10.32720+   0.32154*IDV1+   0.70754*IDV2
                    (T =   3.2601)  (T =   5.6761)
                    (SE=   0.0993)  (SE=   0.1251)

R**2=   0.958313    SE=    9.4524   DW=    1.0371
```

----- INPUT DATA -----

YEAR	DPV	IDV1	IDV2
1972	76.392	22.611	71.492
1973	100.049	100.049	76.392
1974	140.744	142.771	100.049
1975	147.544	152.325	140.744
1976	200.870	180.255	147.544
1977	222.765	205.733	200.870
1978	240.837	225.476	222.765
1979	289.912	343.318	240.837

----- SIMPLE CORRELATION -----

	DPV	IDV1	IDV2
DPV	1.00000		
IDV1	0.96334	1.00000	
IDV2	0.98474	0.92474	1.00000

(8)

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CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2                                                                                          PAGE   7
SEQ.NO  ------- -1---------2---------3---------4---------5---------6---------7---------8  DATA NO.   ERROR MESSAGES

  7       1971 1979ECF8=F1?28,N1738;                                                                 7
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REGRESSION ANALYSIS REPORT

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--- DEFINITIONS ---

DEP =ECF8
IND1=F1?28
IND2=N1738

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED +=ESTIMATED X=COMMON
1971	66.6963	70.8430	4.1467	
1972	83.7007	79.5470	-4.1537	
1973	105.0340	100.0000	-5.0340	
1974	132.7077	133.4970	0.7893	
1975	151.3844	153.9020	2.0756	
1976	171.9735	173.4330	1.4594	
1977	189.7432	193.6580	3.9148	
1978	207.2753	207.1690	-0.1063	
1979	248.5028	245.0810	-3.4218	

```
DEP =  -134.18464+     0.63025*IND1+     0.03152*IND2
                       (T =    5.249)    (T =   19.441)
                       (S=     0.022)    (S=     0.003)

R**2=    0.996545     SE=     4.4121     DW=     1.4255
```

----- INPUT DATA -----

YEAR	DEP	IND1	IND2
1971	70.843	83.747	4832.801
1972	79.547	93.202	5207.524
1973	100.000	100.000	5749.691
1974	133.497	137.430	6375.831
1975	153.902	154.330	6403.898
1976	173.433	165.542	6659.898
1977	193.658	160.528	7410.091
1978	207.169	165.823	7881.891
1979	245.081	232.954	8239.351

----- SIMPLE CORRELATION -----

	DEP	IND1	IND2
DEP	1.00000		
IND1	0.96592	1.00000	
IND2	0.99058	0.92870	1.00000

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2   PAGE 8
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

8 1971 1979PCGS=PCFS,WP1738;   8

R E G R E S S I O N   A N A L Y S I S   R E P O R T   PAGE(7)

--- DEFINITIONS ---

DPV =PCGS
IDV1=PCFS
IDV2=WP1738

*=OBSERVED +=ESTIMATED X=COMMON

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	62.5988	65.7920	3.1932
1972	72.0319	73.8100	1.7781
1973	96.9138	100.0000	3.0862
1974	139.0336	131.4970	-7.5366
1975	156.2708	150.0540	-6.2168
1976	178.6558	177.3780	-1.2778
1977	202.5452	198.8970	-3.6482
1978	219.4783	229.9800	10.5017
1979	288.1007	288.4110	0.3103

DPV = -10.42975+ 0.65144*IDV1+ 0.42199*IDV2
(T = 4.2121) (T = 3.9621)
(SD= 0.155) (SD= 0.107)

R**2= 0.994742 SE= 4.3199 DW= 1.8439

----- INPUT DATA -----

YEAR	DPV	IDV1	IDV2
1971	65.792	70.843	63.678
1972	73.810	79.547	72.411
1973	100.000	100.000	100.000
1974	131.497	133.897	147.721
1975	150.054	153.982	157.325
1976	177.378	173.453	180.255
1977	198.897	193.658	205.733
1978	229.980	207.169	225.476
1979	288.411	245.881	343.310

----- SIMPLE CORRELATION -----

	DPV	IDV1	IDV2
DPV	1.00000		
IDV1	0.99845	1.00000	
IDV2	0.98954	0.92057	1.00000

(10)

```
CONTROLL DATA AND ERROR REPORT
DATE  80/12/ 2                                                                                  PAGE    9
SEQ.NO    ---------1---------2---------3---------4---------5---------6---------7---------8   DATA NO.    ERROR MESSAGES

  9       1971 1979DEP=PIIPA:PIA78,NIB;
```

R E G R E S S I O N   A N A L Y S I S   R E P O R T   PAGE(8)

--- DEFINITIONS ---

DEP =PIIPA
INV1=PIA78
INV2=NIB

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED +=ESTIMATED X=COMMON
1971	71.2149	66.9050	-4.3099	.*+ .
1972	81.4954	83.8430	2.3476	. +* .
1973	94.7312	100.0400	5.3088	. +* .
1974	135.5356	124.7920	-10.7436	. * + .
1975	154.9074	155.8420	0.9346	. X .
1976	175.1003	183.2210	8.1207	. + * .
1977	186.3443	188.7250	2.3807	. +* .
1978	203.8102	200.2160	-3.5942	. X .
1979	282.9573	280.5550	-2.4023	. X.

DEP =   1.28351+   0.44926*INV1+   0.00475*INV2
                  (T =   3.426)   (T =   4.282)
                  (SE=   0.1309) (SE=   0.0011)

R**2=   0.993319   SE=   6.3511   DW=   2.2203

----- INPUT DATA -----

YEAR	DEP	INV1	INV2
1971	66.905	83.747	3132.650
1972	83.843	93.202	3871.950
1973	100.040	100.000	5749.691
1974	124.792	132.430	9357.898
1975	155.842	154.330	10745.831
1976	183.221	165.542	13337.693
1977	188.725	169.558	14250.878
1978	200.210	165.823	18658.500
1979	280.555	232.950	26209.381

----- SIMPLE CORRELATION -----

	DEP	INV1	INV2
DEP	1.00000		
INV1	0.93635	1.00000	
INV2	0.97540	0.91879	1.00000

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2 PAGE 10
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

10 1979 AR79PEXPO=PCROILE,IAGRPE73; 10

R E G R E S S I O N A N A L Y S I S R E P O R T

PAGE(9)

--- DEFINITIONS ---

DPV =PEXPO
IDV1=PCROILE
IDV2=IAGRPE73

YEAR	ESTIMATED	OBSERVED	RESIDUAL	O=OBSERVED	*=ESTIMATED	X=COMMON
1971	62.2420	59.5530	-2.6890	.X		
1972	74.4310	67.1000	-7.3310	. O*		
1973	97.3545	100.0000	2.6455	. X		
1974	229.3964	221.2549	-8.1414	.	O *	
1975	219.0223	225.0240	6.0017	.	*O	
1976	244.2981	243.6410	-0.6581	.	O*	
1977	245.7141	256.0470	10.3329	.	* O	
1978	263.5390	269.5380	5.9990	.	*O	
1979	482.4926	476.3690	-6.1236	.		O*.

DPV = -5.654614 + 15.76584*IDV1 + 0.56852*IDV2
(T = 21.764) (T = 2.976)
(SD= 0.724) (SD= 0.170)

R**2= 0.997352 SE= 2.5611 D.W.= 2.1875

----- INPUT DATA -----

YEAR	DPV	IDV1	IDV2
1971	59.553	2.190	60.437
1972	67.100	2.470	79.857
1973	100.000	3.270	100.040
1974	221.256	11.560	101.915
1975	225.024	11.540	81.604
1976	243.641	12.360	110.665
1977	256.047	12.390	118.929
1978	269.538	12.700	131.420
1979	476.369	25.500	169.122

----- SIMPLE CORRELATION -----

	DPV	IDV1	IDV2
DPV	1.00000		
IDV1	0.99869	1.00000	
IDV2	0.88786	0.65842	1.00000

(12)

CONTROLL DATA AND ERROR REPORT
DATE 85/12/ 2 PAGE 11
SEQ.NO. ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

11 1971 1979DFV1=PGDP1; 11

R E G R E S S I O N   A N A L Y S I S   R E P O R T PAGE(50)

--- DEFINITIONS ---

DFV =PNIB
IBVI=PGDPI

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED +=ESTIMATED X=COMMON
1971	44.7391	44.9230	0.1839	.X
1972	74.1118	74.3520	0.2326	. X
1973	99.9152	100.6099	0.6548	. X
1974	149.2597	149.6020	-0.9777	. X
1975	148.4149	147.8810	-0.6939	. X
1976	193.3665	194.4300	1.0635	. X
1977	219.6922	218.4150	-0.6962	. X
1978*	237.4744	236.7290	-0.7454	. X
1979	317.3565	318.0370	0.6785	. X.

DFV = -4.251819 + 1.012237*IBVI
(T = 351.5691)
(SB= 0.6431)

R**2= 0.999143 SE= 0.8869 DW= 2.6723

----- INPUT DATA -----

YEAR	DFV	IBVI
1971	44.923	44.225
1972	74.352	75.224
1973	100.060	104.040
1974	149.602	142.310
1975	147.881	145.677
1976	194.430	197.624
1977	218.936	218.354
1978	236.729	231.939
1979	318.037	319.576

----- SIMPLE CORRELATION -----

	DFV	IBVI
DFV	1.00000	
IBVI	0.99997	1.00000

CONTROLL DATA AND ERROR REPORT
DATE 89/12/ 2 PAGE 12
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

12 1972 1979CP738=B1738,LAG1(CP738)1 12

R E G R E S S I O N A N A L Y S I S R E P O R T

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--- DEFINITIONS ---

DEP =CP738
IDV1=B1738
IDV2=LAG1(CP738)

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED	#=ESTIMATED	I=COMMON
1972	4387.6114	4276.5990	-111.4124			
1973	4309.2026	4290.6519	-18.5838			
1974	5220.6344	5453.6020	232.9676			
1975	5491.9895	5470.6980	-93.8615			
1976	6047.2412	6031.6020	-15.6392			
1977	6520.1976	6933.1990	-24.7856			
1978	6950.9249	6955.5020	4.1776			
1979	7370.2076	7314.6950	86.4914			

DEP = -261.040474 + 0.56452*IDV1+ 0.43453*IDV2
(T = 2.0511) (T = 1.5172)
(SD= 0.2761) (SD= 0.2864)

R**2= 0.993169 SE= 123.9817 DW= 1.9371

----- INPUT DATA -----

YEAR	DEP	IDV1	IDV2
1972	4276.599	5207.540	3993.454
1973	4290.499	5740.699	4276.599
1974	5453.602	6075.851	4290.699
1975	5470.698	6493.898	5453.652
1976	6031.802	6859.870	5470.858
1977	6933.199	7460.801	6931.802
1978	6955.102	7881.831	6933.159
1979	7314.699	8239.378	6955.102

----- SIMPLE CORRELATION -----

	DEP	IDV1	IDV2
DEP	1.00000		
IDV1	0.99275	1.00000	
IDV2	0.99085	0.98728	1.00000

(14)

```
CONTROL DATA AND ERROR REPORT
DATE 83/02/ 2                                                                                  PAGE  13
SEQ.NO   ---------1---------2---------3---------4---------5---------6---------7---------8    DATA NO.    ERROR MESSAGES

  13     1971 1979IP73E=CP73E,CG73E:                                                            13
```

REGRESSION ANALYSIS REPORT

PAGE(12)

--- DEFINITIONS ---

DEP =IIP73E
INV1=CP73E
INV2=CG73E

*=OBSERVED   +=ESTIMATED   X=COMMON

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	859.0934	866.9900	7.8966
1972	982.7026	1032.0000	49.2974
1973	1259.7287	1208.0000	-51.7287
1974	1437.9228	1440.0000	2.0772
1975	1642.2214	1650.2000	7.9786
1976	1803.0917	1749.2000	-53.8917
1977	2037.2413	2027.5000	-9.7413
1978	2289.0111	2332.9000	43.8889
1979	2458.3860	2462.7000	4.3140

```
DEP =  -859.03671+    0.34274*INV1+    0.65339*INV2
                      (T =   2.065)    (T =   2.884)
                      (SE=   0.166)    (SE=   0.227)

R**2=   0.995952    SE=    49.1761    D.W.=    2.4927
```

----- INPUT DATA -----

YEAR	DEP	INV1	INV2
1971	866.990	3598.430	518.304
1972	1032.000	4276.199	541.904
1973	1208.000	4790.451	718.854
1974	1440.000	5453.652	841.000
1975	1650.200	5678.851	835.500
1976	1749.200	6931.652	876.700
1977	2027.500	6133.151	1044.450
1978	2332.900	6955.102	1158.900
1979	2462.700	7318.659	1188.620

----- SIMPLE CORRELATION -----

	DEP	INV1	INV2
DEP	1.00000		
INV1	0.99516	1.00000	
INV2	0.97195	0.98637	1.00000

CONTROLL DATA AND ERROR REPORT
DATE 83/12/ 2 PAGE 10
SEQ.NO +---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

10 1971 1979I(P738=SBP738) 10

REGRESSION ANALYSES REPORT PAGE(13)

--- DEFINITIONS ---

BFP =IBP738
INV1=SBP738

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	694.3590	729.7000	35.3410
1972	964.2558	925.3000	-38.9558
1973	1322.1358	1315.6000	-6.5358
1974	1591.4926	1669.0500	77.5574
1975	1779.7362	1830.0000	50.2638
1976	2053.8453	1946.4500	-107.3953
1977	2420.4969	2370.2000	-50.2969
1978	2739.5767	2749.2000	9.6233
1979	2982.0927	3040.1000	58.0073

*=OBSERVED #=ESTIMATED X=COMMON

BFP = -2260.02937+ 0.52154*INV1
(T = 35.954)
(SB= 0.015)

R**2= 0.994616 SE= 41.0700 DW= 1.5974

----- INPUT DATA -----

YEAR	BFP	INV1
1971	729.700	5541.619
1972	925.300	6962.119
1973	1315.600	6753.378
1974	1669.050	7269.490
1975	1830.000	7630.001
1976	1946.450	8156.311
1977	2370.200	8270.618
1978	2749.200	9471.199
1979	3040.100	9936.199

----- SIMPLE CORRELATION -----

	BFP	INV1
BFP	1.00000	
INV1	0.99730	1.00000

(16)

```
CONTROLL DATA AND ERROR REPORT
DATE  80/12/ 2                                                                                          PAGE  15
SEQ.NO  ---------1---------2---------3---------4---------5---------6---------7---------8   DATA NO.   ERROR MESSAGES

   15      1971 1979IIP238=IIP238,EXP238;                                                    15
```

R E G R E S S I O N   A N A L Y S I S   R E P O R T PAGE(14)

--- DEFINITIONS ---

DPV =IIP238
IDV1=IIP236
IDV2=EXP238

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED	+=ESTIMATED	X=COMMON
1971	68.4978	69.4300	0.9322			
1972	83.1718	83.8100	0.6382			
1973	98.3988	100.0000	1.6012			
1974	112.1114	111.1400	-0.9714			
1975	120.0419	117.4000	-2.6419			
1976	129.3111	130.4300	1.1189			
1977	152.2256	146.8750	-5.3506			
1978	169.4325	171.4000	1.9215			
1979	180.4112	183.1440	2.7428			

DPV = -0.343104 + 0.05386*IDV1 + 0.02484*IDV2
(T = 9.3511) (T = 2.5531)
(SD= 0.0051) (SD= 0.0101)

R**2= 0.995475   SE= 2.1604   DW= 2.2678

----- INPUT DATA -----

YEAR	DPV	IDV1	IDV2
1971	69.430	860.590	890.850
1972	83.810	1032.640	1123.420
1973	100.000	1206.000	1354.300
1974	111.140	1440.000	1303.450
1975	117.400	1650.200	1265.600
1976	130.430	1749.200	1425.200
1977	146.875	2027.500	1713.600
1978	171.400	2332.900	1776.300
1979	183.144	2462.700	1934.300

----- SIMPLE CORRELATION -----

	DPV	IDV1	IDV2
DPV	1.00000		
IDV1	0.99527	1.00000	
IDV2	0.96419	0.94830	1.00000

CONTROL DATA AND ERROR REPORT
DATE 80/12/ 2 PAGE 16
SEQ.NO ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8 DATA NO. ERROR MESSAGES

16 1971 1979SNP731=SNP731; 16

R E G R E S S I O N A N A L Y S I S R E P O R T PAGE(15)

--- DEFINITIONS ---

DFP =SNP731
INVI=SNP731

YEAR	ESTIMATED	OBSERVED	RESIDUAL		*=OBSERVED	+=ESTIMATED	X=CHANGE
1971	5426.7644	5465.0000	38.2356	.X			
1972	5891.8155	5896.1000	4.2845	.	X		
1973	6508.8843	6507.6990	-1.1853	.	X		
1974	6972.4381	6950.0400	-22.3981	.		+*	
1975	7297.6655	7270.5000	-27.1655	.		+*	
1976	7720.0876	7789.8010	69.7134	.			X
1977	8412.5070	8448.1990	35.6920	.			*+
1978	8952.1748	8957.3980	5.2232	.			X
1979	9370.2077	9367.8980	-2.3097	.			X.

DFP = 437.61056+ 0.95956*INVI
(T = 165.474)
(SB= 0.0058)

R**2= 0.999374 SE= 36.1656 DW= 1.2826

----- INPUT DATA -----

YEAR	DFP	INVI
1971	5465.000	5547.639
1972	5896.100	6167.451
1973	6507.699	6751.398
1974	6950.040	7269.059
1975	7270.500	7630.891
1976	7789.801	8154.301
1977	8448.199	8870.618
1978	8957.398	9421.119
1979	9367.898	9934.159

----- SIMPLE CORRELATION -----

	DFP	INVI
DFP	1.00000	
INVI	0.99969	1.00000

(18)

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2 PAGE 17
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

17 1971 1979DPP=IDVI; 17

R E G R E S S I O N A N A L Y S I S R E P O R T PAGE(18)

--- DEFINITIONS ---

DPP =[illegible]
IDVI=[illegible]

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED +=ESTIMATED X=COMMON
1971	3573.2497	3605.3000	32.0503	.X
1972	4427.2841	4404.6000	-22.6841	. X
1973	6523.5031	6507.6890	-15.8141	. X
1974	10319.7918	10200.9990	-118.7928	. +*
1975	12161.9643	12086.8010	-75.1633	. X
1976	15265.9651	15434.5000	168.5349	. +*
1977	18258.1321	18332.0990	73.9669	. X
1978	21089.9937	21115.3010	25.3073	. X
1979	29413.3369	29336.9080	-76.4289	. X.

DPP = 57.538410 0.95714*IDVI
(T = 269.442)
(SD= 0.004)

R**2= 0.999817 SE= 92.2022 DW= 1.5789

----- INPUT DATA -----

YEAR	DPP	IDVI
1971	3605.300	3472.000
1972	4404.600	4560.000
1973	6507.689	6753.398
1974	10200.999	10760.800
1975	12086.801	12612.500
1976	15434.500	15886.199
1977	18332.099	19110.651
1978	21115.301	21987.398
1979	29336.908	30668.899

----- SIMPLE CORRELATION -----

	DPP	IDVI
DPP	1.00000	
IDVI	0.99955	1.00000

```
CONTROLL DATA AND ERROR REPORT
DATE 84/12/ 2                                                          PAGE  18
SEQ.NO  ---------1---------2---------3---------4---------5---------6---------7---------8  DATA NO.   ERROR MESSAGES

  18     1972 1979(TRPSSA=SSP731,LAG1(TRPSSA));                                          18

                 R E G R E S S I O N   A N A L Y S I S   R E P O R T                    PAGE(17)
     --- DEFINITIONS ---

     DPV =TRPSSA
     IDV1=SSP731
     IDV2=LAG1(TRPSSA)

     YEAR      ESTIMATED     OBSERVED      RESIDUAL          *=OBSERVED    +=ESTIMATED    X=COMMON

     1972      558.3332      557.1520      -1.1812  .X
     1973      673.2377      682.2090       8.9713  .        X
     1974      822.2169      808.9790     -13.2379  .              *+
     1975      942.8181      962.7330      19.9149  .                        +*
     1976     1113.8586     1101.3670     -12.4916  .                                  *+
     1977     1301.4568     1296.9590      -4.4978  .                                            X
     1978     1541.9772     1549.8130       7.8358  .                                                      X
     1979     1698.5045     1690.0700      -8.4345  .                                                               X.

     DPV =  -411.65754+    0.15737*IDV1+     0.54198*IDV2
                          (T =    8.550)   (T =    7.781)
                          (SB=    0.018)   (SB=    0.070)

     R**2=    0.997360     SE=     11.9897     DW=       3.3847

                        ----- INPUT DATA -----

     YEAR       DPV        IDV1       IDV2

     1972    557.152   4087.199    544.417
     1973    682.209   4753.390    557.152
     1974    808.979   7269.000    682.209
     1975    962.733   7430.901    808.979
     1976   1101.367   8136.301    962.733
     1977   1296.959   8820.178   1101.367
     1978   1549.813   9170.199   1296.959
     1979   1690.070   9916.199   1549.813

                        ----- SIMPLE CORRELATION -----

               DPV         IDV1         IDV2

     DPV    1.00000
     IDV1   0.99588      1.00000
     IDV2   0.99418      0.98300      1.00000
```

I-2 Relations among Final Consumption of Energies and Macro-Economics

As regression equations representing relations between final consumption of individual types of energy and macro-economics, a total of 12 listed below were adopted as significant ones. Though regression analysis were made on a number of other data related to final consumption of energies, satisfactory results were not produced due to sharp fluctuations in data.

```
CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2                                                                   PAGE  19
SEQ.NO   ---------1---------2---------3---------4---------5---------6---------7---------8  DATA NO.   ERROR MESSAGES

 19      1971 1979DIC05A10=I0PS01:                                                           19

                     R E G R E S S I O N   A N A L Y S I S   R E P O R T                        PAGE(10)
         --- DEFINITIONS ---

         DFV =CIC05A10
         INV1=I0PS01

         YEAR    ESTIMATED    OBSERVED    RESIDUAL        *=OBSERVED   +=ESTIMATED   X=COMMON

         1971    1936.3455    2062.0000    125.6545
         1972    1959.1188    2122.0000    162.8816
         1973    2102.8685    2048.0000   -136.8685
         1974    2419.3511    2365.0000    -14.3511
         1975    2684.2551    2601.0000    -83.2551
         1976    2932.5574    2849.0000    -92.5574
         1977    3211.0814    3197.0000    -14.0814
         1978    3682.3792    3644.0000    -18.3792
         1979    3984.6503    4154.0000    171.3397

         DFV =   912.987451     1.70791*INV1
                               (T =   16.3291)
                               (SD=    0.1093)

         R**2=   0.974920     SE=   128.3422     DW=     1.2269

                          ----- INPUT DATA -----

         YEAR       DFV        INV1

         1971    2062.000    544.417
         1972    2122.000    557.152
         1973    2048.000    682.219
         1974    2365.000    808.979
         1975    2601.000    912.733
         1976    2849.000   1101.367
         1977    3197.000   1218.399
         1978    3644.000   1549.813
         1979    4154.000   1690.078

                          ----- SIMPLE CORRELATION -----

                  DFV        INV1

         DFV     1.00000
         INV1    0.98713    1.00000
```

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2 PAGE 20
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

20 1971 1979CICGERIB=SIP731; 20

R E G R E S S I O N A N A L Y S I S R E P O R T PAGE(19)

--- DEFINITIONS ---

DFV =CICGERIB
IDV1=SIP731

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED	+=ESTIMATED	X=COMMON
1971	197.7169	192.0000	-5.7169			
1972	263.4952	252.0000	-11.4952			
1973	350.9736	349.0000	-2.9736			
1974	416.8212	419.0000	2.1788			
1975	462.6865	515.0000	52.3135			
1976	529.5143	539.0000	9.4857			
1977	620.5784	569.0000	-51.5784			
1978	697.0188	677.0000	-20.0188			
1979	756.2148	784.0000	27.7652			

DFV = -560.813874 + 0.12732*IDV1
(T = 17.3171)
(SE= 0.0073)

R**2= 0.977190 SE= 31.2588 DUR= 1.8771

----- INPUT DATA -----

YEAR	DFV	IDV1
1971	192.000	5549.659
1972	252.000	6067.119
1973	349.000	6753.318
1974	419.000	7269.045
1975	515.000	7630.081
1976	539.000	8154.381
1977	569.000	8879.998
1978	677.000	9471.139
1979	784.000	9938.197

----- SIMPLE CORRELATION -----

	DFV	IDV1
DFV	1.00000	
IDV1	0.98853	1.00000

(22)

```
CONTROLL DATA AND ERROR REPORT
DATE  80/12/ 2                                                        PAGE  21
SEQ.NO ----+----1---------2---------3---------4---------5---------6---------7---------8   DATA NO.   ERROR MESSAGES

21     1972 1979CTC07817=CP738,LAS1(CTC07817);
```

R E G R E S S I O N   A N A L Y S I S   R E P O R T   PAGE(20)

--- DEFINITIONS ---

DPV =CTC07817
IDV1=CP738
IDV2=LAS1(CTC07817)

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED	+=ESTIMATED	X=COMMON
1972	4229.4887	4247.0000	17.5113	.X		
1973	4762.0035	4759.0000	-3.0035	. X		
1974	5440.0451	5439.0000	-1.0451	. X		
1975	6181.6281	6222.0000	40.3719	.	+*	
1976	6837.9771	6826.0000	-11.9771	.	*+	
1977	7587.9110	7577.0000	-10.9110	.		X
1978	8434.0814	8475.0000	40.9186	.		X
1979	9348.2341	9355.0000	6.7659	.		X.

DPV = -597.43528+   0.52934*IDV1+   0.75886*IDV2
                   (T =   5.028)   (T = 11.118)
                   (SE=   0.105)   (SE=   0.068)

R**2=   0.999457   SE=   43.2862   DW=   2.4576

----- INPUT DATA -----

YEAR	DPV	IDV1	IDV2
1972	4247.000	4278.199	3795.000
1973	4759.000	4790.499	4247.000
1974	5439.000	5453.602	4759.000
1975	6222.000	5470.098	5439.000
1976	6826.000	6831.692	6222.000
1977	7577.000	6433.199	6826.000
1978	8475.000	6555.102	7577.000
1979	9355.000	7314.699	8475.000

----- SIMPLE CORRELATION -----

	DPV	IDV1	IDV2
DPV	1.00000		
IDV1	0.99294	1.00000	
IDV2	0.99836	0.95577	1.00000

CONTROLL DATA AND ERROR REPORT
DATE 83/12/ 2 PAGE 24
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

24 1976 IDPETC(DENIS=GDP738,PA38L/PGNP8) 24

REGRESSION ANALYSIS REPORT

PAGE(22)

--- DEFINITIONS ---

DEP =ETCDEMID
IDV1=GDP738
IDV2=PA38L/PGNP8

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	339.0783	303.0000	-36.0783
1972	564.8240	684.0000	119.1760
1973	1193.9136	942.0000	-251.9136
1974	1848.9849	1743.0000	-105.9849
1975	1840.9268	2220.0000	379.0732
1976	2021.2378	2043.0000	21.7622
1977	2372.1118	2294.0000	-78.1118
1978	2673.8815	2520.0000	-153.8815
1979	2872.3323	2972.0000	99.6677

O=OBSERVED *=ESTIMATED X=COMMON

DEP = 1834.023464 0.26323*IDV1- 15604.61775*IDV2
(T = 1.8527) (T = -2.3591)
(SE= 0.1421) (SE= 6614.1181)

R**2= 0.958182 SE= 213.9610 D-W= 2.2811

----- INPUT DATA -----

YEAR	DEP	IDV1	IDV2
1971	303.000	5549.699	0.189
1972	684.000	6167.159	0.162
1973	942.000	6753.378	0.155
1974	1743.000	7269.060	0.122
1975	2220.000	7630.801	0.128
1976	2043.000	8156.386	0.126
1977	2294.000	8870.898	0.115
1978	2520.000	9471.199	0.104
1979	2972.000	9936.159	0.101

----- SIMPLE CORRELATION -----

	DEP	IDV1	IDV2
DEP	1.00000		
IDV1	0.95875	1.00000	
IDV2	-0.96513	-0.93516	1.00000

(24)

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 2
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 PAGE 25 DATA NO. ERROR MESSAGES

25 1971 1979DFV=C(C05R16=IIP238; 25

R E G R E S S I O N   A N A L Y S I S   R E P O R T

PAGE(23)

--- DEFINITIONS ---

DFV =C(C05R16
IIP1=IIP238

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	269.8128	395.0000	111.1272
1972	412.6186	419.0000	6.3814
1973	540.9976	549.0000	-51.9976
1974	653.4996	554.0000	-199.4996
1975	720.4707	695.0000	-25.4707
1976	839.0993	789.0000	-49.0993
1977	999.6235	1060.0000	27.3765
1978	1215.4494	1180.0000	-35.4494
1979	1323.0416	1388.0000	64.9584

*=OBSERVED +=ESTIMATED X=COMMON

DFV = -355.53756+ 9.16535*IIP1
(T = 12.073)
(SB= 0.712)

R**2= 0.954471 SE= 76.9698 DWR= 1.5927

----- INPUT DATA -----

YEAR	DFV	IIP1
1971	395.000	49.430
1972	419.000	83.818
1973	549.000	100.900
1974	554.000	111.140
1975	695.000	117.450
1976	789.000	130.430
1977	1060.000	145.075
1978	1180.000	171.454
1979	1388.000	183.144

----- SIMPLE CORRELATION -----

	DFV	IIP1
DFV	1.00000	
IIP1	0.97553	1.00000

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 3 PAGE 1
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

1 1974 1979([illegible]=[illegible],[illegible]);

R E G R E S S I O N A N A L Y S I S R E P O R T PAGE(1)

--- DEFINITIONS ---

DPV =[illegible]
IDV1=[illegible]
IDV2=[illegible]

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1974	423.4913	343.8000	-69.6913
1975	458.4125	445.0000	-13.4125
1976	255.3320	889.0000	133.6479
1977	1080.2330	1052.0000	-28.2330
1978	1360.0144	1291.0000	-69.0144
1979	1480.8610	1510.0500	37.1392

*=OBSERVED #=ESTIMATED X=COMMON

DPV = -1058.57658+ 12.71872*IDV1+ 0.00178*IDV2
(T = 5.375) (T = 1.454)
(SB= 2.372) (SB= 0.001)

R**2= 0.972750 SE= 97.1267 DW= 2.2014

----- INPUT DATA -----

YEAR	DPV	IDV1	IDV2
1974	343.800	111.110	541854.000
1975	445.000	117.450	476847.000
1976	889.000	139.030	550387.000
1977	1052.000	148.075	615180.000
1978	1291.000	171.424	598840.000
1979	1510.000	183.144	584445.000

----- SIMPLE CORRELATION -----

	DPV	IDV1	IDV2
DPV	1.00000		
IDV1	0.97716	1.00000	
IDV2	0.84202	0.77418	1.00000

(26)

CONTROL DATA AND ERROR REPORT
DATE 80/12/ 3
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

PAGE 2

2 [illegible] 2

REGRESSION ANALYSIS REPORT

PAGE(2)

--- DEFINITIONS ---

DEP =[illegible]
INDI=[illegible]

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	467.6555	441.0000	-26.6555
1972	595.9570	665.0000	69.0430
1973	740.3739	750.0000	9.6261
1974	839.7442	856.0000	16.2558
1975	845.5842	823.0000	-22.5842
1976	1051.8135	1049.0000	-2.8135
1977	1158.5651	1140.0000	-18.5651
1978	1377.3871	1360.0000	-17.3871
1979	1482.0234	1525.0000	42.9766

*=OBSERVED +=ESTIMATED X=COMMON

DEP = -151.639324 [illegible] 8.92813*INDI
(T = 21.0773)
(SD= 0.4131)

R**2= 0.985585 SE= 44.0795 [illegible]= 2.1692

----- INPUT DATA -----

YEAR	DEP	INDI
1971	441.000	69.430
1972	665.000	83.810
1973	750.000	99.850
1974	856.000	111.003
1975	823.000	117.430
1976	1049.000	134.430
1977	1140.000	146.825
1978	1360.000	171.444
1979	1525.000	183.444

----- SIMPLE CORRELATION -----

	DEP	INDI
DEP	1.00000	
INDI	0.99277	1.00000

```
CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 3                                                                               PAGE   3
SEQ.NO   ----+----1---------2---------3---------4---------5---------6---------7---------8  DATA NO.    ERROR MESSAGES

  3      1971 1979CIC12K16=IIP738;                                                              3
```

R E G R E S S I O N   A N A L Y S I S   R E P O R T

PAGE(3)

--- DEFINITIONS ---

DEV =CIC12K16
IDV1=IIP738

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	-2.4822	0.3617	2.8439
1972	2.0141	2.1645	0.1504
1973	7.0703	5.3127	-1.7576
1974	10.5595	8.2274	-2.3322
1975	12.5147	13.2118	0.6971
1976	16.5911	16.2809	-0.3102
1977	21.7330	20.6949	-1.0382
1978	29.4022	28.0498	-1.3528
1979	33.0735	36.1761	3.1026

*=OBSERVED   +=ESTIMATED   X=COMMON

```
DEV =  -21.59132+    0.31268*IDV1
                    (T =   16.375)
                    (SB=    0.019)

