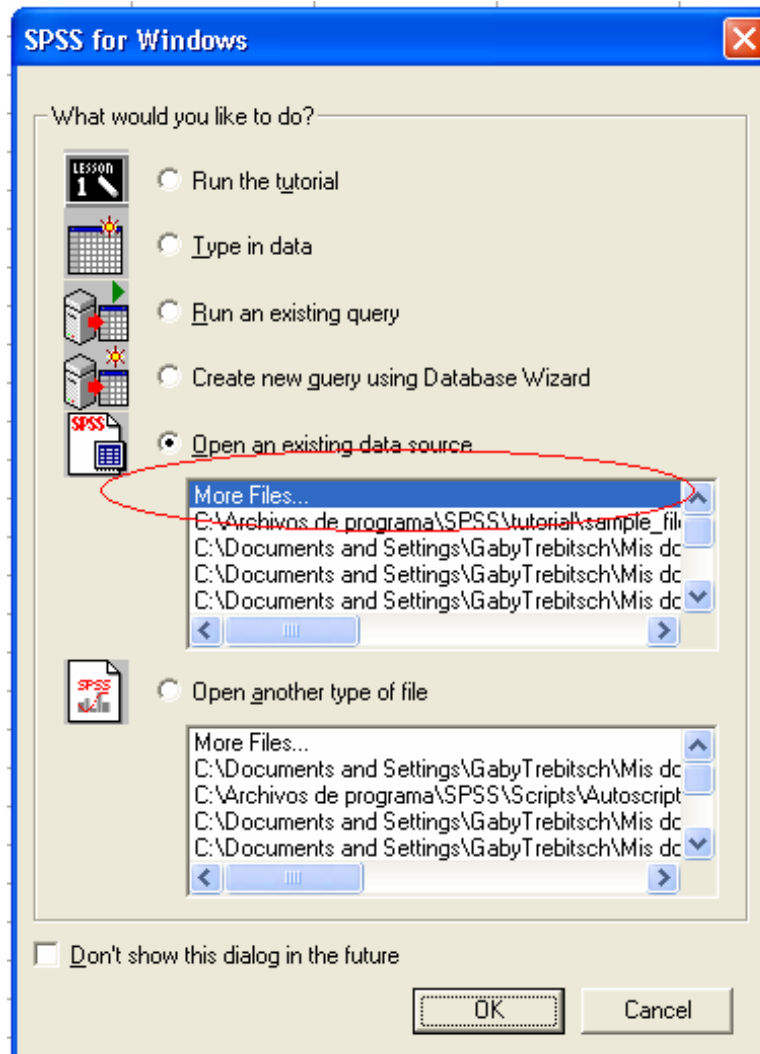


IN540 – Introducción al SPSS

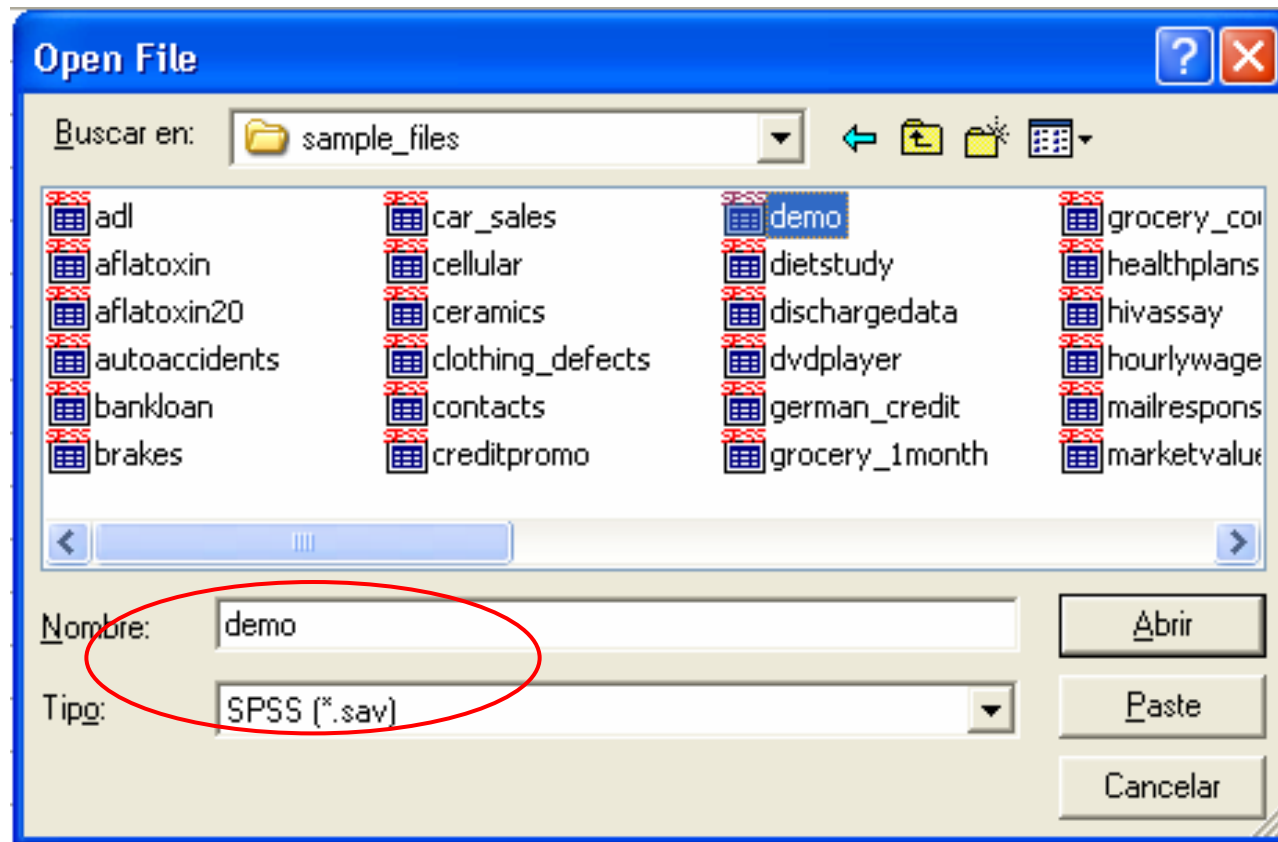
Abrir la base de datos...



Para las tareas les daremos una base de datos con la cual deberán trabajar.

También se pueden importar datos desde programas de manejo de BD como Access creando consultas ("query")

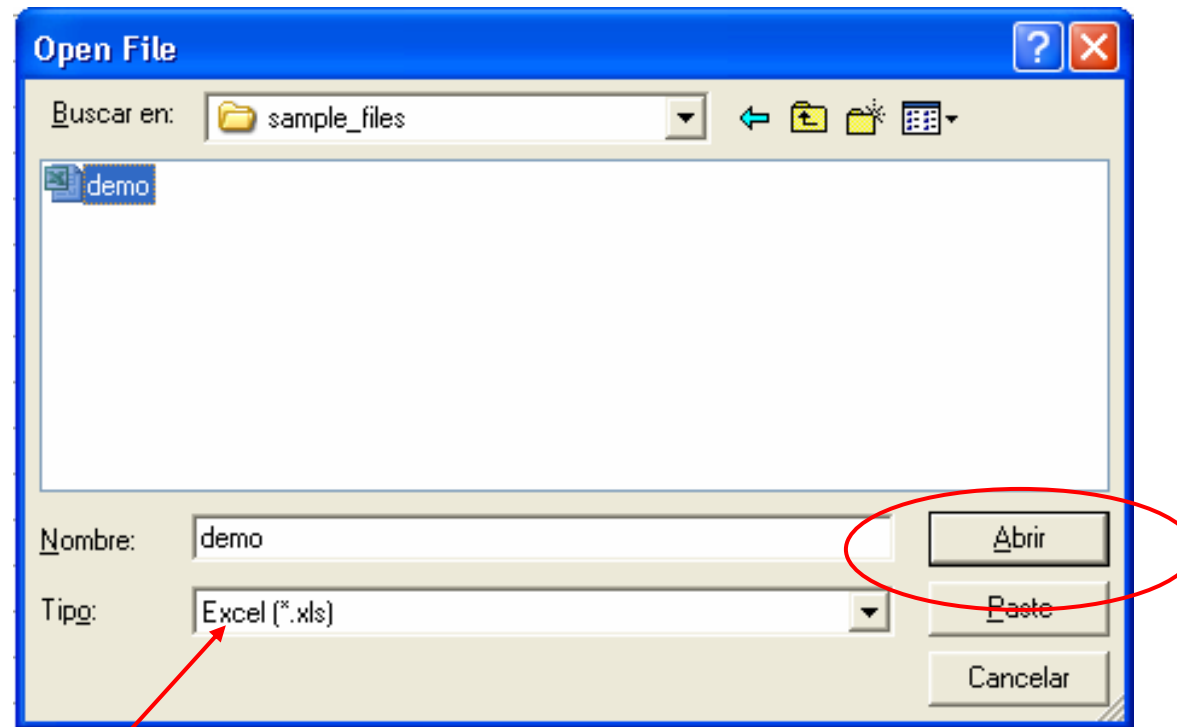
Buscamos nuestro archivo...



Por default, se muestran los archivos en formato de SPSS (*.sav), que será la extensión de nuestro trabajo cuando lo guardemos

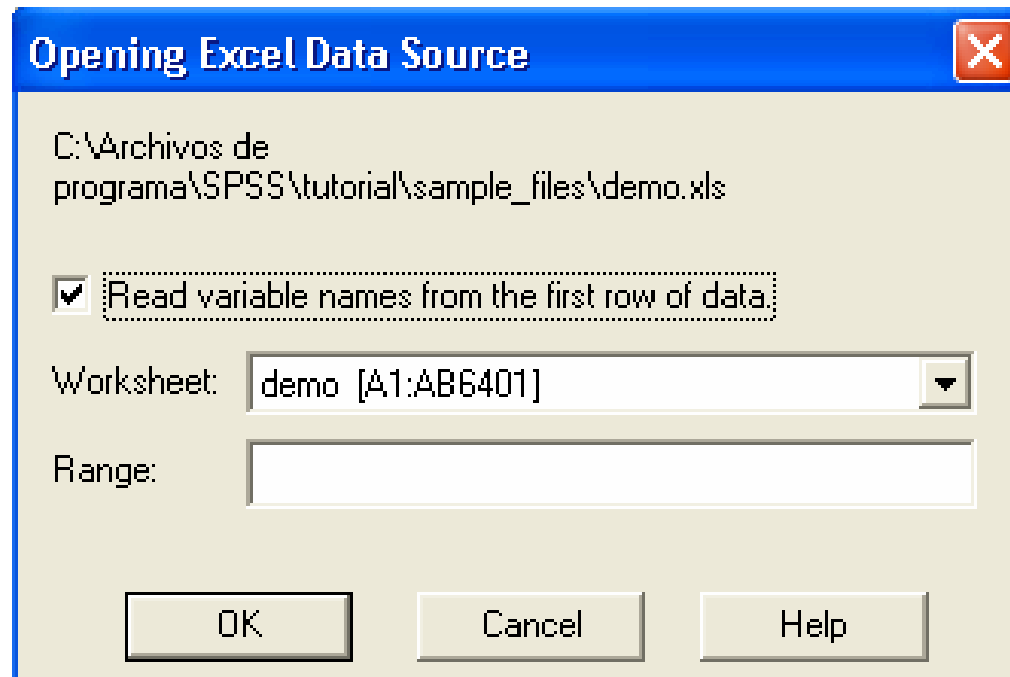
PATH: C:\Archivos de programa\SPSS\tutorial\sample_files

Si los datos provienen de una planilla Excel...



