MARYLAND INTERINDUSTRY FORECASTING PROJECT

Research Memorandum No. 19

July 10, 1969

BASIC RUNNING INSTRUCTIONS FOR THE MARYLAND INTERINDUSTRY FORECASTING PROGRAM

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The model consists of about 5,000 cards which have been recorded on tape. Give this tape to your computer center and tell them to treat it as if it had been the punch tape for a Fortran job. It is 7-track, odd parity, 800 bpi density.

Unless you make a special request, it will be standard BCD. We can, if necessary, produce the extended BCD used by some IBM 360 machines. You should get 2 1/2 boxes of cards. The first half box is the program, the rest is data.

The data deck has several major divisions:

1. Control cards--the first six cards of any run. First is the title card, then one beginning NP, and so on through the one beginning PRINT ROWS.

2. Arrangement codes--these cards are distinguishable by their (10X,20I3) format, that is, they have 20 integers strung across the card. They need be read only once, and are then saved from one run to the next. You are unlikely to change them unless you add a sector.

3. NCODE cards--the main data for making the forecasts. The exact nature of each card is determined by the code in column 1 and 2 (called NCODE in the READER subroutine).

4. 99 card--a card with 99 in columns 1 and 9 signals the end of the NCODE cards.

5. The Exogenous deck--provides actual data on investment, construction, employment, and so on for the first few years of a run.

6. The Plot deck--provides titles and historical series for plots. Each title is followed by from one to three pairs of cards. For the I-O industries, the first pair is the output series; the second pair, the employment series; and the third pair, the investment series.

7. MATLIS data--the data for the matrix listing.

8. Cards to execute the program.

As the deck comes to you, it has monitor control cards for the Univac 1108 EXEC 8. They all begin with a @ ($\frac{7}{8}$ punch) in column 1. If you are using any other machine, you will have to change these cards. They come in five groups:

1. Preceding the program are cards to catalog a program and a data file.

2. In front of each subroutine there is a @FOR card to call the Fortran compiler.

3. After the program, there are cards to copy the compiled program into a program file and onto a tape.

4. In front of each data deck described above is a card which makes that data an element of the file DATA. After the last deck, this file is copied onto the tape.

5. An @XQT card starts the execution, and the following @ADD cards put the data files in their proper places. After the execution of the forecasting program, the contents of File 10 are copied onto tape. The run is ended by a @FIN card.

After making the changes your system requires, you should submit the deck up to this point, and it should run.

Next comes a small run to produce, once the files have been established, four alternative forecasts. It ends with a @FIN card. Finally comes a program to reestablish the files from tape.

The deck as thus presented is more closely tied to our own machine than has been the case in the past. Limited experience has suggested, however, that the control systems for all the machines with mass storage, such as disk or drum, are something alike. Chances are, most of our cards can be converted one-to-one to those required by your machine; moreover, several sponsors have an 1108 available.

Suppose now that you want to run your own version. First you establish the files, as in the last program provided. Now look back to the cards immediately following the @XQT card near the end of the first run.

Now submit the program and all the data. Execution time will be less than three minutes on a machine like the 1108 and less than ten minutes on the 7094. You should get the forecasting output, the matrix listing, and the plots.

For your next run, you will want to use the data tape which you have created on unit 10. Have it mounted on 10 again, ring in--i.e. ready to be written on as well as read.

Replace the first card of this data with a new title for your forecast. Then on the third card you will see a 0 in column 50 which made LIRTAP equal 0 on the first run. Change this 0 to a 1 to make the program read data from unit 10. Next, look back at the printout from your first run and observe the values of I11 and I13 which are

the very first things the program prints. Record these values in columns 68-70 and 78-80 respectively of the same card on which LIRTAP was changed. Keep the next three cards, which say ITSPEC ITAPE and PRINT ROWS on the left. Then remove the @ADD DATA.NCODE card. If you now put the program with the remaining data back in, you should get the same output as before. For any piece of data which you wish to change, you simply put in a card between the PRINT ROWS card and the all-9 card. The order of these cards does not matter except that coefficients in the cards coded 13 in columns 1 and 2 should be last.

There are several chunks of the program which can be repeated or dropped. It is set up to run only one alternative and to list the forecast matrices. To get more than one alternative, set the variable NOMORE to 0 on all but the last alternative, it is on the ITSPEC card. The historical data for plotting consists of about 210 packets each having a title card and from one to three pairs of data cards. The last packet is followed by a card with 9's in columns 61-63. Removing a packet will remove the corresponding plot from the printout. To produce plots for other alternatives, go to the control card for that alternative with NP at the left and change IPLOT from 0 to 1 in column 80. Then add the packets for the appropriate series after the last data card for that alternative (99 in columns 1 and 2).

If you would like to skip the matrix listing, which is the most expensive part of the program, you should change the value of MATRIX from 1 to 0 in column 20 of the cards which says ITSPEC on the left. Then remove the sector titles (down to and including the one which

says TOTAL) and the four cards preceding the titles (a matrix title, a two-card format and the INCREM card). Changing the values on the ITAPE cards from 1 to 0 will save needless operations when the matrix is not wanted.

Another possibility is to produce the matrix, but for different years or for several years of one or two alternatives. The program counts the number of 1's on the ITAPE cards. When it reaches five, it produces the matrix (provided MATRIX = 1) and stops. To change the years listed, leave MATRIX at 1, change the ITAPE cards so that 1's only appear for the five years chosen. Starting in column 11, each ITAPE card is divided into 15 fields of 3 columns corresponding to the fifteen years 1966 to 1980. Thus to list the 1967, 1970, 1972, 1975 and 1978 matrices of a single alternative, you would punch

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ITAPE----------1--------1-----1--------1-------------1
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Then go to the title card just preceding the 200 sector titles. Change it as desired, and repunch the format cards which follow so as to produce the column headings corresponding the years chosen. This format must also reflect the new years for the growth rates. Up to six intervals are specified on the INCREM card for directing the computation of growth rates. In column 13 goes the number of intervals. The matrices are numbered 1-5 in the order in which they were created. The intervals are then defined by giving the numbers of the matrices in pairs. To call for four growth rates, 1967 to 1970, 1970 to 1972, 1972 to 1975, and 1975 to 1980, you should punch these pairs in fields of three columns, thus:

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INCREM------4--1--2--2--3--3--4--4--5
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