R**2=   0.974620    SE=     2.1517    DW=     1.4076
```

----- INPUT DATA -----

YEAR	DEV	IDV1
1971	0.362	69.434
1972	2.164	83.814
1973	5.318	104.040
1974	8.227	111.949
1975	13.212	117.459
1976	16.281	138.430
1977	20.695	148.975
1978	28.050	171.184
1979	36.176	183.144

----- SIMPLE CORRELATION -----

	DEV	IDV1
DEV	1.00000	
IDV1	0.98723	1.00000

(28)

CONTROLL DATA AND ERROR REPORT
DATE 80/12/ 3

SEQ.NO	---------1---------2---------3---------4---------5---------6---------7---------8	PAGE 4 DATA NO.	ERROR MESSAGES
4	1971 1971CTC12817=CP738+	4	

REGRESSION ANALYSIS REPORT

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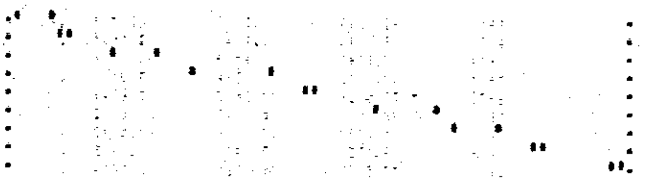
--- DEFINITIONS ---

DFP =CTC12817
INV1=CP738

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	-2.7659	0.9265	3.6924
1972	1.9279	2.4841	0.5562
1973	10.2247	6.2268	-4.0939
1974	21.0435	13.6557	-7.3879
1975	28.7204	24.1987	-4.5217
1976	31.4767	35.8369	5.1603
1977	37.0308	41.2848	4.2540
1978	45.5485	44.7134	-0.8351
1979	52.7227	51.5985	-1.1242

*=OBSERVED +=ESTIMATED $=COMMON



DFP = -42.941104 + 0.01632*INV1
(T = 12.9421)
(SE= 0.0013)

R**2= 0.956724 SE= 4.3326 D.W.= 1.1336

----- INPUT DATA -----

YEAR	DFP	INV1
1971	0.927	3199.434
1972	2.484	4276.199
1973	6.227	4719.493
1974	13.656	5459.102
1975	24.199	5670.878
1976	35.837	6031.102
1977	41.285	6433.159
1978	44.713	6955.402
1979	51.599	7314.659

----- SIMPLE CORRELATION -----

	DFP	INV1
DFP	1.00000	
INV1	0.97812	1.00000

CONTROL DATA AND ERROR REPORT
DATE 83/12/ 3
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 PAGE 6 DATA NO. ERROR MESSAGES

6 1974 1979CIC24U16=IIP231; 6

R E G R E S S I O N   A N A L Y S I S   R E P O R T PAGE(6)

--- DEFINITIONS ---

DPV =CIC24U16
IDV1=IIP231

YEAR	ESTIMATED	OBSERVED	RESIDUAL	*=OBSERVED	+=ESTIMATED	X=COMMON
1974	222.4445	194.0000	-28.0515			
1975	269.7018	253.0000	-16.7018			
1976	341.1228	392.0000	50.8772			
1977	492.4216	515.8000	23.3784			
1978	594.8151	559.4000	-35.4151			
1979	666.1746	672.0000	5.5254			

DPV = -483.89343+ 6.17202*IDV1
(T = 10.9183)
(SD= 0.5651)

R**2= 0.967456 SE= 36.1372 DW= 2.9217

----- INPUT DATA -----

YEAR	DPV	IDV1
1974	194.000	111.110
1975	253.000	117.410
1976	392.000	139.430
1977	515.800	148.875
1978	559.400	171.134
1979	672.000	183.144

----- SIMPLE CORRELATION -----

	DPV	IDV1
DPV	1.00000	
IDV1	0.98360	1.00000

(30)

CONTROLL DATA AND ERROR REPORT
DATE 88/12/ 3   PAGE 8
SEQ.NO ---------1---------2---------3---------4---------5---------6---------7---------8 DATA NO. ERROR MESSAGES

8   1971 1979LOG(CIC24117)=LOG(CP238))

R E G R E S S I O N   A N A L Y S I S   R E P O R T   PAGE(8)

--- DEFINITIONS ---

DEP =LOG(CIC24117)
IDV1=LOG(CP238)

YEAR	ESTIMATED	OBSERVED	RESIDUAL
1971	4.8650	4.9459	0.0809
1972	4.9632	5.0173	0.0541
1973	5.1288	5.1068	-0.0220
1974	5.3159	5.1705	-0.1454
1975	5.3746	5.3181	-0.0565
1976	5.4619	5.4116	-0.0503
1977	5.5555	5.5255	-0.0300
1978	5.6686	5.7104	0.0418
1979	5.7575	5.8529	0.0954

*=OBSERVED #=ESTIMATED $=COMMON

DEP =   -7.16157+   1.45018*IDV1
(T =   9.7673)
(SD=   0.1483)

R**2=   0.931835   SE=   0.0591   D.W.=   0.7426

----- INPUT DATA -----

YEAR	DEP	IDV1
1971	4.946	8.293
1972	5.017	8.361
1973	5.108	8.475
1974	5.170	8.604
1975	5.318	8.645
1976	5.412	8.705
1977	5.525	8.769
1978	5.710	8.847
1979	5.853	8.909

----- SIMPLE CORRELATION -----

	DEP	IDV1
DEP	1.00000	
IDV1	0.96521	1.00000

2. Macro-Economic Model

The macro-economic model was built using a total of 27 equations, whereby the 17 equations obtained from regression analysis on macro-economic data (see the preceding section) and 10 definition equations were combined with. The equations are described below. Values of parameter (PRM) are shown in the results of regression analysis.

```
      SUBROUTINE EQUAT(NP,KK,JJ)
      COMMON /PRAM/PRM (10,50),IOPRM(50),IPCTR,IPRL
      COMMON /DATA/DATA(2,33,350)
      REAL*8  DATA,PRM,TEMPV
C
C
C   ************
C   * MACRO    *
C   * ECONOMIC *
C   * SECTOR   *
C   ************
C
C
C  STRUCTURAL EQUATIONS
C
C
C  EXP73$=WIM75$;
      DATA(2,NP,6)=PRM(1,1)+PRM(2,1)*DATA(KK,NP,31)
C
C  PIMP$=PWE75$*REXCR$,LAG1(PIMP$);
      DATA(2,NP,23)=PRM(1,2)+PRM(2,2)*DATA(KK,NP,30)*DATA(KK,NP,32)
     -                      +PRM(3,2)*DATA(JJ,NP-1,23)
C
C  NI73$=(GDP73$);
      DATA(2,NP,17)=PRM(1,3)+PRM(2,3)*DATA(KK,NP,8)
C
C  WPI73$=PIMP$,NI$;
      DATA(2,NP,25)=PRM(1,4)+PRM(2,4)*DATA(KK,NP,23)
     -                      +PRM(3,4)*DATA(KK,NP,26)
C
C  CPI73$=WPI73$,LAG1(CPI73$);
      DATA(2,NP, 3)=PRM(1,5)+PRM(2,5)*DATA(KK,NP,25)
     -                      +PRM(3,5)*DATA(JJ,NP-1,3)
C
C  PCP$=PIMP$,NI73$;
      DATA(2,NP,19)=PRM(1,6)+PRM(2,6)*DATA(KK,NP,23)
     -                      +PRM(3,6)*DATA(KK,NP,17)
C
C  PCG=PCP$,WPI73$
      DATA(2,NP,18)=PRM(1,7)+PRM(2,7)*DATA(KK,NP,19)
     -                      +PRM(3,7)*DATA(KK,NP,25)
C
C  PITP$=PIMP$,NI$;
      DATA(2,NP,24)=PRM(1,8)+PRM(2,8)*DATA(KK,NP,23)
     -                      +PRM(3,8)*DATA(KK,NP,26)
C
```

(32)

```
C  PEXP$=PCROIL$,IAGRPE73$:
      DATA(2,NP,20)=PRM(1,9)*PRM(2,9)*DATA(KK,NP,28)
     -                      *PRM(3,9)*DATA(KK,NP,33)
C  PNI$=PGDP$:
      DATA(2,NP,16)=PRM(1,10)*PRM(2,10)*DATA(KK,NP,21)
C
C  CP73$=NI73$,LAG1(CP73$):
      DATA(2,NP, 4)=PRM(1,11)*PRM(2,11)*DATA(KK,NP,17)
     -                      *PRM(3,11)*DATA(JJ,NP-1, 4)
C
C  ITP73$=CP73$,CG73$:
      DATA(2,NP,15)=PRM(1,12)*PRM(2,12)*DATA(KK,NP,4)
     -                      *PRM(3,12)*DATA(KK,NP,1)
C
C  IMP73$=GDP73$:
      DATA(2,NP,13)=PRM(1,13)*PRM(2,13)*DATA(KK,NP,8)
C
C  IIP73$=ITP73$,EXP73$:
      DATA(2,NP,11)=PRM(1,14)*PRM(2,14)*DATA(KK,NP,15)
     -                      *PRM(3,14)*DATA(KK,NP, 6)
C
C  GNP73$=GDP73$:
      DATA(2,NP,10)=PRM(1,15)*PRM(2,15)*DATA(KK,NP,8)
C
C  GNP$=GDP$:
      DATA(2,NP, 9)=PRM(1,16)*PRM(2,16)*DATA(KK,NP,7)
C
C
C  DEFINITION EQUATIONS
C
C
C  CG73$=CG$/(PCG$/100.)
      DATA(2,NP, 1)=DATA(KK,NP,27)/(DATA(KK,NP,18)/100.)
C
C  GDP73$=CP73$+CG73$+ITP73$+EXP73$-IMP73$
      DATA(2,NP, 8)=DATA(KK,NP,4)+DATA(KK,NP,1)+DATA(KK,NP,15)
     -                      +DATA(KK,NP,6)-DATA(KK,NP,13)
C
C  CP$=CP73$*(PCP$/100.)
      DATA(2,NP,2)=DATA(KK,NP,4)*(DATA(KK,NP,19)/100.)
C
C  ITP$=ITP73$*(PITP$/100.)
      DATA(2,NP,14)=DATA(KK,NP,15)*(DATA(KK,NP,24)/100.)
C
C  EXP$=EXP73$*(PEXP$/100.)
      DATA(2,NP,5)=DATA(KK,NP,6)*(DATA(KK,NP,20)/100.)
C
C  IMP$=IMP73$*(PIMP$/100.)
      DATA(2,NP,12)=DATA(KK,NP,13)*(DATA(KK,NP,23)/100.)
C
C  GDP$=CP$+CG$+ITP$+EXP$-IMP$
      DATA(2,NP,7)=DATA(KK,NP,2)+DATA(KK,NP,27)+DATA(KK,NP,14)
     -                      +DATA(KK,NP, 5)-DATA(KK,NP,12)
C
C  PGDP$=100.*GDP$/GDP73$
```

```
      DATA(2,NP,21)=100.*DATA(KK,NP,7)/DATA(KK,NP,8)
C
C  PGNP$=100.*GNP$/GNP73$
      DATA(2,NP,22)=100.*DATA(KK,NP,9)/DATA(KK,NP,10)
C  NI$=NI73$*(PNI$/100.):
      DATA(2,NP,26)=DATA(KK,NP,17)*(DATA(KK,NP,16)/100.)
C IRPSG$=GDP73$,LAG1(IRPSG$):
      DATA(2,NP,227)=PRM(1,26)*PRM(2,26)*DATA(KK,NP,  8)
     -              *PRM(3,26)*DATA(JJ,NP-1,227)
```

3. Energy Supply-Demand Forecast Model

The energy supply-demand forecast model consists of a total of 181 equations including the 12 equations obtained from regression analysis on the relations between final consumption of energies and macro-economics and 169 characteristic equations. The model can be elucidated in linkage with the macro-economic model. Presented below are equations by type of energy.

(1) Solid Fuel bloc (CIC01)

```
C CIC01R01=CIC01R06-CIC01R05-CIC01R03-CIC01R02
      DATA(2,NP, 49)=DATA(KK,NP, 45)-DATA(KK,NP, 46)-DATA(KK,NP,47)
     -                -DATA(KK,NP, 48)
C
C CIC01R06=CIC01R14-(CIC01R12+CIC01R11+CIC01R10+CIC01R09+CIC01R13)
      DATA(2,NP, 45)=DATA(KK,NP, 39)-DATA(KK,NP, 41)-DATA(KK,NP, 42)
     -               -DATA(KK,NP, 43)-DATA(KK,NP, 44)-DATA(KK,NP,232)
C
C CIC01R14=CIC01R15+CIC01R20
      DATA(2,NP, 39)=DATA(KK,NP, 38)+DATA(KK,NP, 34)
C
C CIC01R15=CIC01R16+CIC01R17+CIC01R18
      DATA(2,NP, 38)=DATA(KK,NP, 37)+DATA(KK,NP, 36)+DATA(KK,NP, 35)
C
```

(2) Crude Oil bloc (CTC02)

```
C CIC02R03=CIC02R06-CIC02R01-CIC02R02-CIC02R05
      DATA(2,NP, 56)=DATA(KK,NP, 54)-DATA(KK,NP, 55)-DATA(KK,NP, 57)
     -               -DATA(KK,NP, 58)
C
C CIC02R06=-CIC02R07-CIC02R11-CIC02R12-CIC02R13
      DATA(2,NP, 54)=-DATA(KK,NP, 53)-DATA(KK,NP, 52)-DATA(KK,NP, 51)
     -               -DATA(KK,NP,50)
C
```

(3) Total of Petroleum Products bloc (CTC03)

```
C CIC03R02=CIC04R02+CIC11R02+CIC12R02+CIC13R02
      DATA(2,NP,77)=DATA(KK,NP,74)+DATA(KK,NP,189)+DATA(KK,NP,200)
     -              +DATA(KK,NP,211)
C
C CIC03R03=CIC04R03+CIC11R03+CIC12R03+CIC13R03
      DATA(2,NP,76)=DATA(KK,NP,93)+DATA(KK,NP,186)+DATA(KK,NP,197)
     -              +DATA(KK,NP,210)
C
C CIC03R04=CIC01R04
      DATA(2,NP,75)=DATA(KK,NP,92)
C
C CIC03R05=CIC04R05+CIC11R05+CIC12R05+CIC13R05
      DATA(2,NP,74)=DATA(KK,NP,91)+DATA(KK,NP,185)+DATA(KK,NP,196)
     -              +DATA(KK,NP,209)
C
C CIC03R06=CIC04R06+CIC11R06+CIC12R06+CIC13R06
      DATA(2,NP,73)=DATA(KK,NP,90)+DATA(KK,NP,155)+DATA(KK,NP,172)
     -              +DATA(KK,NP,208)
```

```
C
C CTC03R07=CTC04R07+CTC11R07+CTC12R07+CTC13R07
      DATA(2,NP,72)=DATA(KK,NP,39)+DATA(KK,NP,134)+DATA(KK,NP,196)
     -                +DATA(KK,NP,262)
C
C CTC03R08=CTC11R08+CTC12R08
      DATA(2,NP,71)=DATA(KK,NP,135)+DATA(KK,NP,195)
C
C CTC03R09=CTC04R09
      DATA(2,NP,70)=DATA(KK,NP,38)
C
C CTC03R10=CTC04R10
      DATA(2,NP,69)=DATA(KK,NP,82)
C
C CTC03R11=CTC04R11+CTC11R11+CTC13R11
      DATA(2,NP,68)=DATA(KK,NP,86)+DATA(KK,NP,182)+DATA(KK,NP,246)
C
C CTC03R12=CTC04R12+CTC11R12+CTC12R12+CTC13R12
      DATA(2,NP,67)=DATA(KK,NP,85)+DATA(KK,NP,181)+DATA(KK,NP,194)
     -                +DATA(KK,NP,205)
C
C CTC03R13=CTC04R13+CTC11R13+CTC12R13+CTC13R13
      DATA(2,NP,66)=DATA(KK,NP,84)+DATA(KK,NP,228)+DATA(KK,NP,193)
     -                +DATA(KK,NP,264)
C
C CTC03R14=CTC04R14+CTC11R14+CTC12R14+CTC13R14
      DATA(2,NP,65)=DATA(KK,NP,83)+DATA(KK,NP,179)+DATA(KK,NP,192)
     -                +DATA(KK,NP,275)
C
C CTC03R15=CTC04R15+CTC11R15+CTC12R15+CTC13R15
      DATA(2,NP,64)=DATA(KK,NP,82)+DATA(KK,NP,178)+DATA(KK,NP,191)
     -                +DATA(KK,NP,263)
C
C CTC03R16=CTC04R16+CTC11R16+CTC12R16+CTC13R16
      DATA(2,NP,63)=DATA(KK,NP,81)+DATA(KK,NP,177)+DATA(KK,NP,190)
     -                +DATA(KK,NP,262)
C
C CTC03R17=CTC04R17+CTC12R17
      DATA(2,NP,62)=DATA(KK,NP,80)+DATA(KK,NP,187)
C
C CTC03R18=CTC04R18+CTC12R18
      DATA(2,NP,61)=DATA(KK,NP,79)+DATA(KK,NP,186)
C
C CTC03R19=CTC04R19
      DATA(2,NP,60)=DATA(KK,NP,78)
C
C CTC03R20=CTC11R20+CTC12R20+CTC13R20
      DATA(2,NP,59)=DATA(KK,NP,176)+DATA(KK,NP,187)+DATA(KK,NP,201)
C
```

(4) Total of Fuel Oil bloc (CTC04)

```
C CTC04R02=CTC05R02+CTC06R02+CTC07R02+CTC08R02+CTC09R02+CTC10R02
      DATA(2,NP, 94)=DATA(KK,NP,104)+DATA(KK,NP,116)+DATA(KK,NP,126)
     -                +DATA(KK,NP,142)+DATA(KK,NP,159)+DATA(KK,NP,175)
C
C CTC04R03=CTC05R03+CTC06R03+CTC08R03+CTC09R03+CTC10R03
```

```
(36)          DATA(2,NP, 93)=DATA(KK,NP,103)+DATA(KK,NP,115)+DATA(KK,NP,141)
             -                 +DATA(KK,NP,158)+DATA(KK,NP,174)
      C
      C CIC04R04=CIC05R04+CIC06R04+CIC08R04+CIC09R04+CIC10R04
            DATA(2,NP,92)=DATA(KK,NP,102)+DATA(KK,NP,114)+DATA(KK,NP,140)
             -                 +DATA(KK,NP,157)+DATA(KK,NP,173)
      C
      C CIC04R05=CIC05R05+CIC06R05+CIC07R05+CIC08R05+CIC09R05+CIC10R05
            DATA(2,NP,91)=DATA(KK,NP, 40)+DATA(KK,NP,113)+DATA(KK,NP,125)
             -                 +DATA(KK,NP,139)+DATA(KK,NP,156)+DATA(KK,NP,172)
      C
      C CIC04R06=CIC05R06+CIC06R06+CIC07R06+CIC08R06+CIC09R06+CIC10R06
            DATA(2,NP,90)=DATA(KK,NP, 99)+DATA(KK,NP,112)+DATA(KK,NP,124)
             -                 +DATA(KK,NP,138)+DATA(KK,NP,154)+DATA(KK,NP,171)
      C CIC04R07=CIC05R07+CIC06R07+CIC07R07+CIC08R07+CIC09R07+CIC10R07
            DATA(2,NP,89)=DATA(KK,NP,101)+DATA(KK,NP,111)+DATA(KK,NP,123)
             -                 +DATA(KK,NP,137)+DATA(KK,NP,153)+DATA(KK,NP,170)
      C
      C
      C CIC04R09=CIC08R09+CIC09R09+CIC10R09
            DATA(2,NP,88)=DATA(KK,NP,136)+DATA(KK,NP,152)+DATA(KK,NP,169)
      C
      C CIC04R10=CIC07R10+CIC08R10+CIC09R10+CIC10R10
            DATA(2,NP,87)=DATA(KK,NP,122)+DATA(KK,NP,135)+DATA(KK,NP,151)
             -                 +DATA(KK,NP,168)
      C
      C CIC04R11=CIC08R11+CIC09R11+CIC10R11
            DATA(2,NP,86)=DATA(KK,NP,134)+DATA(KK,NP,150)+DATA(KK,NP,167)
      C
      C CIC04R12=CIC05R12+CIC06R12+CIC07R12+CIC08R12+CIC09R12+CIC10R12
            DATA(2,NP,85)=DATA(KK,NP,106)+DATA(KK,NP,110)+DATA(KK,NP,121)
             -                 +DATA(KK,NP,133)+DATA(KK,NP,149)+DATA(KK,NP,166)
      C
      C CIC04R13=CIC05R13+CIC06R13+CIC07R13+CIC08R13+CIC09R13+CIC10R13
            DATA(2,NP,84)=DATA(KK,NP,343)+DATA(KK,NP,109)+DATA(KK,NP,120)
             -                 +DATA(KK,NP,132)+DATA(KK,NP,148)+DATA(KK,NP,165)
      C
      C CIC04R14=CIC04R15
            DATA(2,NP,83)=DATA(KK,NP,82)
      C
      C CIC04R15=CIC04R16+CIC04R17+CIC04R18+CIC04R19
            DATA(2,NP,82)=DATA(KK,NP,81)+DATA(KK,NP,80)+DATA(KK,NP,79)
             -                 +DATA(KK,NP,78)
      C
      C CIC04R16=CIC08R16+CIC09R16+CIC10R16
            DATA(2,NP,81)=DATA(KK,NP,129)+DATA(KK,NP,145)+DATA(KK,NP,162)
      C
      C CIC04R17=CIC07R17
            DATA(2,NP,80)=DATA(KK,NP,117)
      C
      C CIC04R18=CIC05R18+CIC06R18+CIC08R18+CIC09R18+CIC10R18
            DATA(2,NP,79)=DATA(KK,NP,98)+DATA(KK,NP,108)+DATA(KK,NP,128)
             -                 +DATA(KK,NP,144)+DATA(KK,NP,161)
      C
      C CIC04R19=CIC05R19+CIC06R19+CIC08R19+CIC09R19+CIC10R19
            DATA(2,NP,78)=DATA(KK,NP,95)+DATA(KK,NP,105)+DATA(KK,NP,127)
             -                 +DATA(KK,NP,143)+DATA(KK,NP,160)
      C
```

(5) Gasoline bloc (CTC05)

```
C CTC05R02=CTC05R06-CTC05R03-CTC05R05
      DATA(2,NP,104)=DATA(KK,NP, 72)-DATA(KK,NP, 40)-DATA(KK,NP,103)
C
C CTC05R06=CTC05R14-CTC05R07-CTC05R12-CTC05R13
      DATA(2,NP, 99)=DATA(KK,NP, 98)-DATA(KK,NP, 100)-DATA(KK,NP,101)
     -                -DATA(KK,NP,343)
C
C CTC05R07=-(CTC02R07*YC05R07)
      DATA(2,NP,101)=-DATA(KK,NP, 53)*DATA(KK,NP,342)
C
C CTC05R14=CTC05R15
      DATA(2,NP, 98)=DATA(KK,NP, 97)
C
C CTC05R15=CTC05R18+CTC05R19
      DATA(2,NP, 97)=DATA(KK,NP, 96)+DATA(KK,NP, 95)
C
C CTC05R18=IRFS63:
      DATA(2,NP, 95)=FRM(1,17)*FRM(2,17)*DATA(KK,NP,227)
```

(6) Jet Fuel bloc (CTC06)

```
C CTC06R02=CTC06R06-CTC06R03-CTC06R05
      DATA(2,NP,116)=DATA(KK,NP,112)-DATA(KK,NP,113)-DATA(KK,NP,115)
C
C CTC06R06=CTC06R14-CTC06R07-CTC06R12-CTC06R13
      DATA(2,NP,112)=DATA(KK,NP,108)-DATA(KK,NP,110)-DATA(KK,NP,111)
     -               -DATA(KK,NP,109)
C
C CTC06R07=-(CTC02R07*YC06R07)
      DATA(2,NP,111)=-DATA(KK,NP, 53)*DATA(KK,NP,348)
C
C CTC06R14=CTC06R15
      DATA(2,NP,108)=DATA(KK,NP,107)
C
C CTC06R15=CTC06R18+CTC06R19
      DATA(2,NP,107)=DATA(KK,NP,106)+DATA(KK,NP,105)
C
C CTC06R18=GBF738:
      DATA(2,NP,106)=FRM(1,18)*FRM(2,13)*DATA(KK,NP,  8)
C CTC06R19=((CG738/CG738(-1)-1.0)*ELC06R19+1.0)*CTC06R19(-1)
      DATA(2,NP,105)=((DATA(KK,NP,  1)/DATA(JJ,NP-1,  1)-1.0)
     -               *DATA(KK,NP,344)+1.0)*DATA(JJ,NP-1,105)
C
```

(7) Kerosene bloc (CTC07)

```
C CTC07R02=CTC07R06-CTC07R05
      DATA(2,NP,126)=DATA(KK,NP,124)-DATA(KK,NP,125)
C
C CTC07R06=CTC07R14-CTC07R12-CTC07R10-CTC07R07-CTC07R13
      DATA(2,NP,124)=DATA(KK,NP,119)-DATA(KK,NP,121)
     -               -DATA(KK,NP,122)-DATA(KK,NP,123)-DATA(KK,NP,120)
C
C CTC07R07=-(CTC02R07*YC07R07)
      DATA(2,NP,123)=-DATA(KK,NP, 53)*DATA(KK,NP,349)
```

(38)

```
C
C CTC07R14=CTC07R15
      DATA(2,NP,119)=DATA(KK,NP,118)
C
C CTC07R15=CTC07R17
      DATA(2,NP,118)=DATA(KK,NP,117)
C
C CTC07R17=CP738,LAG1(CTC07R17);
      DATA(2,NP,117)=PRM(1,19)*PRM(2,19)*DATA(KK,NP,  4)
     -               *PRM(3,19)*DATA(JJ,NP-1,117)
```

(8) Automotive Diesel Oil bloc (CTC08)

```
C CTC08R02=CTC08R06-CTC08R03-CTC08R05
      DATA(2,NP,142)=DATA(KK,NP,138)-DATA(KK,NP,139)-DATA(KK,NP,141)
C
C CTC08R06=CTC08R14-CTC08R07-CTC08R09-CTC08R10-CTC08R11-CTC08R12
C         -CTC08R13
      DATA(2,NP,138)=DATA(KK,NP,131)-DATA(KK,NP,133)-DATA(KK,NP,134)
     -               -DATA(KK,NP,135)-DATA(KK,NP,136)-DATA(KK,NP,137)
     -               -DATA(KK,NP,132)
C
C CTC08R07=-CTC02R07*TC08R07
      DATA(2,NP,137)=-DATA(KK,NP, 53)*DATA(KK,NP,337)
C
C CTC08R09=-CTC24R09/ZC24R09-CTC01R09-CTC09R09-CTC10R09-CTC14R09
C         -CTC20R09-CTC21R09-CTC22R09-CTC23R09
      DATA(2,NP,136)=-DATA(KK,NP,285)/DATA(KK,NP,336)-DATA(KK,NP,44)
     -               -DATA(KK,NP,152)-DATA(KK,NP,169)-DATA(KK,NP,221)
     -               -DATA(KK,NP,265)-DATA(KK,NP,266)-DATA(KK,NP,271)
     -               -DATA(KK,NP,274)
C
C CTC08R14=CTC08R15
      DATA(2,NP,131)=DATA(KK,NP,130)
C
C CTC08R15=CTC08R16+CTC08R18+CTC08R19
      DATA(2,NP,130)=DATA(KK,NP,129)+DATA(KK,NP,128)+DATA(KK,NP,127)
C
C CTC08R16=IIP738,FE1R0F8;
      DATA(2,NP,129)=PRM(1,20)*PRM(2,20)*DATA(KK,NP, 11)
     -               *PRM(3,20)*DATA(KK,NP, 29)
C
C CTC08R18=GDP738,FAR08/FUEF81
      DATA(2,NP,128)=PRM(1,21)*PRM(2,21)*DATA(KK,NP,  8)
     -               *PRM(3,21)*DATA(KK,NP,350)/DATA(KK,NP, 22)
C CTC08R19=((CG738/CG738(-1))-1.0)*ELC08R19+1.0)*CTC08R19(-1)
      DATA(2,NP,127)=((DATA(KK,NP,  1)/DATA(JJ,NP-1,  1)-1.0)
     -               *DATA(KK,NP,230)+1.0)*DATA(JJ,NP-1,127)
C
```

(9) Industrial Diesel Oil bloc (CTC09)

```
C CTC09R02=CTC09R06-CTC09R03-CTC09R05
      DATA(2,NP,159)=DATA(KK,NP,154)-DATA(KK,NP,158)-DATA(KK,NP,158)
C
C CTC09R06=CTC09R14-CTC09R07-CTC09R09-CTC09R10-CTC09R11-CTC09R12
C         -CTC09R13
```

```
      DATA(2,NP,154)=DATA(KK,NP,147)-DATA(KK,NP,149)-DATA(KK,NP,150)
     -                -DATA(KK,NP,151)-DATA(KK,NP,152)-DATA(KK,NP,153)
C
C CTC09R07=-CTC02R07+YC09R07
      DATA(2,NP,153)=-DATA(KK,NP, 53)+DATA(KK,NP,338)
C
C CTC09R14=CTC09R15
      DATA(2,NP,147)=DATA(KK,NP,146)
C
C CTC09R15=CTC09R16+CTC09R18+CTC09R19
      DATA(2,NP,146)=DATA(KK,NP,145)+DATA(KK,NP,144)+DATA(KK,NP,143)
C
C CTC09R16=IIP733:
      DATA(2,NP,145)=PRM(1,22)+PRM(2,22)+DATA(KK,NP, 11)
C CTC09R19=((C0733/C0733(-1)-1.0)+ELC09R19+1.0)+CTC09R19(-1)
      DATA(2,NP,143)=((DATA(KK,NP,  1)/DATA(JJ,NP-1,  1)-1.0)
     -                +DATA(KK,NP,231)+1.0)+DATA(JJ,NP-1,143)
C
```

(10) Heavy Fuel Oil bloc (CTC10)

```
C CTC10R02=CTC10R06-CTC10R03-CTC10R05
      DATA(2,NP,175)=DATA(KK,NP,171)-DATA(KK,NP,172)-DATA(KK,NP,174)
C
C CTC10R06=CTC10R14-CTC10R07-CTC10R09-CTC10R10-CTC10R11-CTC10R12
      DATA(2,NP,171)=DATA(KK,NP,164)-DATA(KK,NP,166)-DATA(KK,NP,167)
     -               -DATA(KK,NP,168)-DATA(KK,NP,169)-DATA(KK,NP,170)
     -               -DATA(KK,NP,165)
C
C CTC10R07=-CTC02R07+YC10R07
      DATA(2,NP,170)=-DATA(KK,NP, 53)+DATA(KK,NP,339)
C
C CTC10R14=CTC10R15
      DATA(2,NP,164)=DATA(KK,NP,163)
C
C CTC10R15=CTC10R16+CTC10R18+CTC10R19
      DATA(2,NP,163)=DATA(KK,NP,162)+DATA(KK,NP,161)+DATA(KK,NP,160)
C
C CTC10R16=IIP733:
      DATA(2,NP,162)=PRM(1,23)+PRM(2,23)+DATA(KK,NP, 11)
C
```

(11) Naphtha bloc (CTC11)

```
C CTC11R03=CTC11R06-CTC11R05-CTC11R02
      DATA(2,NP,186)=DATA(KK,NP,155)-DATA(KK,NP,185)-DATA(KK,NP,180)
C
C CTC11R06=CTC11R14-CTC11R07-CTC11R08-CTC11R11-CTC11R12-CTC11R13
      DATA(2,NP,155)=DATA(KK,NP,179)-DATA(KK,NP,181)-DATA(KK,NP,182)
     -               -DATA(KK,NP,183)-DATA(KK,NP,184)-DATA(KK,NP,228)
C
C CTC11R07=-CTC02R07+YC11R07
      DATA(2,NP,184)=-DATA(KK,NP, 53)+DATA(KK,NP,340)
C
C CTC11R14=CTC11R15+CTC11R20
      DATA(2,NP,179)=DATA(KK,NP,178)+DATA(KK,NP,176)
C
```

```
(40)
      C CTC11R15=CTC11R16
            DATA(2,NP,178)=DATA(KK,NP,177)
      C
```

(12) LPG bloc (CTC12)

```
      C CTC12R02=CTC12R06-CTC12R03-CTC12R05
            DATA(2,NP,200)=DATA(KK,NP,197)-DATA(KK,NP,198)-DATA(KK,NP,199)
      C
      C CTC12R06=CTC12R14-CTC12R07-CTC12R08-CTC12R12-CTC12R13
            DATA(2,NP,197)=DATA(KK,NP,192)-DATA(KK,NP,194)-DATA(KK,NP,195)
           -                -DATA(KK,NP,196)-DATA(KK,NP,193)
      C
      C CTC12R07=-CTC02R07*YC12R07
            DATA(2,NP,196)=-DATA(KK,NP, 53)*DATA(KK,NP,341)
      C
      C CTC12R14=CTC12R15+CTC12R20
            DATA(2,NP,192)=DATA(KK,NP,191)+DATA(KK,NP,187)
      C
      C CTC12R15=CTC12R16+CTC12R17+CTC12R18
            DATA(2,NP,191)=DATA(KK,NP,190)+DATA(KK,NP,189)+DATA(KK,NP,188)
      C
      C CTC12R16=IIP738:
            DATA(2,NP,190)=PRR(1,27)+PRH(2,27)+DATA(KK,NP, 11)
      C
      C CTC12R17=CF738:
            DATA(2,NP,189)=PRH(1,28)+PRH(2,28)*DATA(KK,NP,  4)
      C
```

(13) Other Petroleum Products bloc (CTC13)