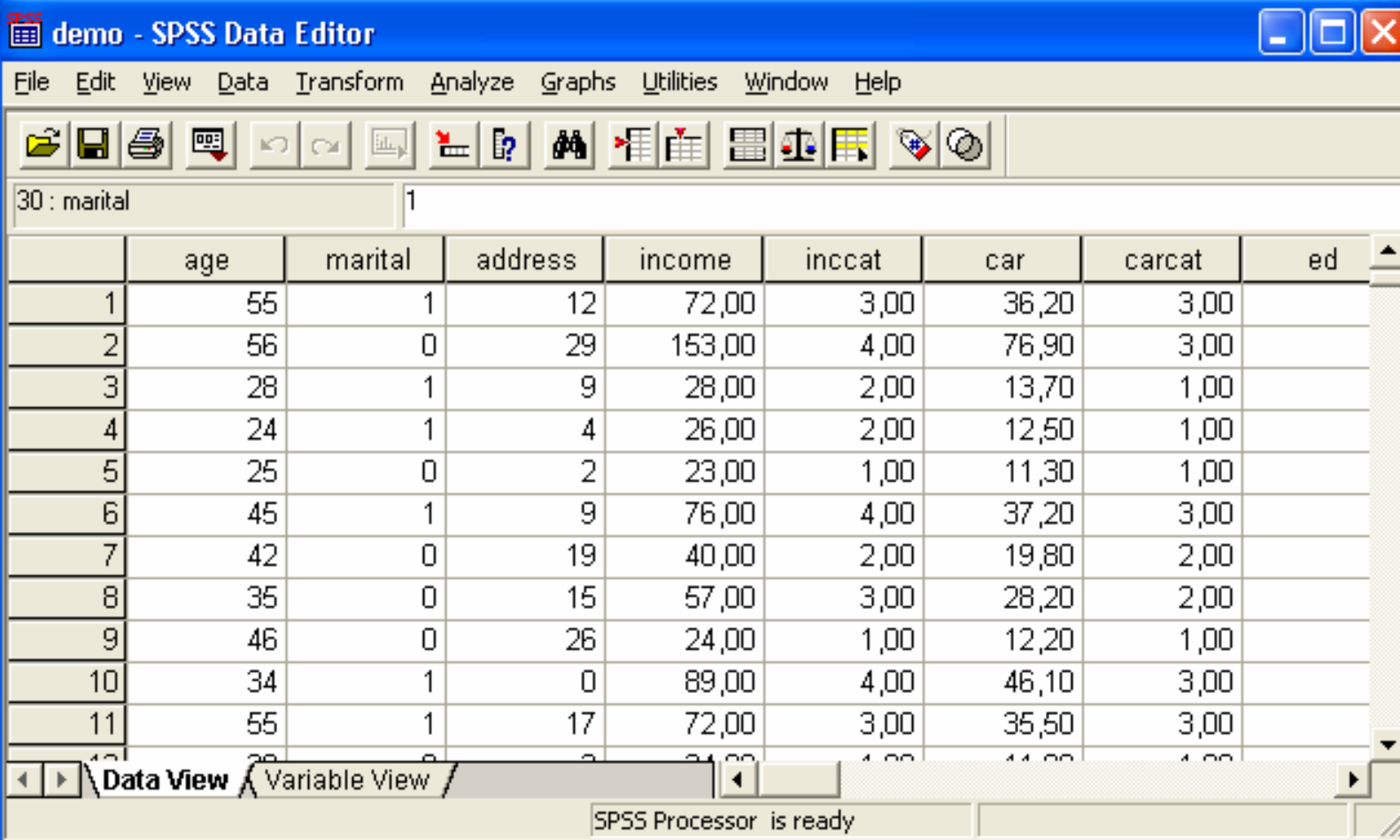
Cambiar el tipo

Si los datos provienen de una planilla Excel...



Podemos conservar el nombre de la variable de la primera fila de nuestra BD.

Los datos...



demo - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Window Help

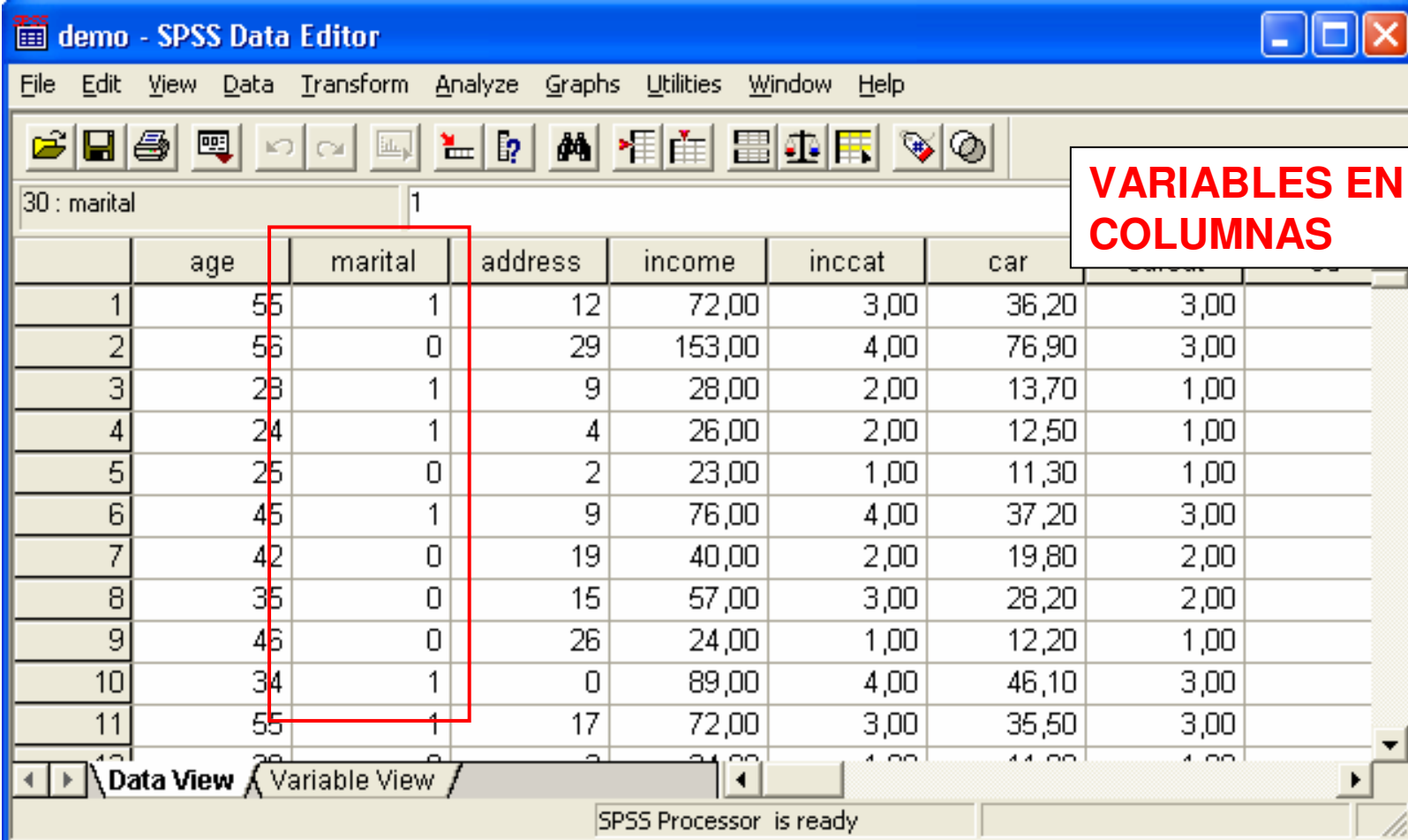
30 : marital 1

	age	marital	address	income	inccat	car	carcat	ed
1	55	1	12	72,00	3,00	36,20	3,00	
2	56	0	29	153,00	4,00	76,90	3,00	
3	28	1	9	28,00	2,00	13,70	1,00	
4	24	1	4	26,00	2,00	12,50	1,00	
5	25	0	2	23,00	1,00	11,30	1,00	
6	45	1	9	76,00	4,00	37,20	3,00	
7	42	0	19	40,00	2,00	19,80	2,00	
8	35	0	15	57,00	3,00	28,20	2,00	
9	46	0	26	24,00	1,00	12,20	1,00	
10	34	1	0	89,00	4,00	46,10	3,00	
11	55	1	17	72,00	3,00	35,50	3,00	

Data View Variable View

SPSS Processor is ready

Los datos...



demo - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Window Help

30 : marital 1

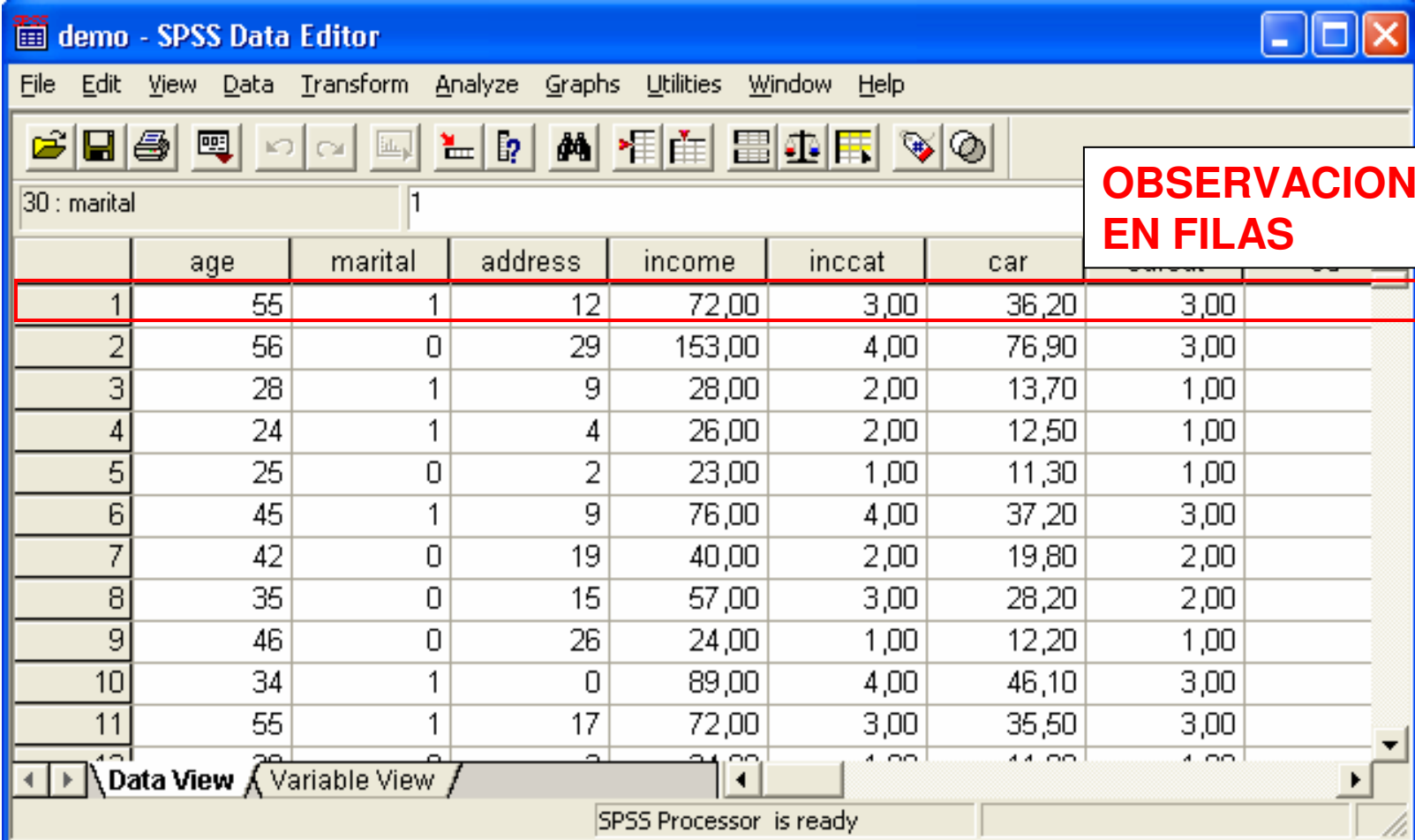
	age	marital	address	income	inccat	car	carcat	carcat2
1	55	1	12	72,00	3,00	36,20	3,00	
2	56	0	29	153,00	4,00	76,90	3,00	
3	28	1	9	28,00	2,00	13,70	1,00	
4	24	1	4	26,00	2,00	12,50	1,00	
5	25	0	2	23,00	1,00	11,30	1,00	
6	45	1	9	76,00	4,00	37,20	3,00	
7	42	0	19	40,00	2,00	19,80	2,00	
8	35	0	15	57,00	3,00	28,20	2,00	
9	46	0	26	24,00	1,00	12,20	1,00	
10	34	1	0	89,00	4,00	46,10	3,00	
11	55	1	17	72,00	3,00	35,50	3,00	
12	28	0	9	24,00	1,00	11,00	1,00	

