

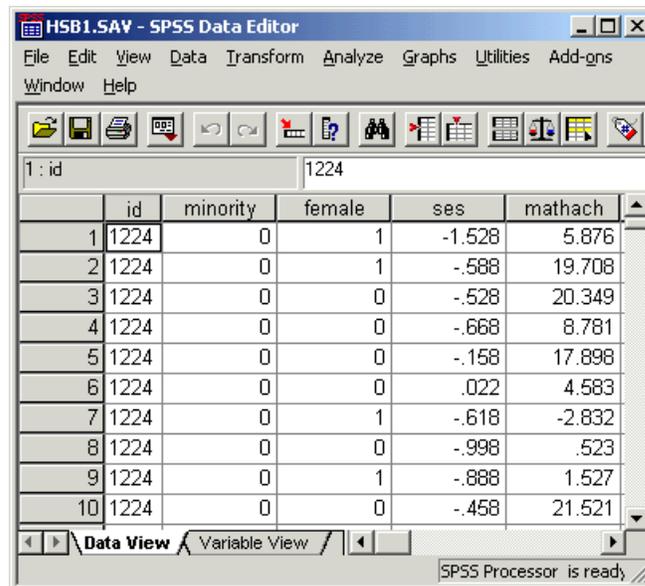
## Construct the MDM file for a HLM2 model using SPSS file input

### 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

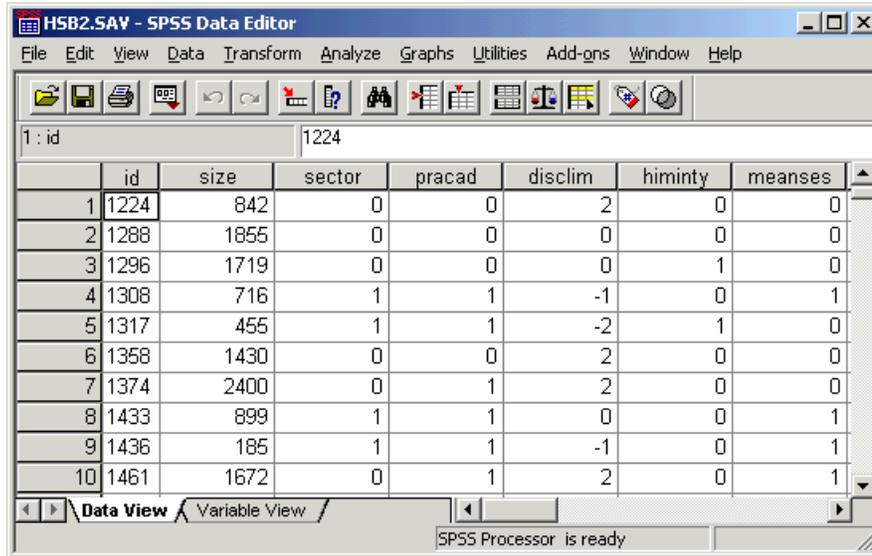
### Level-2 file:

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.



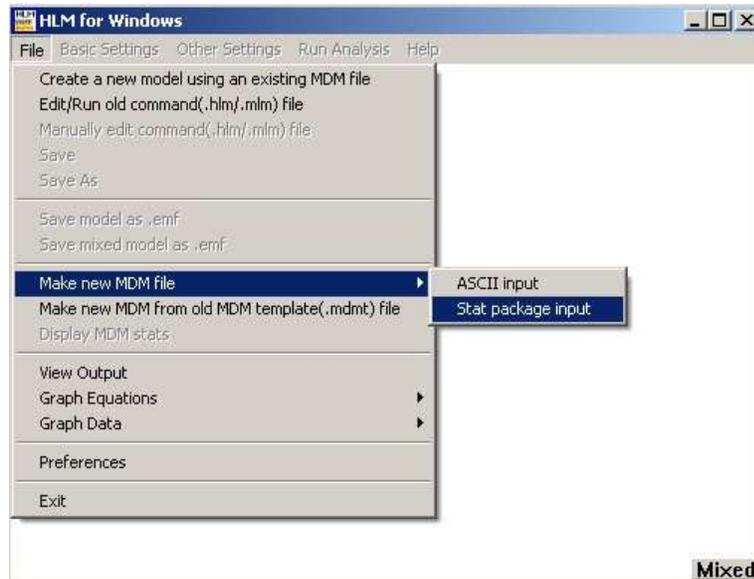
The screenshot shows the SPSS Data Editor window for file HSB2.SAV. The data is displayed in a grid with 10 rows and 8 columns. The columns are labeled: id, size, sector, pracad, disclim, himinty, and meanses. The data values are as follows:

	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

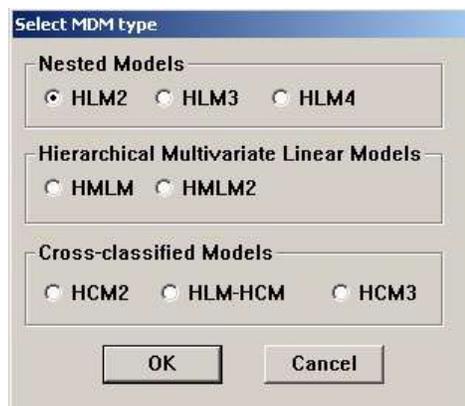
As mentioned earlier, the construction of an MDM file consists of three major steps. This will now be illustrated with the HS&B example.