```
      C CTC13R02=CTC13R06-CTC13R05-CTC13R03
            DATA(2,NP,211)=DATA(KK,NP,208)-DATA(KK,NP,209)-DATA(KK,NP,210)
      C
      C CTC13R06=CTC13R14-CTC13R07-CTC13R11-CTC13R12-CTC13R13
            DATA(2,NP,208)=DATA(KK,NP,225)-DATA(KK,NP,205)-DATA(KK,NP,206)
           -                -DATA(KK,NP,207)-DATA(KK,NP,204)
      C
      C CTC13R07=-CTC02R07*YC13R07
            DATA(2,NP,207)=-DATA(KK,NP, 53)*DATA(KK,NP,342)
      C
      C CTC13R14=CTC13R15+CTC13R20
            DATA(2,NP,225)=DATA(KK,NP,203)+DATA(KK,NP,201)
      C
      C CTC13R15=CTC13R16
            DATA(2,NP,203)=DATA(KK,NP,202)
      C
```

(14) Natural Gas bloc (CTC14)

```
      C CTC14R01=CTC14R06
            DATA(2,NP,224)=DATA(KK,NP,223)
      C
      C CTC14R06=CTC14R14-CTC14R08-CTC14R09-CTC14R10-CTC14R11-CTC14R12
      C          -CTC14R13
            DATA(2,NP,223)=DATA(KK,NP,218)-DATA(KK,NP,218)-DATA(KK,NP,219)
           -                -DATA(KK,NP,220)-DATA(KK,NP,221)-DATA(KK,NP,222)
           -                -DATA(KK,NP,217)
```

```
C
C CTC14R10=-(CTC18R10-CTC01R10-CTC03R10-CTC25R10)
      DATA(2,NP,220)=-(DATA(KK,NP,261)-DATA(KK,NP,43)-DATA(KK,NP,69)
     -                -DATA(KK,NP,226))
C
C CTC14R11=CTC14R01+ZC14R11
      DATA(2,NP,219)=DATA(KK,NP,224)+DATA(KK,NP,345)
C
C CTC14R14=CTC14R15+CTC14R20
      DATA(2,NP,216)=DATA(KK,NP,215)+DATA(KK,NP,212)
C
C CTC14R15=CTC14R16+CTC14R17
      DATA(2,NP,215)=DATA(KK,NP,214)+DATA(KK,NP,213)
C
C CTC14R16=((GDP73S/GDP73S(-1)-1.0)+ELC14R16+1.0)*CTC14R16(-1)
      DATA(2,NP,214)=((DATA(KK,NP,8)/DATA(JJ,NP-1,8)-1.0)
     -               +DATA(KK,NP,233)+1.0)*DATA(JJ,NP-1,214)
C
C CTC14R17=((CP73S/CP73S(-1)-1.0)+ELC14R17+1.0)*CTC14R17(-1)
      DATA(2,NP,213)=((DATA(KK,NP,4)/DATA(JJ,NP-1,4)-1.0)
     -               +DATA(KK,NP,234)+1.0)*DATA(JJ,NP-1,213)
C
C CTC14R20=((GDP73S/GDP73(-1)-1.0)+ELC14R20+1.0)*CTC14R20(-1)
      DATA(2,NP,212)=((DATA(KK,NP,8)/DATA(JJ,NP-1,8)-1.0)
     -               +DATA(KK,NP,235)+1.0)*DATA(JJ,NP-1,212)
C
```

(15) NGL (Condensed Natural Gas) bloc (CTC15)

```
C CTC15R03=CTC15R06
      DATA(KK,NP,241)=DATA(KK,NP,240)
C
C CTC15R06=-CTC15R08-CTC15R13
      DATA(2,NP,240)=-DATA(KK,NP,239)-DATA(KK,NP,238)
C
```

(16) LNG bloc (CTC16)

```
C CTC16R03=CTC16R06
      DATA(2,NP,245)=DATA(KK,NP,244)
C
C CTC16R06=-CTC16R08-CTC16R13
      DATA(2,NP,244)=-DATA(KK,NP,243)-DATA(KK,NP,242)
C
```

(17) Methanol bloc (CTC17)

```
C CTC17R03=CTC17R06
      DATA(2,NP,253)=DATA(KK,NP,252)
C
C CTC17R06=CTC17R14-CTC17R08-CTC17R13
      DATA(2,NP,252)=DATA(KK,NP,249)-DATA(KK,NP,251)-DATA(KK,NP,250)
C
C CTC17R14=CTC17R15+CTC17R20
      DATA(2,NP,249)=DATA(KK,NP,248)+DATA(KK,NP,246)
C
C CTC17R15=CTC17R18
      DATA(2,NP,248)=DATA(KK,NP,247)
```

(42)

(18) Town Gas bloc (CTC18)

```
C CTC18R10=CTC18R14-CTC18R11-CTC18R12-CTC18R13
      DATA(2,NP,261)=DATA(KK,NP,257)-DATA(KK,NP,260)-DATA(KK,NP,259)
     -                -DATA(KK,NP,258)
C
C CTC18R14=CTC18R15
      DATA(KK,NP,257)=DATA(KK,NP,256)
C
C CTC18R15=CTC18R16+CTC18R17
      DATA(2,NP,256)=DATA(KK,NP,255)+DATA(KK,NP,254)
C
C CTC18R17=((CP733/CP733(-1)-1.0)*ELC18R17+1.0)*CTC18R17(-1)
      DATA(2,NP,254)=((DATA(KK,NP,4)/DATA(JJ,NP-1,4)-1.0)
     -                +DATA(KK,NP,236)*1.0)*DATA(JJ,NP-1,254)
C
```

(19) Other Gas bloc (CTC19)

```
C CTC19R10=-CTC19R11-CTC19R13
      DATA(2,NP,264)=-DATA(KK,NP,263)-DATA(KK,NP,262)
C
```

(20) Hydro Generation bloc (CTC20)

```
C CTC20R01=CTC20R06
      DATA(2,NP,267)=DATA(KK,NP,266)
C
C CTC20R06=-CTC20R09
      DATA(2,NP,266)=-DATA(KK,NP,265)
C
```

(21) Geothermal Generation bloc (CTC21)

```
C CTC21R01=CTC21R06
      DATA(2,NP,270)=DATA(KK,NP,269)
C
C CTC21R06=-CTC21R09
      DATA(2,NP,269)=-DATA(KK,NP,268)
C
```

(22) Nuclear Generation bloc (CTC22)

```
C CTC22R01=CTC22R06
      DATA(2,NP,273)=DATA(KK,NP,272)
C
C CTC22R06=-CTC22R09
      DATA(2,NP,272)=-DATA(KK,NP,271)
C
```

(23) Other Generation bloc (CTC23)

```
C CTC23R01=CTC23R06
      DATA(2,NP,276)=DATA(KK,NP,275)
C
C CTC23R06=-CTC23R09
      DATA(2,NP,275)=-DATA(KK,NP,274)
C
```

(24) Electricity bloc (CTC24)

```
C CTC24R09=CTC24R14/(1.0-ZC24R12)+CTC24R11
      DATA(2,NP,285)=DATA(KK,NP,282)/(1.0-DATA(KK,NP,346))
     -                +DATA(KK,NP,284)
C
C CTC24R12=+CTC24R09+ZC24R12
      DATA(2,NP,283)=-DATA(KK,NP,285)+DATA(KK,NP,346)
C
C CTC24R14=CTC24R15
      DATA(2,NP,282)=DATA(KK,NP,281)
C
C CTC24R15=CTC24R16+CTC24R17+CTC24R18+CTC24R19
      DATA(2,NP,281)=DATA(KK,NP,280)+DATA(KK,NP,279)+DATA(KK,NP,278)
     -                +DATA(KK,NP,277)
C
C CTC24R16=11F73&:
      DATA(2,NP,280)=FRM(1,24)+FRM(2,24)*DATA(KK,NP, 11)
C CTC24R19=((CG73&/CG73&(-1)-1.0)*ELC24R19+1.0)*CTC24R19(-1)
      DATA(2,NP,277)=((DATA(KK,NP,1)/DATA(JJ,NP-1,1)-1.0)
     -                *DATA(KK,NP,237)+1.0)*DATA(JJ,NP-1,277)
C
C LOG(CTC24R17)=LOG(CF73&):
      TEMPV=FRM(1,29)+FRM(2,29)*DLOG(DATA(KK,NP,  4))
      DATA(2,NP,279)=DEXP(TEMPV)
```

(25) Commercial Energy bloc (CTC25)

```
C CTC25R01=CTC02R01+CTC14R01+CTC20R01+CTC21R01+CTC22R01+CTC23R01
      DATA(2,NP,304)=DATA(KK,NP,49)+DATA(KK,NP,58)+DATA(KK,NP,224)
     -                +DATA(KK,NP,267)+DATA(KK,NP,270)+DATA(KK,NP,273)
     -                +DATA(KK,NP,276)
C
C CTC25R02=CTC01R02+CTC02R02+CTC03R02
      DATA(2,NP,303)=DATA(KK,NP,48)+DATA(KK,NP,57)+DATA(KK,NP,77)
C
C CTC25R03=CTC01R03+CTC02R03+CTC03R03+CTC15R03+CTC16R03+CTC17R03
      DATA(2,NP,302)=DATA(KK,NP,47)+DATA(KK,NP,56)+DATA(KK,NP,76)
     -                +DATA(KK,NP,241)+DATA(KK,NP,245)+DATA(KK,NP,253)
C
C CTC25R04=CTC03R04
      DATA(2,NP,301)=DATA(KK,NP,75)
C
C CTC25R05=CTC01R05+CTC02R05+CTC03R05
      DATA(2,NP,300)=DATA(KK,NP,46)+DATA(KK,NP,55)+DATA(KK,NP,74)
C
C CTC25R06=CTC25R01+CTC25R02+CTC25R03+CTC25R05
      DATA(2,NP,299)=DATA(KK,NP,304)+DATA(KK,NP,303)+DATA(KK,NP,302)
     -                +DATA(KK,NP,300)
C
C CTC25R07=CTC02R07+CTC03R07
      DATA(2,NP,298)=DATA(KK,NP,53)+DATA(KK,NP,72)
C
C CTC25R08=CTC03R08+CTC14R08+CTC15R08+CTC16R08+CTC17R03
      DATA(2,NP,297)=DATA(KK,NP,71)+DATA(KK,NP,222)+DATA(KK,NP,239)
     -                +DATA(KK,NP,243)+DATA(KK,NP,251)
C
```

(44)

```
C CIC25R09=CIC01R09+CIC03R09+CIC14R09+CIC20R09+CIC21R09+CIC22R09
C          +CIC23R09+CIC24R09
      DATA(2,NP,296)=DATA(KK,NP,44)+DATA(KK,NP,70)+DATA(KK,NP,221)
     -               +DATA(KK,NP,265)+DATA(KK,NP,268)+DATA(KK,NP,271)
     -               +DATA(KK,NP,274)+DATA(KK,NP,285)
C
C CIC25R11=CIC01R11+CIC02R11+CIC03R11+CIC14R11+CIC18R11+CIC19R11
C          +CIC24R11
      DATA(2,NP,295)=DATA(KK,NP,42)+DATA(KK,NP,52)+DATA(KK,NP,68)
     -               +DATA(KK,NP,219)+DATA(KK,NP,260)+DATA(KK,NP,263)
     -               +DATA(KK,NP,284)
C
C CIC25R12=CIC01R12+CIC02R12+CIC03R12+CIC14R12+CIC18R12
C          +CIC24R12
      DATA(2,NP,294)=DATA(KK,NP,43)+DATA(KK,NP,51)+DATA(KK,NP,67)
     -               +DATA(KK,NP,218)+DATA(KK,NP,259)+DATA(KK,NP,283)
C
C CIC25R13=CIC01R13+CIC02R13+CIC03R13+CIC14R13+CIC15R13+CIC16R13
C          +CIC17R13+CIC18R13+CIC19R13
      DATA(2,NP,293)=DATA(KK,NP,232)+DATA(KK,NP,50)+DATA(KK,NP,66)
     -               +DATA(KK,NP,217)+DATA(KK,NP,238)+DATA(KK,NP,242)
     -               +DATA(KK,NP,250)+DATA(KK,NP,258)+DATA(KK,NP,262)
C
C CIC25R14=CIC25R15+CIC25R20
      DATA(2,NP,292)=DATA(KK,NP,291)+DATA(KK,NP,286)
C
C CIC25R15=CIC25R16+CIC25R17+CIC25R18+CIC25R19
      DATA(2,NP,291)=DATA(KK,NP,290)+DATA(KK,NP,289)+DATA(KK,NP,288)
     -               +DATA(KK,NP,287)
C
C CIC25R16=CIC01R16+CIC03R16+CIC14R16+CIC18R16+CIC24R16
      DATA(2,NP,290)=DATA(KK,NP,37)+DATA(KK,NP,63)+DATA(KK,NP,214)
     -               +DATA(KK,NP,255)+DATA(KK,NP,280)
C
C CIC25R17=CIC01R17+CIC03R17+CIC14R17+CIC18R17+CIC24R17
      DATA(2,NP,289)=DATA(KK,NP,36)+DATA(KK,NP,62)+DATA(KK,NP,213)
     -               +DATA(KK,NP,254)+DATA(KK,NP,279)
C
C CIC25R18=CIC01R18+CIC03R18+CIC17R18+CIC24R18
      DATA(2,NP,288)=DATA(KK,NP,35)+DATA(KK,NP,61)+DATA(KK,NP,247)
     -               +DATA(KK,NP,278)
C
C CIC25R19=CIC03R19+CIC24R19
      DATA(2,NP,287)=DATA(KK,NP,60)+DATA(KK,NP,277)
C
C CIC25R20=CIC01R20+CIC03R20+CIC14R20+CIC17R20
      DATA(2,NP,286)=DATA(KK,NP,34)+DATA(KK,NP,59)+DATA(KK,NP,212)
     -               +DATA(KK,NP,245)
C
```

(26) Non-Commercial Energy bloc (CTC26)

```
C CIC26R01=CIC26R06-CIC26R05-CIC26R03
      DATA(2,NP,315)=DATA(KK,NP,312)-DATA(KK,NP,313)-DATA(KK,NP,314)
C
C CIC26R06=CIC26R14
```

```
      DATA(2,NP,312)=DATA(KK,NP,310)
C
C CTC26R14=CTC26R15+CTC26R20
      DATA(2,NP,310)=DATA(KK,NP,309)+DATA(KK,NP,305)
C
C CTC26R15=CTC26R16+CTC26R17+CTC26R18
      DATA(2,NP,309)=DATA(KK,NP,308)+DATA(KK,NP,307)+DATA(KK,NP,306)
C
C LOG(CTC26R17)=LOG(FOP8),LOG(LAG1(CTC26R17))+
      IEMFV=PRM(1,25)+PRM(2,25)*DLOG(DATA(KK,NP,229))
     -      +PRM(3,25)*DLOG(DATA(JJ,NP-1,307))
      DATA(2,NP,307)=DEXP(IEMFV)
C
```

(27) Grand Total bloc (CTC27)

```
C CTC27R01=CTC25R01+CTC26R01
      DATA(2,NP,335)=DATA(KK,NP,304)+DATA(KK,NP,315)
C
C CTC27R02=CTC25R02
      DATA(2,NP,334)=DATA(KK,NP,303)
C
C CTC27R03=CTC25R03+CTC26R03
      DATA(2,NP,333)=DATA(KK,NP,302)+DATA(KK,NP,314)
C
C CTC27R04=CTC25R04
      DATA(2,NP,332)=DATA(KK,NP,301)
C
C CTC27R05=CTC25R05+CTC26R05
      DATA(2,NP,331)=DATA(KK,NP,300)+DATA(KK,NP,309)+DATA(KK,NP,313)
C
C CTC27R06=CTC25R06+CTC26R06
      DATA(2,NP,330)=DATA(KK,NP,299)+DATA(KK,NP,312)
C
C CTC27R07=CTC25R07
      DATA(2,NP,329)=DATA(KK,NP,298)
C
C CTC27R08=CTC25R08
      DATA(2,NP,328)=DATA(KK,NP,297)
C
C CTC27R09=CTC25R09
      DATA(2,NP,327)=DATA(KK,NP,296)
C
C CTC27R10=CTC25R10
      DATA(2,NP,326)=DATA(KK,NP,226)
C
C CTC27R11=CTC25R11
      DATA(2,NP,325)=DATA(KK,NP,295)
C
C CTC27R12=CTC25R12
      DATA(2,NP,324)=DATA(KK,NP,294)
C
C CTC27R13=CTC25R13+CTC26R13
      DATA(2,NP,323)=DATA(KK,NP,293)+DATA(KK,NP,311)
C
C CTC27R14=CTC25R14+CTC26R14
      DATA(2,NP,322)=DATA(KK,NP,292)+DATA(KK,NP,310)
```