Data View Variable View

SPSS Processor is ready

VARIABLES EN COLUMNAS

Los datos...



demo - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Window Help

30 : marital 1

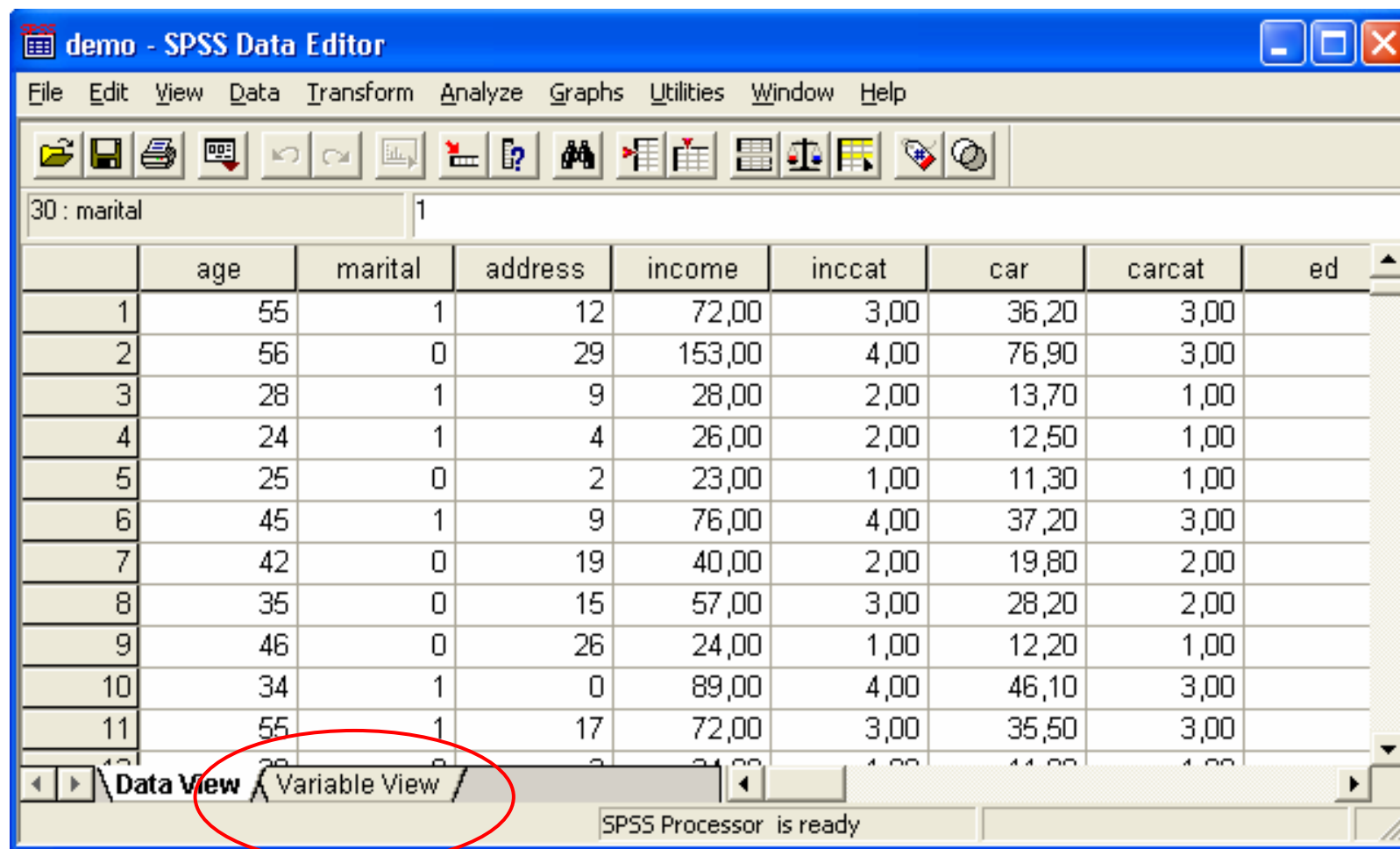
	age	marital	address	income	inccat	car		
1	55	1	12	72,00	3,00	36,20	3,00	
2	56	0	29	153,00	4,00	76,90	3,00	
3	28	1	9	28,00	2,00	13,70	1,00	
4	24	1	4	26,00	2,00	12,50	1,00	
5	25	0	2	23,00	1,00	11,30	1,00	
6	45	1	9	76,00	4,00	37,20	3,00	
7	42	0	19	40,00	2,00	19,80	2,00	
8	35	0	15	57,00	3,00	28,20	2,00	
9	46	0	26	24,00	1,00	12,20	1,00	
10	34	1	0	89,00	4,00	46,10	3,00	
11	55	1	17	72,00	3,00	35,50	3,00	

Data View Variable View

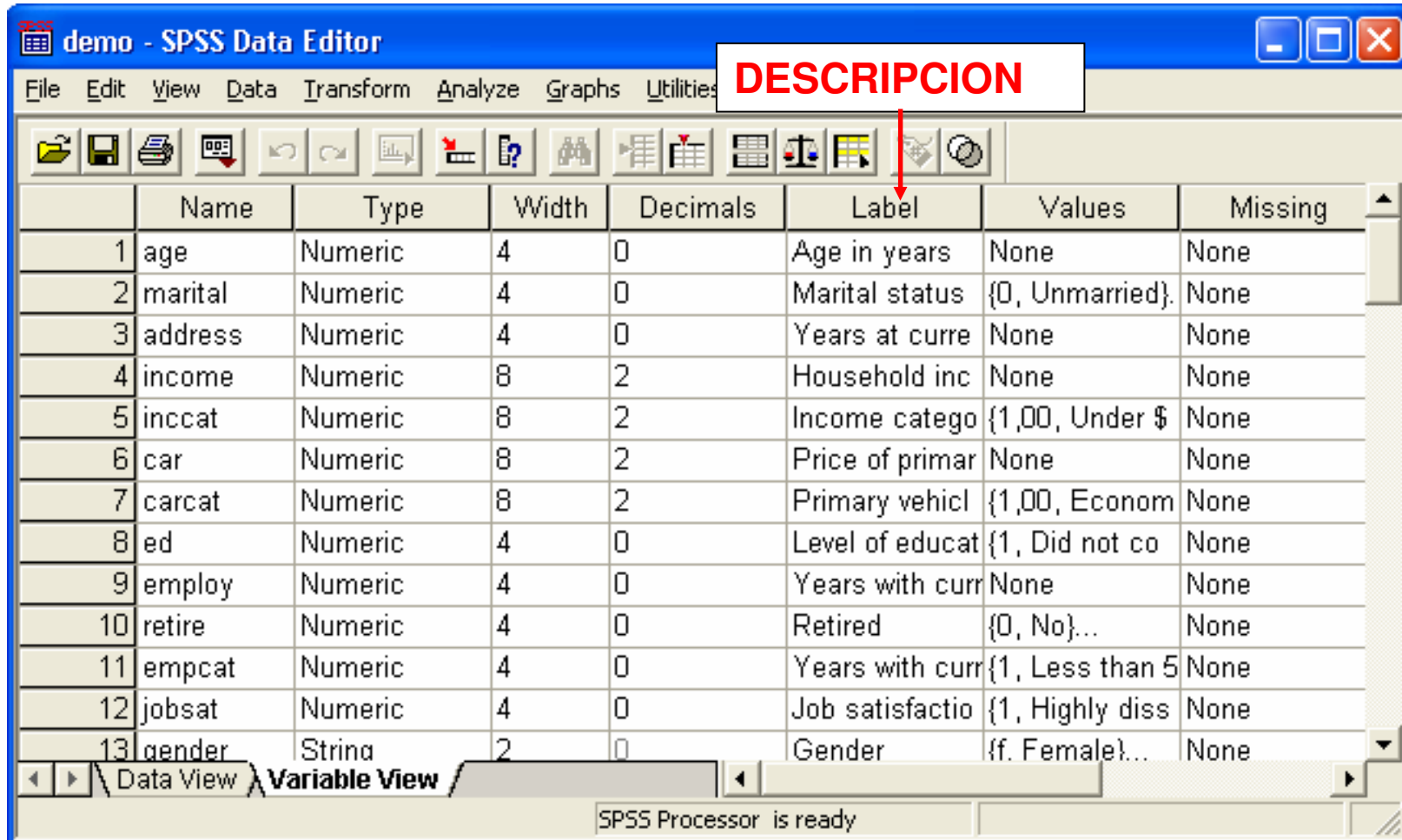
SPSS Processor is ready

OBSERVACIONES EN FILAS

Edición de las variables...



Edición de las variables...

