

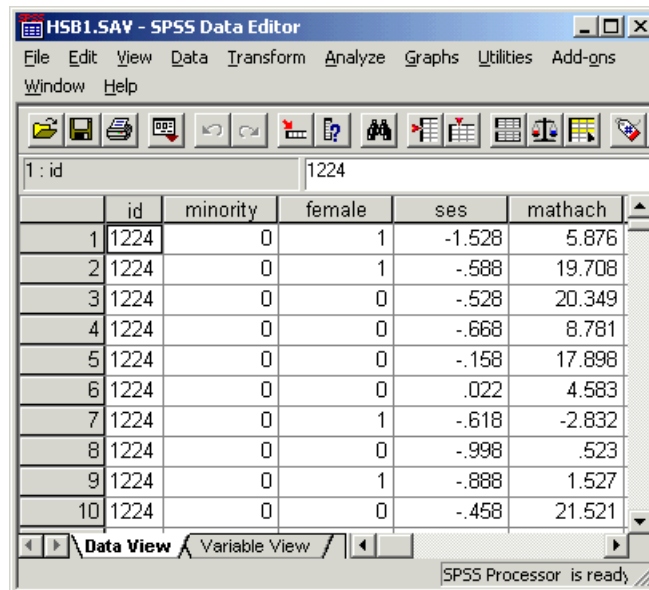
## Construct the MDM file for a HLM2 model using SPSS file input

### Level-1 file:

For HS&B example data (distributed with the program), the level-1 file (**hsb1.sav**) has 7,185 cases and four variables (not including the SCHOOL ID). The variables are:

- MINORITY, an indicator for student ethnicity (1 = minority, 0 = other)
- FEMALE, an indicator for student gender (1 = female, 0 = male)
- SES, a standardized scale constructed from variables measuring parental education, occupation, and income
- MATHACH, a measure of mathematics achievement

Data for the first ten cases in **hsb1.sav** are shown in the figure below. (Note: level-1 cases must be grouped together by their respective level-2 unit ID. To assure this, sort the level-1 file by the level-2 unit ID field prior to entering the data into HLM2.)



	id	minority	female	ses	mathach
1	1224	0	1	-1.528	5.876
2	1224	0	1	-.588	19.708
3	1224	0	0	-.528	20.349
4	1224	0	0	-.668	8.781
5	1224	0	0	-.158	17.898
6	1224	0	0	.022	4.583
7	1224	0	1	-.618	-2.832
8	1224	0	0	-.998	.523
9	1224	0	1	-.888	1.527
10	1224	0	0	-.458	21.521

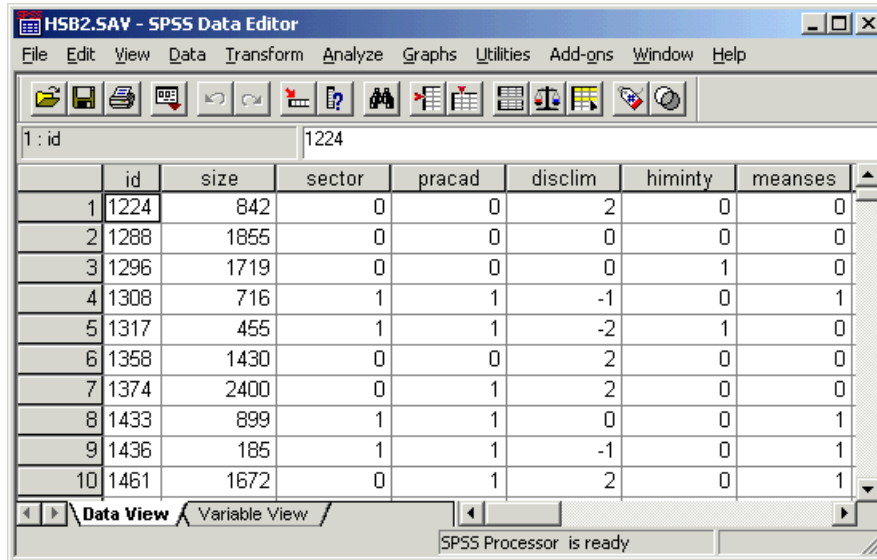
### Level-2 file:

At level 2, the illustrative data set **hsb2.sav** consists of 160 schools with 6 variables per school. The variables are:

- SIZE, indicating the school enrollment
- SECTOR, where 1 = Catholic, 0 = public
- PRACAD denoting the proportion of students in the academic track
- DISCLIM, a scale measuring disciplinary climate

HIMNTY indicating the level of minority enrollment: 1 = more than 40% minority enrollment, 0 = less than 40%  
MEANSSES, which is the mean of the SES values for the students in this school who are included in the level-1 file

The data for the first ten schools are displayed in the figure below.



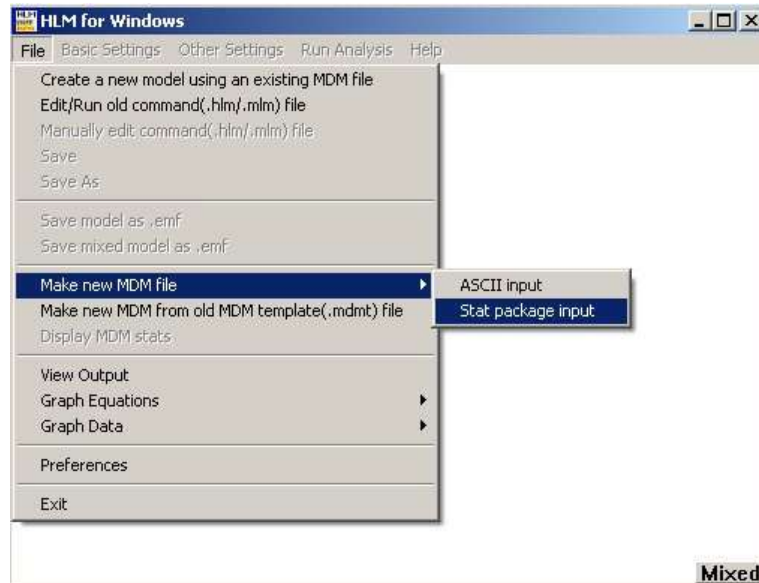
The screenshot shows the SPSS Data Editor window for the file HSB2.SAV. The data is displayed in a grid format with 10 rows and 8 columns. The columns are labeled: id, size, sector, pracad, disclim, himinty, and meanses. The data values are as follows:

	id	size	sector	pracad	disclim	himinty	meanses
1	1224	842	0	0	2	0	0
2	1288	1855	0	0	0	0	0
3	1296	1719	0	0	0	1	0
4	1308	716	1	1	-1	0	1
5	1317	455	1	1	-2	1	0
6	1358	1430	0	0	2	0	0
7	1374	2400	0	1	2	0	0
8	1433	899	1	1	0	0	1
9	1436	185	1	1	-1	0	1
10	1461	1672	0	1	2	0	1

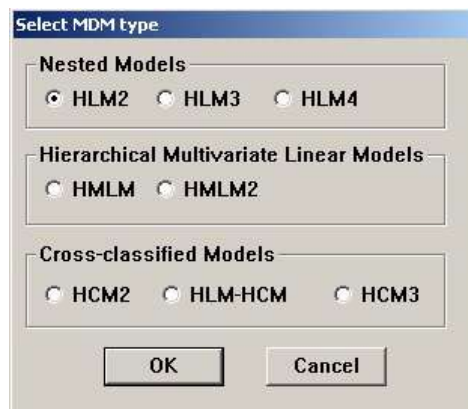
As mentioned earlier, the construction of an MDM file consists of three major steps. This will now be illustrated with the HS&B example.

***To inform HLM of the input and MDM file type***

At the WHLM window, open the **File** menu. Choose **Make new MDM file...Stat package** input.