```
C
C CIC27R15=CIC25R15+CIC26R15
      DATA(2,NP,321)=DATA(KK,NP,291)+DATA(KK,NP,309)
C
C CIC27R16=CIC25R16+CIC26R16
      DATA(2,NP,320)=DATA(KK,NP,290)+DATA(KK,NP,308)
C
C CIC27R17=CIC25R17+CIC26R17
      DATA(2,NP,319)=DATA(KK,NP,289)+DATA(KK,NP,307)
C
C CIC27R18=CIC25R18+CIC26R18
      DATA(2,NP,318)=DATA(KK,NP,288)+DATA(KK,NP,306)
C
C CIC27R19=CIC25R19
      DATA(2,NP,317)=DATA(KK,NP,287)
C
C CIC27R20=CIC25R20+CIC26R20
      DATA(2,NP,316)=DATA(KK,NP,286)+DATA(KK,NP,305)
C
C
```

4. List of Forecast Results

Listed below are forecast results associated with the implementation of the fiscal 1980 project. It should be noted, however, that they are provisional because the preparation of exogenous variables resulted in imperfect partly due to the time limit.

As for the macro-economic model, model simulation was tentatively conducted by changing values of nominal government final consumption expenditure, one of exogenous variables. Though the result of the aforementioned simulation is omitted here, model simulation repeatedly conducted by changing values of a given exogenous variable allows analysis on impacts produced by the given exogenous variable to other variables. When neatly classified, results of such a model simulation can provide vital information to decision-making. To incorporate carefully reviewed exogenous variables with the model is one of the effective procedures of utilization of the model to forecast energy supply-demand in the future. As mentioned before, however, to conduct model simulation by changing values of a given exogenous variable and analyze impacts produced by it on others shows a direction which is also effective in unitlizing the model.

ENERGI SUPPLY-DEMAND FORECAST OF INDONESIA

REPORT NO. 2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CG73S	%RCL	CPS	%RCL	CP173S	%RCL	CP73S	%RCL	EXPS	%RCL
1980	1293.906	9.2	22413.131	24.1	352.630	21.6	7873.215	6.5	12021.281	30.5
1981	1451.976	12.2	26918.713	19.7	422.125	19.7	8407.124	6.8	14523.074	20.8
1982	1638.822	12.9	32111.068	19.3	509.115	18.5	9005.664	7.1	17413.236	19.9
1983	1848.710	12.8	38290.631	19.2	510.194	18.8	9671.638	7.1	20885.845	19.9
1984	2081.348	12.6	45676.804	19.3	696.038	17.9	10407.657	7.6	24953.734	19.5
1985	2335.925	12.2	54488.520	19.3	822.626	18.2	11213.032	7.7	29781.941	19.3
1986	2610.297	11.7	65060.337	19.4	976.183	18.7	12098.882	7.9	35541.656	19.3
1987	2906.168	11.3	77610.629	19.3	1163.788	19.2	13061.945	8.0	42288.869	19.7
1988	3218.998	10.8	92487.011	19.1	1395.541	19.9	14101.311	8.0	50364.131	19.3
1989	3543.206	10.1	109844.936	18.8	1685.093	20.7	15210.192	7.9	60720.833	20.6
1990	3876.206	9.4	129979.668	18.3	2049.310	21.6	16392.761	7.7	73491.550	21.4

	EXP73S	%RCL	GDPS	%RCL	GDP73S	%RCL	GNPS	%RCL	GNP73S	%RCL
1980	2031.470	7.6	39233.895	28.0	10620.682	6.9	37620.867	28.2	9985.604	6.6
1981	2230.706	7.2	47929.726	22.2	11357.518	6.9	45147.372	22.1	10648.018	6.6
1982	2387.672	7.0	58558.220	22.2	12185.982	7.3	56123.523	22.1	11392.688	7.0
1983	2552.825	6.9	71820.982	22.6	13103.461	7.5	68921.834	22.6	12217.622	7.2
1984	2726.548	6.8	88317.743	23.0	14111.752	7.7	84816.523	23.0	13124.075	7.4
1985	2909.323	6.7	108773.974	23.4	15211.418	7.8	104393.593	23.4	14112.667	7.5
1986	3120.069	7.2	135036.393	23.9	16420.500	7.9	129346.750	23.9	15191.639	7.7
1987	3342.842	7.1	167220.280	24.2	17730.197	8.0	160339.810	24.2	16317.055	7.7
1988	3578.393	7.0	209365.073	24.8	19133.302	7.9	200512.272	24.8	17539.448	7.7
1989	3827.190	7.0	262976.157	25.6	20619.575	7.8	251841.303	25.6	18924.501	7.6
1990	4090.286	6.9	331893.444	26.2	22181.715	7.6	317825.839	26.2	20378.971	7.4

	IIPS73S	%RCL	IIPS	%RCL	IIP73S	%RCL	IIPS	%RCL	IIP73S	%RCL
1980	197.442	7.8	9209.681	30.0	3339.081	9.8	9403.967	35.9	2711.172	10.1
1981	216.227	9.5	11537.147	25.3	3723.346	11.5	12139.027	29.0	2991.069	10.3
1982	237.223	9.7	14218.092	23.2	4155.448	11.6	15589.709	28.5	3369.272	10.6
1983	260.501	9.8	17412.736	22.5	4633.994	11.5	20016.341	28.4	3464.237	10.7
1984	285.958	9.8	21265.868	22.1	5159.814	11.3	26003.872	29.4	4354.613	10.7
1985	313.658	9.7	25923.686	21.9	5733.329	11.1	31793.289	30.0	4826.419	10.6
1986	344.195	9.7	31592.020	21.9	6363.918	11.0	41139.130	30.6	4956.860	10.5
1987	377.216	9.6	38440.757	21.7	7045.976	10.7	57862.131	31.1	5466.218	10.3
1988	412.549	9.4	46667.025	21.4	7778.753	10.4	76194.818	31.7	6013.443	10.0
1989	449.952	9.1	56485.108	21.0	8553.104	10.0	100916.786	32.3	6592.871	9.6
1990	489.258	8.7	68148.031	20.6	9368.422	9.5	133865.857	32.8	7231.101	9.2

	FNFS	%RCL	FI73S	%RCL	FOGS	%RCL	FOPS	%RCL	FO273	%RCL
1980	389.743	19.7	8779.171	6.4	350.396	19.0	285.545	15.5	577.538	21.2
1981	435.598	14.4	9357.955	6.6	406.930	15.8	320.292	12.1	651.653	12.7
1982	496.695	14.0	10098.730	7.9	467.549	15.2	358.545	11.4	729.298	12.0
1983	567.039	14.2	10729.418	7.2	538.803	15.2	395.966	11.0	818.116	12.2
1984	648.074	14.3	11521.441	7.4	622.154	15.5	438.902	10.9	915.213	11.9
1985	742.458	14.6	12365.233	7.5	720.653	15.8	485.939	10.7	1023.673	11.9
1986	852.918	14.9	13331.985	7.7	838.419	16.3	537.224	10.7	1131.227	11.3
1987	981.748	15.1	14383.764	7.7	978.932	16.8	591.403	10.5	1242.664	10.8
1988	1136.317	15.7	15485.918	7.7	1148.935	17.4	655.875	10.3	1397.432	11.5
1989	1325.115	16.6	16833.892	7.5	1356.949	18.1	722.075	10.1	1586.565	12.7
1990	1555.353	17.1	17850.427	7.4	1612.487	18.8	793.313	9.9	1801.632	13.6

%GCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	PGDP$	%GCL	PGNP$	%GCL	PIMP$	%GCL	PITP$	%GCL	WPI73$	%GCL
1980	369.403	19.7	376.751	20.3	275.797	18.4	346.840	23.5	414.223	20.7
1981	422.009	14.2	431.511	14.5	309.859	12.4	405.542	16.9	492.330	18.9
1982	480.538	13.9	492.622	14.2	342.155	10.4	471.492	16.2	582.237	18.3
1983	548.107	14.1	563.300	14.3	375.764	9.8	548.445	16.4	690.355	18.6
1984	625.845	14.2	644.713	14.5	412.144	9.7	641.024	16.9	821.592	19.0
1985	716.396	14.5	739.716	14.7	452.157	9.7	753.228	17.5	982.393	19.6
1986	822.364	14.8	850.186	15.0	494.424	9.8	890.409	18.2	1181.333	20.3
1987	945.958	15.0	980.893	15.3	545.493	9.9	1058.541	18.9	1426.914	20.8
1988	1094.245	15.7	1136.791	15.9	597.929	10.0	1267.109	19.7	1734.879	21.6
1989	1275.371	16.6	1327.254	16.8	659.343	10.1	1529.174	20.7	2125.445	22.5
1990	1496.248	17.3	1559.577	17.5	727.497	10.2	1858.977	21.6	2621.084	23.3

	NI$	%GCL	* CS$	%GCL	* PCIOIL$	%GCL	* PETROP$	%GCL	* PVE75$	%GCL
1980	33427.799	27.6	4533.890	30.0	30.500	19.6	572164.000	-1.4	163.170	11.0
1981	40763.060	21.9	5894.000	30.0	33.550	10.0	576237.000	0.7	181.120	11.0
1982	49703.974	21.9	7662.300	30.0	36.900	10.0	547509.000	-5.0	201.040	11.0
1983	60839.919	22.4	9960.900	30.0	40.600	10.0	565750.000	3.3	223.160	11.0
1984	74667.121	22.7	12949.200	30.0	44.660	10.0	573950.000	1.3	247.700	11.0
1985	91955.198	23.2	16833.900	30.0	49.120	10.0	584000.000	1.9	274.950	11.0
1986	113736.270	23.7	21884.200	30.0	54.030	10.0	602250.000	3.1	305.200	11.0
1987	141015.969	24.0	28449.400	30.0	59.440	10.0	620500.000	3.0	338.770	11.0
1988	175741.081	24.6	36984.200	30.0	65.410	10.0	629625.000	1.5	376.030	11.0
1989	220411.934	25.4	48079.500	30.0	71.920	10.0	638750.000	1.4	417.390	11.0
1990	277293.540	26.0	62503.400	30.0	79.110	10.0	657000.000	2.9	463.310	11.0

	* UIC75$	%GCL	* REXC$	%GCL	* IAGRPE73$	%GCL	* CIC01R20	%GCL	* CIC01R18	%GCL
1980	1128.580	5.2	1.510	0.0	200.000	19.0	34.400	9.7	28.710	19.7
1981	1187.250	5.2	1.510	0.0	250.000	25.0	38.400	11.8	31.610	10.0
1982	1249.980	5.2	1.510	0.0	300.000	20.0	41.000	7.9	34.770	10.0
1983	1313.930	5.2	1.510	0.0	360.000	20.0	45.030	9.8	38.250	10.0
1984	1382.250	5.2	1.510	0.0	425.000	18.1	50.000	11.1	42.070	10.0
1985	1454.130	5.2	1.510	0.0	500.000	17.6	55.000	10.0	46.280	10.0
1986	1537.010	5.7	1.510	0.0	575.000	15.0	60.000	9.1	50.910	10.0
1987	1624.620	5.7	1.510	0.0	650.000	13.0	66.010	10.0	56.000	10.0
1988	1717.220	5.7	1.510	0.0	750.000	15.4	73.010	10.6	61.600	10.0
1989	1815.100	5.7	1.510	0.0	900.000	20.0	80.000	9.6	67.760	10.0
1990	1918.560	5.7	1.510	0.0	1100.000	22.2	89.000	11.3	74.540	10.0

	* CIC01S17	%GCL	* CIC01R16	%GCL	CIC01R15	%GCL	CIC01R14	%GCL	* CIC05R15	%GCL
1980	0.0	0.0	120.590	65.2	149.320	53.9	181.320	43.2	0.0	-100.0
1981	0.0	0.0	132.930	10.2	164.440	10.1	202.440	10.4	0.0	0.0
1982	0.0	0.0	145.900	9.8	180.670	9.9	221.670	9.5	0.0	0.0
1983	0.0	0.0	160.490	10.0	198.740	10.0	243.740	10.0	0.0	0.0
1984	0.0	0.0	176.540	10.0	218.610	10.0	268.410	10.2	0.0	0.0
1985	0.0	0.0	194.190	10.0	240.470	10.0	295.470	10.0	0.0	0.0
1986	0.0	0.0	213.610	10.0	264.520	10.0	324.520	9.8	0.0	0.0
1987	0.0	0.0	234.970	10.0	290.970	10.0	356.970	10.0	0.0	0.0
1988	0.0	0.0	258.470	10.0	320.070	10.0	393.070	10.1	0.0	0.0
1989	0.0	0.0	284.310	10.0	352.070	10.0	432.070	9.9	0.0	0.0
1990	0.0	0.0	312.740	10.0	387.280	10.0	476.280	10.2	0.0	0.0

2ROL = GROWTH RATE
* = ENDOGENOUS VARIABLE

	* CTC01R12	2ROL	* CTC01R11	2ROL	* CTC01R10	2ROL	* CTC01R09	2ROL	CTC01R06	2ROL
1980	0.0	0.0	0.0	0.0	0.0	0.0	-70.000	25.0	253.320	-1.8
1981	0.0	0.0	0.0	0.0	0.0	0.0	-70.000	0.0	272.410	7.5
1982	0.0	0.0	0.0	0.0	0.0	0.0	-70.000	0.0	291.470	7.1
1983	0.0	0.0	0.0	0.0	0.0	0.0	-70.000	0.0	313.749	7.6
1984	0.0	0.0	0.0	0.0	0.0	0.0	-70.000	0.0	338.619	7.9
1985	0.0	0.0	0.0	0.0	0.0	0.0	-980.000	1271.4	1265.470	270.8
1986	0.0	0.0	0.0	0.0	0.0	0.0	-980.000	0.0	1284.529	2.3
1987	0.0	0.0	0.0	0.0	0.0	0.0	-1920.000	100.0	2276.978	77.3
1988	0.0	0.0	0.0	0.0	0.0	0.0	-2880.000	50.0	3273.070	43.7
1989	0.0	0.0	0.0	0.0	0.0	0.0	-3840.000	33.3	4272.070	30.5
1990	0.0	0.0	0.0	0.0	0.0	0.0	-5280.000	37.5	5756.280	34.7

	* CTC01R05	2ROL	* CTC01R03	2ROL	* CTC01R02	2ROL	CTC01R01	2ROL	* CTC02R13	2ROL
1980	0.0	-100.0	-60.000	0.0	0.0	0.0	313.320	27.9	0.0	-100.0
1981	0.0	0.0	-160.000	166.7	0.0	0.0	432.410	38.0	0.0	0.0
1982	0.0	0.0	-160.000	0.0	0.0	0.0	451.870	4.4	0.0	0.0
1983	0.0	0.0	-160.000	0.0	0.0	0.0	473.748	4.9	0.0	0.0
1984	0.0	0.0	-160.000	0.0	0.0	0.0	498.619	5.2	0.0	0.0
1985	0.0	0.0	-240.000	25.0	0.0	0.0	1455.470	191.9	0.0	0.0
1986	0.0	0.0	-240.000	0.0	0.0	0.0	1484.520	2.0	0.0	0.0
1987	0.0	0.0	-240.000	0.0	0.0	0.0	2176.978	46.9	0.0	0.0
1988	0.0	0.0	-240.000	0.0	0.0	0.0	3473.070	60.2	0.0	0.0
1989	0.0	0.0	-240.000	0.0	0.0	0.0	4472.070	28.8	0.0	0.0
1990	0.0	0.0	-240.000	0.0	0.0	0.0	5956.280	33.2	0.0	0.0

	* CTC02R12	2ROL	* CTC02R11	2ROL	* CTC02R07	2ROL	CTC02R06	2ROL	* CTC02R05	2ROL
1980	0.0	-100.0	-250.000	8.7	-43400.000	2.1	83250.000	3.0	0.0	-100.0
1981	0.0	0.0	-250.000	0.0	-41000.000	2.3	81250.000	2.3	0.0	0.0
1982	0.0	0.0	-250.000	0.0	-45400.000	2.3	85250.000	2.3	0.0	0.0
1983	0.0	0.0	-250.000	0.0	-50000.000	11.1	90250.000	11.0	0.0	0.0
1984	0.0	0.0	-250.000	0.0	-55000.000	10.0	95250.000	10.4	0.0	0.0
1985	0.0	0.0	-250.000	0.0	-61000.000	10.9	101250.000	10.9	0.0	0.0
1986	0.0	0.0	-250.000	0.0	-61000.000	0.0	101250.000	0.0	0.0	0.0
1987	0.0	0.0	-250.000	0.0	-61000.000	0.0	101250.000	0.0	0.0	0.0
1988	0.0	0.0	-250.000	0.0	-61000.000	0.0	101250.000	0.0	0.0	0.0
1989	0.0	0.0	-250.000	0.0	-61000.000	0.0	101250.000	0.0	0.0	0.0
1990	0.0	0.0	-250.000	0.0	-61000.000	0.0	101250.000	0.0	0.0	0.0

	CTC02R03	2ROL	* CTC02R02	2ROL	* CTC02R01	2ROL	CTC03R20	2ROL	CTC03R19	2ROL
1980	-83232.000	6.1	8040.000	31.0	119042.000	2.1	540.000	21.9	749.183	8.6
1981	-85155.000	1.6	8400.000	0.0	121600.000	2.0	621.000	15.0	818.299	9.2
1982	-84484.000	1.7	8858.000	0.0	123838.000	2.1	749.000	14.9	897.682	9.6
1983	-84121.000	-2.9	8898.000	0.0	126378.000	2.0	851.000	15.0	980.180	9.9
1984	-88549.000	5.1	15000.000	87.5	128699.000	2.0	979.000	15.0	1010.868	9.8
1985	-85227.000	-3.9	15000.000	0.0	131177.000	2.0	1126.000	15.0	1103.504	9.2
1986	-87657.000	3.1	15001.000	0.0	134107.000	2.0	1295.000	15.0	1203.748	9.1
1987	-90539.000	3.1	15000.000	0.0	135787.000	2.0	1491.000	15.0	1312.212	9.0
1988	-93275.000	3.0	15000.000	0.0	139525.000	2.8	1713.000	15.0	1424.472	8.6
1989	-96045.000	3.0	15000.000	0.0	142315.000	2.0	1970.000	15.0	1541.927	8.2
1990	-98911.000	3.0	15000.000	0.0	145161.000	2.0	2265.000	15.0	1664.991	8.0

(50)

ENERGY SUPPLY-DEMAND FORECAST OF INDONESIA

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%REL = GROWTH RATE
* = EXOGENOUS VARIABLE

	C1C03R18	%REL	C1C03R17	%REL	C1C03R16	%REL	C1C03R15	%REL	C1C03R14	%REL
1980	8212.900	-1.9	10335.245	10.5	4750.194	7.2	23198.529	5.2	24558.529	5.5
1981	9274.629	12.9	11321.317	9.5	5342.632	12.5	26702.878	15.3	27346.878	11.4
1982	10152.507	9.5	12389.945	9.4	5941.926	11.3	29326.180	9.8	31066.980	9.9
1983	11367.049	12.0	13557.224	9.4	6742.859	12.7	32517.652	11.9	33318.852	11.1
1984	12289.663	8.1	14836.462	9.4	7598.773	12.0	35645.764	9.5	36424.764	9.7
1985	13384.181	8.9	16238.331	9.4	8391.041	11.2	39117.359	9.7	40241.359	9.9
1986	14652.006	9.5	17775.578	9.5	9374.458	11.7	43016.008	9.9	44341.008	10.1
1987	16156.712	10.3	19457.617	9.5	10435.643	11.3	47362.185	10.1	48851.185	10.3
1988	17722.381	9.7	21289.782	9.4	11552.409	10.7	51989.014	9.8	53702.041	9.9
1989	19484.176	9.9	23272.889	9.3	12733.639	10.2	57032.676	9.7	59002.676	9.9
1990	21248.726	9.1	25481.450	9.2	13990.362	9.9	62318.530	9.3	64573.530	9.4

	C1C03R13	%REL	C1C03R12	%REL	C1C03R11	%REL	C1C03R10	%REL	C1C03R09	%REL
1980	0.0	-100.0	0.0	0.0	-2240.000	18.8	-28.000	3.7	-2933.874	-23.2
1981	0.0	0.0	0.0	0.0	-2288.040	0.0	-28.001	0.0	-3548.925	21.0
1982	0.0	0.0	0.0	0.0	-2288.400	0.0	-28.040	0.0	-4241.882	19.6
1983	0.0	0.0	0.0	0.0	-2710.800	18.1	-28.400	0.0	-5019.110	18.3
1984	0.0	0.0	0.0	0.0	-3050.004	12.5	-28.004	0.0	-5174.891	3.1
1985	0.0	0.0	0.0	0.0	-3050.004	0.0	-28.040	0.0	-5127.743	-0.9
1986	0.0	0.0	0.0	0.0	-3050.400	0.0	-28.040	0.0	-5822.166	13.6
1987	0.0	0.0	0.0	0.0	-3050.004	0.0	-28.400	0.0	-6016.292	3.1
1988	0.0	0.0	0.0	0.0	-3050.004	0.0	-28.004	0.0	-6235.846	3.8
1989	0.0	0.0	0.0	0.0	-3054.040	0.0	-28.040	0.0	-6598.883	5.8
1990	0.0	0.0	0.0	0.0	-3050.000	0.0	-28.000	0.0	-6561.756	-0.5

	C1C03R08	%REL	C1C03R07	%REL	C1C03R06	%REL	C1C03R05	%REL	C1C03R01	%REL
1980	657.600	20.6	12475.100	12.0	-13331.197	27.8	0.0	-100.0	-655.300	35.4
1981	690.000	5.0	43463.240	2.3	-10749.397	-17.9	0.0	0.0	-710.130	8.4
1982	725.000	5.1	44451.000	2.3	-8556.658	-21.9	0.0	0.0	-770.560	8.5
1983	760.000	4.8	49359.000	11.1	-8914.233	5.1	0.0	0.0	-836.100	8.6
1984	799.000	5.1	54329.000	10.0	-10250.335	14.8	0.0	0.0	-107.361	8.5
1985	839.000	5.0	60255.800	10.9	-12645.618	23.4	0.0	0.0	-981.816	8.8
1986	880.000	4.9	60255.800	0.0	-7933.826	-37.3	0.0	0.0	-1082.245	9.7
1987	914.000	4.1	60255.800	0.0	-3236.318	-59.2	0.0	0.0	-1189.614	8.1
1988	952.000	3.9	60255.800	0.0	1893.098	-155.1	0.0	0.0	-1266.975	8.3
1989	990.000	4.0	60255.800	0.0	7431.759	311.1	0.0	0.0	-1376.473	8.6
1990	1030.000	4.0	60255.800	0.0	12929.436	73.9	0.0	0.0	-1514.720	9.3

	C1C03R03	%REL	C1C03R02	%REL	C1C04R19	%REL	C1C04R18	%REL	C1C04R17	%REL
1980	-16759.000	18.4	3487.603	9.1	780.188	6.6	8212.900	-1.9	10269.308	9.8
1981	-16770.000	-0.2	5820.603	67.9	764.390	9.2	9274.629	12.9	11215.758	9.5
1982	-16729.000	-0.2	8122.142	48.8	837.602	9.6	10152.507	9.5	12303.571	9.6
1983	-19575.000	17.0	10560.762	29.5	920.490	9.9	11367.049	12.0	13458.814	9.4
1984	-21836.000	11.6	11555.665	9.2	1010.868	9.8	12289.663	8.1	14724.814	9.4
1985	-21279.000	-2.4	8633.302	-25.3	1103.506	9.2	13384.181	8.9	16112.141	9.4
1986	-21839.000	-0.7	13198.674	52.9	1203.746	9.1	14652.006	9.5	17633.425	9.4
1987	-20916.000	-0.9	17288.692	31.2	1312.212	9.0	16156.712	10.3	19298.076	9.4
1988	-20727.000	-1.0	22535.010	27.2	1424.472	8.6	17722.381	9.7	21181.191	9.4
1989	-20475.000	-1.2	27988.759	23.8	1541.927	8.2	19484.176	9.9	23074.594	9.3
1990	-20199.000	-1.4	33119.486	18.7	1664.991	8.0	21248.726	9.1	25185.001	9.1

%REL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CICO4R16	%REL	CICO4R15	%REL	CICO4R14	%REL	CICO4R13	%REL	CICO4R12	%REL
1980	4212.651	6.4	23315.847	4.7	23315.847	4.7	0.0	-100.0	0.0	0.0
1981	5299.213	12.4	26583.898	11.3	26583.898	11.3	0.0	0.0	0.0	0.0
1982	5878.926	11.3	29190.615	9.8	29190.615	9.8	0.0	0.0	0.0	0.0
1983	6645.627	12.7	32392.009	11.0	32392.009	11.0	0.0	0.0	0.0	0.0
1984	7443.551	12.0	35468.896	9.5	35468.896	9.5	0.0	0.0	0.0	0.0
1985	8317.158	11.7	38917.288	9.7	38917.288	9.7	0.0	0.0	0.0	0.0
1986	9291.227	11.7	42789.423	9.9	42789.423	9.9	0.0	0.0	0.0	0.0
1987	10341.887	11.3	47108.887	10.1	47108.887	10.1	0.0	0.0	0.0	0.0
1988	11447.605	10.7	51705.948	9.8	51705.948	9.8	0.0	0.0	0.0	0.0
1989	12617.139	10.2	56717.880	9.7	56717.880	9.7	0.0	0.0	0.0	0.0
1990	13861.573	9.9	61969.291	9.2	61969.291	9.2	0.0	0.0	0.0	0.0

	CICO4R11	%REL	CICO4R10	%REL	CICO4R09	%REL	CICO4R07	%REL	CICO4R06	%REL
1980	-2280.000	21.5	-28.000	3.7	-2933.874	-23.2	27133.080	18.6	2803.921	-36.2
1981	-2280.000	0.0	-28.000	0.0	-3548.125	21.0	27768.080	2.3	4676.815	133.4
1982	-2280.000	0.0	-28.000	0.0	-4244.162	19.6	28315.800	2.3	7347.774	57.1
1983	-2710.000	18.9	-28.000	0.0	-5019.118	18.3	31550.000	11.1	8599.111	17.0
1984	-3050.000	12.5	-28.000	0.0	-5171.819	3.1	34705.080	10.0	9016.715	4.9
1985	-3050.000	0.0	-28.000	0.0	-5127.743	-0.9	38491.080	10.9	8632.832	-4.3
1986	-3050.000	0.0	-28.000	0.0	-5822.966	13.6	38491.000	0.0	13110.389	52.0
1987	-3050.000	0.0	-28.000	0.0	-6005.297	3.1	38491.080	0.0	17702.184	34.2
1988	-3050.000	0.0	-28.000	0.0	-6235.815	3.8	38491.080	0.0	22528.714	27.3
1989	-3050.000	0.0	-28.000	0.0	-6518.983	5.8	38491.000	0.0	27903.763	23.9
1990	-3050.000	0.0	-28.000	0.0	-6563.756	-0.5	38491.000	0.0	33111.047	18.7

	CICO4R05	%REL	CICO4R04	%REL	CICO4R03	%REL	CICO4R02	%REL	* CICO5R19	%REL
1980	0.0	-100.0	-655.340	35.4	-800.000	96.1	2603.921	-17.9	276.000	4.9
1981	0.0	0.0	-710.130	8.4	-800.000	0.0	5276.815	102.6	291.000	5.4
1982	0.0	0.0	-770.540	8.5	-800.000	0.0	7947.776	50.6	314.000	5.8
1983	0.0	0.0	-835.600	8.6	-800.000	0.0	9199.119	15.7	320.000	5.3
1984	0.0	0.0	-907.360	8.5	-800.000	0.0	9614.715	4.5	334.000	5.0
1985	0.0	0.0	-986.876	8.8	0.0	-100.0	8632.832	-10.2	352.000	4.8
1986	0.0	0.0	-1082.285	9.7	0.0	0.0	13110.389	52.0	370.000	5.1
1987	0.0	0.0	-1189.614	8.1	0.0	0.0	17702.184	34.2	389.000	5.1
1988	0.0	0.0	-1248.975	8.3	0.0	0.0	22528.714	27.3	408.000	4.9
1989	0.0	0.0	-1376.473	8.6	0.0	0.0	27903.763	23.9	428.000	4.9
1990	0.0	0.0	-1504.220	9.3	0.0	0.0	33111.047	18.7	450.000	5.1

	CICO5R18	%REL	CICO5R15	%REL	CICO5R14	%REL	CICO5R06	%REL	* CICO5R12	%REL
1980	4469.163	7.5	4745.463	7.4	4745.463	7.4	-371.537	-434.7	0.0	0.0
1981	4924.484	10.2	5214.484	9.9	5214.484	9.9	-21.516	-94.2	0.0	0.0
1982	5431.857	10.3	5735.857	10.0	5735.857	10.0	380.857	******	0.0	0.0
1983	5995.618	10.4	6315.618	10.1	6315.618	10.1	365.618	-4.0	0.0	0.0
1984	6618.524	10.4	6954.524	10.1	6954.524	10.1	401.524	12.0	0.0	0.0
1985	7302.242	10.3	7651.242	10.1	7651.242	10.1	395.242	-3.5	0.0	0.0
1986	8053.363	10.3	8423.363	10.0	8423.363	10.0	1144.363	191.6	0.0	0.0
1987	8872.680	10.2	9281.680	10.0	9281.680	10.0	2042.680	72.0	0.0	0.0
1988	9758.359	10.0	10166.359	9.8	10166.359	9.8	2107.359	45.2	0.0	0.0
1989	10706.182	9.7	11134.182	9.5	11134.182	9.5	3875.182	33.3	0.0	0.0
1990	11711.564	9.4	12161.564	9.2	12161.564	9.2	4942.364	26.5	0.0	0.0

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ENERGI SUPPLY-DEMAND FORECAST OF INDONESIA

REPORT NO. 2

%PCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CTC05897	%PCL	* CTC05884	%PCL	* CTC05883	%PCL	CTC05892	%PCL	CTC06819	%PCL
1980	5117.000	32.5	0.0	-100.0	0.0	-100.0	-371.537	0.0	82.599	9.2
1981	5236.000	2.3	0.0	0.0	0.0	0.0	-21.516	-94.2	87.883	12.2
1982	5355.000	2.3	0.0	0.0	0.0	0.0	380.852	******	53.934	12.9
1983	5959.000	11.1	0.0	0.0	0.0	0.0	365.611	-4.0	60.864	12.8
1984	6545.000	10.0	0.0	0.0	0.0	0.0	409.524	12.0	68.523	12.6
1985	7259.000	10.9	0.0	0.0	0.0	0.0	395.242	-3.5	76.906	12.2
1986	7259.000	0.0	0.0	0.0	0.0	0.0	1161.363	194.6	85.935	11.7
1987	7259.000	0.0	0.0	0.0	0.0	0.0	2002.680	72.0	95.678	11.3
1988	7259.000	0.0	0.0	0.0	0.0	0.0	2907.359	45.2	105.977	10.8
1989	7259.000	0.0	0.0	0.0	0.0	0.0	3875.182	33.3	116.451	10.1
1990	7259.000	0.0	0.0	0.0	0.0	0.0	4102.564	26.5	127.644	9.6

	CTC06818	%PCL	CTC06815	%PCL	CTC06814	%PCL	* CTC06813	%PCL	* CTC06812	%PCL
1980	813.341	7.6	885.949	7.6	885.949	7.6	0.0	-100.0	0.0	0.0
1981	932.154	11.1	984.957	11.2	984.957	11.2	0.0	0.0	0.0	0.0
1982	1042.835	11.3	1096.589	11.3	1096.589	11.3	0.0	0.0	0.0	0.0
1983	1159.449	11.2	1220.313	11.3	1220.313	11.3	0.0	0.0	0.0	0.0
1984	1287.824	11.1	1356.348	11.1	1356.348	11.1	0.0	0.0	0.0	0.0
1985	1427.833	10.9	1504.737	10.9	1504.737	10.9	0.0	0.0	0.0	0.0
1986	1581.724	10.8	1667.709	10.8	1667.709	10.8	0.0	0.0	0.0	0.0
1987	1748.525	10.5	1844.203	10.6	1844.203	10.6	0.0	0.0	0.0	0.0
1988	1927.168	10.2	2033.146	10.2	2033.146	10.2	0.0	0.0	0.0	0.0
1989	2116.499	9.8	2233.052	9.8	2233.052	9.8	0.0	0.0	0.0	0.0
1990	2315.292	9.4	2442.906	9.4	2442.906	9.4	0.0	0.0	0.0	0.0

	CTC06807	%PCL	CTC06806	%PCL	* CTC06805	%PCL	* CTC06804	%PCL	* CTC06803	%PCL
1980	85.830	-82.3	799.949	119.4	0.0	-100.0	-203.003	5.2	0.0	-100.0
1981	88.690	3.3	896.852	12.1	0.0	0.0	-213.400	4.9	0.0	0.0
1982	90.859	2.3	1006.589	12.2	0.0	0.0	-224.499	5.2	0.0	0.0
1983	100.693	11.1	1120.313	11.3	0.0	0.0	-235.009	4.8	0.0	0.0
1984	110.653	10.0	1246.348	11.2	0.0	0.0	-247.068	5.1	0.0	0.0
1985	122.008	10.9	1382.737	10.9	0.0	0.0	-259.049	4.9	0.0	0.0
1986	122.030	0.0	1545.709	11.8	0.0	0.0	-284.099	9.1	0.0	0.0
1987	122.085	0.0	1722.203	11.4	0.0	0.0	-285.692	1.0	0.0	0.0
1988	122.055	0.0	1911.148	11.0	0.0	0.0	-299.001	4.9	0.0	0.0
1989	122.030	0.0	2111.852	10.5	0.0	0.0	-314.049	5.0	0.0	0.0
1990	122.369	0.0	2329.936	9.9	0.0	0.0	-334.800	7.0	0.0	0.0

	CTC06802	%PCL	CTC07817	%PCL	CTC07815	%PCL	CTC07814	%PCL	* CTC07813	%PCL
1980	789.141	118.8	10269.308	9.8	10269.308	9.8	10269.308	9.8	0.0	-100.0
1981	876.657	12.1	11245.758	9.5	11245.758	9.5	11245.758	9.5	0.0	0.0
1982	1006.567	12.2	12393.579	9.4	12393.579	9.4	12393.579	9.4	0.0	0.0
1983	1120.311	11.3	13458.841	9.4	13458.841	9.4	13458.841	9.4	0.0	0.0
1984	1246.348	11.2	14724.814	9.4	14724.814	9.4	14724.814	9.4	0.0	0.0
1985	1382.737	10.9	16112.148	9.4	16112.148	9.4	16112.148	9.4	0.0	0.0
1986	1545.709	11.8	17833.125	9.4	17833.125	9.4	17833.125	9.4	0.0	0.0
1987	1722.203	11.4	19293.076	9.4	19293.076	9.4	19293.076	9.4	0.0	0.0
1988	1911.148	11.0	21111.491	9.4	21111.491	9.4	21111.491	9.4	0.0	0.0
1989	2111.852	10.5	23074.594	9.3	23074.594	9.3	23074.594	9.3	0.0	0.0
1990	2329.936	9.9	25185.801	9.1	25185.801	9.1	25185.801	9.1	0.0	0.0

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	* CIC07R12	%RCL	* CIC07R10	%RCL	CIC07R07	%RCL	CIC07R06	%RCL	* CIC07R05	%RCL
1980	0.0	0.0	0.0	0.0	8142.098	16.2	1927.308	116.6	0.0	-100.0
1981	0.0	0.0	0.0	0.0	8534.060	2.3	2709.758	40.6	0.0	0.0
1982	0.0	0.0	0.0	0.0	8738.080	2.3	3573.579	31.9	0.0	0.0
1983	0.0	0.0	0.0	0.0	9740.800	11.1	3758.844	5.2	0.0	0.0
1984	0.0	0.0	0.0	0.0	10670.008	10.0	4054.814	7.9	0.0	0.0
1985	0.0	0.0	0.0	0.0	11834.008	10.9	4278.144	5.5	0.0	0.0
1986	0.0	0.0	0.0	0.0	11834.080	0.0	5799.425	35.6	0.0	0.0
1987	0.0	0.0	0.0	0.0	11834.080	0.0	7464.076	28.7	0.0	0.0
1988	0.0	0.0	0.0	0.0	11834.000	0.0	9277.191	24.3	0.0	0.0
1989	0.0	0.0	0.0	0.0	11834.000	0.0	11240.594	21.2	0.0	0.0
1990	0.0	0.0	0.0	0.0	11834.080	0.0	13351.691	18.8	0.0	0.0

	CIC07R02	%RCL	CIC08R19	%RCL	CIC08R18	%RCL	CIC08R16	%RCL	CIC08R15	%RCL
1980	1922.308	70.1	308.375	9.2	2456.696	-17.4	1649.082	8.6	4405.473	-7.6
1981	2709.758	40.6	337.074	12.2	2925.591	19.1	1815.777	15.8	5158.838	17.1
1982	3573.579	31.9	389.448	12.9	3142.014	7.4	2112.703	16.5	5635.363	9.2
1983	3758.844	5.2	429.170	12.8	3621.982	15.3	2441.515	15.6	6492.667	15.2
1984	4054.814	7.9	483.676	12.6	3734.315	3.1	2729.646	13.8	6996.538	7.8
1985	4278.144	5.5	542.275	12.2	3910.407	5.5	3151.659	13.1	7634.362	9.1
1986	5799.425	35.6	605.948	11.7	4231.869	7.4	3573.471	13.4	8411.291	10.2
1987	7464.076	28.7	674.655	11.3	4672.548	10.4	4024.933	12.7	9374.096	11.4
1988	9277.191	24.3	747.277	10.8	5086.854	8.9	4493.630	11.6	10327.761	10.2
1989	11240.594	21.2	822.541	10.1	5616.568	10.4	4986.711	11.0	11425.842	10.6
1990	13351.691	18.8	899.845	9.4	6072.870	8.1	5520.211	10.7	12493.006	9.3

	CIC08R14	%RCL	* CIC08R13	%RCL	* CIC08R12	%RCL	* CIC08R11	%RCL	* CIC08R10	%RCL
1980	4405.473	-7.6	0.0	-100.0	0.0	0.0	0.0	-100.0	0.0	-100.0
1981	5158.838	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982	5635.363	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	6492.667	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	6996.538	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	7634.362	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	8411.291	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	9374.096	11.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	10327.761	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	11425.842	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	12493.006	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	CIC02R09	%RCL	CIC08R07	%RCL	CIC08R06	%RCL	* CIC08R05	%RCL	* CIC08R01	%RCL
1980	-1651.874	-38.8	5977.600	7.2	10.343	-95.8	0.3	-100.0	-11.160	10.0
1981	-2143.925	29.8	6116.008	2.3	1136.763	1372.9	0.0	0.0	-12.604	9.1
1982	-2701.162	26.1	6255.600	2.3	2001.525	75.6	0.0	0.0	-13.030	8.3
1983	-3329.110	23.1	6950.000	11.1	2871.777	37.8	0.0	0.0	-14.400	7.7
1984	-3321.659	-0.2	7645.000	10.0	2673.437	-6.9	0.0	0.0	-15.408	7.1
1985	-3893.743	-6.9	8479.000	10.9	2249.104	-15.9	0.0	0.0	-17.008	13.3
1986	-3598.965	16.1	8479.000	0.0	3523.256	56.7	0.0	0.0	-19.010	11.8
1987	-3556.297	-1.0	8479.000	0.0	4451.393	26.3	0.0	0.0	-21.000	10.5
1988	-3545.845	-0.3	8479.000	0.0	5314.697	21.2	0.0	0.0	-23.004	9.5
1989	-3388.893	2.8	8479.000	0.0	6591.725	22.2	0.0	0.0	-25.004	8.7
1990	-3316.756	-8.9	8479.000	0.0	7332.762	11.2	0.0	0.0	-27.000	8.0

ENERGY SUPPLY-DEMAND FORECAST OF INDONESIA

REPORT NO. 2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	* CTC08R03	%RCL	CTC08R02	%RCL	CTC09R19	%RCL	* CTC09R18	%RCL	CTC09R16	%RCL
1980	0.0	-100.0	80.348	-95.0	26.215	9.2	127.809	-19.6	1454.184	6.8
1981	0.0	0.0	1886.7631377.0		29.417	12.2	139.008	9.4	1626.281	11.8
1982	0.0	0.0	2084.525	25.6	33.283	12.9	153.000	10.1	1819.155	11.9
1983	0.0	0.0	2871.777	37.8	37.455	12.8	168.000	9.8	2032.447	11.7
1984	0.0	0.0	2673.437	-6.9	42.168	12.6	185.000	10.1	2265.365	11.5
1985	0.0	0.0	2249.106	-15.9	47.326	12.2	204.000	10.3	2519.247	11.2
1986	0.0	0.0	3523.256	56.7	52.883	11.7	224.040	9.8	2791.122	11.1
1987	0.0	0.0	4451.393	26.3	58.879	11.3	246.000	9.8	3101.778	10.8
1988	0.0	0.0	5398.697	21.2	65.212	10.8	271.000	10.2	3425.821	10.4
1989	0.0	0.0	6591.725	22.2	71.765	10.1	298.000	10.0	3768.432	10.0
1990	0.0	0.0	7332.762	11.2	78.532	9.4	328.040	10.1	4128.679	9.6

	CTC09R15	%RCL	CTC09R14	%RCL	* CTC09R13	%RCL	* CTC09R12	%RCL	* CTC09R11	%RCL
1980	1607.218	2.3	1607.218	2.3	0.0	-100.0	0.0	0.0	0.0	-100.0
1981	1791.698	11.7	1791.698	11.7	0.0	0.0	0.0	0.0	0.0	0.0
1982	2005.357	11.7	2005.357	11.7	0.0	0.0	0.0	0.0	0.0	0.0
1983	2237.592	11.6	2237.592	11.6	0.0	0.0	0.0	0.0	0.0	0.0
1984	2492.533	11.4	2492.533	11.4	0.0	0.0	0.0	0.0	0.0	0.0
1985	2770.573	11.2	2770.573	11.2	0.0	0.0	0.0	0.0	0.0	0.0
1986	3076.812	11.0	3076.812	11.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	3406.652	10.7	3406.652	10.7	0.0	0.0	0.0	0.0	0.0	0.0
1988	3761.838	10.4	3761.838	10.4	0.0	0.0	0.0	0.0	0.0	0.0
1989	4138.218	10.0	4138.218	10.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	4535.211	9.6	4535.211	9.6	0.0	0.0	0.0	0.0	0.0	0.0

	* CTC09R10	%RCL	* CTC09R09	%RCL	CTC09R07	%RCL	CTC09R06	%RCL	CTC11R06	%RCL
1980	-18.000	0.0	-50.000	28.2	1935.000	14.2	-259.7022497.0		-1545.000	-30.9
1981	-18.000	0.0	-50.000	0.0	1980.000	2.3	-117.382	-54.8	-1549.000	2.3
1982	-18.000	0.0	-50.000	0.0	2025.000	2.3	48.357	-141.2	-1525.000	2.3
1983	-18.000	0.0	-50.000	0.0	2250.000	11.1	55.592	14.8	-1750.000	11.1
1984	-18.000	0.0	-50.000	0.0	2475.000	10.0	85.533	54.1	-1925.000	10.0
1985	-18.000	0.0	-50.000	0.0	2745.000	10.9	93.573	9.4	-2135.000	10.9
1986	-18.000	0.0	-50.000	0.0	2745.000	0.0	397.812	324.4	-2135.000	0.0
1987	-18.000	0.0	-50.000	0.0	2745.000	0.0	729.452	82.9	-2135.000	0.0
1988	-18.000	0.0	-50.000	0.0	2745.000	0.0	1024.838	40.7	-2135.000	0.0
1989	-18.000	0.0	-50.000	0.0	2745.000	0.0	1461.218	34.7	-2135.000	0.0
1990	-18.000	0.0	-50.000	0.0	2745.000	0.0	1858.211	27.2	-2135.000	0.0

	* CTC09R05	%RCL	* CTC09R04	%RCL	* CTC09R03	%RCL	CTC09R02	%RCL	* CTC11R17	%RCL
1980	0.0	-100.0	-58.308	10.0	0.0	-100.0	-259.702	-572.2	55.650	-1.8
1981	0.0	0.0	-64.138	10.0	0.0	0.0	-117.382	-54.8	60.000	9.1
1982	0.0	0.0	-70.548	10.0	0.0	0.0	48.357	-141.2	65.000	10.0
1983	0.0	0.0	-77.600	10.0	0.0	0.0	55.592	14.8	73.000	12.6
1984	0.0	0.0	-85.360	10.0	0.0	0.0	85.533	53.1	81.000	11.0
1985	0.0	0.0	-93.878	10.0	0.0	0.0	93.573	9.4	85.000	4.9
1986	0.0	0.0	-103.285	10.0	0.0	0.0	399.012	326.4	89.000	4.7
1987	0.0	0.0	-113.614	10.0	0.0	0.0	729.652	82.9	94.000	5.6
1988	0.0	0.0	-124.975	10.0	0.0	0.0	1024.838	40.7	98.000	4.3
1989	0.0	0.0	-137.473	10.0	0.0	0.0	1461.218	34.7	103.000	5.1
1990	0.0	0.0	-151.220	10.0	0.0	0.0	1858.211	27.2	109.000	5.8

%REL = GROWTH RATE
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	* CTC10R18	%REL	CTC10R16	%REL	CTC10R15	%REL	CTC10R14	%REL	* CTC10R13	%REL
1980	317.000	3.9	1401.565	5.5	1981.565	5.1	1981.565	5.1	0.0	-100.0
1981	348.000	9.8	1777.155	10.4	2185.155	10.3	2185.155	10.3	0.0	0.0
1982	383.000	10.1	1964.869	10.6	2413.869	10.5	2413.869	10.5	0.0	0.0
1983	422.000	10.2	2172.065	10.5	2667.065	10.5	2667.065	10.5	0.0	0.0
1984	464.000	10.0	2399.140	10.5	2944.140	10.4	2944.140	10.4	0.0	0.0
1985	510.000	9.9	2646.230	10.3	3241.230	10.1	3241.230	10.1	0.0	0.0
1986	561.000	10.0	2918.624	10.3	3568.624	10.1	3568.624	10.1	0.0	0.0
1987	617.000	10.0	3213.175	10.1	3924.175	10.0	3924.175	10.0	0.0	0.0
1988	679.000	10.0	3528.354	9.8	4305.354	9.7	4305.354	9.7	0.0	0.0
1989	747.000	10.0	3861.993	9.5	4711.993	9.4	4711.993	9.4	0.0	0.0
1990	821.000	9.9	4212.692	9.1	5142.692	9.1	5142.692	9.1	0.0	0.0

	* CTC10R12	%REL	* CTC10R11	%REL	* CTC10R10	%REL	* CTC10R09	%REL	CTC10R07	%REL
1979	0.0	0.0	-2280.000	51.6	-10.000	0.0	-1212.601	83.4	5676.001	39.0
1981	0.0	0.0	-2280.000	0.0	-10.000	0.0	-1355.000	10.0	5808.001	2.3
1982	0.0	0.0	-2280.000	0.0	-10.000	0.0	-1490.000	10.0	5941.000	2.3
1983	0.0	0.0	-2710.000	18.9	-10.000	0.0	-1640.000	10.1	6610.000	11.1
1984	0.0	0.0	-3050.000	12.5	-10.000	0.0	-1804.000	9.9	7280.000	10.0
1985	0.0	0.0	-3050.000	0.0	-10.000	0.0	-1984.000	10.0	8052.000	10.7
1986	0.0	0.0	-3050.000	0.0	-10.000	0.0	-2182.000	10.0	8052.000	0.0
1987	0.0	0.0	-3050.000	0.0	-10.000	0.0	-2400.000	10.0	8052.000	0.0
1988	0.0	0.0	-3050.000	0.0	-10.000	0.0	-2640.000	10.0	8052.000	0.0
1989	0.0	0.0	-3050.000	0.0	-10.000	0.0	-2904.000	10.0	8052.000	0.0
1990	0.0	0.0	-3050.000	0.0	-10.000	0.0	-3195.000	10.0	8052.000	0.0

	CTC10R04	%REL	* CTC10R05	%REL	* CTC10R06	%REL	* CTC10R03	%REL	CTC10R02	%REL
1980	-172.435	-361.3	0.0	-100.0	-383.000	68.7	-680.000	1150.0	427.565	0.0
1981	22.155	-112.8	0.0	0.0	-121.000	9.1	-680.000	0.0	622.155	45.5
1982	253.869	845.9	0.0	0.0	-143.000	10.0	-490.000	0.0	853.869	37.2
1983	427.065	68.2	0.0	0.0	-510.000	18.2	-601.000	0.0	1027.065	20.3
1984	547.140	28.1	0.0	0.0	-560.000	9.8	-680.000	0.0	1147.140	11.7
1985	233.230	-57.4	0.0	0.0	-617.000	10.2	0.0	-100.0	233.230	-79.7
1986	758.624	225.3	0.0	0.0	-680.000	10.2	0.0	0.0	758.624	225.3
1987	1332.175	75.6	0.0	0.0	-759.000	10.3	0.0	0.0	1332.175	75.6
1988	1953.354	46.6	0.0	0.0	-830.000	9.3	0.0	0.0	1953.354	46.6
1989	2623.993	34.3	0.0	0.0	-900.000	9.8	0.0	0.0	2623.993	34.3
1990	3345.692	27.5	0.0	0.0	-910.000	10.0	0.0	0.0	3345.692	27.5

	* CTC11R20	%REL	* CTC11R16	%REL	CTC11R15	%REL	CTC11R14	%REL	* CTC11R02	%REL
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

%REL = GROWTH RATE
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	* CIC11812	%REL	* CIC11811	%REL	* CIC11808	%REL	CIC11807	%REL	* CIC11805	%REL
1980	0.0	0.0	0.0	0.0	0.0	0.0	1565.000	-30.8	0.0	-100.0
1981	0.0	0.0	0.0	0.0	0.0	0.0	1510.000	2.3	0.0	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	1575.000	2.3	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	1750.000	11.1	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	1925.000	10.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	2135.000	10.9	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	2135.000	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	2135.000	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	2135.000	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	2135.000	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	2135.000	0.0	0.0	0.0

	CIC11803	%REL	* CIC12820	%REL	* CIC12818	%REL	CIC12817	%REL	CIC12816	%REL
1980	+1565.000	540.1	0.0	0.0	0.0	0.0	65.937	27.8	37.545	3.8
1981	+1540.000	2.3	0.0	0.0	0.0	0.0	75.569	14.6	43.419	15.6
1982	+1575.000	2.3	0.0	0.0	0.0	0.0	86.316	14.3	49.999	15.2
1983	+1750.000	11.1	0.0	0.0	0.0	0.0	98.389	13.9	57.262	14.5
1984	+1925.000	10.0	0.0	0.0	0.0	0.0	111.647	13.5	65.222	13.9
1985	+2135.000	10.9	0.0	0.0	0.0	0.0	126.187	13.0	73.883	13.3
1986	-2135.000	0.0	0.0	0.0	0.0	0.0	142.153	12.7	83.432	12.9
1987	-2135.000	0.0	0.0	0.0	0.0	0.0	159.542	12.2	93.757	12.4
1988	-2135.000	0.0	0.0	0.0	0.0	0.0	178.292	11.8	104.866	11.8
1989	-2135.000	0.0	0.0	0.0	0.0	0.0	198.296	11.2	116.510	11.2
1990	-2135.000	0.0	0.0	0.0	0.0	0.0	219.449	10.7	128.790	10.5

	CIC12815	%REL	CIC12814	%REL	* CIC12813	%REL	* CIC12812	%REL	* CIC12808	%REL
1980	103.492	0.0	103.492	0.0	0.0	0.0	0.0	0.0	657.000	20.6
1981	118.988	15.0	118.988	15.0	0.0	0.0	0.0	0.0	690.000	5.0
1982	136.366	14.6	136.366	14.6	0.0	0.0	0.0	0.0	725.000	5.1
1983	155.643	14.1	155.643	14.1	0.0	0.0	0.0	0.0	761.000	4.8
1984	176.869	13.6	176.869	13.6	0.0	0.0	0.0	0.0	719.000	5.1
1985	200.070	13.1	200.070	13.1	0.0	0.0	0.0	0.0	839.000	5.0
1986	225.585	12.8	225.585	12.8	0.0	0.0	0.0	0.0	880.000	4.9
1987	253.298	12.3	253.298	12.3	0.0	0.0	0.0	0.0	916.000	4.1
1988	283.096	11.8	283.096	11.8	0.0	0.0	0.0	0.0	952.000	3.9
1989	314.796	11.2	314.796	11.2	0.0	0.0	0.0	0.0	990.000	4.0
1990	348.239	10.6	348.239	10.6	0.0	0.0	0.0	0.0	1030.000	4.0

	CIC12807	%REL	CIC12806	%REL	* CIC12805	%REL	* CIC12803	%REL	CIC12802	%REL
1980	77.439	17.3	-638.918	-203.1	0.0	-100.0	-648.000	4.7	1.082	0.0
1981	79.200	2.3	-650.212	3.1	0.0	0.0	-660.000	3.1	1.748	7.8
1982	81.000	2.3	-669.631	3.0	0.0	0.0	-681.000	3.0	10.316	5.9
1983	98.000	11.1	-694.357	3.7	0.0	0.0	-710.000	4.4	15.813	50.9
1984	99.000	10.0	-721.131	3.9	0.0	0.0	-749.000	1.2	18.819	20.6
1985	109.000	10.9	-748.230	3.8	0.0	0.0	-758.000	1.4	1.270	-93.3
1986	109.000	0.0	-761.215	2.1	0.0	0.0	-778.000	2.7	5.715	355.4
1987	109.000	0.0	-777.502	1.1	0.0	0.0	-788.000	1.3	7.418	29.6
1988	109.000	0.0	-778.701	0.8	0.0	0.0	-795.000	0.6	6.216	-16.0
1989	109.000	0.0	-785.004	0.8	0.0	0.0	-810.000	0.6	4.196	-28.7
1990	109.000	0.0	-791.561	0.8	0.0	0.0	-810.000	1.3	8.139	69.1

2ROL = GROWTH RATE
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	* CIC13R20	2ROL	* CIC13R16	2ROL	CIC13R15	2ROL	* CIC13R13	2ROL	* CIC13R12	2ROL
1980	560.000	23.9	0.0	0.0	0.0	0.0	0.0	-100.0	0.0	0.0
1981	644.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982	740.000	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	851.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	979.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	1126.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	1295.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	1489.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	1713.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	1970.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	2265.000	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	* CIC13R11	2ROL	CIC13R07	2ROL	CIC13R06	2ROL	* CIC13R05	2ROL	* CIC13R03	2ROL
1980	0.0	-100.0	13768.000	7.5	-11204.000	22.3	0.0	-100.0	-14154.000	27.2
1981	0.0	0.0	14080.000	2.3	-11434.000	1.8	0.0	0.0	-13978.000	-0.6
1982	0.0	0.0	14400.000	2.3	-11640.000	1.7	0.0	0.0	-13974.000	-0.7
1983	0.0	0.0	16000.000	11.1	-15149.000	10.9	0.0	0.0	-16515.000	19.0
1984	0.0	0.0	17600.000	10.0	-16621.000	9.7	0.0	0.0	-18541.000	12.3
1985	0.0	0.0	19520.000	10.9	-18314.000	10.2	0.0	0.0	-18314.000	-0.8
1986	0.0	0.0	19520.000	0.0	-18225.000	-0.1	0.0	0.0	-18225.000	-0.9
1987	0.0	0.0	19520.000	0.0	-18031.000	-1.1	0.0	0.0	-18031.000	-1.1
1988	0.0	0.0	19520.000	0.0	-17907.000	-1.2	0.0	0.0	-17907.000	-1.2
1989	0.0	0.0	19520.000	0.0	-17550.000	-1.4	0.0	0.0	-17550.000	-1.4
1990	0.0	0.0	19520.000	0.0	-17255.000	-1.7	0.0	0.0	-17255.000	-1.7

	CIC13R02	2ROL	CIC14R20	2ROL	CIC14R17	2ROL	CIC14R16	2ROL	CIC14R15	2ROL
1980	854.000	0.0	181.379	10.3	0.0	0.0	1848.165	10.3	1848.165	10.3
1981	534.000	-37.5	1069.026	10.4	0.0	0.0	1157.212	10.4	1157.212	10.4
1982	214.000	-59.9	1208.184	10.9	0.0	0.0	1283.865	10.9	1283.865	10.9
1983	1346.965	530.3	1344.830	11.3	0.0	0.0	1428.658	11.3	1428.658	11.3
1984	1920.000	10.6	1459.831	11.5	0.0	0.0	1593.780	11.5	1593.780	11.5
1985	0.0	-100.0	1675.142	11.7	0.0	0.0	1780.073	11.7	1780.073	11.7
1986	0.0	0.0	1874.867	11.9	0.0	0.0	1992.309	11.9	1992.309	11.9
1987	0.0	0.0	2099.176	12.0	0.0	0.0	2230.665	12.0	2230.668	12.0
1988	0.0	0.0	2348.358	11.9	0.0	0.0	2495.459	11.9	2495.459	11.9
1989	0.0	0.0	2621.988	11.7	0.0	0.0	2784.229	11.7	2784.229	11.7
1990	0.0	0.0	2919.551	11.4	0.0	0.0	3102.457	11.4	3102.457	11.4

	CIC14R14	2ROL	* CIC14R13	2ROL	* CIC14R12	2ROL	CIC14R11	2ROL	CIC14R10	2ROL
1980	2034.544	10.3	0.0	-100.0	-8165.[illegible]		-10183.313	-1.6	-47.394	0.0
1981	2246.228	10.4	0.0	0.0	-8193.000	0.3	-10269.278	1.6	-70.066	4.0
1982	2492.849	12.9	0.0	0.0	-8403.040	1.3	-10389.370	1.2	-73.081	4.3
1983	2723.488	11.3	0.0	0.0	-8601.040	2.4	-12551.960	20.8	-76.313	4.6
1984	3093.611	11.5	0.0	0.0	-8601.040	0.0	-12459.895	0.9	-80.073	4.8
1985	3455.245	11.7	0.0	0.0	-8816.000	0.0	-14115.107	11.5	-84.105	5.0
1986	3857.174	11.9	0.0	0.0	-8806.040	0.0	-14253.901	1.0	-88.514	5.3
1987	4329.844	12.0	0.0	0.0	-8801.040	0.0	-14401.733	1.1	-93.357	5.4
1988	4833.817	11.9	0.0	0.0	-8801.040	0.0	-14582.711	1.2	-98.557	5.6
1989	5408.218	11.7	0.0	0.0	-8816.000	0.0	-14772.774	1.3	-104.185	5.6
1990	6022.838	11.4	0.0	0.0	-8816.000	0.0	-14929.593	1.1	-109.973	5.6

%REL = GROWTH RATE
* = EXOGENOUS VARIABLE

	* CTC14R19	%REL	* CTC14R18	%REL	CTC14R16	%REL	CTC14R11	%REL	CTC13R14	%REL
1980	0.0	0.0	-19743.010	62.1	40113.251	6.8	40113.251	6.8	560.004	23.9
1981	0.0	0.0	-20000.010	1.3	41079.132	1.6	41079.132	1.6	641.010	15.0
1982	0.0	0.0	-20000.000	0.0	41557.188	1.2	41557.199	1.2	710.000	11.9
1983	0.0	0.0	-26000.000	30.0	50207.841	20.8	50207.841	20.8	851.001	15.0
1984	0.0	0.0	-26000.000	0.0	50639.579	0.9	50639.579	0.9	979.010	15.0
1985	0.0	0.0	-30000.000	15.4	56460.428	11.5	56460.428	11.5	1126.010	15.0
1986	0.0	0.0	-30000.000	0.0	57015.613	1.0	57015.613	1.0	1295.001	15.0
1987	0.0	0.0	-30000.000	0.0	57638.931	1.1	57638.931	1.1	1489.001	15.0
1988	0.0	0.0	-30000.000	0.0	58331.165	1.2	58331.165	1.2	1713.001	15.0
1989	0.0	0.0	-30000.000	0.0	59091.098	1.3	59091.098	1.3	1970.010	15.0
1990	0.0	0.0	-30000.000	0.0	59918.374	1.4	59918.374	1.4	2265.010	15.0

	* CTC25R14	%REL	TRFSG1	%REL	* CTC11R13	%REL	* POP3	%REL	* ELC05R19	%REL
1980	0.0	-100.0	1895.916	12.2	0.0	0.0	147.812	2.1	1.010	-105.2
1981	0.0	0.0	2123.447	12.0	0.0	0.0	150.917	2.1	1.010	0.0
1982	0.0	0.0	2377.181	11.9	0.0	0.0	154.138	2.1	1.000	0.0
1983	0.0	0.0	2659.070	11.9	0.0	0.0	157.375	2.1	1.000	0.0
1984	0.0	0.0	2970.554	11.7	0.0	0.0	160.610	2.1	1.010	0.0
1985	0.0	0.0	3312.417	11.5	0.0	0.0	163.854	2.1	1.000	0.0
1986	0.0	0.0	3688.845	11.3	0.0	0.0	167.199	2.1	1.000	0.0
1987	0.0	0.0	4097.745	11.1	0.0	0.0	171.018	2.1	1.000	0.0
1988	0.0	0.0	4540.629	10.8	0.0	0.0	174.608	2.1	1.000	0.0
1989	0.0	0.0	5014.587	10.4	0.0	0.0	178.275	2.1	1.000	0.0
1990	0.0	0.0	5517.329	10.0	0.0	0.0	182.019	2.1	1.000	0.0

	* ELC05R19	%REL	* CTC01R13	%REL	* ELC14R16	%REL	* ELC14R17	%REL	* ELC14R20	%REL
1980	1.000	-103.9	0.0	-100.0	1.500	-145.1	1.001	-106.3	1.500	-142.9
1981	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1982	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1983	1.000	0.0	0.0	0.0	1.500	0.0	1.001	0.0	1.500	0.0