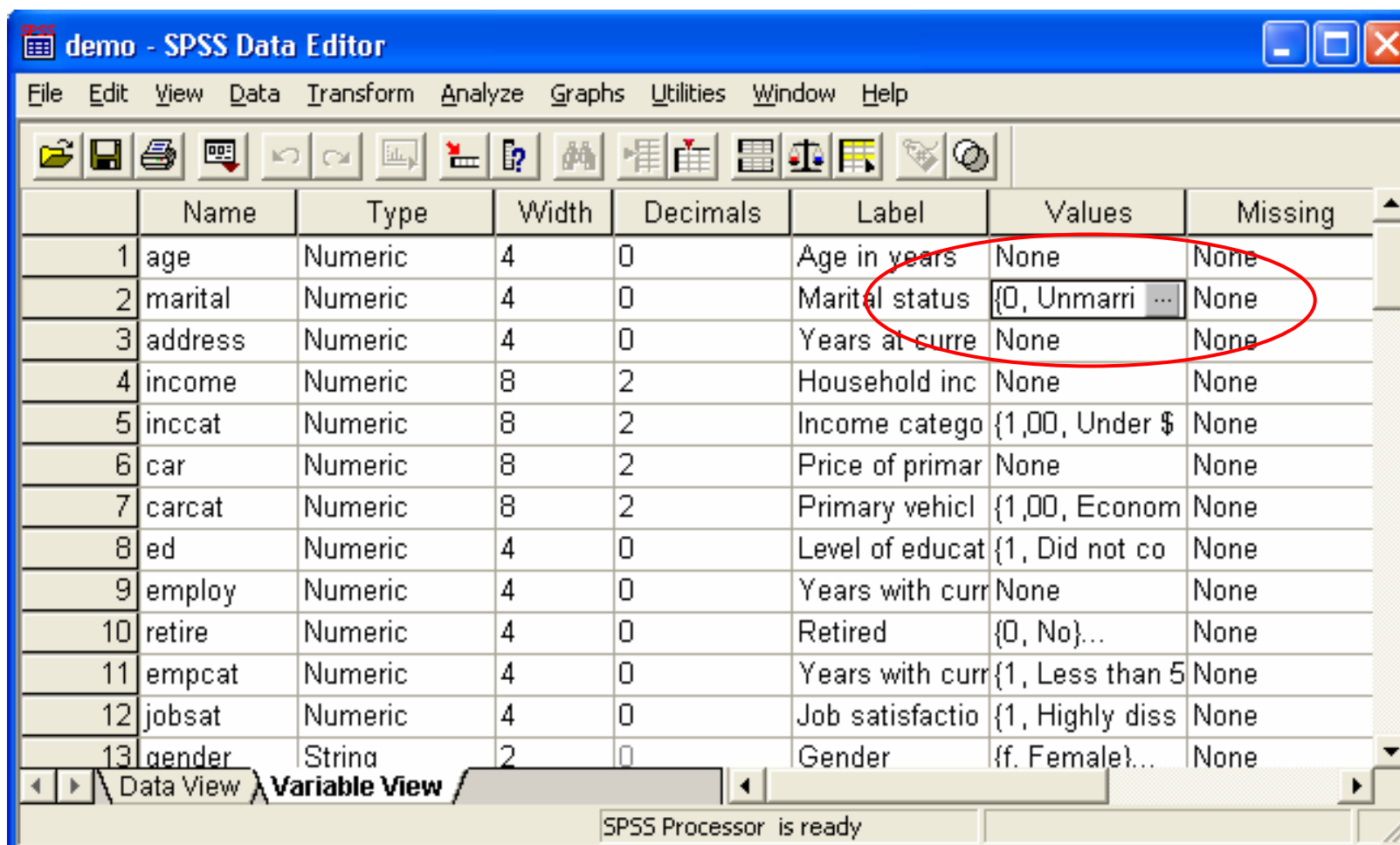


The screenshot shows the SPSS Data Editor window titled "demo - SPSS Data Editor". The "Variable View" tab is active, displaying a list of variables with their properties. A red box labeled "DESCRIPCION" points to the "Label" column.

	Name	Type	Width	Decimals	Label	Values	Missing
1	age	Numeric	4	0	Age in years	None	None
2	marital	Numeric	4	0	Marital status	{0, Unmarried}	None
3	address	Numeric	4	0	Years at curre	None	None
4	income	Numeric	8	2	Household inc	None	None
5	inccat	Numeric	8	2	Income catego	{1,00, Under \$	None
6	car	Numeric	8	2	Price of primar	None	None
7	carcat	Numeric	8	2	Primary vehicl	{1,00, Econom	None
8	ed	Numeric	4	0	Level of educat	{1, Did not co	None
9	employ	Numeric	4	0	Years with curr	None	None
10	retire	Numeric	4	0	Retired	{0, No}...	None
11	empcat	Numeric	4	0	Years with curr	{1, Less than 5	None
12	jobsat	Numeric	4	0	Job satisfactio	{1, Highly diss	None
13	gender	String	2	0	Gender	{f. Female}...	None

SPSS Processor is ready

Edición de las variables...



demo - SPSS Data Editor

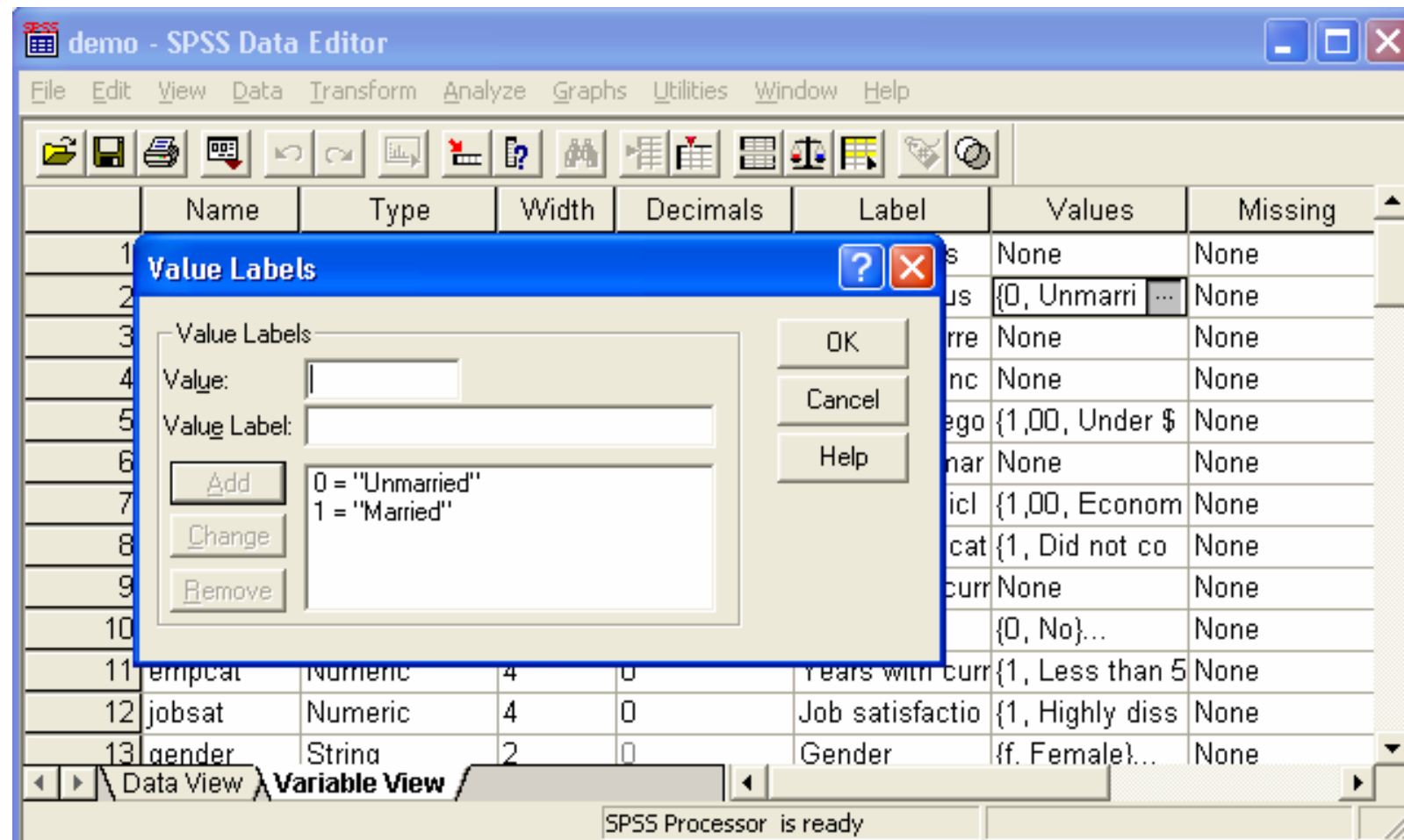
File Edit View Data Transform Analyze Graphs Utilities Window Help

	Name	Type	Width	Decimals	Label	Values	Missing
1	age	Numeric	4	0	Age in years	None	None
2	marital	Numeric	4	0	Marital status	{0, Unmarri ...	None
3	address	Numeric	4	0	Years at curre	None	None
4	income	Numeric	8	2	Household inc	None	None
5	inccat	Numeric	8	2	Income catego	{1,00, Under \$	None
6	car	Numeric	8	2	Price of primar	None	None
7	carcat	Numeric	8	2	Primary vehicl	{1,00, Econom	None
8	ed	Numeric	4	0	Level of educat	{1, Did not co	None
9	employ	Numeric	4	0	Years with curr	None	None
10	retire	Numeric	4	0	Retired	{0, No}...	None
11	empcat	Numeric	4	0	Years with curr	{1, Less than 5	None
12	jobsat	Numeric	4	0	Job satisfactio	{1, Highly diss	None
13	gender	String	2	0	Gender	{f. Female}...	None

