UNIVERSITY OF EDINBURGH
Edinburgh Regional Computing Centre

User Note 19

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Title:

BMDP on EMAS 2900 and EMAS-3

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Contact: Advisory service

Software Support Category: See Note 15

Synopsis

BMDP is a statistical package developed in America and now widely available. This Note contains a brief description of its facilities and how to use it on EMAS 2900 and EMAS-3.

Keywords

Analysis of variance, cluster analysis, data description, frequency tables, histograms, multivariate analysis, non-parametric analysis, regression, scatter diagrams, survival analysis

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Introduction

The BMDP package of programs is used widely in scientific and educational establishments throughout the world and covers a very wide range of standard statistical techniques including:

Data description
Histograms and Scatter diagrams
Frequency tables
Survival analysis
Cluster analysis
Factor analysis
Discriminant analysis
Linear and non-linear regression
Non parametric statistics
Time-series
Analysis of variance and covariance, including repeated measures.

2. Documentation

The BMDP Manual may be obtained from bookshops or from CAST:

Miss J Anderson,
CAST,
1, Roxburgh Street,
Edinburgh, EH9 9TA.

It may be consulted in the ERCC advisory rooms at JCMB and 59 George Square. The command `PACKHELP BMDP` gives information about running BMDP.

3. Courses

There are no courses available within the University of Edinburgh although users who require help to get started are advised to consult Helen Talbot at CAST.

4. Advice

The ERCC Advisory service gives advice to users of BMDP on EMAS. It is normally open as follows:

King's Buildings, Room 3205, JCMB — Tel. 031-667 1081 ext. 2976-7
Advisers - 09.30 to 12.30 and 14.00 to 17.00 Monday to Friday

59 George Square, Room G2 — Tel. 031-667 1011 ext. 2300
Advisers - 09.30 to 12.30 and 14.00 to 17.00 Monday to Friday

The EMAS command `HELP ADVISORY` gives details of variations from this schedule.

5. The BMDP command on EMAS 2900

To obtain access to BMDP type the following command:

```
OPTION SEARCHDIR=PLULIB.PACKDIR
```

Unless the file SS#OPT has been archived because you have not been using your process for several weeks, it should not be necessary to type this command again.

The BMDP command is of the form:

```
BMDP PARAMETER1=REPLY1,PARAMETER2=REPLY2....
```

The parameters can be in any order and can be abbreviated to the first three letters. The possible parameters and replies are listed in Table 1.

Table 1

Input Parameters for BMDP on EMAS 2900

Parameter Name	Default	Reply
PROGRAM	None	The BMDP program name consisting of 3 characters. E.g. P2V or PAR
CONTROL	Console .IN	Filename of control file containing instructions for BMDP programs.
LISTING	Console .OUT	Output device or filename. This may be directed to a printer by typing .LPnn where nn is replaced by the local printer number.
TRANSF		File containing Fortran Transformation code. (See Note 1). This is only used where data are being transformed.
FUN		File containing Fortran code for programs P3R and PAR (See Note 1).
IBSIZE		File containing IBSIZE code. (See Note 2).

Note 1

The Fortran function and dimension statements with the RETURN and END should not be included. Thus, for an exponential function the file should contain the following statement starting in column 7

```
F = P(1)* EXP(-P(2)*X(1))
```

Note 2

The program capacity is set at 15000 locations. Appendix B in the manual describes the procedure for increasing this.

6. The BMDP Command on EMAS-3

To obtain access to BMDP type the following command:

```
SEARCHDIR PLULIB:PACKDIR
```

The BMDP command is of the form:

```
BMDP PARAMETER1=REPLY1,PARAMETER2=REPLY2,...
```

The parameters can be in any order and can be abbreviated to the first three letters. The possible parameters and replies are listed in the Table 2.

Table 2

Input parameters for BMDP on EMAS-3

Parameter Name	Default	Reply
PROGRAM	None	The BMDP program name consisting of 3 characters. E.g. P2V or PAR
CONTROL	Console .IN	File name of control file containing instructions for BMDP programs.
LISTING	Console .OUT	Output device or filename. This may be directed to a printer by typing .LPnn where nn is replaced by the local printer number.

7. Accessing Data Files on BMDP

The data file must first be DEFINEd to a channel before entering by a statement of the form:

```
DEFINE 10,filename
```

where `10` is the channel number and `filename` the name of the data file.

Within BMDP the channel number is declared in the /INPUT paragraph. Thus

```
/INPUT variables are 3.  Format is free.  Unit is 10
```

will cause the program to read the data from unit `10`.

8. Example of the Use of BMDP

The coding file is called EXAMPLE and contains the following:

```
/PROB
TITLE='EXAMPLE TO ASSESS THE SPEED OF 3 PACKAGES'.
/INP
VARIABLE ARE 2.
FORMAT IS '(F2.0,F3.0)'.
/VARIABLE
NAME ARE CROPSIZE,WORMY.
/REGRESS
INDEPEND IS CROPSIZE.
DEPEND IS WORMY.
/END
```

```
 8 59
 6 58
11 56
22 53
14 50
17 45
18 43
24 42
19 39
23 38
26 30
40 27
```

To run this on BMDP using the regression program enter the EMAS command:

```
BMDP PROGRAM=P1R,CONTROL=EXAMPLE,LISTING=P1RES
```

where `P1R` is the name of the BMDP linear regression program.

`EXAMPLE` is the file containing the BMDP control statements.

`P1RES` is the file which will receive the results.