1984	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1985	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1986	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1987	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1988	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1989	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0
1990	1.000	0.0	0.0	0.0	1.500	0.0	1.000	0.0	1.500	0.0

	* ELC18R17	%REL	* ELC24R19	%REL	* CTC15R13	%REL	* CTC15R03	%REL	CTC15R06	%REL
1980	1.000	-96.2	1.000	0.0	0.0	-100.0	2373.000	-50.5	-2373.000	-21.3
1981	1.000	0.0	1.000	0.0	0.0	0.0	3237.000	36.4	-3237.000	36.4
1982	1.000	0.0	1.000	0.0	0.0	0.0	3548.000	9.6	-3548.000	9.6
1983	1.000	0.0	1.000	0.0	0.0	0.0	4045.000	15.3	-4045.000	15.3
1984	1.000	0.0	1.000	0.0	0.0	0.0	4845.001	0.0	-4845.000	0.0
1985	1.000	0.0	1.000	0.0	0.0	0.0	4845.000	0.0	-4845.000	0.0
1986	1.000	0.0	1.000	0.0	0.0	0.0	4845.000	0.0	-4845.000	0.0
1987	1.000	0.0	1.000	0.0	0.0	0.0	4845.000	0.0	-4845.000	0.0
1988	1.000	0.0	1.000	0.0	0.0	0.0	4845.001	0.0	-4845.000	0.0
1989	1.000	0.0	1.000	0.0	0.0	0.0	4845.000	0.0	-4845.000	0.0
1990	1.000	0.0	1.000	0.0	0.0	0.0	4845.000	0.0	-4845.000	0.0

%RCL = GROWTH RATE
* = ENDOGENOUS VARIABLE

	CIC15R93	%RCL	* CIC16R13	%RCL	* CIC16R18	%RCL	CIC16R96	%RCL	CIC16R93	%RCL
1980	-2373.000	-24.3	0.0	0.0	15800.000	24.0	-15800.00012761.2		-15800.00012761.2	
1981	-3237.000	36.4	0.0	0.0	15800.000	0.0	-15800.000	0.0	-15800.000	0.0
1982	-3508.000	8.4	0.0	0.0	15800.000	0.0	-15800.000	0.0	-15800.000	0.0
1983	-4045.000	15.3	0.0	0.0	21080.000	40.0	-21080.000	40.0	-21080.000	40.0
1984	-4045.000	0.0	0.0	0.0	21080.000	0.0	-21080.000	0.0	-21080.000	0.0
1985	-4045.000	0.0	0.0	0.0	24800.000	14.3	-24800.000	14.3	-24800.000	14.3
1986	-4045.000	0.0	0.0	0.0	24800.000	0.0	-24800.000	0.0	-24800.000	0.0
1987	-4045.000	0.0	0.0	0.0	24080.000	0.0	-24080.000	0.0	-24080.000	0.0
1988	-4045.000	0.0	0.0	0.0	24080.000	0.0	-24800.000	0.0	-24800.000	0.0
1989	-4045.000	0.0	0.0	0.0	24800.000	0.0	-24800.000	0.0	-24800.000	0.0
1990	-4045.000	0.0	0.0	0.0	21000.000	0.0	-24800.000	0.0	-24800.000	0.0

	* CIC17R20	%RCL	* CIC17R18	%RCL	CIC17R15	%RCL	CIC17R14	%RCL	* CIC17R13	%RCL
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	* CIC17R08	%RCL	CIC17R16	%RCL	CIC17R03	%RCL	CIC18R17	%RCL	* CIC18R16	%RCL
1980	0.0	0.0	0.0	0.0	0.0	0.0	39.394	6.5	0.0	0.0
1981	0.0	0.0	0.0	0.0	0.0	0.0	42.046	6.8	0.0	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	45.061	7.1	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	48.393	7.4	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	52.073	7.6	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	56.105	7.7	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	60.534	7.9	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	65.357	8.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	70.557	8.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	76.105	7.9	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	81.973	7.7	0.0	0.0

	CIC18R15	%RCL	CIC18R14	%RCL	* CIC18R13	%RCL	* CIC18R12	%RCL	* CIC18R11	%RCL
1980	39.394	6.5	39.394	6.5	0.0	-100.0	0.0	0.0	0.0	0.0
1981	42.046	6.8	42.046	6.8	0.0	0.0	0.0	0.0	0.0	0.0
1982	45.061	7.1	45.061	7.1	0.0	0.0	0.0	0.0	0.0	0.0
1983	48.393	7.4	48.393	7.4	0.0	0.0	0.0	0.0	0.0	0.0
1984	52.073	7.6	52.073	7.5	0.0	0.0	0.0	0.0	0.0	0.0
1985	56.105	7.7	56.105	7.7	0.0	0.0	0.0	0.0	0.0	0.0
1986	60.534	7.9	60.534	7.9	0.0	0.0	0.0	0.0	0.0	0.0
1987	65.357	8.0	65.357	8.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	70.557	8.0	70.557	8.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	76.105	7.9	76.105	7.9	0.0	0.0	0.0	0.0	0.0	0.0
1990	81.973	7.7	81.973	7.7	0.0	0.0	0.0	0.0	0.0	0.0

2RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CIC18R10	2RCL	* CIC19R13	2RCL	* CIC19R11	2RCL	CIC19R10	2RCL	* CIC21R01	2RCL
1980	39.394	-4.2	0.0	0.0	0.0	0.0	0.0	0.0	-1351.000	1.2
1981	42.066	6.8	0.0	0.0	0.0	0.0	0.0	0.0	-1350.001	0.0
1982	45.061	7.1	0.0	0.0	0.0	0.0	0.0	0.0	-1350.001	0.0
1983	48.393	7.4	0.0	0.0	0.0	0.0	0.0	0.0	-1350.001	0.0
1984	52.073	7.6	0.0	0.0	0.0	0.0	0.0	0.0	-2052.001	52.0
1985	56.105	7.7	0.0	0.0	0.0	0.0	0.0	0.0	-2052.010	0.0
1986	60.534	7.9	0.0	0.0	0.0	0.0	0.0	0.0	-2403.010	17.1
1987	65.357	8.0	0.0	0.0	0.0	0.0	0.0	0.0	-2403.010	0.0
1988	70.557	8.0	0.0	0.0	0.0	0.0	0.0	0.0	-2450.000	2.0
1989	76.165	7.9	0.0	0.0	0.0	0.0	0.0	0.0	-2450.001	0.0
1990	81.973	7.7	0.0	0.0	0.0	0.0	0.0	0.0	-2450.001	0.0

	CIC21R04	2RCL	CIC21R01	2RCL	* CIC21R07	2RCL	CIC21R04	2RCL	CIC21R01	2RCL
1980	1350.000	0.0	1350.000	0.0	-50.000	0.0	50.000	0.0	50.000	0.0
1981	1350.000	0.0	1350.000	0.0	-50.000	0.0	50.000	0.0	50.000	0.0
1982	1350.000	0.0	1350.000	0.0	-50.000	0.0	50.000	0.0	50.000	0.0
1983	1350.000	0.0	1350.000	0.0	-50.000	0.0	50.000	0.0	50.000	0.0
1984	2052.000	52.0	2052.000	52.0	-50.000	0.0	50.000	0.0	50.000	0.0
1985	2052.000	0.0	2052.000	0.0	-150.000	200.0	150.000	200.0	150.000	200.0
1986	2403.000	17.1	2403.000	17.1	-150.000	0.0	150.000	0.0	150.000	0.0
1987	2403.000	0.0	2403.000	0.0	-150.000	0.0	150.000	0.0	150.000	0.0
1988	2450.000	2.0	2450.000	2.0	-150.000	0.0	150.000	0.0	150.000	0.0
1989	2450.000	0.0	2450.000	0.0	-150.000	0.0	150.000	0.0	150.000	0.0
1990	2450.000	0.0	2450.000	0.0	-150.000	0.0	150.000	0.0	150.000	0.0

	* CIC22R19	2RCL	CIC22R16	2RCL	CIC22R11	2RCL	* CIC23R19	2RCL	CIC23R01	2RCL
1980	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1981	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1982	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1983	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1984	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1985	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1987	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1988	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1989	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1990	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	CIC25R01	2RCL	CIC24R19	2RCL	* CIC24R18	2RCL	CIC24R17	2RCL	CIC24R16	2RCL
1980	0.0	0.0	51.337	9.2	0.0	0.0	316.481	-3.4	754.720	12.3
1981	0.0	0.0	57.618	12.2	0.0	0.0	381.249	10.0	870.671	15.4
1982	0.0	0.0	65.022	12.9	0.0	0.0	421.278	10.5	1001.581	14.9
1983	0.0	0.0	73.349	12.8	0.0	0.0	467.119	10.9	1143.925	14.3
1984	0.0	0.0	82.579	12.6	0.0	0.0	519.587	11.2	1301.143	13.7
1985	0.0	0.0	92.680	12.2	0.0	0.0	578.145	11.3	1472.809	13.1
1986	0.0	0.0	103.562	11.7	0.0	0.0	645.375	11.6	1660.484	12.8
1987	0.0	0.0	115.385	11.3	0.0	0.0	722.374	11.8	1864.299	12.3
1988	0.0	0.0	127.716	10.9	0.0	0.0	807.276	11.7	2082.369	11.7
1989	0.0	0.0	140.583	10.1	0.0	0.0	900.865	11.6	2313.221	11.1
1990	0.0	0.0	153.792	9.4	0.0	0.0	1003.102	11.4	2555.814	10.5

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CIC24R15	%RCL	CIC24R14	%RCL	CIC24R12	%RCL	* CIC24R11	%RCL	CIC24R09	%RCL
1980	1152.738	-12.9	1152.738	-12.9	-198.174	-430.3	-35.000	34.6	1321.162	6.8
1981	1309.576	13.6	1309.576	13.6	-225.652	14.0	-35.000	0.0	1505.678	14.0
1982	1486.861	13.5	1486.861	13.5	-257.157	13.9	-35.000	0.0	1716.218	13.9
1983	1684.473	13.3	1684.473	13.3	-292.810	13.6	-35.000	0.0	1916.733	13.6
1984	1903.269	13.0	1903.269	13.0	-330.618	13.2	-35.000	0.0	2204.078	13.2
1985	2143.635	12.6	2143.635	12.6	-371.038	12.8	-35.000	0.0	2436.923	12.8
1986	2410.421	12.4	2410.421	12.4	-420.118	12.6	-35.000	0.0	2801.719	12.6
1987	2701.971	12.1	2701.971	12.1	-471.558	12.2	-35.000	0.0	3143.789	12.2
1988	3017.291	11.7	3017.291	11.7	-527.213	11.8	-35.000	0.0	3514.754	11.8
1989	3354.665	11.2	3354.665	11.2	-585.758	11.1	-35.000	0.0	3911.665	11.3
1990	3712.998	10.7	3712.998	10.7	-649.969	10.9	-35.000	0.0	4333.127	10.8

	CIC25R20	%RCL	CIC25R19	%RCL	CIC25R18	%RCL	CIC25R17	%RCL	CIC25R16	%RCL
1980	1589.378	14.8	251.525	6.8	8241.610	-1.9	10721.320	10.6	6673.641	8.9
1981	1779.026	12.1	321.898	9.4	9316.239	12.9	11744.682	9.5	7513.183	12.4
1982	1989.184	12.3	402.624	9.8	10187.277	9.5	12856.184	9.5	8377.252	11.4
1983	2248.639	12.6	493.839	10.1	11405.298	12.0	14072.814	9.5	9136.161	12.6
1984	2528.831	12.9	1093.442	10.0	12331.733	8.1	15408.121	9.5	10580.116	12.1
1985	2856.142	12.9	1196.185	9.4	13439.741	8.9	16873.381	9.5	11837.314	11.9
1986	3229.847	13.1	1307.328	9.3	14782.916	9.5	18482.482	9.5	13241.461	11.9
1987	3654.176	13.1	1427.517	9.2	16212.712	10.3	20215.354	9.5	14765.572	11.5
1988	4134.358	13.1	1552.188	8.7	17783.981	9.7	22167.515	9.5	16388.707	11.0
1989	4671.886	13.0	1692.557	8.4	19551.939	9.9	24249.819	9.4	18117.319	10.5
1990	5273.951	12.9	1818.783	8.1	21323.266	9.1	26481.725	9.2	19961.723	10.2

	CIC25R13	%RCL	CIC25R14	%RCL	CIC25R13	%RCL	CIC25R12	%RCL	CIC25R11	%RCL
1980	26388.146	4.6	27918.525	5.1	0.0	-140.0	-8613.174	8.9	-12619.313	-292.1
1981	29376.282	11.3	31147.228	11.4	0.0	0.0	-8718.852	0.6	-12834.778	1.3
1982	32323.837	10.0	34312.621	10.2	0.0	0.0	-8869.137	1.6	-12954.379	0.9
1983	35708.115	11.1	38148.745	11.2	0.0	0.0	-1098.610	2.7	-15545.160	20.0
1984	39413.439	9.8	41942.249	9.9	0.0	0.0	-9134.610	0.6	-15914.895	2.9
1985	43337.692	10.0	46193.781	10.1	0.0	0.0	-9179.038	0.5	-17450.107	9.1
1986	47733.792	10.1	50763.659	10.3	0.0	0.0	-9224.118	0.5	-17581.983	0.8
1987	52451.651	10.3	54335.327	10.5	0.0	0.0	-9272.568	0.6	-17714.733	0.9
1988	57812.421	10.0	62024.771	10.2	0.0	0.0	-9133.213	0.4	-17917.771	1.4
1989	63691.745	9.9	68273.734	10.1	0.0	0.0	-9392.750	0.6	-18107.771	1.1
1990	69593.547	9.4	74867.418	9.7	0.0	0.0	-9455.969	0.7	-18314.513	1.1

	CIC25R01	%RCL	CIC25R08	%RCL	CIC25R07	%RCL	CIC25R06	%RCL	CIC25R05	%RCL
1980	-3092.712	16.7	-1213.010	-73.0	-521.600	-181.7	51611.574	-17.3	0.0	-100.0
1981	-3519.218	14.0	-1023.000	-37.1	-536.100	2.3	57815.155	5.1	0.0	0.0
1982	-3919.913	13.9	-767.000	-28.5	-549.000	2.3	61434.292	6.3	0.0	0.0
1983	-4542.372	13.4	-195.000	-74.6	-610.000	11.1	68132.343	10.9	0.0	0.0
1984	-5142.829	13.2	-156.000	-20.0	-671.000	10.0	73031.653	7.2	0.0	0.0
1985	-5802.020	12.8	-1116.000	615.4	-744.200	10.9	80477.200	10.2	0.0	0.0
1986	-6535.174	12.6	-1075.000	-3.7	-741.200	0.0	86124.387	7.0	0.0	0.0
1987	-7335.568	12.2	-1038.000	-3.3	-744.200	0.0	92437.586	7.3	0.0	0.0
1988	-8241.092	11.8	-1003.000	-3.5	-744.200	0.0	99217.326	7.3	0.0	0.0
1989	-9127.218	11.1	-965.000	-3.8	-744.200	0.0	106491.922	7.3	0.0	0.0
1990	-10110.429	10.8	-925.000	-4.1	-744.200	0.0	114401.110	7.3	0.0	0.0

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%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CTC25R14	%RCL	CTC25R03	%RCL	CTC25R02	%RCL	CTC25R01	%RCL	* CTC26R20	%RCL
1980	-655.300	35.4	-118864.000	21.8	11467.003	23.6	161208.571	4.4	0.0	0.0
1981	-710.830	8.4	-120322.000	1.9	13820.601	20.5	164316.552	1.9	0.0	0.0
1982	-770.540	8.5	-122041.000	1.4	16172.112	17.0	167303.158	1.8	0.0	0.0
1983	-836.600	8.6	-128901.000	5.6	18584.742	11.9	178452.581	6.7	0.0	0.0
1984	-907.360	8.5	-135660.000	5.2	26535.665	42.9	182139.189	2.1	0.0	0.0
1985	-986.896	8.8	-130751.000	-0.7	23833.302	-11.6	191594.898	5.2	0.0	0.0
1986	-1082.285	9.7	-137232.010	1.8	28194.174	18.3	195169.133	1.9	0.0	0.0
1987	-1189.614	9.1	-139730.000	1.8	32701.682	16.0	199457.104	2.2	0.0	0.0
1988	-1286.975	8.3	-142247.000	1.8	37515.699	14.8	203929.235	2.2	0.0	0.0
1989	-1376.473	8.6	-144785.000	1.8	42108.751	14.3	208178.118	2.2	0.0	0.0
1990	-1504.220	9.3	-147346.000	1.8	48119.416	12.1	213635.654	2.5	0.0	0.0

	* CTC24R18	%RCL	CTC26R17	%RCL	* CTC26R16	%RCL	CTC24R15	%RCL	CTC26R14	%RCL
1980	36.000	0.0	38134.188	7.8	3010.000	-35.3	41170.188	2.8	41170.188	2.8
1981	36.000	0.0	41023.503	7.6	1510.000	-50.0	42559.503	3.4	42559.503	3.4
1982	36.000	0.0	44089.985	7.5	0.0	-100.0	44125.985	3.7	44125.985	3.7
1983	36.000	0.0	47360.768	7.4	0.0	0.0	47396.768	7.4	47396.768	7.4
1984	36.000	0.0	50859.302	7.4	0.0	0.0	50895.302	7.4	50895.302	7.4
1985	36.000	0.0	54607.404	7.4	0.0	0.0	54643.404	7.4	54643.404	7.4
1986	36.000	0.0	58624.520	7.4	0.0	0.0	58662.520	7.4	58662.520	7.4
1987	36.000	0.0	62938.175	7.4	0.0	0.0	62974.175	7.3	62974.175	7.3
1988	36.000	0.0	67565.678	7.4	0.0	0.0	67601.678	7.3	67601.678	7.3
1989	36.000	0.0	72532.399	7.4	0.0	0.0	72568.399	7.3	72568.399	7.3
1990	36.000	0.0	77863.612	7.4	0.0	0.0	77899.612	7.3	77899.612	7.3

	* CTC24R13	%RCL	CTC26R06	%RCL	* CTC26R05	%RCL	CTC26R03	%RCL	* CTC26R01	%RCL
1980	0.0	0.0	41170.188	2.8	0.0	0.0	0.0	0.0	41170.188	2.8
1981	0.0	0.0	42559.503	3.4	0.0	0.0	0.0	0.0	42559.503	3.4
1982	0.0	0.0	44125.985	3.7	0.0	0.0	0.0	0.0	44125.985	3.7
1983	0.0	0.0	47396.768	7.4	0.0	0.0	0.0	0.0	47396.768	7.4
1984	0.0	0.0	50895.302	7.4	0.0	0.0	0.0	0.0	50895.302	7.4
1985	0.0	0.0	54643.404	7.4	0.0	0.0	0.0	0.0	54643.404	7.4
1986	0.0	0.0	58662.520	7.4	0.0	0.0	0.0	0.0	58662.520	7.4
1987	0.0	0.0	62974.175	7.3	0.0	0.0	0.0	0.0	62974.175	7.3
1988	0.0	0.0	67601.678	7.3	0.0	0.0	0.0	0.0	67601.678	7.3
1989	0.0	0.0	72568.399	7.3	0.0	0.0	0.0	0.0	72568.399	7.3
1990	0.0	0.0	77899.612	7.3	0.0	0.0	0.0	0.0	77899.612	7.3

	CTC27R20	%RCL	CTC27R19	%RCL	CTC27R18	%RCL	CTC27R17	%RCL	CTC27R16	%RCL
1980	1589.379	11.8	751.525	6.8	8277.640	-1.9	48855.508	8.4	9673.661	-10.1
1981	1771.024	12.1	821.898	9.4	9342.219	12.9	52768.185	8.0	9803.381	-6.9
1982	1989.184	12.3	902.624	9.8	10223.272	9.4	56941.249	7.9	8377.252	-7.0
1983	2240.639	12.6	993.839	10.1	11441.299	11.9	61431.524	7.9	9431.111	12.6
1984	2528.831	12.9	1093.447	10.0	12387.733	8.1	66247.423	7.9	10610.936	12.1
1985	2858.142	12.9	1198.165	9.6	13466.761	8.9	71430.785	7.9	11832.314	11.9
1986	3229.867	13.1	1307.328	9.3	14738.916	9.4	77101.047	7.9	13241.011	11.9
1987	3654.174	13.1	1422.517	9.2	16218.712	10.2	83283.524	7.9	14765.512	11.5
1988	4134.358	13.1	1552.188	8.7	17819.981	9.7	89933.223	7.9	16318.707	11.0
1989	4671.988	13.0	1682.557	8.4	19587.930	9.9	96782.258	7.9	18117.391	10.5
1990	5273.151	12.9	1818.783	8.1	21351.248	9.0	104353.317	7.8	19961.773	10.2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	C1C27R15	%RCL	C1C27R14	%RCL	C1C27R13	%RCL	C1C27R12	%RCL	C1C27R11	%RCL
1980	67558.334	3.5	69138.712	3.7	0.0	-100.0	-8663.174	8.9	-12618.313	2.8
1981	71935.765	6.5	73706.731	6.6	0.0	0.0	-8718.852	0.6	-12834.721	1.3
1982	76449.422	6.3	78438.606	6.4	0.0	0.0	-8869.137	1.6	-12951.370	0.9
1983	83304.824	9.0	85545.454	9.1	0.0	0.0	-9098.010	2.7	-15541.980	20.0
1984	90368.740	8.4	92837.571	8.5	0.0	0.0	-9136.610	0.4	-15914.895	2.9
1985	97981.445	8.5	100837.188	8.6	0.0	0.0	-9179.031	0.5	-17450.107	9.1
1986	106396.312	8.6	109626.179	8.7	0.0	0.0	-9224.118	0.5	-17588.913	0.8
1987	115625.325	8.7	119279.501	8.8	0.0	0.0	-9277.568	0.6	-17744.733	0.9
1988	125494.698	8.5	129828.457	8.7	0.0	0.0	-9333.213	0.6	-17917.791	1.0
1989	136170.145	8.5	140842.133	8.7	0.0	0.0	-9392.750	0.6	-18107.774	1.1
1990	147493.159	8.3	152767.111	8.5	0.0	0.0	-9455.949	0.7	-18314.593	1.1

	C1C27R10	%RCL	C1C27R09	%RCL	C1C27R08	%RCL	C1C27R07	%RCL	C1C27R06	%RCL
1980	0.0	-100.0	-3082.712	16.7	-1713.600	-23.0	-524.610	-181.7	95781.761	-9.7
1981	0.0	0.0	-3513.248	14.0	-1073.080	-37.4	-536.810	2.3	100371.658	4.8
1982	0.0	0.0	-3959.913	13.9	-767.800	-28.5	-549.080	2.3	105560.277	5.2
1983	0.0	0.0	-4542.377	13.6	-195.000	-74.6	-610.800	11.1	115519.051	9.4
1984	0.0	0.0	-5142.829	13.2	-156.000	-20.0	-671.000	10.0	123930.155	7.3
1985	0.0	0.0	-5892.829	12.8	-1114.080	615.4	-741.200	10.9	135128.693	9.0
1986	0.0	0.0	-6535.176	12.6	-1075.080	-3.7	-741.200	0.0	144784.827	7.2
1987	0.0	0.0	-7335.508	12.2	-1039.600	-3.3	-741.200	0.0	155411.761	7.3
1988	0.0	0.0	-8201.092	11.8	-1003.001	-3.5	-741.201	0.0	166819.003	7.3
1989	0.0	0.0	-9127.218	11.3	-965.010	-3.8	-741.201	0.0	179178.315	7.4
1990	0.0	0.0	-10110.629	10.8	-925.800	-4.1	-741.240	0.0	192308.752	7.3

	C1C27R05	%RCL	C1C27R04	%RCL	C1C27R03	%RCL	C1C27R02	%RCL	C1C27R01	%RCL
1980	0.0	-100.0	-655.340	35.4	-118164.010	21.8	11167.003	23.6	202378.758	4.1
1981	0.0	0.0	-718.130	9.4	-120322.800	1.9	13820.693	24.5	201874.055	2.2
1982	0.0	0.0	-779.510	8.5	-122011.008	1.4	16172.142	17.0	211427.135	2.2
1983	0.0	0.0	-836.800	8.6	-128101.008	5.6	18580.762	14.9	225849.281	6.8
1984	0.0	0.0	-887.360	8.5	-135460.010	5.2	24555.645	42.9	233031.411	3.2
1985	0.0	0.0	-986.896	8.8	-131751.010	-8.7	23633.302	-11.0	244231.381	5.7
1986	0.0	0.0	-1082.285	9.7	-132232.008	1.8	28196.174	19.3	253822.653	3.8
1987	0.0	0.0	-1169.814	8.1	-139738.010	1.8	32709.692	16.0	262132.078	3.4
1988	0.0	0.0	-1266.925	8.3	-142247.010	1.8	37535.010	14.8	271539.913	3.5
1989	0.0	0.0	-1376.423	8.6	-144785.000	1.8	42999.759	14.3	281015.566	3.5
1990	0.0	0.0	-1501.220	9.3	-147345.008	1.8	48119.484	12.1	291535.284	3.7

	* IC24R09	%RCL	* TC01R07	%RCL	* TC01R07	%RCL	* TC11R07	%RCL	* YE11R07	%RCL
1980	0.380	-1.0	0.139	4.8	0.015	11.6	0.132	35.8	0.035	-32.4
1981	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1982	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1983	0.380	0.0	0.139	0.0	0.015	0.0	0.132	0.0	0.035	0.0
1984	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1985	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1986	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1987	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1988	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1989	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0
1990	0.380	0.0	0.139	0.0	0.045	0.0	0.132	0.0	0.035	0.0

ENERGY SUPPLY-DEMAND FORECAST OF INDONESIA

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	* YC12R07	%REL	* TC13R07	%REL	* CIC05R13	%REL	* ELC06R19	%REL	* ZC14R11	%REL
1980	0.092	14.6	0.320	5.0	0.0	-100.0	1.000	-100.0	-0.250	-7.1
1981	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1982	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1983	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1984	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1985	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1986	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1987	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1988	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1989	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0
1990	0.092	0.0	0.320	0.0	0.0	0.0	1.000	0.0	-0.250	0.0

	* ZC24R12	%REL	* TC05R07	%REL	* TC01R07	%REL	* TC07R07	%REL	* PADB%	%REL
1980	0.150	0.0	0.119	29.4	0.002	-82.7	0.191	13.5	52.500	65.8
1981	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	52.500	0.0
1982	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	68.000	18.3
1983	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	68.000	0.0
1984	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	75.000	25.0
1985	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	90.000	20.0
1986	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	105.000	16.7
1987	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	115.000	9.5
1988	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	130.000	13.0
1989	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	140.000	7.7
1990	0.150	0.0	0.119	0.0	0.002	0.0	0.191	0.0	160.000	14.3

** END OF REPORT NO.2 **

ENERGY BALANCES IN INDONESIA CA 1983

(Unit : 10^3 TCE)

	1 SOLID FUEL	2 CRUDE OIL	3 PETROLEUM PRODUCTS	4 ASK	5 GASOLINE	6 JET FUEL	7 KEROSENE	8 AUTOMOT. DIESEL OIL	9 INDUSTRY DIESEL OIL	10 HEAVY FUEL OIL	11 NAPTHA	12 LPG	13 OTHER PETR. PRODUCTS	14 NATURAL GAS	15 COMMER-SIALES	16 LNG	17 METHANOL	18 TOWN GAS	19 OTHER GAS	20 HYDRO GENERAT-ION	21 GEOTHER-MAL GENERAT-ION	22 NUCLEAR GENERAT-ION	23 OTHER GENERAT-ION	24 ELECTRI-CITY	25 COMMERC-IAL ENERGY TOTAL	26 NON-COMMERC-IAL ENERGY	27 GRAND TOTAL
1 INDIGENOUS PRODUCTION	474	126371									0	16	1365	50288						1350	50	0	0		179453	47397	225849
2 IMPORT	0	8100	10581	9119	366	1120	3751	2872	56	6027															18581		18581
3 EXPORT	-169	-84121	-10575	-609	0	0		0	0	-600	-1750	-710	-16515		-4145	-21000	0								-128791	0	-128791
4 BUNKER			(-837)	(-837)	(0)	(-2351)		(-14)	(-78)	(-510)															(-8371)		(-8371)
5 STOCK CHANGE	0	0	0	0	0	0	0	0	0	0	0	0	0												0	0	0
6 PRIM. ENERGY REQUIREMENT	314	50250	-8594	8519	366	1120	3751	2872	56	427	-1750	-694	-15149	50288	-4145	-21000	0			1350	50	0	0		68132	47397	115529
7 OIL REFINERY		-50000	49380	31550	5950	180	3780	6150	2250	6680	1750	90	16000												-618		-618
8 LNG,LPG,COM,NON PRODUCT			769								0	769		-26500	4145	21000	0								-195		-195
9 ELECTRIC GENERATION	-70		-5019	-5019				-3129	-50	-1640				0						-1350	-50	0	0	1847	-4542		-4542
10 TOWN GAS PRODUCTION	0		-28	-28			0	0	-18	-10				-76				48	0						0		0
11 ENERGY SECTOR OWN USE	0	-250	-2710	-2710				0	0	-2710	0		0	-12552				0	0					-35	-15547		-15547
12 LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	-8886				0						-292	-9098		-9098
13 STATISTICAL DIFFERENCES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0
14 FINAL CONSUMPTION	244		33399	32392	6316	1220	13459	6493	2238	2667	0	156	651	2773			0	48						1184	38143	47397	85545
15 FINAL ENERGY USE	199		32548	32392	6316	1220	13459	6493	2238	2667	0	156	0	1429			0	48						1184	35108	47397	83305
16 INDUSTRY SECTOR	160		4703	4648				2442	2032	2172	0	57	0	1429				0						1141	9436	0	9436
17 RESIDENT AND COMMERC	0		13557	13459			13459					98		0				48						467	14073	47341	61414
18 TRANSPORTATION SECTOR	38		11367	11367	5916	1159		3622	168	422		0					0							0	11495	34	11411
19 GOVERNMENT SECTOR			920	920	320	61		429	32	73														23	994		994
20 NON-ENERGY USE	45		851								0	0	651	1345			0								2241	0	2241

ENERGY BALANCES IN INDONESIA CA 1985

(Unit : 10^3 TCE)

	1 SOLID FUEL	2 CRUDE OIL	3 PETROLEUM PRODUCTS	4 ASK	5 GASOLINE	6 JET FUEL	7 KEROSENE	8 AUTOMOT. DIESEL OIL	9 INDUSTRY DIESEL OIL	10 HEAVY FUEL OIL	11 NAPTHA	12 LPG	13 OTHER PETR. PRODUCTS	14 NATURAL GAS	15 COMMER-SIALES	16 LNG	17 METHANOL	18 TOWN GAS	19 OTHER GAS	20 HYDRO GENERAT-ION	21 GEOTHER-MAL GENERAT-ION	22 NUCLEAR GENERAT-ION	23 OTHER GENERAT-ION	24 ELECTRI-CITY	25 COMMERC-IAL ENERGY TOTAL	26 NON-COMMERC-IAL ENERGY	27 GRAND TOTAL
1 INDIGENOUS PRODUCTION	1455	131427									0	1	0	54469						2652	150	0	0		191595	54643	246238
2 IMPORT	0	15000	8433	8632	305	1383	4278	2249	94	233															23833		23833
3 EXPORT	-200	-85227	-21279	0	0	0		0	0	0	-2135	-750	-18394		-4845	-24000	0								-134751	0	-134751
4 BUNKER			(-997)	(-997)	(0)	(-2591)		(-17)	(-96)	(-817)															(-1873)		(-1873)
5 STOCK CHANGE	0	0	0	0	0	0	0	0	0	0	0	0	0												0	0	0
6 PRIM. ENERGY REQUIREMENT	1255	61200	-12844	8032	305	1381	4278	2249	94	233	-2135	-749	-18394	54469	-4845	-24000	0			2652	150	0	0		80477	54643	135121
7 OIL REFINERY		-61000	60258	38491	7259	122	11834	8479	2745	8452	2135	110	19520												-241		-241
8 LNG,LPG,COM,NON PRODUCT			839								0	839		-30400	4845	24000	0								-6116		-6116
9 ELECTRIC GENERATION	-960		-5128	-5128				-3894	-54	-1984				0						-2652	-150	0	0	2487	-5903		-5903
10 TOWN GAS PRODUCTION	0		-28	-28			0	0	-18	-19				-81				56	0						0		0
11 ENERGY SECTOR OWN USE	0	-250	-3650	-3650				0	0	-3650	0		0	-14115				0	0					-35	-17450		-17450
12 LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	-8888				0						-373	-9179		-9179
13 STATISTICAL DIFFERENCES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0
14 FINAL CONSUMPTION	295		40243	38317	7654	1505	16112	7834	2771	3241	0	200	1126	3455			0	56						2144	46196	54643	100837
15 FINAL ENERGY USE	240		39117	38317	7654	1505	16112	7834	2771	3241	0	200	0	1780			0	56						2144	43338	54643	97981
16 INDUSTRY SECTOR	194		8331	8317				3152	2519	2646	0	74	0	1780				0						1472	11837	0	11837
17 RESIDENT AND COMMERC	0		16238	16112			16112					126		0				56						521	16873	54697	71891
18 TRANSPORTATION SECTOR	46		13384	13384	7362	1428		3948	204	510		0					0							0	11431	38	11457
19 GOVERNMENT SECTOR			1104	1104	352	77		542	47	85														93	1198		1198
20 NON-ENERGY USE	55		1126								0	0	1126	1675			0								2856	0	2856

ENERGY BALANCES IN INDONESIA CA 1988

(Unit : 10^3 TCE)

	1 SOLID FUEL	2 CRUDE OIL	3 PETROLEUM PRODUCTS	4 BBM	5 GASOLINE	6 JET FUEL	7 KEROSENE	8 AUTOMOT. DIESEL OIL	9 INDUSTRY DIESEL OIL	10 HEAVY FUEL OIL	11 NAPTHA	12 LPG	13 OTHER PETR. PRODUCTS	14 NATURAL GAS	15 CONDENSATES	16 LNG	17 METHANOL	18 TOWN GAS	19 OTHER GAS	20 HYDRO GENERATION	21 GEOTHERMAL GENERATION	22 NUCLEAR GENERATION	23 OTHER GENERATION	24 ELECTRICITY	25 COMMERCIAL ENERGY TOTAL	26 NON-COMMERCIAL ENERGY	27 GRAND TOTAL
1 INDIGENOUS PRODUCTION	3473	139525												58331						2450	150	0	0		203929	67602	271531
2 IMPORT	0	65080	22535	22529	2907	1911	9277	5315	1885	1953	0	6	6												37535		37535
3 EXPORT	-200	-93275	-20727	0	0	0		0	0	0	-2135	-785	-17807		-4845	-24000	0								-142247	0	-142247
4 BUNKER			(-12673)	(-12673)	(0)	(-238)		(-231)	(-1251)	(-820)															(-12673)		(-12673)
5 STOCK CHANGE	0	0	0	0	0	0	0	0	0	0	0	0	0												0	0	0
6 PRIM. ENERGY REQUIREMENT	3273	61250	1808	22529	2907	1911	9277	5315	1885	1953	-2135	-779	-17807	58331	-4845	-24000	0			2450	150	0	0		99247	67602	166849
7 OIL REFINERIES		-61250	60256	38491	7259	122	11831	8479	2745	8052	2135	810	19520												-744		-744
8 LNG,LPG,COND,NGH PRODUCT			952								0	552		-38408	4845	24000	0								-1803		-1803
9 ELECTRIC GENERATION	-2888		-4234	-6236				-3515	-58	-2443				0						-2450	-150	0	0	3515	-8281		-8281
10 TOWN GAS PRODUCTION	0		-28	-28			0	0	-18	-10				-59				21	0						0		0
11 ENERGY SECTOR OWN USE	0	-250	-3650	-3650				0	0	-3050	0		0	-14583				0	0					-35	-17818		-17818
12 LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	-8856				0						-527	-9383		-9383
13 STATISTICAL DIFFERENCES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0
14 FINAL CONSUMPTION	393		53782	51786	10166	2033	21111	10328	3762	4365	0	283	1713	4844			0	21						3817	62927	67602	129828
15 FINAL ENERGY USE	320		51989	51758	10166	2033	21111	10328	3762	4365	0	283	0	2495			0	21						3817	57892	67602	125494
16 INDUSTRY SECTOR	258		11552	11448				4874	3424	3528	0	105	0	2495				0						2082	16389	0	16389
17 RESIDENT AND COMMERC	0		21239	21111			21111					178		0				21						897	22448	67555	89733
18 TRANSPORTATION SECTOR	62		17222	17222	9758	1927		5087	271	671		0					0							0	17284	36	17320
19 GOVERNMENT SECTOR			1824	1824	408	186		342	65	18														128	1552		1552
20 NON-ENERGY USE	73		1713								0	0	1713	2348			0								4134	0	4134

ENERGY BALANCES IN INDONESIA CA 1989

(Unit : 10^3 TCE)

	1 SOLID FUEL	2 CRUDE OIL	3 PETROLEUM PRODUCTS	4 BBM	5 GASOLINE	6 JET FUEL	7 KEROSENE	8 AUTOMOT. DIESEL OIL	9 INDUSTRY DIESEL OIL	10 HEAVY FUEL OIL	11 NAPTHA	12 LPG	13 OTHER PETR. PRODUCTS	14 NATURAL GAS	15 CONDENSATES	16 LNG	17 METHANOL	18 TOWN GAS	19 OTHER GAS	20 HYDRO GENERATION	21 GEOTHERMAL GENERATION	22 NUCLEAR GENERATION	23 OTHER GENERATION	24 ELECTRICITY	25 COMMERCIAL ENERGY TOTAL	26 NON-COMMERCIAL ENERGY	27 GRAND TOTAL
1 INDIGENOUS PRODUCTION	5956	145161												59918						2450	150	0	0		213636	77990	291535
2 IMPORT	0	15040	33119	33111	4903	2321	13351	7333	1858	3346	0	8	0												48119		48119
3 EXPORT	-200	-98911	-28199	0	0	0		0	0	0	-2135	-830	-12255		-4845	-24000	0								-147345	0	-147345
4 BUNKER			(-15044)	(-15031)	(0)	(-334)		(-27)	(-1351)	(-990)															(-15044)		(-15044)
5 STOCK CHANGE	0	0	0	0	0	0	0	0	0	0	0	0	0												0	0	0
6 PRIM. ENERGY REQUIREMENT	5756	61250	12920	33111	4903	2321	13351	7333	1858	3346	-2135	-792	-12255	59918	-4845	-24000	0			2450	150	0	0		114409	77990	192399
7 OIL REFINERIES		-61250	60256	38491	7259	122	11831	8479	2745	8052	2135	810	19520												-744		-744
8 LNG,LPG,COND,NGH PRODUCT			1938								0	1038		-38408	4845	24000	0								-925		-925
9 ELECTRIC GENERATION	-5288		-6564	-6564				-3319	-50	-3195				0						-2450	-150	0	0	4333	-10181		-10181
10 TOWN GAS PRODUCTION	0		-28	-28			0	0	-18	-10				-168				82	0						0		0
11 ENERGY SECTOR OWN USE	0	-250	-3650	-3650				0	0	-3650	0		0	-14783				0	0					-35	-18315		-18315
12 LOSS	0	0	0	0	0	0	0	0	0	0	0	0	0	-8888				0						-650	-9456		-9456
13 STATISTICAL DIFFERENCES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						0	0	0
14 FINAL CONSUMPTION	476		41474	41460	12162	2443	25185	12493	4535	5143	0	348	2265	4823			0	82						3713	74847	77990	152747
15 FINAL ENERGY USE	397		42389	41549	12162	2443	25185	12493	4535	5143	0	348	0	3183			0	82						3713	69591	77990	147493
16 INDUSTRY SECTOR	343		13930	13842				5529	4129	4213	0	129	0	3183				0						2554	29942	0	29942
17 RESIDENT AND COMMERC	0		25438	25185			25185					219		0				82						1043	24459	77844	104353
18 TRANSPORTATION SECTOR	75		21249	21249	11712	2315		6073	328	821		0					0							0	21323	36	21359
19 GOVERNMENT SECTOR			1865	1865	450	128		956	79	169														154	1819		1819
20 NON-ENERGY USE	89		2265								0	0	2265	2920			0								5274	0	5274

USER'S MANUAL OF ENERGY SUPPLY-DEMAND FORECAST

FORECASTING MODEL SOFTWARE

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USER'S MANUAL OF ENERGY SUPPLY-DEMAND FORECAST
– FORECASTING MODEL SOFTWARE –

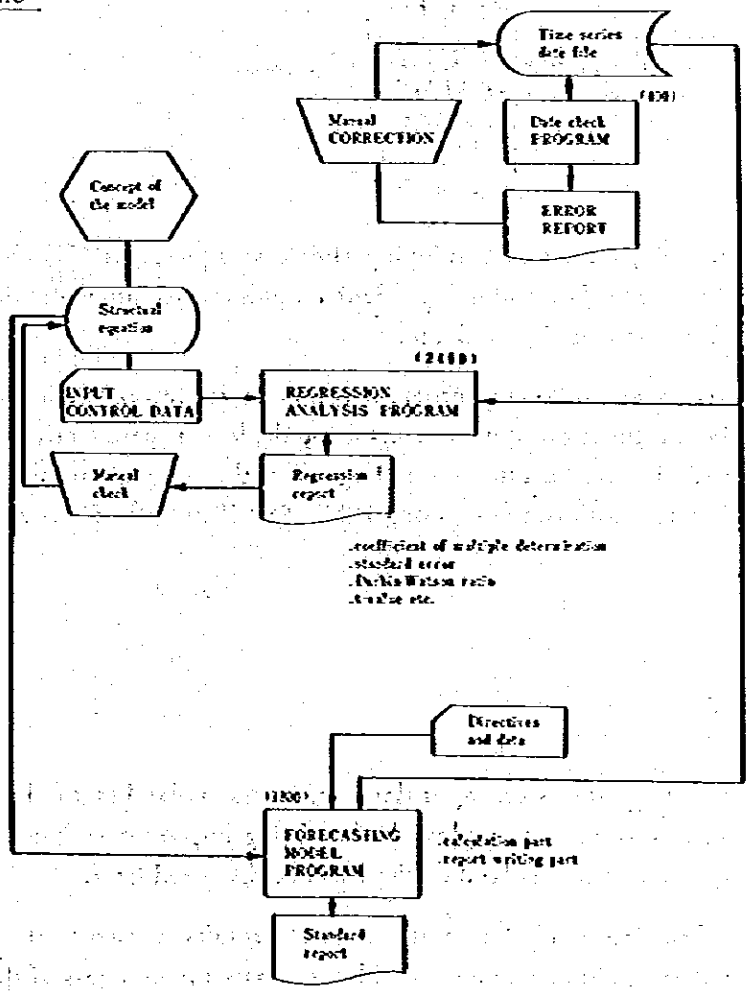
As stated in "USER'S MANUAL OF SUB-DATA BANK", the sub-data bank system developed in FY1980 facilitated handling of macro data. All the softwares related to the forecasting model have been modified so as to enable to access this sub-data bank. At the same time, the simulator which activates the forecasting model was also developed. Consequently, the series of systems have also been modified as outlined in Fig. 1.

1. Regression Analysis

For the construction of a forecasting model, a statistical equation called a structural equation is used to describe cause and effect relationships among the variables. This program

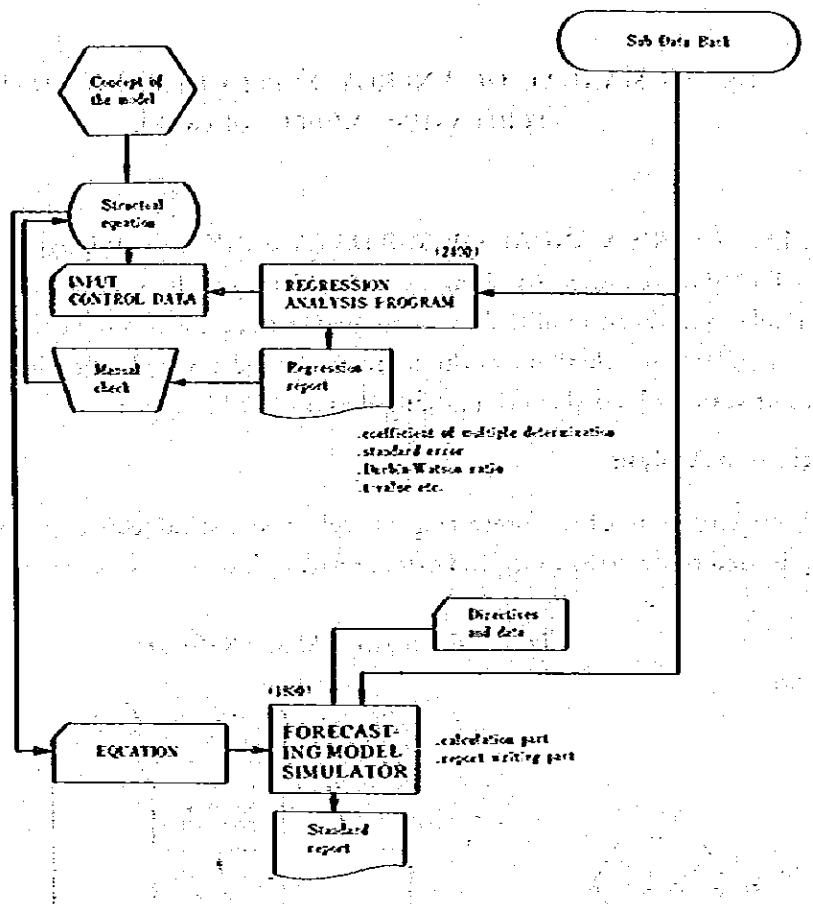
Fig. 1 Forecasting Model Software

Old Scheme



(2)

New Scheme



performs estimations on parameters employing the least square method, based on the information of the time-series data and independent variables which are maintained in a disk file, dependent variables, estimated period, etc.

This program consists of the following program components: interpretation of equations entered into input data, estimation of parameters using the least square method, and edition and printing of the results of the estimation. Regarding the program of the least square method, the following four subroutines among IBM's SSP (Scientific Subroutine Package) are being used.

-- CORRE
-- ORDER
-- MINV
-- MULTR

For the interpretation of equations on input data, the inverse Poland method which is used in the energy data base system was employed after being improved to handle functions. The details of the improved inverse Poland method will be discussed later.

As for the program of edition and printing of estimation results, shown in the sample list, observed and estimated values of dependent variables, estimated parameters of the structural

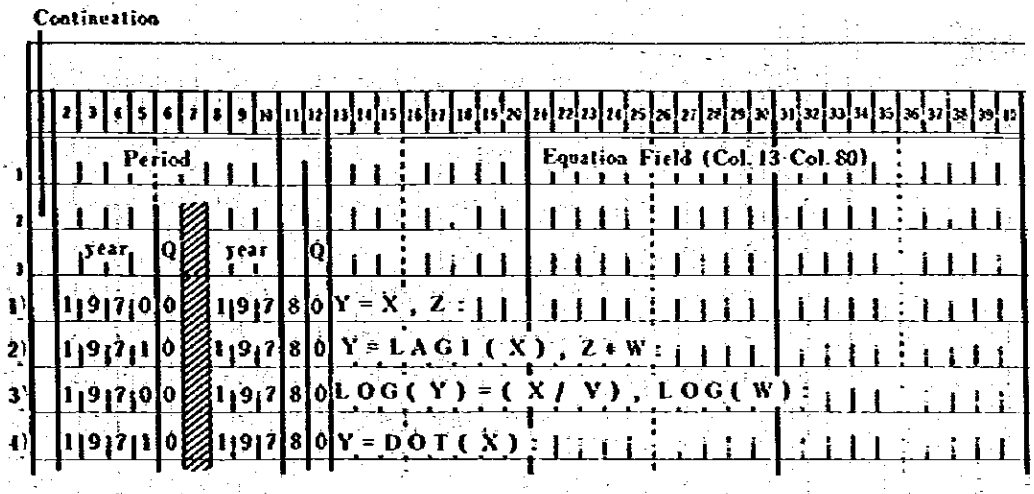
equation, t-value, multiple correlation coefficient, the serial correlation (Durbin-Watson ratio), etc. are output. They are considered as indices for evaluating results of the estimation.

The regression analysis program has the following eight unique built-in FUNCTIONs for transgeneration of the original series which is very often used for estimation of equations in an econometrics model.

Table 1 Built-in FUNCTIONs

FUNCTION Name	Usage	Definition
1. LOG	LOG (X)	$\log_e X$
2. LOG10	LOG10 (X)	$\log_{10} X$
3. LAG1	LAG1 (X)	X_{-1}
4. LAG2	LAG2 (X)	X_{-2}
5. LAG3	LAG3 (X)	X_{-3}
6. DOT	DOT (X)	$\frac{X - X_{-1}}{X_{-1}} * 100$
7. DEL	DEL (X)	$X - X_{-1}$
8. CON	CON (2.0)	Constant (CON (2.0) indicates a 2.0)

An example of the directive data for this program is shown below.



1) $Y = a_1 X + b_1 Z + c_1$

2) $Y = a_2 X_{-1} + b_2 (Z+W) + c_2$

3) $\log_e Y = a_3 \log_e \frac{X}{V} + b_3 \log_e W + c_3$

4) $Y = a_4 \frac{X - X_{-1}}{X_{-1}} * 100 + b_4$

a_n, b_n, and c_n are the parameters to be estimated.

In the above example, a comma (,) separates independent variables and a colon (:) indicates the end of an equation.

DATA

研究名 Regression Analysis

作業名 Input Control Data

作成者名

日付 / / ページ /

Continuation

Period

year Q year Q

Equation Field (Col. 13-Col. 80)

(1) Calculation procedure

The overall flow of the process of calculation, including interpretation of an equation, can be described as follows, taking the following equation as an example.

$$Y = a*(X_{-1} + Z_{-1}) + b*V*W + c$$

where a, b, and c are parameters to be estimated.

To describe variable Y, two independent variable units were established: the sum of the previous period's X and Z, and the product of the current period's V and W. The input into the program is shown below.

Y = LAG1 (X + Z), V*W:

Dividing the above equation into dependent and independent variable units produces the following three groups.

- Y
- LAG1 (X + Z)
- V*W

Since Y consists of a single variable, its corresponding time-series data is taken out of the sub-data bank and then stored into the working space, DLSM (COMMON/DLSM/).

The LAG1 (X + Z) is divided into the following calculation steps using the improved inverse Poland method.

- ZZ01 = X + Z
- ZZ02 = LAG1 (ZZ01)

Time-series data of X and Z are extracted from the sub-data bank, and the sum of the two is written in a temporary file. At this time, a new variable name, ZZ01, is created within the program and is attached to the time-series data of X + Z.

By removing the time-series data of ZZ01 from the temporary file and attaching a time lag of one period, new time-series data, ZZ02, is created. This is also transferred to the working space, DLSM.

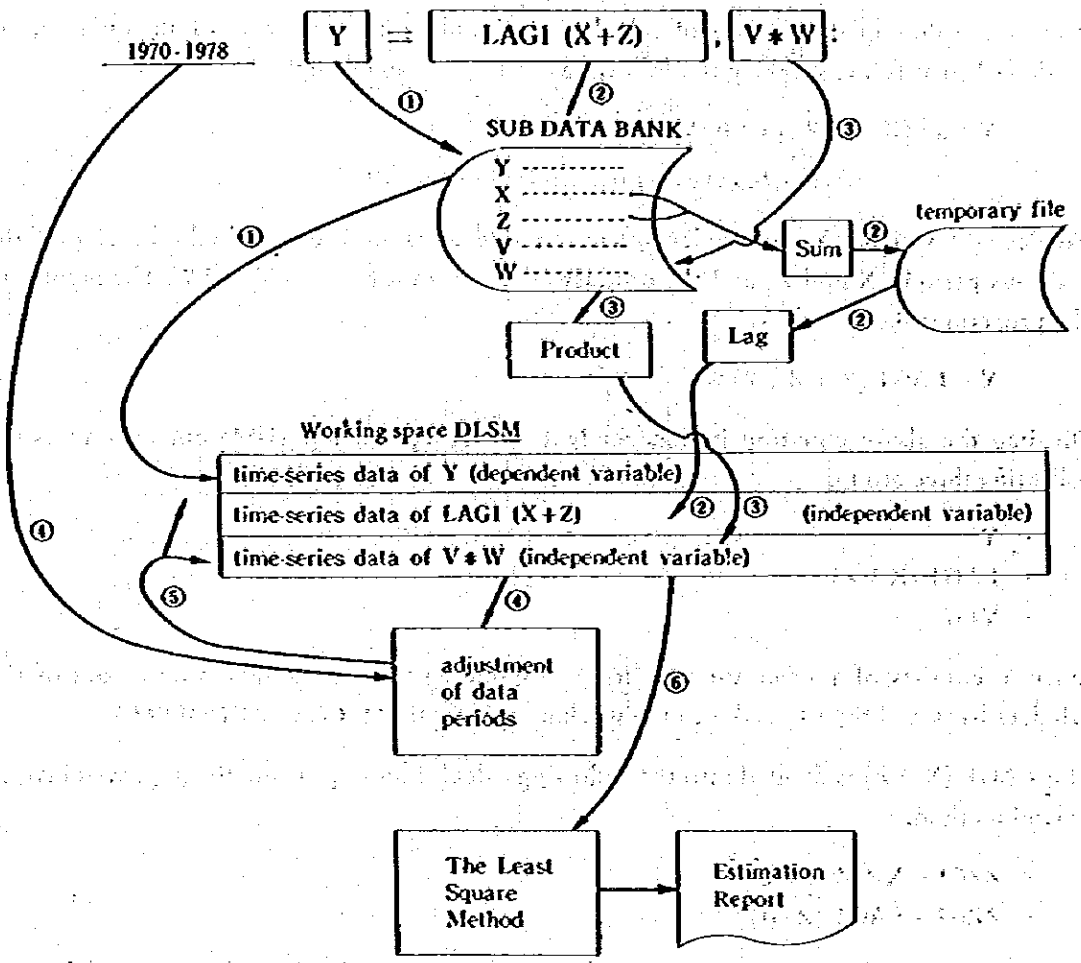
Similarly, V*W will have the following calculation step as a result of applying the improved inverse Poland method.

- ZZ01 = V*W

The data for V and W are extracted from the sub-data bank, and new time-series data, ZZ01, is created by taking a product of the two. This ZZ01 is also transferred to DLSM.

Meanwhile, since the time-series data for V, W, X, Y, and Z all have their own observation periods and data periods used in directive data of the regression analysis, they are adjusted appropriately. The parameters are then estimated, employing the least square method based on the working space, DLSM, as input data.

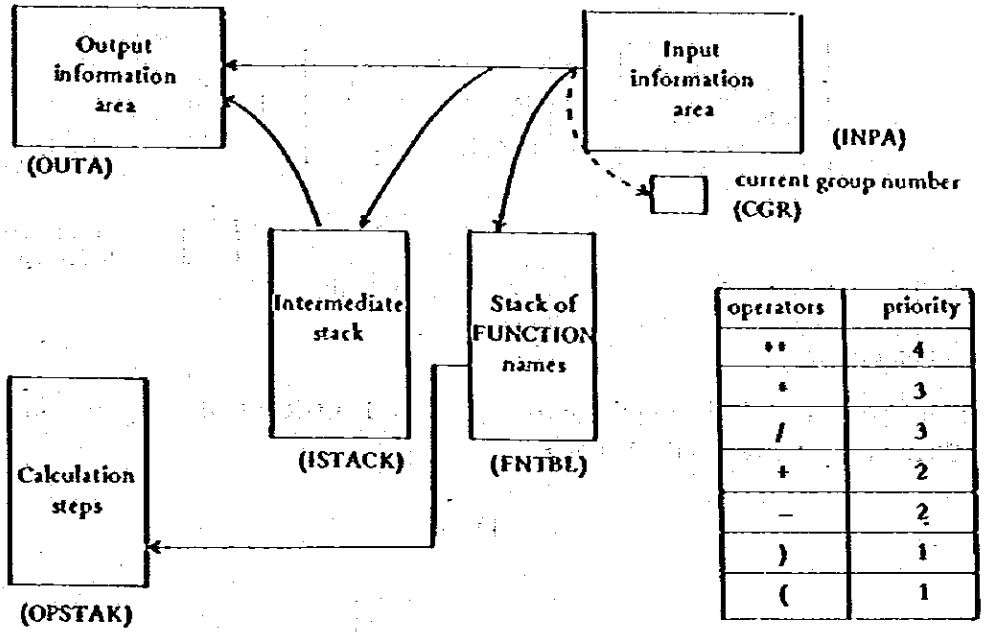
Fig. 2


1970-1978
Y = LAG1 (X+Z), V*W
①
②
③
SUB DATA BANK
Y
X
Z
V
W
Sum
temporary file
Product
Lag
Working space DLSM
time-series data of Y (dependent variable)
time-series data of LAG1 (X+Z) (independent variable)
time-series data of V*W (independent variable)
④
⑤
⑥
adjustment of data periods
The Least Square Method
Estimation Report

(2) Improved Inverse Poland Method

An arithmetic equation including the names of FUNCTIONs is processed, based on the input and output information areas, stack, etc., organized as shown in Fig. 3.

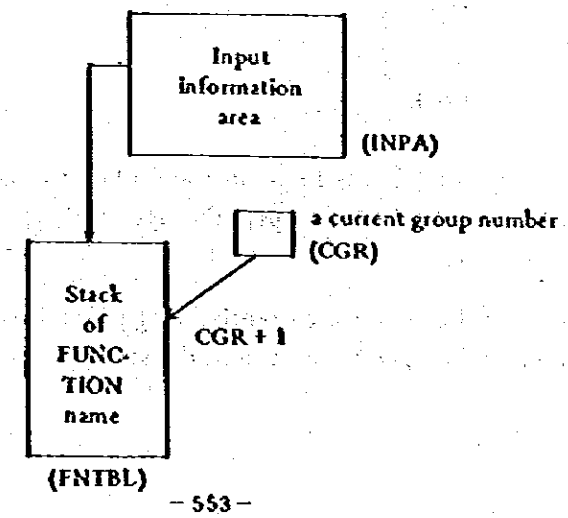
Fig. 3



Case of a FUNCTION name

In order to indicate to which group a FUNCTION belongs, CGR + 1 is stored in the FNTBL together with the name of the FUNCTION. The initial value of the current group number (CGR) is 0.

Fig. 4

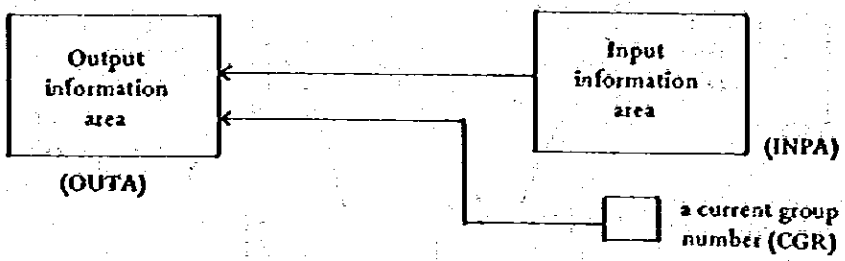


(8)

Case of a variable name

In order to indicate to which group the variable belongs, the CGR is transferred to the OUTA together with the variable name.

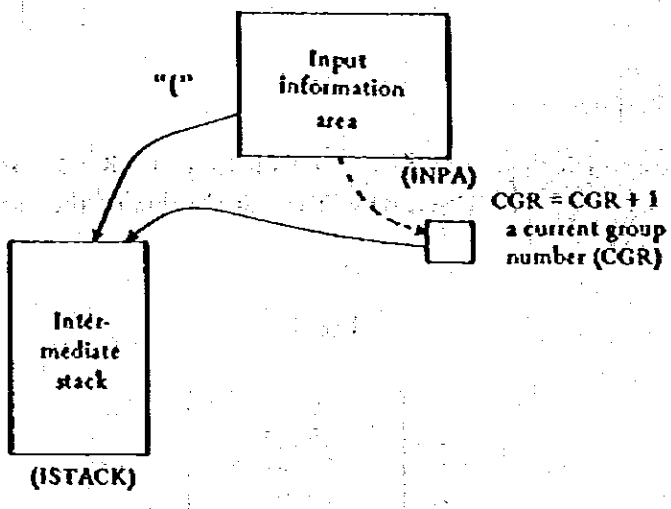
Fig. 5



Case of an operator

If the operator is " (", the CGR is incremented by 1 (CGR = CGR + 1), and the operator and CGR are transferred to the ISTACK.

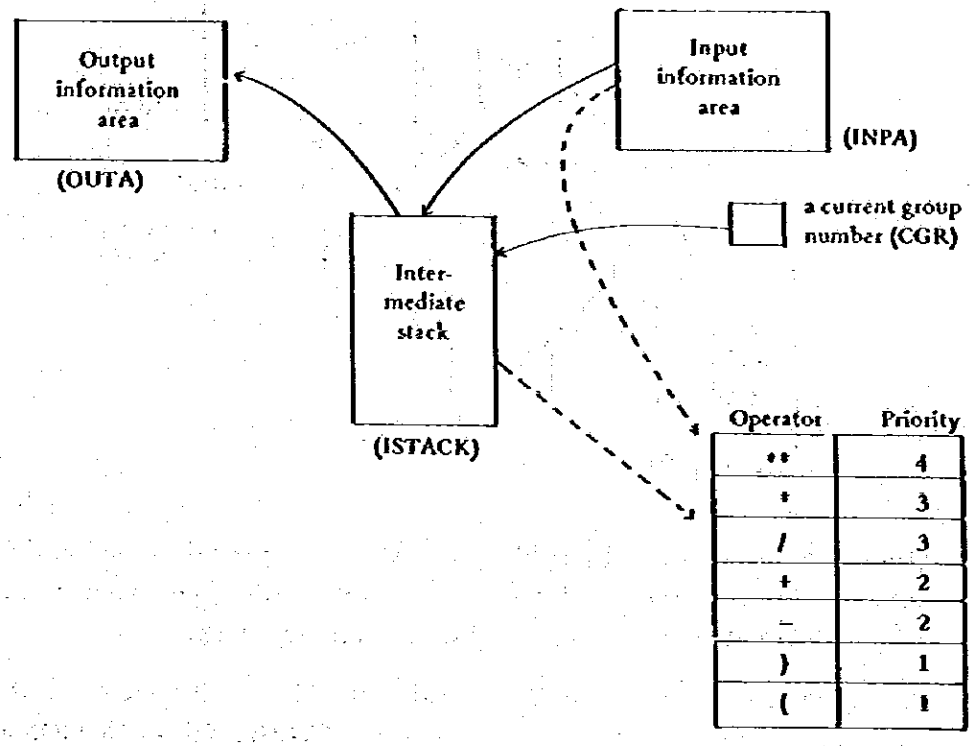
Fig. 6



When the operator is not " (", the operator and CGR are transferred to the ISTACK if the stack is empty. If the stack is not empty, the operator's priority is compared with that of the operator in the stack.

p1: Priority of the operator currently being processed.
p2: Priority of the operator on top of the stack.

Fig. 7



P1 ≦P2: (1) The operator which is on top of the ISTACK is transferred to the OUTA. Thus, the ISTACK will have a new operator on top.

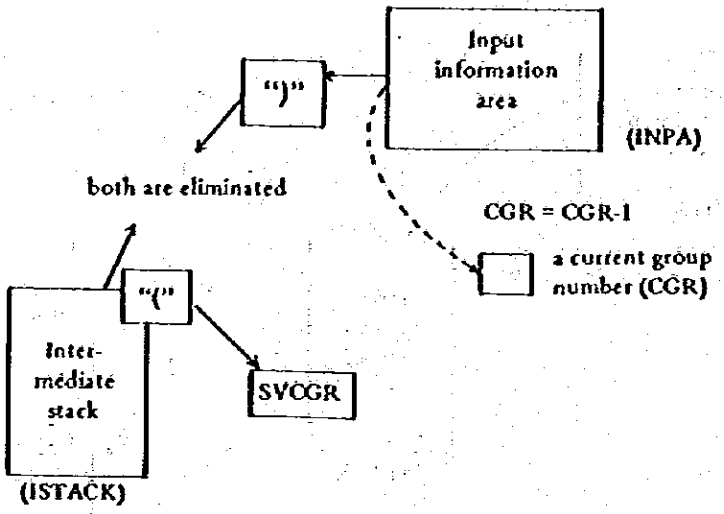
(2) The same process of comparison is repeated.

P1 > P2: (1) The operator currently being processed is placed in the ISTACK together with the CGR.

If the operator is ") ", its priority is compated with that of the operator on the top of the ISTACK, and it is transferred from the ISTACK to the OUTA. However, if the operator of the top of the ISTACK is " (", the following procedures are taken.

- The group number (SVCGR) of the " (" of the ISTACK is removed.
- The CGR is decremented by 1: CGR = CGR−1
- Both the " (" on the ISTACK and the " (" currently being processed are eliminated.

Fig. 8



– Among the operators and variable names which are currently stored in the output information area (OUTA), calculation steps of those whose group numbers coincide with the SVCGR are created first, and stored in the OPSTAK.

– Among the names of FUNCTIONs stored in the FNTBL, if there is a FUNCTION name whose group number coincides with the SVCGR, the FUNCTION name is transferred to the OPSTACK as a parameter of the variables on the left side of the

Fig. 9

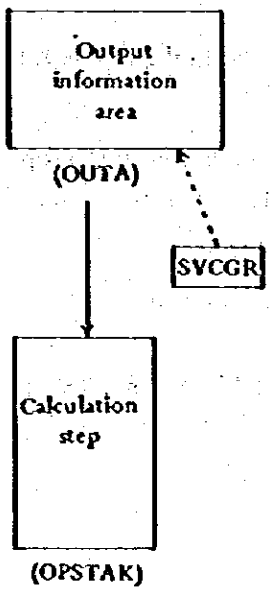
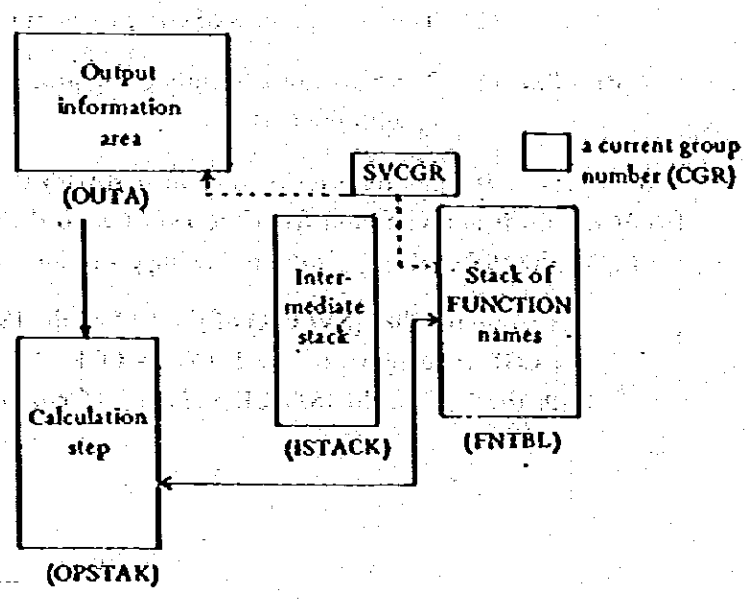


Fig. 10



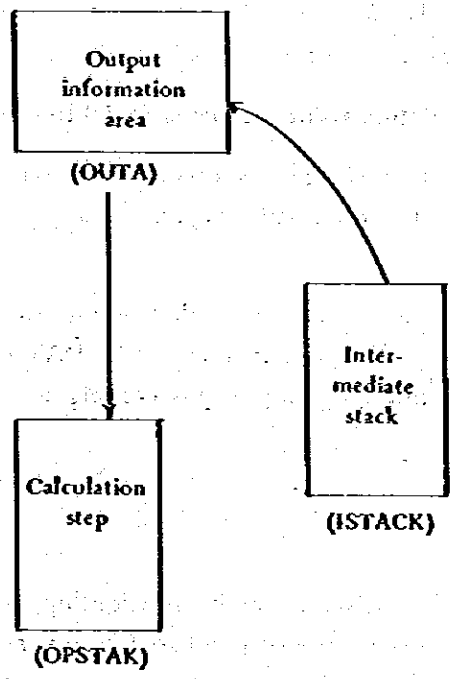
last calculation equation created in the previous step. The FUNCTION name which is transferred is deleted from the FNTBL. The variable used in the formulation stage of the calculation steps using OUTA and FNTBL is marked (in order to avoid using them in the coming calculation steps). However, since the left side of the last calculation equation in the calculation step which is formulated at this stage may possibly be used later on, it remains unmarked in the OUTA. However, the group number of the variable is replaced by CGR.

Case where the INPA becomes empty

The ISTACK is checked for the presence of an operator. If it is present, all of the remaining operators are transferred to the OUTA.

A calculation step is then formulated from the unmarked operators and variables in the OUTA and stored in OPSTAK.

Fig. 11



2. Forecasting Model Simulator

The forecasting model simulator employs the Gauss-Seidel iteration method for calculating convergence of a model consisting of structural and definition equations.

This simulator offers the following built-in types so that the calculations will meet variations in model verification and forecast using the model.

- Partial test:
  This calculation type is used to check mutual relationships between the parameters and variables in the structural equations. Actual values are used for all calculations.

- Total test:
  This calculation type is used to check the degree of errors in comparison with actual values when focussing only on a given period in time-series calculations. Thus, actual values are used only for lagged variables in order to avoid any influence by a previous period's error on calculations for the current period. Calculated values are used for the other variables.

- Forecasting calculation:
  Calculated values are used for all variables.

2-1 Convergence Calculation Using the Gauss-Seidel Iteration Method

The convergence calculation using the Gauss Seidel iteration method is performed for the endogenous variables of the calculation types, excluding the partial test, as shown in the program list.

It determines whether an endogenous variable is within the permissible error range (ε; EPS in the program list) using the calculated value (X; DATA (2, NP, I) in the program list) and the value obtained through the previous convergence calculations ($\bar{X}$: HAT(I) in the program list).

$$\left| \frac{X - \bar{X}}{\bar{X}} \right| < \varepsilon$$

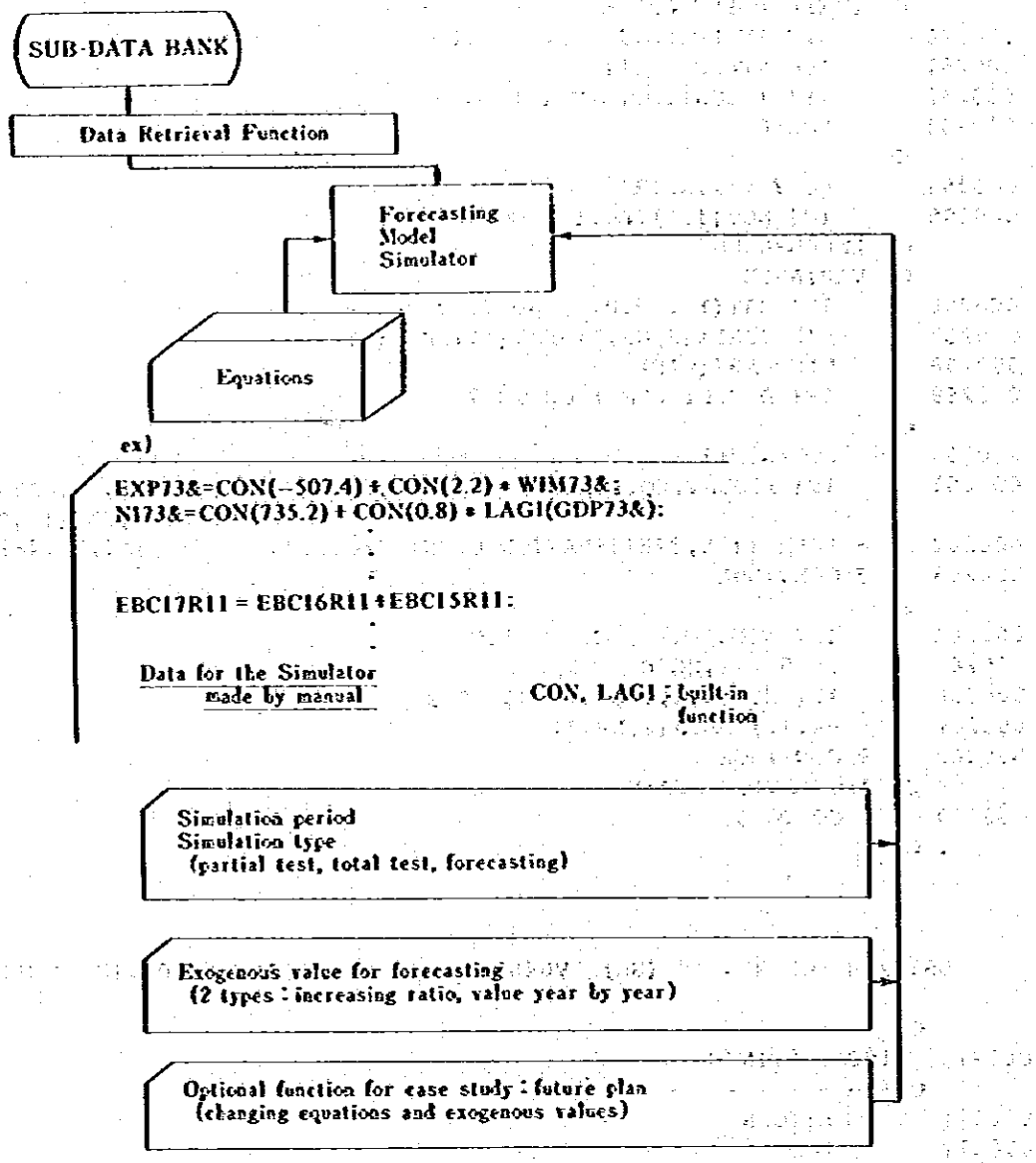
If all endogenous variables satisfy the above relationship, it is understood that the solution of the equation is within the range of permissible error, and calculation for a next period can be performed. The value of ε in the present program is set at 0.001%. Tests conducted for the case of 0.01% permissible error indicated no significant difference as far as this model is concerned. Moreover, the initial value, X, in each period's calculation employs the solution, X, of the previous period's equation.