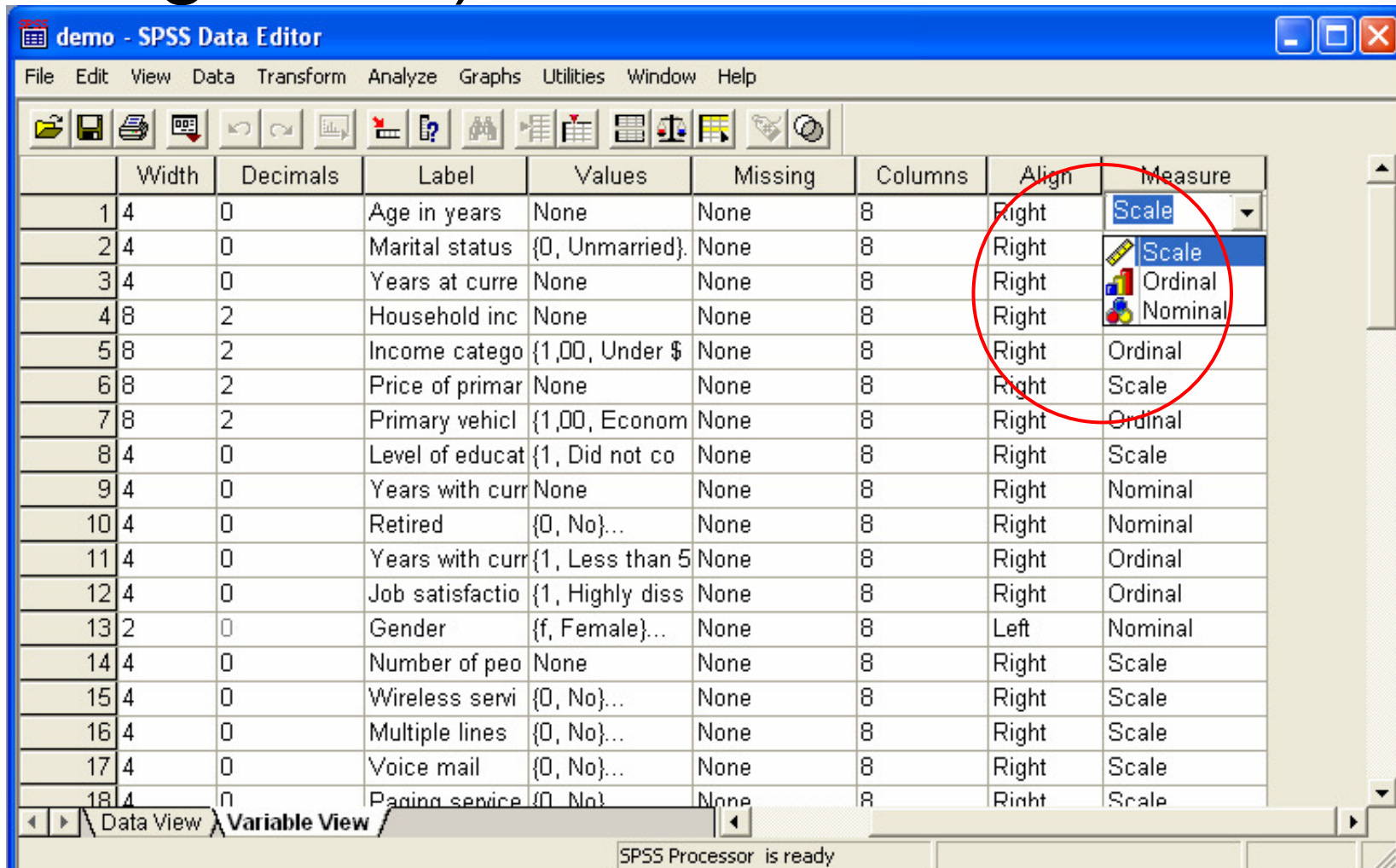
Data View Variable View

SPSS Processor is ready

Edición de las variables (categóricas)



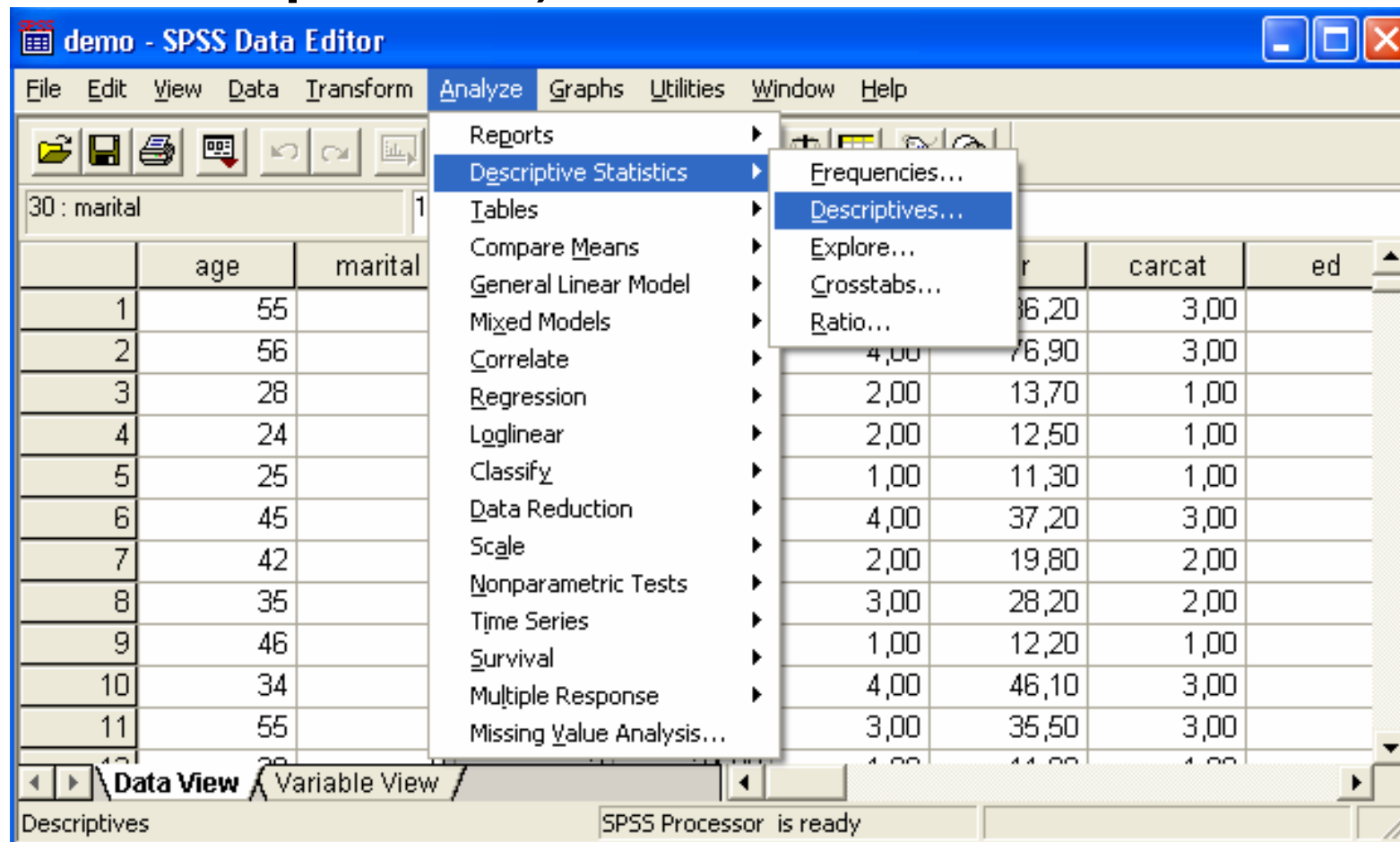
Edición de las variables (categóricas). Medida



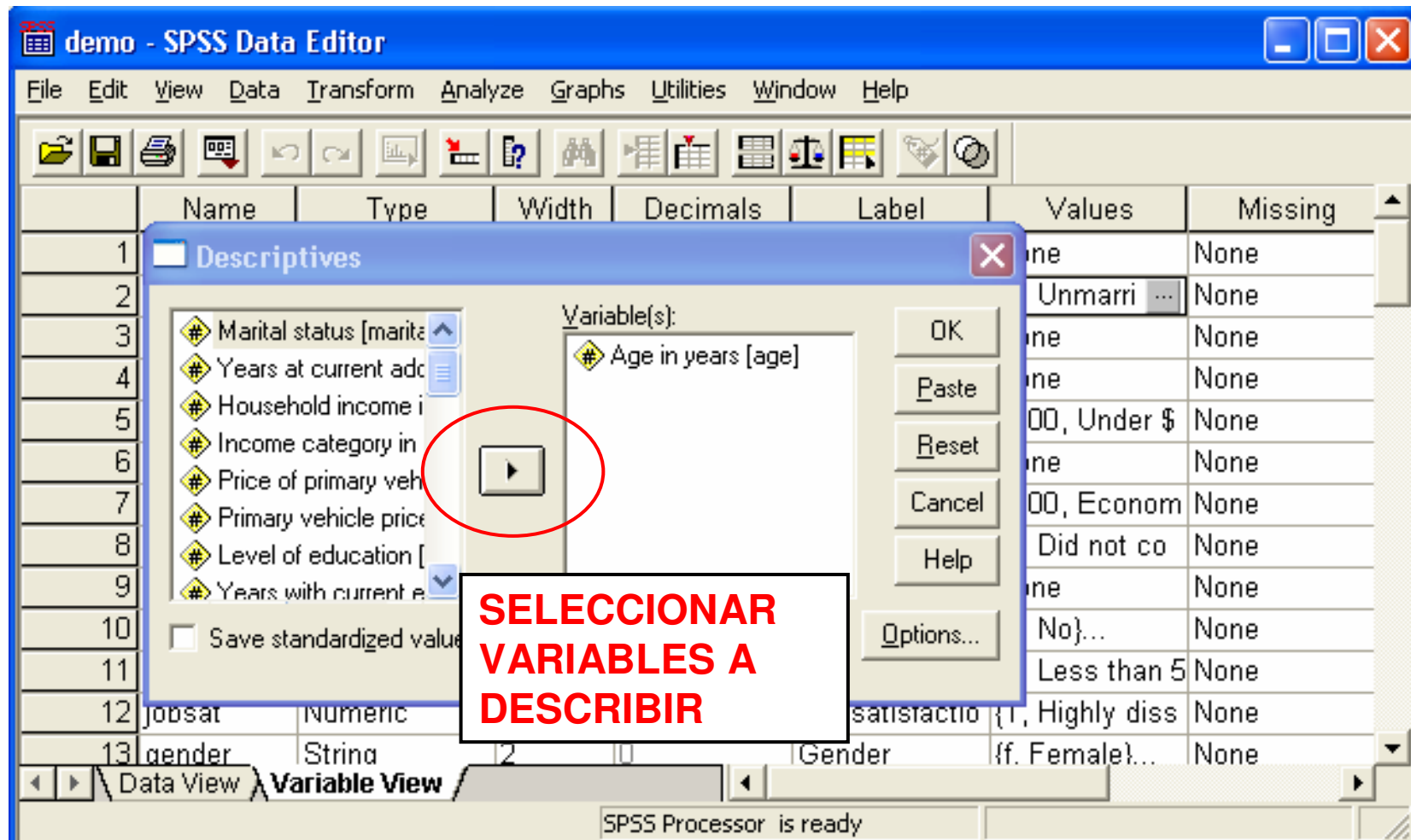
The screenshot shows the SPSS Data Editor window with the Variable View tab selected. The table below represents the data shown in the Variable View:

	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	4	0	Age in years	None	None	8	Right	Scale
2	4	0	Marital status	{0, Unmarried}	None	8	Right	Scale
3	4	0	Years at curre	None	None	8	Right	Ordinal
4	8	2	Household inc	None	None	8	Right	Nominal
5	8	2	Income catego	{1,00, Under \$	None	8	Right	Ordinal
6	8	2	Price of primar	None	None	8	Right	Scale
7	8	2	Primary vehicl	{1,00, Econom	None	8	Right	Ordinal
8	4	0	Level of educat	{1, Did not co	None	8	Right	Scale
9	4	0	Years with curr	None	None	8	Right	Nominal
10	4	0	Retired	{0, No}...	None	8	Right	Nominal
11	4	0	Years with curr	{1, Less than 5	None	8	Right	Ordinal
12	4	0	Job satisfactio	{1, Highly diss	None	8	Right	Ordinal
13	2	0	Gender	{f, Female}...	None	8	Left	Nominal
14	4	0	Number of peo	None	None	8	Right	Scale
15	4	0	Wireless servi	{0, No}...	None	8	Right	Scale
16	4	0	Multiple lines	{0, No}...	None	8	Right	Scale
17	4	0	Voice mail	{0, No}...	None	8	Right	Scale
18	4	0	Paging service	{0, No}	None	8	Right	Scale