***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.



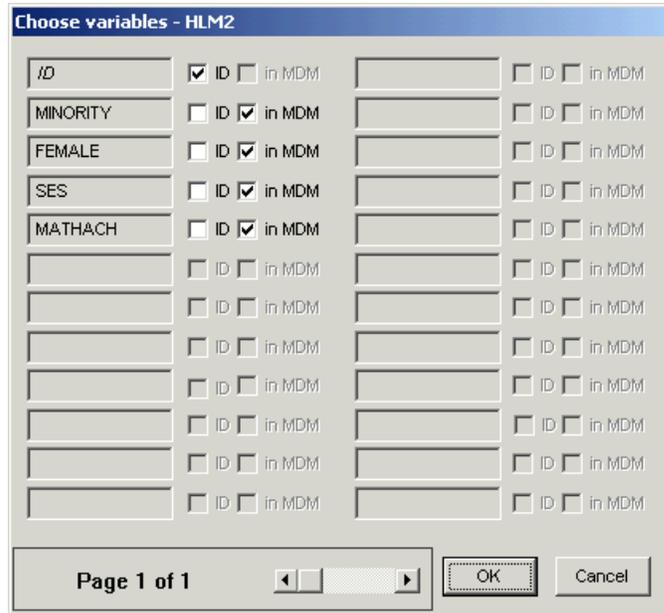
A **Select MDM type** dialog box opens.



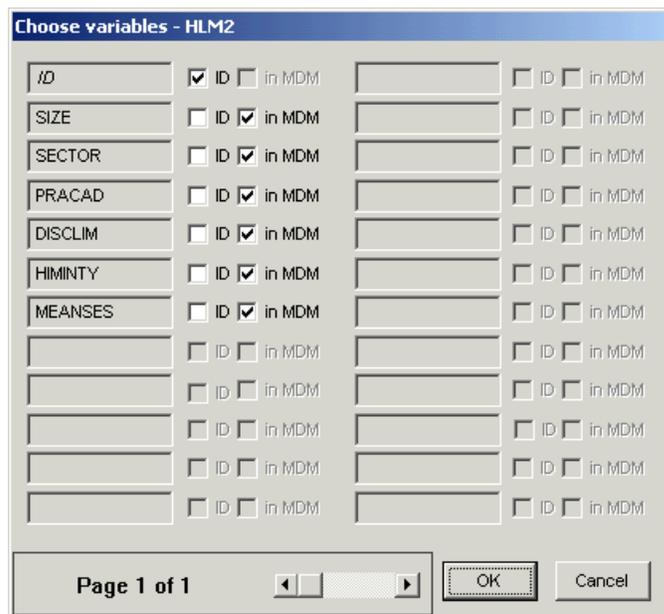
Select **HLM2** and click **OK**. A **Make MDM - HLM2** dialog box will open.

***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

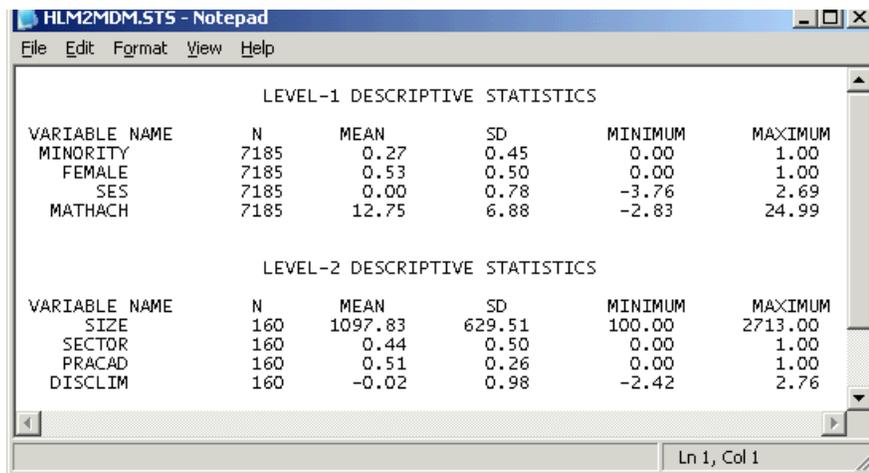
**Save MDM template file** dialog box. Enter a name for the MDMT file (for example, **hsbspss.mdm**). Click **Save** to save the file. The command file saves all the input information entered by the user. It can be re-opened by clicking the **Open mdmt file** button of the **Make MDM - HLM2** dialog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