```
      C  FIXED POINT CHECK
000250       IF( ITYPE.EQ.1 ) GO TO 100
000251       ICOUNT=ICOUNT+1
000252       IF( ICOUNT.GT.LIMIT ) STOP
000253       NON=0
      C
000254       DO 7 I=1,NCTR
000255       IF( NOV(4,I).EQ.1 ) GO TO 7
      C  ENDOGENOUS
      C  VARIABLE
000256       IF( HAT(I).EQ.0. ) GO TO 7
000257       DIF=(DATA(2,NP,I)-HAT(I))/HAT(I)
000258       DIF=DABS(DIF)
000259       IF( DIF.LT.EPS ) GO TO 7
      C
000260       NON=NON+1
000261       IF( ICOUNT.EQ.LIMIT ) WRITE(6,8)  (NOV(J,I),J=1,3),DATA(1,NP,I),
            -                                  DATA(2,NP,I),HAT(I),DIF
000262     8 FORMAT(1X,32HITERATION COUNT EXCEEDED  NAME=,3A4,5X,4F12.4))
000263     7 CONTINUE
      C
000264       IF( NON.EQ.0 ) GO TO 100
000265       DO 9 I=1,NCTR
000266       IF( NOV(4,I).EQ.1 ) GO TO 9
000267       HAT(I)=DATA(2,NP,I)
000268     9 CONTINUE
      C CALCULATION AGAIN
000269       GO TO 50
      C