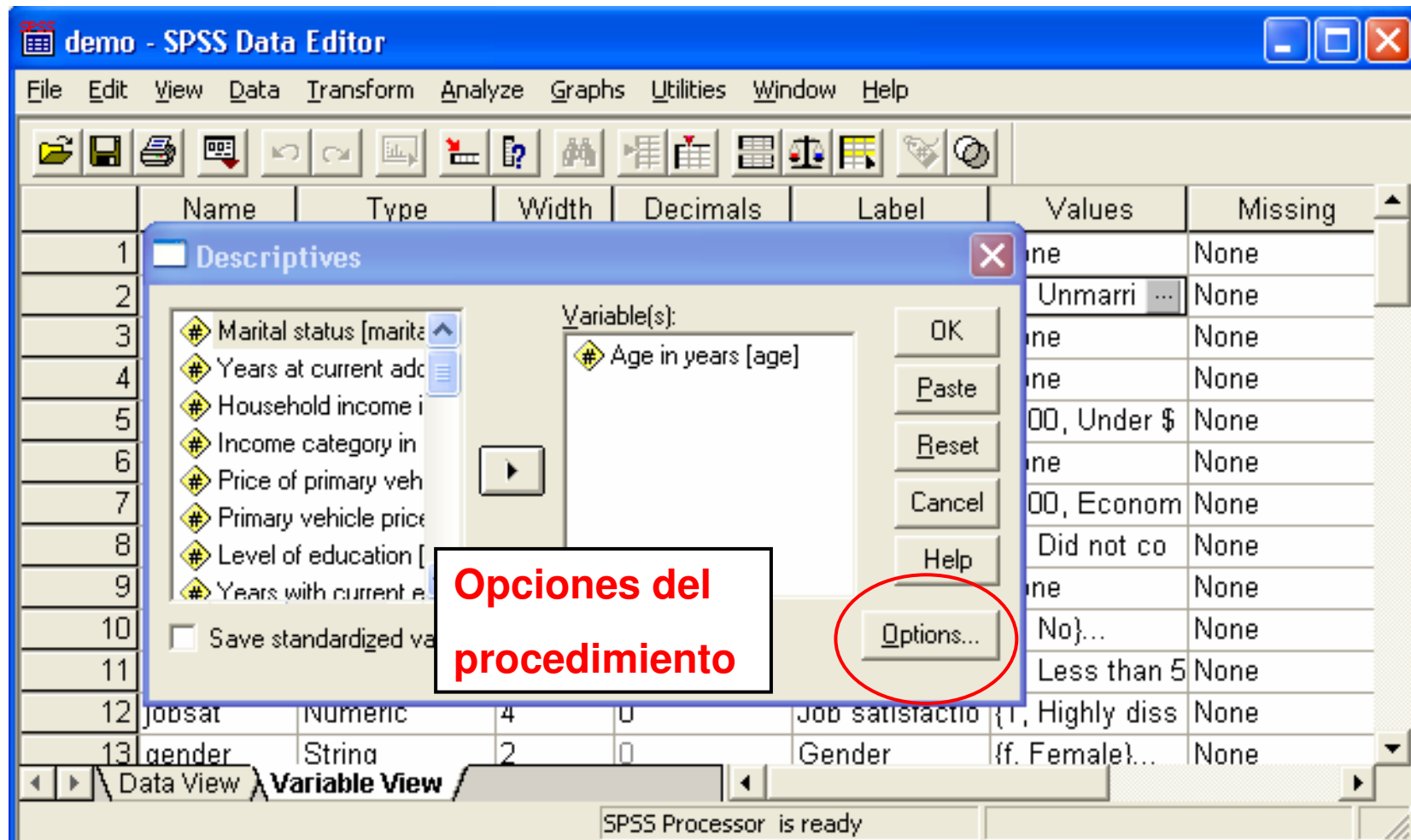
Análisis de datos (Ej: Estadísticos Descriptivos) - Resultados



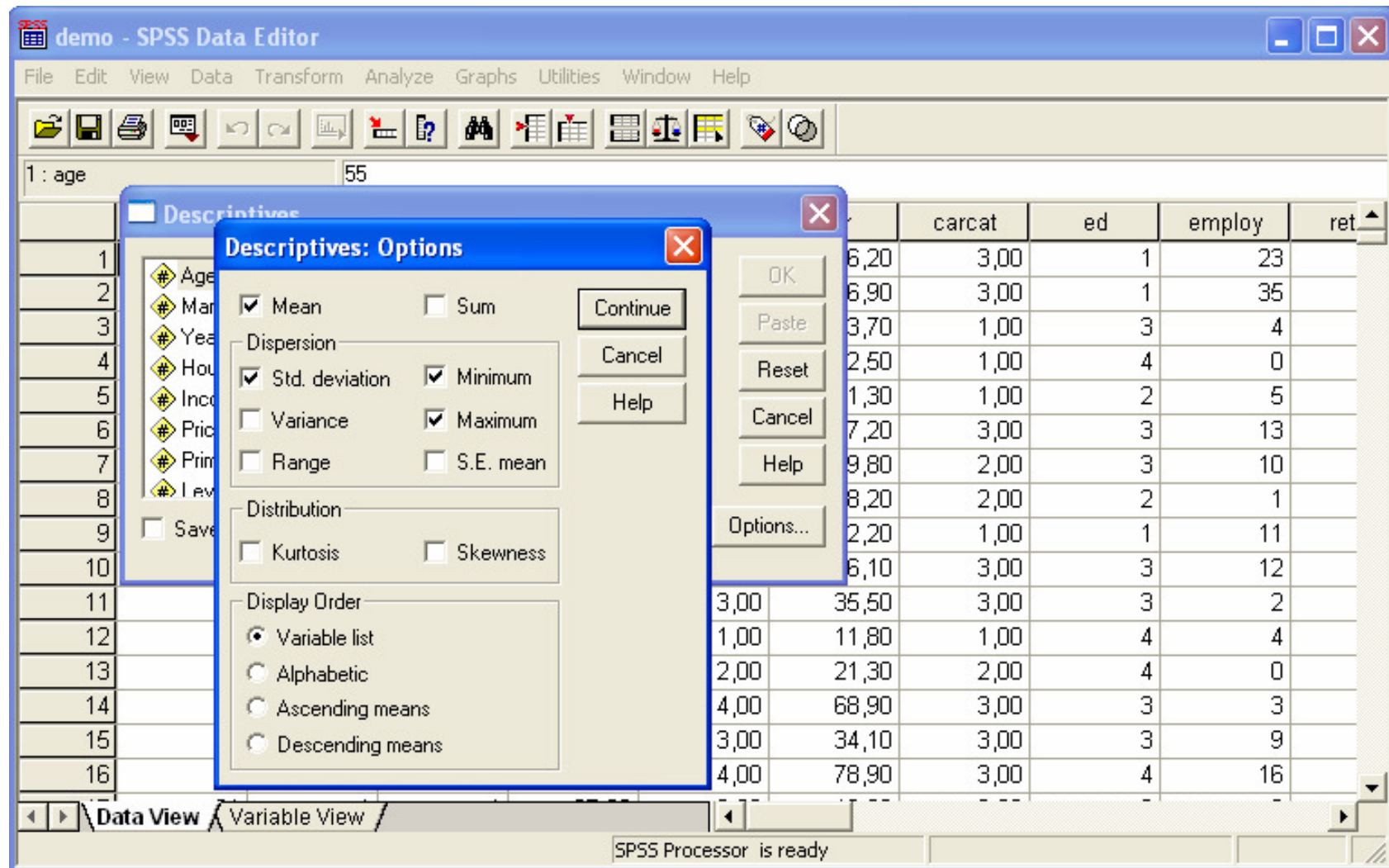
Análisis de datos (Ej: Estadísticos Descriptivos)



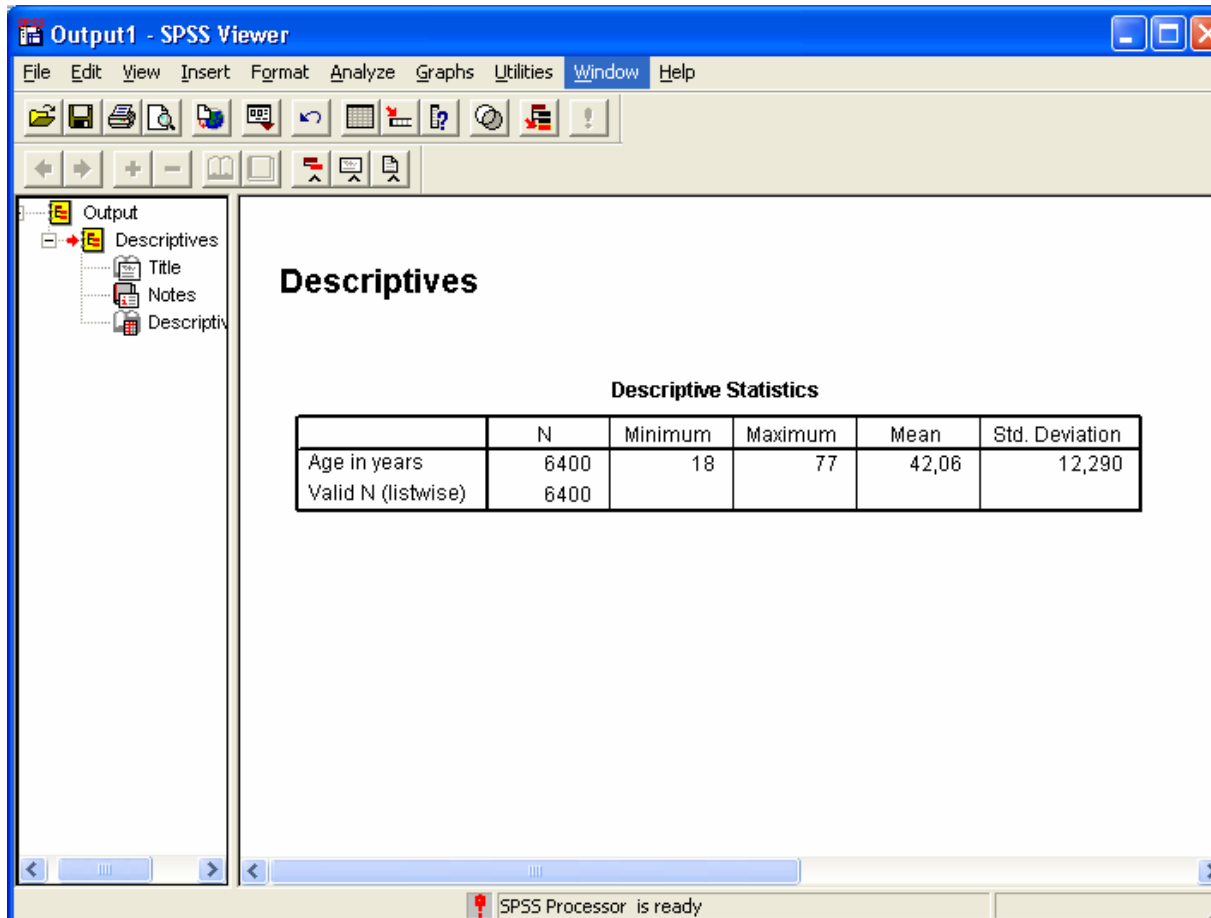
Análisis de datos (Ej: Estadísticos Descriptivos)



“Options”



Visualización de Resultados



The screenshot shows the SPSS Output1 - SPSS Viewer window. The left pane displays a tree view with 'Output' expanded, showing 'Descriptives', 'Title', 'Notes', and 'Descriptiv'. The main pane is titled 'Descriptives' and contains a table of Descriptive Statistics for 'Age in years'.