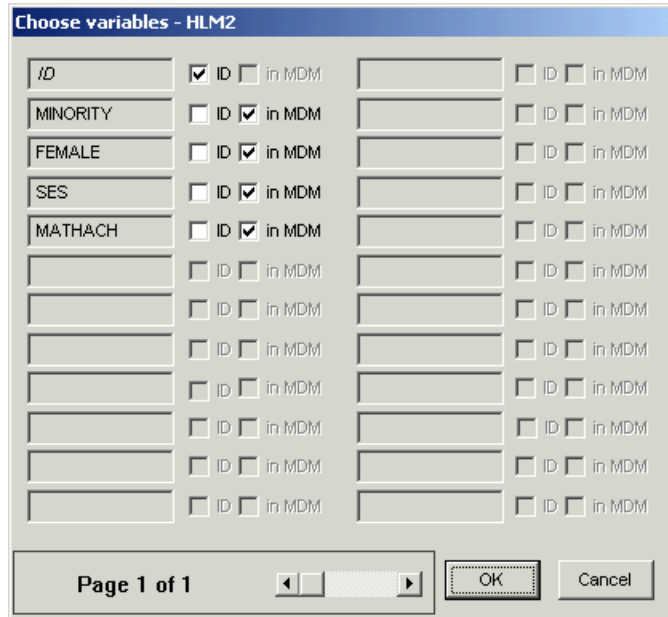
A **Select MDM type** dialog box opens.



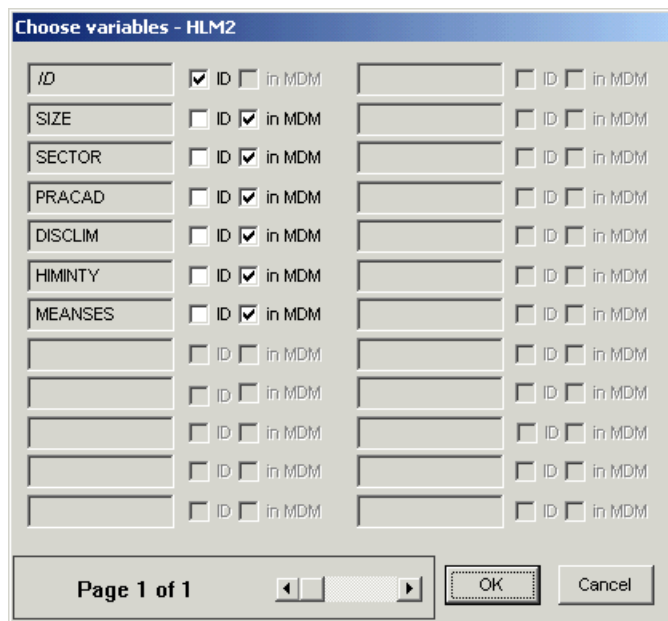
Select **HLM2** and click **OK**. A **Make MDM - HLM2** dialog box will open.

***To supply HLM with appropriate information for the data, the command, and the MDM files:***

Select **SPSS/Windows** from the **Input File Type** pull-down menu of the **Make MDM - HLM2** dialog box (see the figure above). Click **Browse** in the **Level-1 Specification** section to open an **Open Data File** dialog box. Open a level-1 SPSS system file in the HLM folder (**hsb1.sav** in our example). The **Choose Variables** button will be activated. Click **Choose Variables** to open the **Choose Variables - HLM2** dialog box and choose the ID and variables by clicking the appropriate check boxes. To deselect, click the box again.



Select the options for missing data in the level-1 file (there is no missing data in **hsb1.sav**). Click **Browse** in the Level-2 specification section to open an **Open Data File** dialog box. Open a level-2 SPSS system file in the HLM folder (**hsb2.sav** in our example). The **Choose Variables** button below **Browse** will be activated. Click **Choose Variables** to open the **Choose Variables - HLM2** dialog box and choose the ID and variables by clicking the appropriate check boxes.