     OSIV/F4 FORTRAN IV (GE)  V04L09    MODEL   DATE 80.03.12  TIME 17.54.27

      C
000270   100 CONTINUE
      C- - - - - - - - - - - - - - - - - - - -
000271       RETURN
000272       END
```

2-2 Outline of the simulator

The simulator we refer to here indicates a system which activates the model consisting of structural equations and definition equations by means of inputing such equations to the system as data. This system is outlined in Fig. 12.

Fig. 12 Outline of Simulator



In order for the simulator to activate the model, data informing simulation period, simulation type, and forecast values for exogenous variables in case the simulation type indicates forecast calculations are necessary besides various equations. Formation of this input data is described below.

(1) Control data

Title used at case studies, simulation type, output specification, and simulation period are given here.

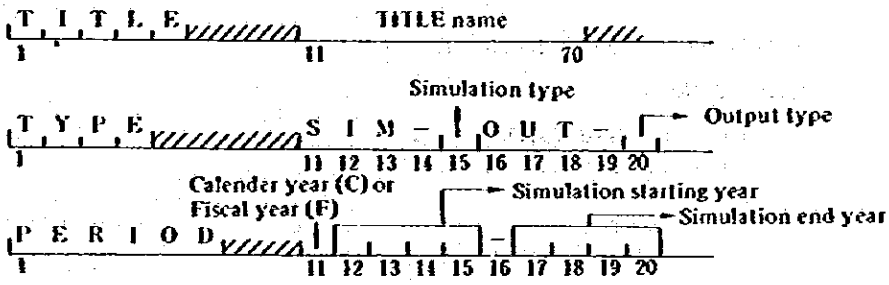


Table 2 Simulation Type

Code	Type
1	Partial test
2	Total test
3	Forecasting

Table 3 Output Type

Code	Type
1	Actual value, calculated value and difference. (See Table 4)
2	Calculated value and growth rate. (See Table 5)
3	Both type 1 and type 2.

Table 4 Example of Output Type 1

```
    * TEST DATA FOR SIMULATOR * LEVEL 36(S=21)
REPORT NO. 1

SIMULATION PERIOD : C 1972-1985

     A = SIMULATION
     B = INITIAL
     C = (A-B)/B*100

CIOCR99          1972          1973          1974          1975          1976
          A      19.000        114.000       589.000       2964.000      14839.000
          B      0.0           0.0           0.0           0.0           7737.000
          A-B    19.000        114.000       589.000       2964.000      7102.000
          %      -             -             -             -             91.8

                 1977          1978          1979          1980          1981
          A      74214.000     371089.000    1855464.00    9277339.00    46306704.0
          B      29622.000     31059.000     30478.617     33526.477     36879.121
          A-B    44592.000     340030.000    1824985.00    9243812.00    46349824.0
          %      150.5         1094.8        5987.8        27571.1       5680.3
```

Table 5 Example of Output Type 2

INDONESIAN FORECASTING MODEL

REPORT NO.2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

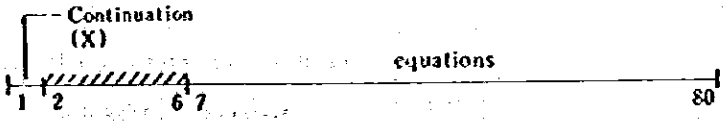
	CG73&	%RCL	CP&	%RCL
1979	1290.813	21.2	17727.526	22.0
1980	1424.945	10.4	21070.607	18.9
1981	1582.131	11.0	24871.100	18.0
1982	1876.412	18.6	29245.441	17.6
1983	1951.685	4.0	34817.627	19.1
1984	2135.272	9.4	40358.872	15.9
1985	2338.936	9.5	46711.597	15.7
1986	2565.837	9.7	53991.296	15.6
1987	2817.916	9.8	62367.258	15.5
1988	3097.173	9.9	72043.089	15.5
1989	3338.122	7.8	82845.546	15.0
1990	3609.638	8.1	94859.795	14.5

	EXP73&	%RCL	GDP&	%RCL
1979	1823.820	12.7	27844.001	27.8
1980	1940.380	6.4	35001.740	25.7
1981	2062.766	6.3	41392.580	18.3
1982	2191.274	6.2	49326.094	19.2
1983	2326.205	6.2	58114.814	17.8
1984	2467.883	6.1	67652.553	16.4
1985	2616.644	6.0	78689.049	16.3
1986	2772.845	6.0	90800.128	15.4
1987	2936.855	5.9	104764.487	15.4
1988	3109.066	5.9	120859.706	15.4
1989	3289.887	5.8	138610.093	14.7
1990	5479.750	5.8	158539.604	14.4

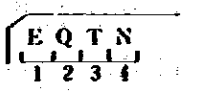
(2) Equations

For the description of equations, arithmetic operands and eight functions shown in Table 1 can be used (Refer to Fig. 12). At the end of each equation, there must be a mark (;) indicating a end of an equation.

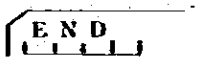
Fig. 13 Equation Data

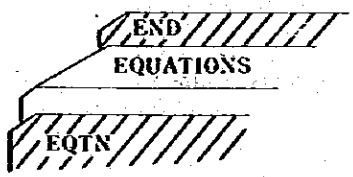


Directive data is used in the following manner in order to distinguish equation data from other data.



: Directive data for the equation data

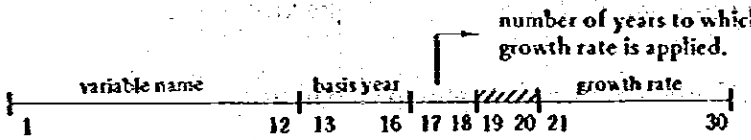




(3) Forecasting values of the exogenous variables used in forecasting simulations

There are two ways of giving this type of data. The first is to obtain forecasting values for each year within the simulator by giving the value of a basis year and a growth rate. The second is to give forecasting values to all the years in the forecasting period.

i. Method 1



For instance, data can be given to variable names in the following manner.

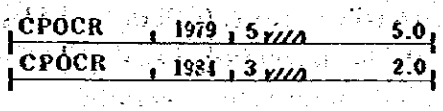
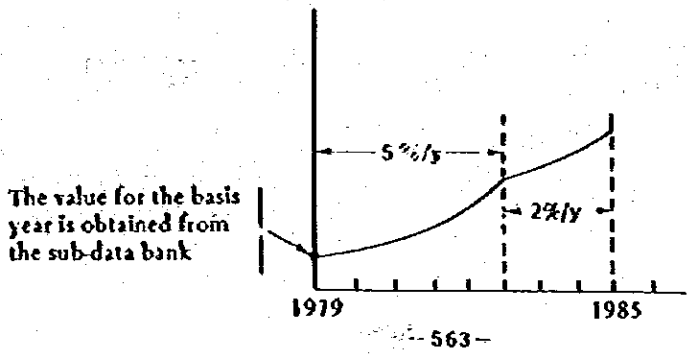
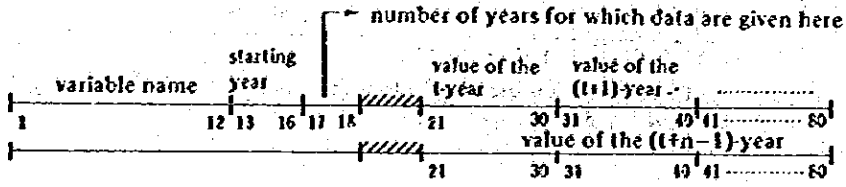


Fig. 14 Examples Showing the Way of Giving Forecasting Values of Exogeneous Variables

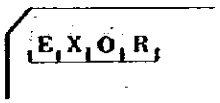


(18)

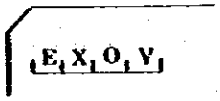
ii. Method 2



Directive data is used in the following manner in order to distingwish this type of data from others.



: Directive data for the data in method 1



: Directive data for the data in method 2

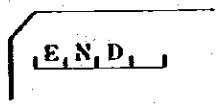
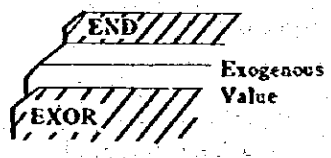
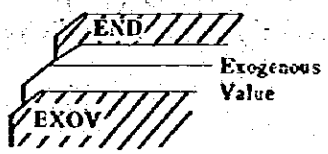


Fig. 15 Forecasting Values Data of the Exogenous Values

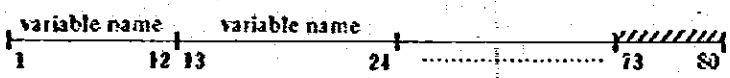




(4) Specification of variable names to be output

This operation is provided to meet future requirements when this simurator is used on an on-line system. In other words, as the size of the model grows, the number of variable names used in the model will naturally increase. If all the variables are output on an on-line system, a considerable amount of time is required. By using this option, only major variables can be output in accordance with the format shown erarlier.

Variable names which one wishes to output are specified here. If the option is not applicable, all variables are output.

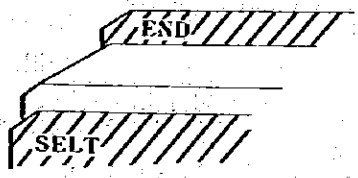


Directive data is used in the following manner in order to distinguish this type of data from others

SELT : Directive data for the output option

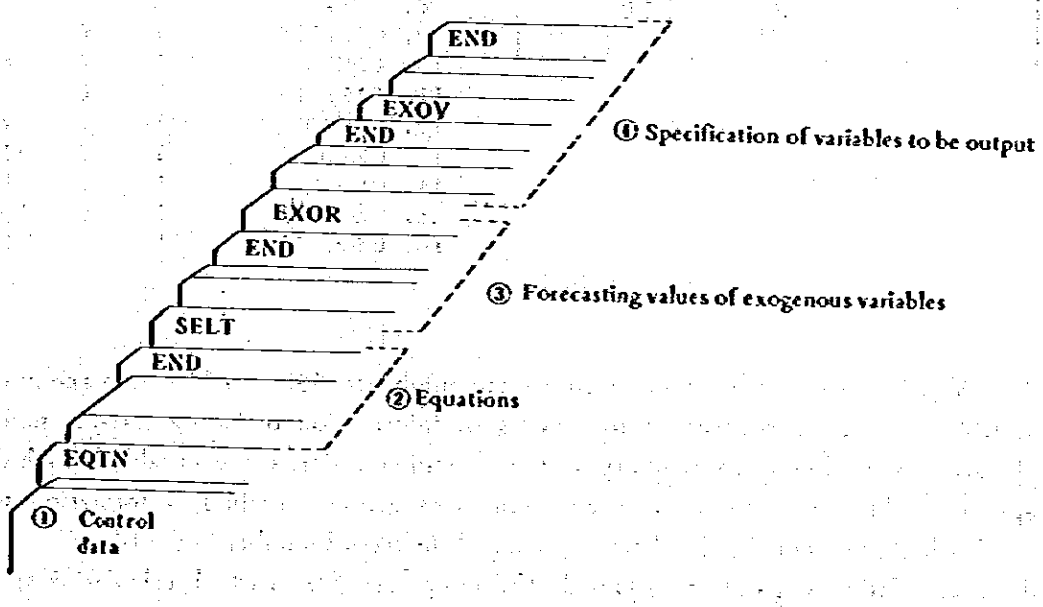
END

Fig. 16 Specification Data of Variable Name to be Output



The structural order of this input data is shown below.

Fig. 17 Structural Order of Input Data



Next, the simulator will be outlined, roughly dividing it into the following four parts.

(5) Interpretation of equations
(6) Loading of data
(7) Conversion calculation based on equations
(8) Output of calculation results

For the interpretation of equations, the improved inverse Poland method which was used

for the interpretation of equations in the regression analysis is being employed. Data used is basically catalogued in the sub-data bank, and hence forecasting values of exogenous variables are given temporarily. Calculation results are output in alphabetical order to increase readability.

(5) Interpretation of equations

Here, equations are read in, and broken down into detailed calculation steps. Then, they are maintained in a temporary file to be used in calculations. At the same time, a variable name table (VNTBL) is created.

Fig. 18 Structure of Variable Name Table (VNTBL)

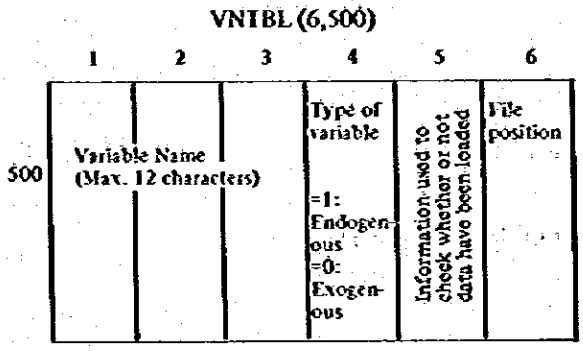


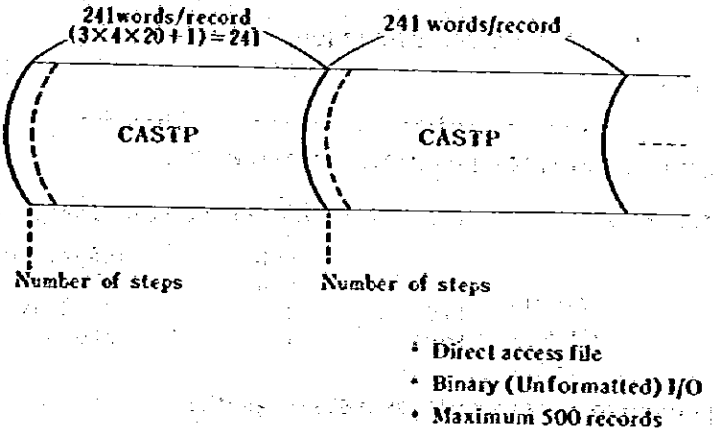
Table 6 Example of Variable Name Table

VARIABLE NAME TABLE (16)

1.	CEXP73&	1	0	1
2.	CWIM75&	2	0	0
3.	CPIMP&	1	0	2
4.	CPWE75&	2	0	0
5.	CWI73&	1	0	3
6.	CGDP73&	1	0	12
7.	CWP173&	1	0	4
8.	CWI&	2	0	0
9.	CCP173&	1	0	5
10.	CPHFO	1	0	6
11.	CIKER99	2	0	0
12.	CWSCO	1	0	7
13.	CPACO	1	0	11
14.	CPOCR	1	0	8
15.	CEOCR99	1	0	10
16.	CIOCR99	1	0	9

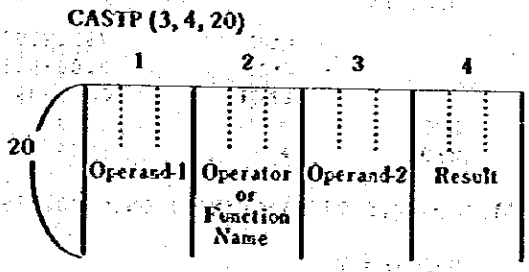
This Variable name table is designed to accommodate 500 variables at maximum. The variable name table consists of four types of information including variable name (12 characters at maximum), variable type (the system considers those variables which do not appear on the left-hand-side of an equation as exogenous variables), information used to check whether or not data has been loaded, and the record number in the file where broken down calculation steps are maintained. The temporary file in which calculation steps are maintained is direct access file and its structure is shown in Fig. 19.

Fig. 19 Structure of the File Maintaining Calculation Steps



Information of broken-down calculation steps of a single equations is stored in the temporary array (CASTP (3, 4, 20)) and this temporary array is recorded on the temporary file. CASTP is designed to accommodate 20 calculation steps at maximum.

Fig. 20 Temporary Array which Stores Calculation Steps



(22)

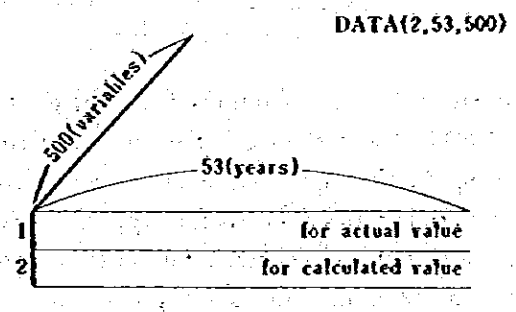
Fig. 21 Example of an Equation and its Broken-Down Calculation Steps