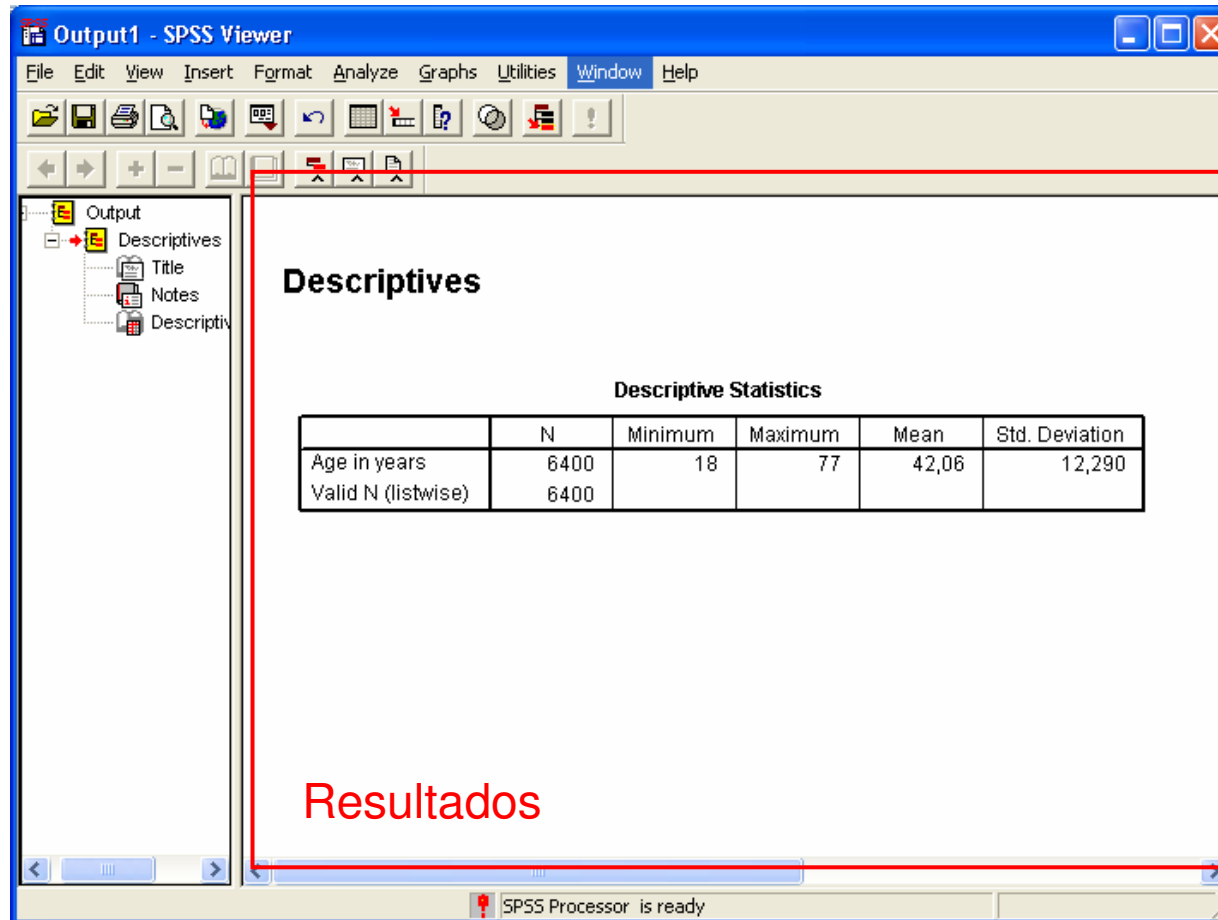
	N	Minimum	Maximum	Mean	Std. Deviation
Age in years	6400	18	77	42,06	12,290
Valid N (listwise)	6400				

Se crea automáticamente una nueva ventana llamada "Output"

¡Guardar constantemente!

Se puede agregar texto (útil para anotar las interpretaciones)

Visualización de Resultados



The screenshot shows the 'Output1 - SPSS Viewer' window. The left sidebar contains a tree view with 'Output' expanded, showing 'Descriptives', 'Title', 'Notes', and 'Descriptiv'. The main area displays the 'Descriptives' output, which includes a table of 'Descriptive Statistics' for 'Age in years'. A red rectangle highlights the main content area, and the word 'Resultados' is written in red at the bottom left of this area.

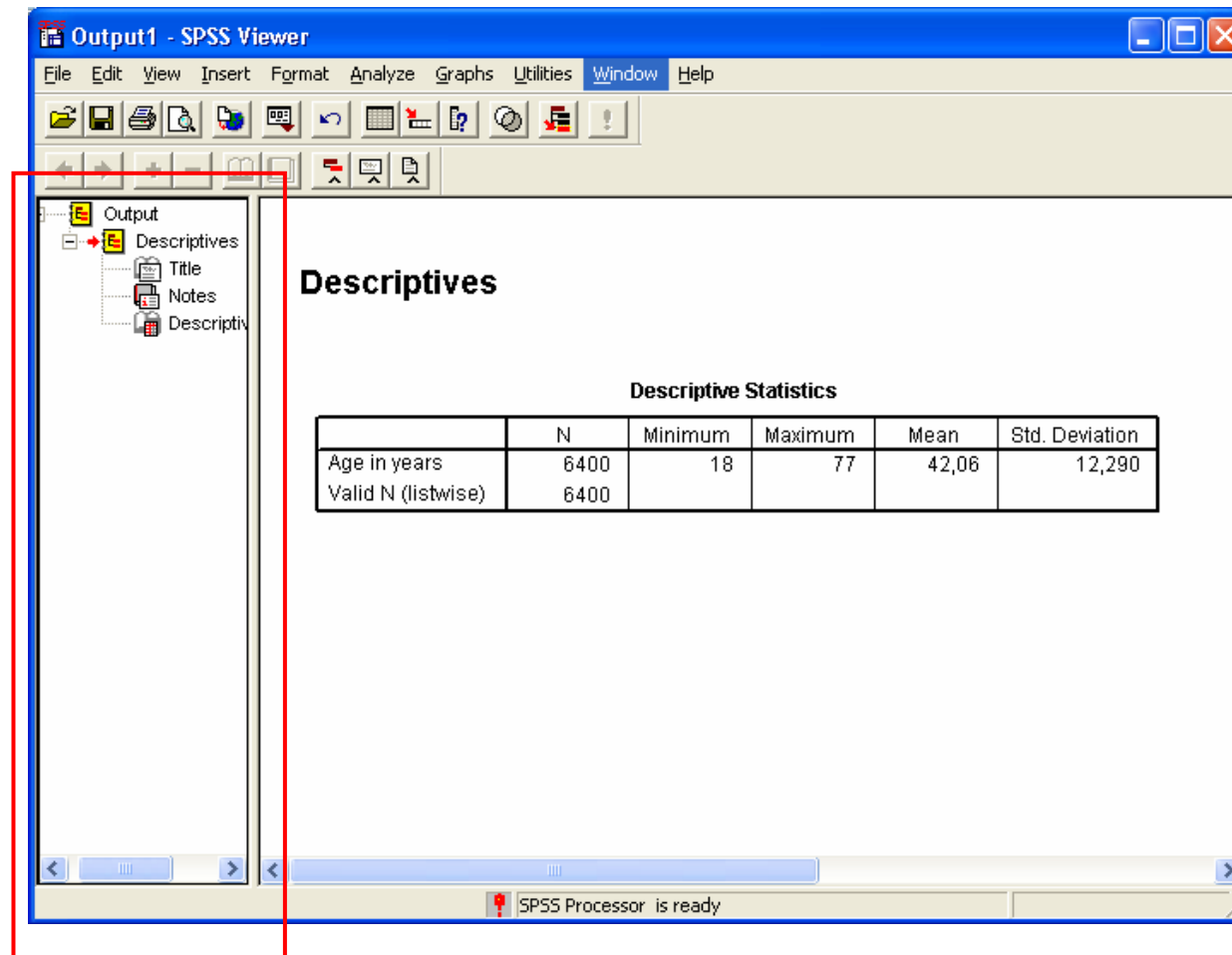
Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age in years	6400	18	77	42,06	12,290
Valid N (listwise)	6400				