Enter a name for the MDM file in the **MDM file name** box (for example, **hsb.mdm**). Click **Save mdmt file** in the **MDM template file** section to open a

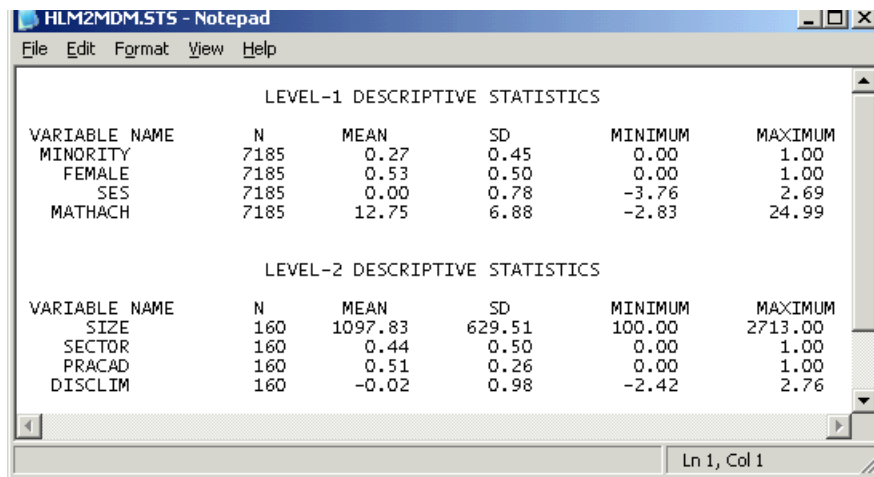
**Save MDM template file** dialog box. Enter a name for the MDMT file (for example, **hsbspss.mdm**). Click **Save** to save the file. The command file saves all the input information entered by the user. It can be re-opened by clicking the **Open mdmt file** button of the **Make MDM - HLM2** dialog box. To make changes to an existing MDMT file, click the **Edit mdmt file** button.

Note that HLM will also save the input information into another file called **creatmdm.mdm** when the MDM is created.

Click the **make MDM** button of the **Make MDM - HLM2** dialog box. A screen displaying the prompts and responses for MDM creation will appear.

***To check whether the data have been properly read into HLM***

Click **Check Stats** to display and check the level-1 and level-2 descriptive statistics. Pay particular attention to the N column. It is not an uncommon mistake to forget to sort by the ID variable, which can lead to a lot (or most) of the data not being processed. Close the Notepad window when done. Use the **Save As** option to give it a new name if later use of this file is anticipated.



The screenshot shows a Notepad window with the following content:

LEVEL-1 DESCRIPTIVE STATISTICS					
VARIABLE NAME	N	MEAN	SD	MINIMUM	MAXIMUM
MINORITY	7185	0.27	0.45	0.00	1.00
FEMALE	7185	0.53	0.50	0.00	1.00
SES	7185	0.00	0.78	-3.76	2.69
MATHACH	7185	12.75	6.88	-2.83	24.99

LEVEL-2 DESCRIPTIVE STATISTICS					
VARIABLE NAME	N	MEAN	SD	MINIMUM	MAXIMUM
SIZE	160	1097.83	629.51	100.00	2713.00
SECTOR	160	0.44	0.50	0.00	1.00
PRACAD	160	0.51	0.26	0.00	1.00
DISCLIM	160	-0.02	0.98	-2.42	2.76

Click **Done**. The WHLM window displays the type and name on its title bar (**hlm2 & hsb.mdm**) and the level-1 variables on a drop-down menu as shown below. For an example of a model based on this MDM file, see [example of an HLM2 model](#).

WHLM: hlm2 MDM File: hsb.mdm

File Basic Settings Other Settings Run Analysis Help

**Outcome**

>> Level-1 <<

**Level-2**

INTRCPT1  
MINORITY  
FEMALE  
SES  
MATHACH

Mixed