```
        TITLE=     * TEST DATA FOR SIMULATOR = LEVEL 36(S=2)
        EQUATIONS
NO.----------1---------2---------3---------4---------5---------6---------7---------8
 1.       CEXP73&=CON(-507.3603)+CON(2.199797)*CWIM75&:                    00231039

   FILE POSITION =  1          OPSCTR= 4 (number of calculation steps)
                                          CON          -507.3603   ZZ01
                                          CON          2.199797    ZZ02
                        Calcula-  ZZ02     *          CWIM75&     ZZ03
                        tion      ZZ01     +          ZZ03        CEXP73&
                        steps

 2.       CPIMP&=CON(20.5316)+CON(1.295865)*CPWE75&:                       00232039

   FILE POSITION =  2          OPSCTR= 4
                                          CON          20.5316     ZZ01
                                          CON          1.295865    ZZ02
                                  ZZ02    *          CPWE75&     ZZ03
                                  ZZ01    +          ZZ03        CPIMP&

 3.       CNI73&=CON(735.2395)+CON(0.8035411)*LAG1(CGDP73&):               00233039

   FILE POSITION =  3          OPSCTR= 5
                                          CON          735.2395    ZZ01
                                          CON          0.8035411   ZZ02
                                          LAG1         CGDP73&     ZZ03
                                  ZZ02    *          ZZ03        ZZ04
                                  ZZ01    +          ZZ04        CNI73&

 4.       CWPI73&=CON(-1.19651)+CON(0.550769)*CPIMP&+CON(0.007089847)*CNI&: 00234039

   FILE POSITION =  4          OPSCTR= 7
                                          CON          -1.19651    ZZ01
                                          CON          0.550769    ZZ02
                                          CON          0.007089847 ZZ03
                                  ZZ02    *          CPIMP&      ZZ04
                                  ZZ01    +          ZZ04        ZZ05
                                  ZZ03    *          CNI&        ZZ06
                                  ZZ05    +          ZZ06        CWPI73&

 5.       CCPI73&=CON(3.251428)+CON(0.008842711)*CNI&+CON(0.4516194)*CPIMP&:00235040

   FILE POSITION =  5          OPSCTR= 7
                                          CON          3.251428    ZZ01
                                          CON          0.008842711 ZZ02
                                          CON          0.4516194   ZZ03
                                  ZZ02    *          CNI&        ZZ04
                                  ZZ01    +          ZZ04        ZZ05
                                  ZZ03    *          CPIMP&      ZZ06
                                  ZZ05    +          ZZ06        CCPI73&
```

(6) Loading of data

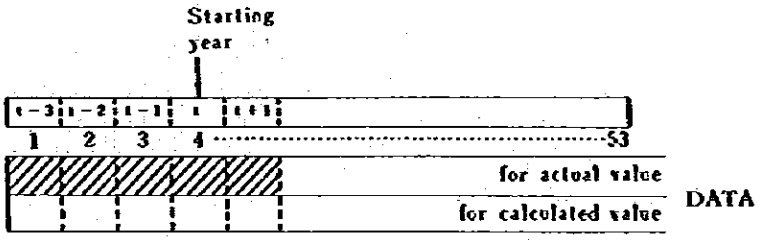
Here, time-series data are extracted from the sub-data bank using the variable name table (VNTBL), and they are stored in the array for time-series data (DATA (2, 53, 500))

Fig. 22 Structure of the Array for Time-Series Data (DATA)



The simulator handles data of up to three periods following a simulation period, and hence the amount of time-series data stored in the array includes data specified by the simulation period plus three-period data. As shown in the figure below, data in the simulation starting year is stored in DATA (I, 4, 1). Therefore, simulations for up to 50 periods (=53−3) are feasible including the actual simulation period.

Fig. 23 Relation between Simulation Period and DATA



In case of forecasting simulation, forecasting values for exogenous variables are prepared. Such data is also handled here. At this stage, a mark is attached to all variable names whose data have already been stored (VNTBL (5, I)=1) and a check is made whether or not data is stored for all variables. If there is a variable name whose data has not been stored, a warning message is output.

(7) Conversion calculation based on equation

Here, calculations of every equation is performed and convergence check is carried out using the Gauss-Seidel Method. Whether actual values or calculated values are used here is determined based on the simulation type described earlier, as shown in Table 7.

Table 7 Used Information by Simulation Type

	Lagged variables	Other variables
Partial test	Actual values	Actual values
Total test	Actual values	Calculated values
Forecasting Calculation	Calculated values	Calculated values

Calculation step information is read in from the file using the file position maintained in the variable name table (VNTBL) and then calculations are performed in that order. As for variable names appearing in the equation, data is stored and retrieved using the array (DATA) which maintains time-series data. As for supplimentary variable names automatically created by the system (ZZ01, ZZ02, etc.), data is stored and retrieved using temporary areas called ZZNAM and ZZVAL. Calculation process used in this case will not be expounded here since it employs the procedure similar to that used by the regression analysis system.

VARIABLE NAME LIST

X=0 ENDOGENOUS
1 EXOGENOUS

SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE
1.	0	CG736	2.	0	CP6	3.	0	CPI736	4.	0	CP736	5.	0	EXP6	6.	0	EXP736
7.	0	GDP6	8.	0	GDP736	9.	0	GNP6	10.	0	GNP736	11.	0	IIP736	12.	0	IMP6
13.	0	IMP736	14.	0	ITP6	15.	0	ITP736	16.	0	NI6	17.	0	NI736	18.	0	PCG6
19.	0	PCP6	20.	0	PEXP6	21.	0	PGDP6	22.	0	PGNP6	23.	0	PIMP6	24.	0	PITP6
25.	0	WPI736	26.	1	CG6	27.	1	PAGRGPE736	28.	1	PCROIL6	29.	1	PETROP6	30.	1	PWE736
31.	1	WIM736	32.	0	EBC01R01	33.	0	EBC01R06	34.	0	EBC01R07	35.	0	EBC01R10	36.	0	EBC01R11
37.	0	EBC02R03	38.	0	EBC02R06	39.	1	EBC02R09A	40.	0	EBC02R10	41.	0	EBC03R02	42.	0	EBC03R03
43.	0	EBC03R04	44.	0	EBC03R05	45.	0	EBC03R06	46.	0	EBC03R07	47.	0	EBC03R08	48.	0	EBC03R09A
49.	0	EBC03R09B	50.	0	EBC03R10	51.	0	EBC03R10A	52.	0	EBC03R10B	53.	0	EBC03R11	54.	0	EBC03R12
55.	0	EBC03R13	56.	0	EBC03R14	57.	0	EBC03R15	58.	0	EBC03R16	59.	0	EBC04R06	60.	0	EBC04R09A
61.	0	EBC04R10	62.	0	EBC04R11	63.	0	EBC04R13	64.	0	EBC05R06	65.	0	EBC05R09A	66.	0	EBC05R10
67.	0	EBC05R11	68.	0	EBC05R13	69.	0	EBC05R15	70.	0	EBC06R02	71.	0	EBC06R06	72.	0	EBC06R09A
73.	0	EBC06R10	74.	0	EBC06R11	75.	0	EBC06R14	76.	0	EBC07AR02	77.	0	EBC07AR06	78.	0	EBC07AR09A
79.	0	EBC07AR10	80.	0	EBC07AR11	81.	0	EBC07AR12	82.	0	EBC07AR13	83.	0	EBC07AR15	84.	0	EBC07BR02
85.	0	EBC07BR06	86.	0	EBC07BR09A	87.	0	EBC07BR10	88.	0	EBC07BR11	89.	0	EBC07BR12	90.	0	EBC07BR13
91.	0	EBC07R02	92.	0	EBC07R04	93.	0	EBC07R05	94.	0	EBC07R06	95.	0	EBC07R07	96.	0	EBC07R08
97.	0	EBC07R09A	98.	0	EBC07R10	99.	0	EBC07R11	100.	0	EBC07R12	101.	0	EBC07R13	102.	0	EBC07R14
103.	0	EBC07R15	104.	0	EBC08R03	105.	0	EBC08R06	106.	0	EBC08R09A	107.	0	EBC08R10	108.	0	EBC08R11
109.	0	EBC08R12	110.	0	EBC09R03	111.	0	EBC09R06	112.	0	EBC09R09A	113.	0	EBC09R10	114.	0	EBC09R11
115.	0	EBC10AR03	116.	0	EBC10AR06	117.	0	EBC10AR09A	118.	0	EBC10AR10	119.	0	EBC10AR11	120.	0	EBC10AR12
121.	0	EBC10AR14	122.	0	EBC10BR03	123.	0	EBC10BR06	124.	0	EBC10BR09A	125.	0	EBC10BR10	126.	0	EBC10BR11
127.	0	EBC10BR16	128.	0	EBC10R02	129.	0	EBC10R03	130.	0	EBC10R05	131.	0	EBC10R06	132.	0	EBC10R09A
133.	0	EBC10R09B	134.	0	EBC10R10	135.	0	EBC10R10A	136.	0	EBC10R10B	137.	0	EBC10R11	138.	0	EBC10R12
139.	0	EBC10R14	140.	0	EBC10R16	141.	0	EBC11AR01	142.	0	EBC11AR06	143.	0	EBC11AR08	144.	0	EBC11AR09
145.	0	EBC11AR10	146.	0	EBC11AR10A	147.	0	EBC11AR11	148.	0	EBC11AR12	149.	0	EBC11AR14	150.	0	EBC11AR16
151.	0	EBC11BR03	152.	0	EBC11BR06	153.	0	EBC11BR10	154.	0	EBC11CR08	155.	0	EBC11CR10	156.	0	EBC11CR11
157.	0	EBC11CR14	158.	0	EBC11R11	159.	0	EBC11R12	160.	0	EBC11R14	161.	0	EBC11R16	162.	0	EBC12R01
163.	0	EBC12R06	164.	0	EBC13R01	165.	0	EBC13R06	166.	0	EBC14R06	167.	0	EBC14R07	168.	0	EBC14R10B
169.	0	EBC14R11	170.	0	EBC14R12	171.	0	EBC14R14	172.	0	EBC14R15	173.	0	EBC15R01	174.	0	EBC15R02
175.	0	EBC15R03	176.	0	EBC15R04	177.	0	EBC15R05	178.	0	EBC15R06	179.	0	EBC15R07	180.	0	EBC15R08
181.	0	EBC15R09	182.	0	EBC15R09A	183.	0	EBC15R09B	184.	0	EBC15R10	185.	0	EBC15R10A	186.	0	EBC15R10B
187.	0	EBC15R11	188.	0	EBC15R12	189.	0	EBC15R13	190.	0	EBC15R14	191.	0	EBC15R15	192.	0	EBC15R16
193.	0	EBC16R01	194.	0	EBC16R06	195.	0	EBC16R11	196.	0	EBC16R12	197.	0	EBC16R14	198.	0	EBC17R01
199.	0	EBC17R02	200.	0	EBC17R03	201.	0	EBC17R04	202.	0	EBC17R05	203.	0	EBC17R06	204.	0	EBC17R07
205.	0	EBC17R08	206.	0	EBC17R09	207.	0	EBC17R09A	208.	0	EBC17R09B	209.	0	EBC17R10	210.	0	EBC17R10A
211.	0	EBC17R10B	212.	0	EBC17R11	213.	0	EBC17R12	214.	0	EBC17R13	215.	0	EBC17R14	216.	0	EBC17R15
217.	0	EBC17R16	218.	0	TR6	219.	0	YC07R09	220.	1	EBC01R02	221.	1	EBC01R03	222.	1	EBC01R05
223.	1	EBC01R08	224.	1	EBC01R10A	225.	1	EBC01R10B	226.	1	EBC01R12	227.	1	EBC01R13	228.	1	EBC01R14
229.	1	EBC01R16	230.	1	EBC02R01	231.	1	EBC02R02	232.	1	EBC02R05	233.	1	EBC02R10A	234.	1	EBC02R10B
235.	0	EBC04R02	236.	1	EBC04R03	237.	1	EBC04R04	238.	1	EBC04R05	239.	1	EBC04R10A	240.	1	EBC04R10B
241.	1	EBC04R12	242.	1	EBC04R15	243.	0	EBC05R02	244.	1	EBC05R04	245.	1	EBC05R05	246.	1	EBC05R10A
247.	1	EBC05R10B	248.	1	EBC06R05	249.	1	EBC06R10A	250.	1	EBC06R10B	251.	1	EBC06R12	252.	1	EBC07AR04
253.	1	EBC07AR05	254.	1	EBC07AR07	255.	1	EBC07AR08	256.	1	EBC07AR10A	257.	1	EBC07AR10B	258.	1	EBC07AR14
259.	1	EBC07BR04	260.	1	EBC07BR05	261.	1	EBC07BR07	262.	1	EBC07BR08	263.	1	EBC07BR10B	264.	1	EBC07BR13
265.	1	EBC07BR14	266.	1	EBC07R10A	267.	1	EBC08R02	268.	1	EBC08R04	269.	1	EBC08R05	270.	1	EBC08R07
271.	1	EBC08R08	272.	1	EBC08R10A	273.	1	EBC08R10B	274.	1	EBC08R13	275.	1	EBC08R14	276.	1	EBC08R15
277.	1	EBC09R05	278.	1	EBC09R09B	279.	1	EBC09R10A	280.	1	EBC09R10B	281.	1	EBC09R12	282.	1	EBC09R16
283.	1	EBC10AR02	284.	1	EBC10AR05	285.	1	EBC10AR09B	286.	1	EBC10AR10A	287.	1	EBC10AR10B	288.	1	EBC10BR02
289.	1	EBC10BR05	290.	1	EBC10BR09B	291.	1	EBC10BR10A	292.	1	EBC10BR10B	293.	1	EBC10R13	294.	1	EBC11AR09A
295.	1	EBC11AR09B	296.	1	EBC11AR10B	297.	1	EBC11BR09B	298.	1	EBC11BR10A	299.	1	EBC11BR10B	300.	1	EBC11CR10A

VARIABLE NAME LIST

X=0 ENDOGENOUS
1 EXOGENOUS

SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE	SEQ.	X	CODE
301.	1	EBC11CR108	302.	1	EBC11CR12	303.	1	EBC12R07	304.	1	EBC13R07	305.	1	EBC14R13	306.	1	EBC16R10
307.	1	EBC16R10A	308.	1	EBC16R10B	309.	1	EBC16R13	310.	1	ELC05R13	311.	1	ELC07AR13	312.	1	ELC07BR13
313.	1	ELC10AR12	314.	1	ELC10BR16	315.	1	ELC11AR12	316.	1	ELC11AR14	317.	1	ELC11AR16	318.	1	ELC11CR14
319.	1	ELC14R13	320.	1	ELC16R12	321.	1	PA006	322.	1	PKER6	323.	1	POP6	324.	1	PPETR6
325.	1	YC04R09	326.	1	YC06R09	327.	1	YC07AR09	328.	1	YC07BR09	329.	1	YC08R09	330.	1	YC09R09
331.	1	YC10AR09	332.	1	YC10BR09	333.	1	ZC11AR10A	334.	1	ZC14R06	335.	1	ZC14R10	336.	1	YC05R09
337.	1	EBC13R10															

• END OF VARIABLE LIST.

INDONESIAN FORECASTING MODEL

REPORT NO. 2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	CG736	%RCL	CP6	%RCL	CP1736	%RCL	CP736	%RCL	EXP6	%RCL
1979	1290.813	21.2	17727.526	22.0	283.920	17.9	7200.545	6.6	6620.187	46.0
1980	1424.945	10.4	21070.607	18.9	320.051	12.7	7651.716	6.3	9546.392	44.2
1981	1582.131	11.0	24871.100	18.0	358.505	12.0	8117.209	6.1	11045.338	15.7
1982	1876.412	18.6	29245.441	17.6	399.951	11.6	8606.035	6.0	12773.891	15.6
1983	1951.685	4.0	34817.627	19.1	449.117	12.3	9174.411	6.6	14767.166	15.6
1984	2135.272	9.4	40358.872	15.9	493.491	9.9	9717.862	5.9	17027.948	15.3
1985	2338.936	9.5	46711.397	15.7	541.499	9.7	10288.285	5.9	19631.985	15.3
1986	2565.837	9.7	53991.296	15.6	593.196	9.5	10891.686	5.9	21975.515	11.9
1987	2817.916	9.8	62367.258	15.5	649.007	9.4	11534.566	5.9	24586.103	11.9
1988	3097.175	9.9	72043.089	15.5	709.428	9.3	12223.297	6.0	27496.666	11.8
1989	3338.122	7.8	82845.246	15.0	770.902	8.7	12964.177	6.1	30611.565	11.3
1990	3609.638	8.1	94859.795	14.5	834.862	8.3	13734.686	5.9	34140.396	11.5

	EXP736	%RCL	GDP6	%RCL	GDP736	%RCL	GNP6	%RCL	GNP736	%RCL
1979	1823.820	12.7	27844.001	27.8	10015.023	6.6	26792.403	27.9	9446.317	6.1
1980	1940.380	6.4	35001.740	25.7	10669.445	6.5	33676.016	25.7	10035.529	6.2
1981	2062.766	6.3	41392.580	18.3	11367.653	6.5	39822.045	18.3	10664.152	6.3
1982	2191.274	6.2	49326.094	19.2	12248.947	7.8	47451.525	19.2	11457.525	7.4
1983	2326.205	6.2	58114.814	17.8	12957.791	5.8	55903.718	17.8	12095.752	5.6
1984	2467.883	6.1	67652.353	16.4	13772.211	6.3	65075.894	16.4	12828.923	6.1
1985	2616.644	6.0	78689.049	16.3	14639.618	6.3	75689.742	16.3	13609.894	6.1
1986	2772.845	6.0	90800.128	15.4	15569.520	6.4	87336.964	15.4	14447.113	6.2
1987	2936.855	5.9	104764.487	15.4	16570.457	6.4	100766.310	15.4	15348.248	6.2
1988	3109.066	5.9	120859.706	15.4	17650.926	6.5	116244.728	15.4	16320.957	6.3
1989	3289.887	5.8	138610.093	14.7	18742.010	6.2	133315.099	14.7	17303.264	6.0
1990	3479.750	5.8	158539.604	14.4	19901.933	6.2	152481.585	14.4	18347.628	6.0

INDONESIAN FORECASTING MODEL

REPORT NO. 2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	IIP73G	%RCL	IMPG	%RCL	IMP73G	%RCL	ITPG	%RCL	ITP73G	%RCL
1979	166.485	7.5	5570.854	38.1	2798.721	20.7	5803.042	31.2	2498.567	10.0
1980	174.335	4.7	6824.044	22.5	3095.199	10.6	7161.301	23.4	2747.603	10.0
1981	188.169	7.9	8339.912	22.2	3411.497	10.2	8797.174	22.8	3017.045	9.8
1982	206.393	9.7	10339.684	24.0	3810.714	11.7	11025.235	25.3	3385.942	12.2
1983	217.634	5.4	12454.800	20.5	4131.894	8.4	13267.792	20.4	3637.345	7.4
1984	231.159	6.2	14831.119	19.1	4500.769	8.9	15636.417	19.4	3951.963	8.6
1985	245.625	6.3	17638.134	18.9	4893.735	8.7	18871.078	19.2	4289.490	8.5
1986	260.998	6.3	20963.012	18.9	5315.004	8.6	22461.301	19.0	4654.155	8.5
1987	277.632	6.4	24908.111	18.8	5768.435	8.5	26717.203	18.9	5049.552	8.5
1988	295.674	6.5	29595.201	18.8	6257.878	8.5	31770.713	18.9	5479.268	8.5
1989	313.429	6.0	34376.308	16.2	6792.151	7.9	37062.635	16.7	5901.975	7.7
1990	332.345	6.0	39896.461	16.1	7277.691	7.8	43149.653	16.4	6355.510	7.7

	NIG	%RCL	NI73G	%RCL	PCGG	%RCL	PCPG	%RCL	PEXPG	%RCL
1979	21574.159	15.7	8282.258	5.7	252.872	15.5	246.197	14.4	362.985	29.5
1980	24965.985	15.9	8782.722	6.0	284.045	12.3	275.371	11.8	491.986	35.5
1981	27689.252	12.7	9308.577	6.0	317.223	11.7	306.400	11.3	535.463	8.8
1982	31003.684	12.0	9869.616	6.0	352.963	11.3	339.825	10.9	582.944	8.9
1983	35026.892	13.0	10577.772	7.2	395.403	12.0	379.508	11.7	634.818	8.9
1984	38610.334	10.2	11147.358	5.4	433.689	9.7	415.306	9.4	689.982	8.7
1985	42461.370	10.0	11801.777	5.9	475.110	9.6	454.027	9.3	750.273	8.7
1986	46571.791	9.7	12498.774	5.9	519.715	9.4	495.711	9.2	792.526	5.6
1987	50973.725	9.5	13245.988	6.0	567.868	9.3	540.699	9.1	837.157	5.6
1988	55706.165	9.3	14050.263	6.1	619.999	9.2	589.392	9.0	882.937	5.4
1989	60809.700	9.2	14918.484	6.2	673.039	8.6	639.034	8.4	930.475	5.4
1990	66046.531	8.6	15795.215	5.9	728.225	8.2	690.659	8.1	981.116	5.4

INDONESIAN FORECASTING MODEL

REPORT NO. 2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	PGDP6	%RCL	PGNP6	%RCL	PIMP6	%RCL	PITP6	%RCL	WPI736	%RCL
1979	278.022	19.8	283.628	20.6	199.050	14.4	232.255	19.4	261.392	17.5
1980	328.056	18.0	339.568	18.5	220.472	10.8	260.638	12.2	294.402	12.6
1981	364.126	11.0	373.420	11.5	244.465	10.9	291.582	11.9	329.760	12.0
1982	402.697	10.6	414.152	10.9	271.337	11.0	325.359	11.7	368.060	11.6
1983	448.493	11.4	462.176	11.6	301.434	11.1	364.766	12.0	413.159	12.3
1984	491.225	9.5	507.259	9.8	329.524	9.3	400.725	9.9	454.037	9.9
1985	537.508	9.4	556.138	9.6	360.425	9.4	439.938	9.8	498.358	9.8
1986	583.192	8.5	604.529	8.7	394.412	9.4	482.607	9.7	546.220	9.6
1987	632.237	8.4	656.533	8.6	431.800	9.5	529.100	9.6	598.022	9.5
1988	684.722	8.3	712.242	8.5	472.927	9.5	579.835	9.6	654.225	9.4
1989	739.369	8.0	770.462	8.2	509.119	7.7	627.970	8.3	710.342	8.6
1990	796.604	7.7	831.070	7.9	548.205	7.7	678.933	8.1	768.998	8.3

	* CGG	%RCL	* PAGRGPE736	%RCL	* PCRUL66	%RCL	* PETROP6	%RCL	* PWE736	%RCL
1979	3264.100	40.0	196.870	5.0	19.050	50.0	616000.000	3.2	137.760	12.0
1980	4047.484	24.0	206.714	5.0	28.575	50.0	593000.000	-3.7	154.291	12.0
1981	5018.880	24.0	217.049	5.0	31.433	10.0	620000.000	4.6	172.806	12.0
1982	6623.411	32.0	227.902	5.0	34.576	10.0	650000.000	4.8	193.543	12.0
1983	7717.030	16.5	239.297	5.0	38.033	10.0	659000.000	1.4	216.768	12.0
1984	9260.436	20.0	248.869	4.0	41.837	10.0	665000.000	0.9	238.445	10.0
1985	11112.523	20.0	258.824	4.0	46.020	10.0	671000.000	0.9	262.289	10.0
1986	13335.028	20.0	269.177	4.0	48.782	6.0	675000.000	0.6	288.518	10.0
1987	16002.034	20.0	279.944	4.0	51.708	6.0	679000.000	0.6	317.370	10.0
1988	19202.440	20.0	288.342	3.0	54.811	6.0	683000.000	0.6	349.107	10.0
1989	22466.855	17.0	296.992	3.0	58.100	6.0	687000.000	0.6	377.036	8.0
1990	26286.221	17.0	305.902	3.0	61.586	6.0	690000.000	0.4	407.198	8.0

INDONESIAN FORECASTING MODEL

REPORT NO. 2

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	* WIM756	%RCL	EBC01R01	%RCL	EBC01R06	%RCL	EBC01R07	%RCL	EBC01R10	%RCL
1979	1059.725	5.0	346.045	111.6	-516.045	177.4	-275.045	261.9	-8.000	0.0
1980	1112.712	5.0	737.777	55.1	707.777	37.2	-401.777	46.1	-8.000	0.0
1981	1168.347	5.0	1022.868	38.6	992.868	40.3	-636.868	58.5	-8.000	0.0
1982	1226.765	5.0	1494.403	46.1	1464.403	47.5	-997.403	56.6	-8.000	0.0
1983	1288.103	5.0	1898.177	27.0	1868.177	27.6	-1355.177	35.9	-8.000	0.0
1984	1352.508	5.0	895.571	-52.8	865.571	-53.7	-370.571	-72.7	-8.000	0.0
1985	1420.133	5.0	1323.454	47.8	1293.454	49.4	-798.454	115.5	-8.000	0.0
1986	1491.140	5.0	1776.045	34.2	1746.045	35.0	-1251.045	56.7	-8.000	0.0
1987	1565.697	5.0	2262.019	27.4	2232.019	27.8	-1737.019	38.8	-8.000	0.0
1988	1643.982	5.0	2789.444	23.3	2759.444	23.6	-2264.444	30.4	-8.000	0.0
1989	1726.181	5.0	3332.033	19.5	3302.033	19.7	-2807.033	24.0	-8.000	0.0
1990	1812.490	5.0	3904.096	17.2	3874.096	17.3	-3379.096	20.4	-8.000	0.0

	EBC01R11	%RCL	EBC02R03	%RCL	EBC02R06	%RCL	* EBC02R09A	%RCL	EBC02R10	%RCL
1979	255.000	121.9	-95902.000	3.6	33522.000	2.6	-33270.000	3.9	-252.000	0.0
1980	298.000	27.9	-90902.000	-5.2	33922.000	1.2	-33670.000	1.2	-252.000	0.0
1981	348.000	16.8	-95902.000	5.5	34322.000	1.2	-34070.000	1.2	-252.000	0.0
1982	459.000	31.9	-98652.000	2.9	37572.000	9.5	-37320.000	9.5	-252.000	0.0
1983	505.000	10.0	-99361.000	0.7	44887.000	19.5	-44635.000	19.6	-252.000	0.0
1984	487.000	-3.6	-96906.000	-2.5	48542.000	8.1	-48290.000	8.2	-252.000	0.0
1985	487.000	0.0	-98106.000	1.2	48542.000	0.0	-48290.000	0.0	-252.000	0.0
1986	487.000	0.0	-91596.000	-6.6	55852.000	15.1	-55600.000	15.1	-252.000	0.0
1987	487.000	0.0	-92396.000	0.9	55852.000	0.0	-55600.000	0.0	-252.000	0.0
1988	487.000	0.0	-93196.000	0.9	55852.000	0.0	-55600.000	0.0	-252.000	0.0
1989	487.000	0.0	-93996.000	0.9	55852.000	0.0	-55600.000	0.0	-252.000	0.0
1990	487.000	0.0	-94596.000	0.6	55852.000	0.0	-55600.000	0.0	-252.000	0.0

%RCL = GROWTH RATE
* = EXOGENOUS VARIABLE

	EBC03R02	%RCL	EBC03R03	%RCL	EBC03R04	%RCL	EBC03R05	%RCL	EBC03R06	%RCL
1979	7795.033	113.0	-12468.474	8.3	-650.000	6.7	0.0	-100.0	-8167.641	4.9
1980	10002.754	28.3	-12379.690	0.9	-690.000	6.2	0.0	0.0	-6105.702	-25.2
1981	12448.114	24.4	-12628.923	0.4	-730.000	5.8	0.0	0.0	-3703.735	-39.3
1982	13910.699	11.7	-13545.860	7.3	-780.000	6.8	0.0	0.0	-3548.227	-4.2
1983	13065.865	-6.1	-12337.501	-8.9	-835.000	7.1	0.0	0.0	-4186.192	18.0
1984	14311.218	9.5	-13415.477	8.7	-880.000	5.4	0.0	0.0	-3686.939	-11.9
1985	17559.772	22.7	-13174.628	-1.8	-925.000	5.1	0.0	0.0	-257.941	-93.5
1986	17354.036	-1.2	-15524.607	17.8	-975.000	5.4	0.0	0.0	-3803.703	1498.6
1987	21020.123	21.1	-15240.376	-1.8	-1030.000	5.6	0.0	0.0	90.379	-102.4
1988	24938.369	18.6	-14946.332	-2.0	-1090.000	5.8	0.0	0.0	4234.248	4597.1
1989	28986.913	16.2	-14642.131	-2.0	-1155.000	6.0	0.0	0.0	8548.090	100.9
1990	33236.068	14.8	-14318.799	-2.2	-1230.000	6.5	0.0	0.0	13101.728	53.3

	EBC03R07	%RCL	EBC03R08	%RCL	EBC03R09A	%RCL	EBC03R09B	%RCL	EBC03R10	%RCL
1979	-3296.180	6.7	-45.000	80.0	21934.911	-36.1	2500.000	270.9	0.0	-100.0
1980	-3504.011	6.3	-45.000	0.0	22198.631	1.2	2600.000	4.0	0.0	0.0
1981	-3761.011	7.3	-45.000	0.0	22462.351	1.2	2750.000	5.8	0.0	0.0
1982	-4017.732	6.8	-45.000	0.0	24605.076	9.5	2750.000	0.0	0.0	0.0
1983	-4214.756	4.9	-45.000	0.0	29427.855	19.6	2750.000	0.0	0.0	0.0
1984	-5262.701	24.9	-45.000	0.0	31837.597	8.2	2750.000	0.0	0.0	0.0
1985	-5467.223	3.9	-45.000	0.0	31837.597	0.0	2750.000	0.0	0.0	0.0
1986	-5684.017	4.0	-45.000	0.0	36657.080	15.1	2750.000	0.0	0.0	0.0
1987	-5913.818	4.0	-45.000	0.0	36657.080	0.0	2750.000	0.0	0.0	0.0
1988	-6157.407	4.1	-45.000	0.0	36657.080	0.0	2750.000	0.0	0.0	0.0
1989	-6415.611	4.2	-45.000	0.0	36657.080	0.0	2750.000	0.0	0.0	0.0
1990	-6689.308	4.3	-45.000	0.0	36657.080	0.0	2750.000	0.0	0.0	0.0

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