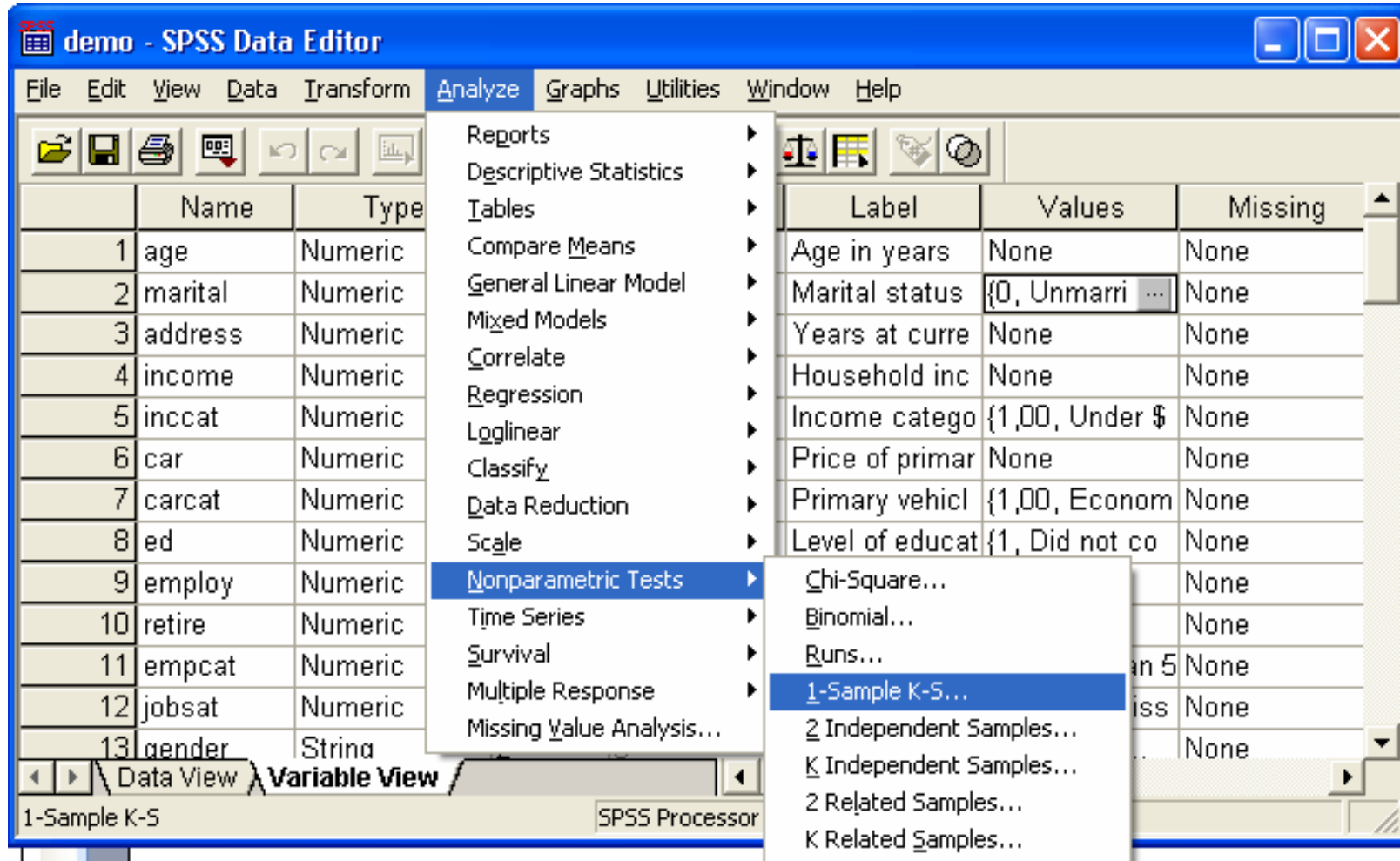
Resultados

Visualización de Resultados

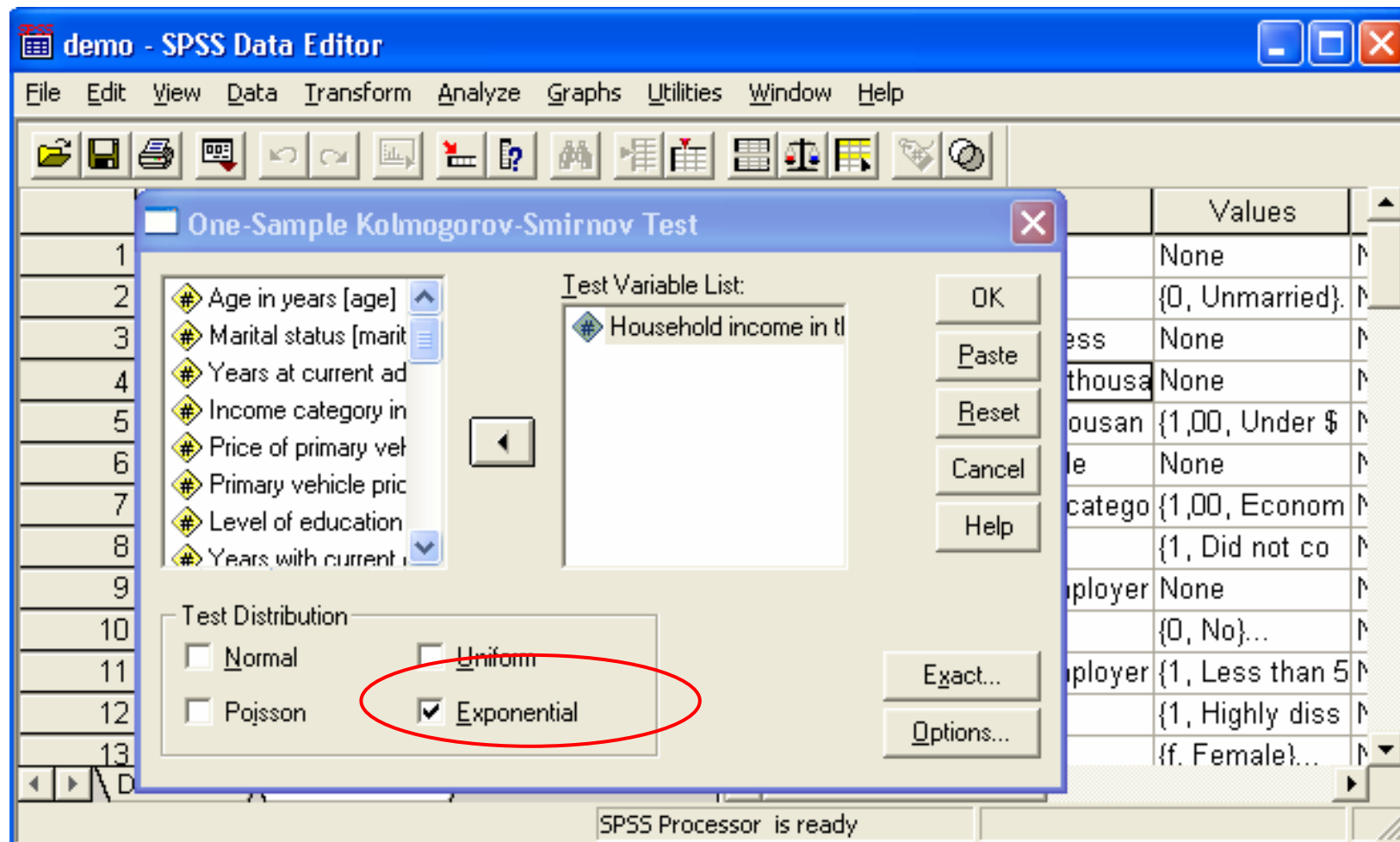


Mapa del "Output"

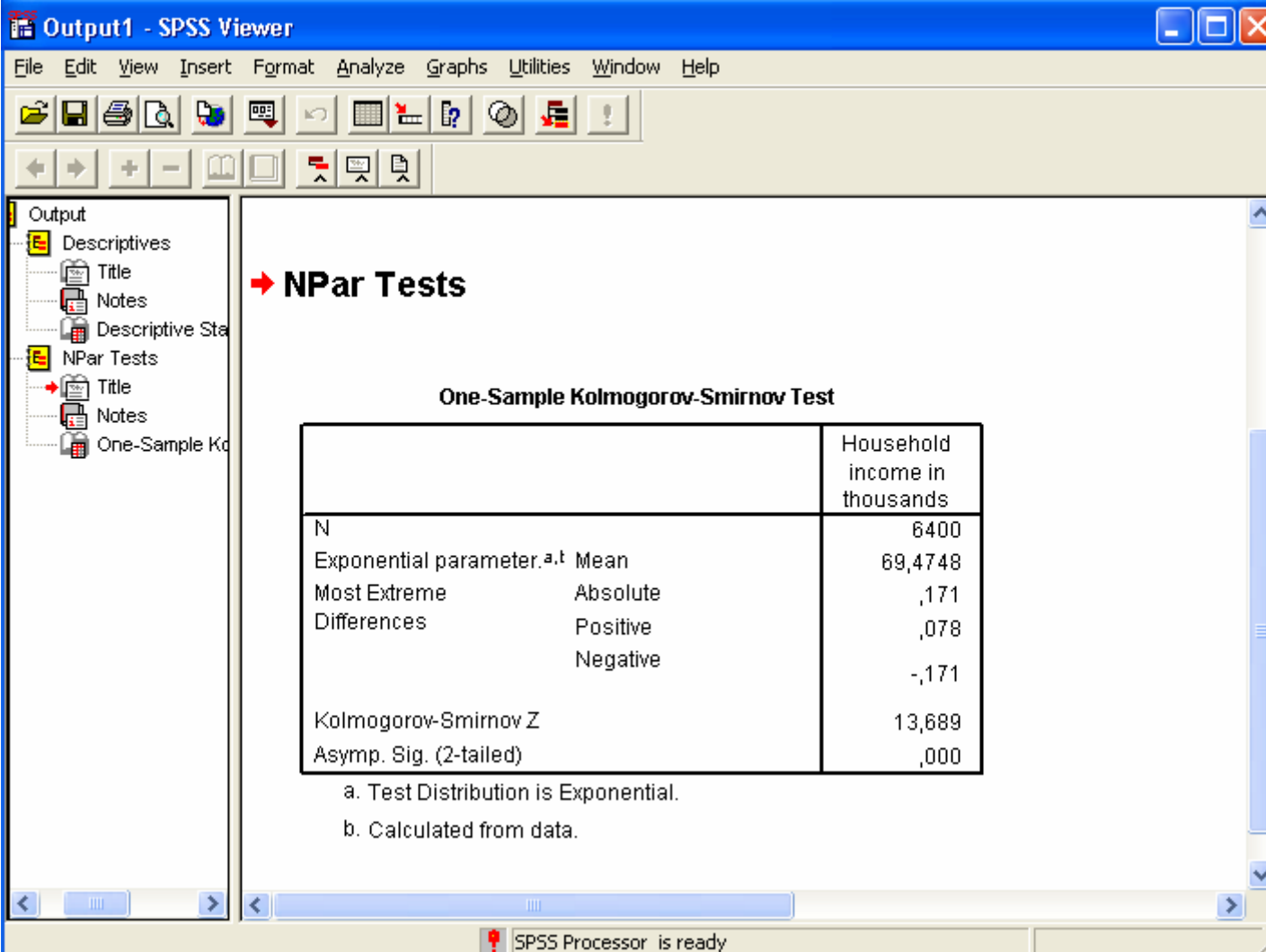
Otro Ejemplo: Test de Ajuste de K-S



K-S para testear que el ingreso se distribuye Exponencial



Kolmogorov - Smirnov



The screenshot shows the SPSS Output1 - SPSS Viewer window. The left pane displays a tree view of the output, with 'NPar Tests' selected. The main pane shows the results for the 'One-Sample Kolmogorov-Smirnov Test'.

→ **NPar Tests**

One-Sample Kolmogorov-Smirnov Test

		Household income in thousands
N		6400
Exponential parameter. ^{a, b} Mean		69,4748
Most Extreme	Absolute	,171
Differences	Positive	,078
	Negative	-,171
Kolmogorov-Smirnov Z		13,689
Asymp. Sig. (2-tailed)		,000

a. Test Distribution is Exponential.
b. Calculated from data.

SPSS Processor is ready

Resultados K-S

One-Sample Kolmogorov-Smirnov Test

PARAMETRO DE LA EXPONENCIAL AJUSTADA		Household income in thousands
N		6400
Exponential parameter. ^{a, b} Mean		69,4748
Most Extreme Differences	Absolute	,171
	Positive	,078
	Negative	-,171
Kolmogorov-Smirnov Z		13,689
Asymp. Sig. (2-tailed)		,000

a. Test Distribution is Exponential.

b. Calculated from data.

Resultados K-S

One-Sample Kolmogorov-Smirnov Test

		Household income in thousands
N		6400
		69,4748
		,171
Differences	Positive	,078
	Negative	-,171
Kolmogorov-Smirnov Z		13,689
Asymp. Sig. (2-tailed)		,000

**MAXIMAS DIFERENCIAS (+/-) DE LAS FDA
(Forman parte del estadígrafo de K-S)**

- a. Test Distribution is Exponential.
- b. Calculated from data.

Resultados K-S

One-Sample Kolmogorov-Smirnov Test

		Household income in thousands
N		6400
Exponential parameter. ^{a, b} Mean		69,4748
Most Extreme	Absolute	,171
Differences	Positive	,078
	Negative	-,171
Kolmogorov-Smirnov Z		13,689
Asymp. Sig. (2-tailed)		,000

ESTADÍSTICO DE K-S

a. Test Distribution is Exponential.

b. Calculated from data.

Resultados K-S

One-Sample Kolmogorov-Smirnov Test

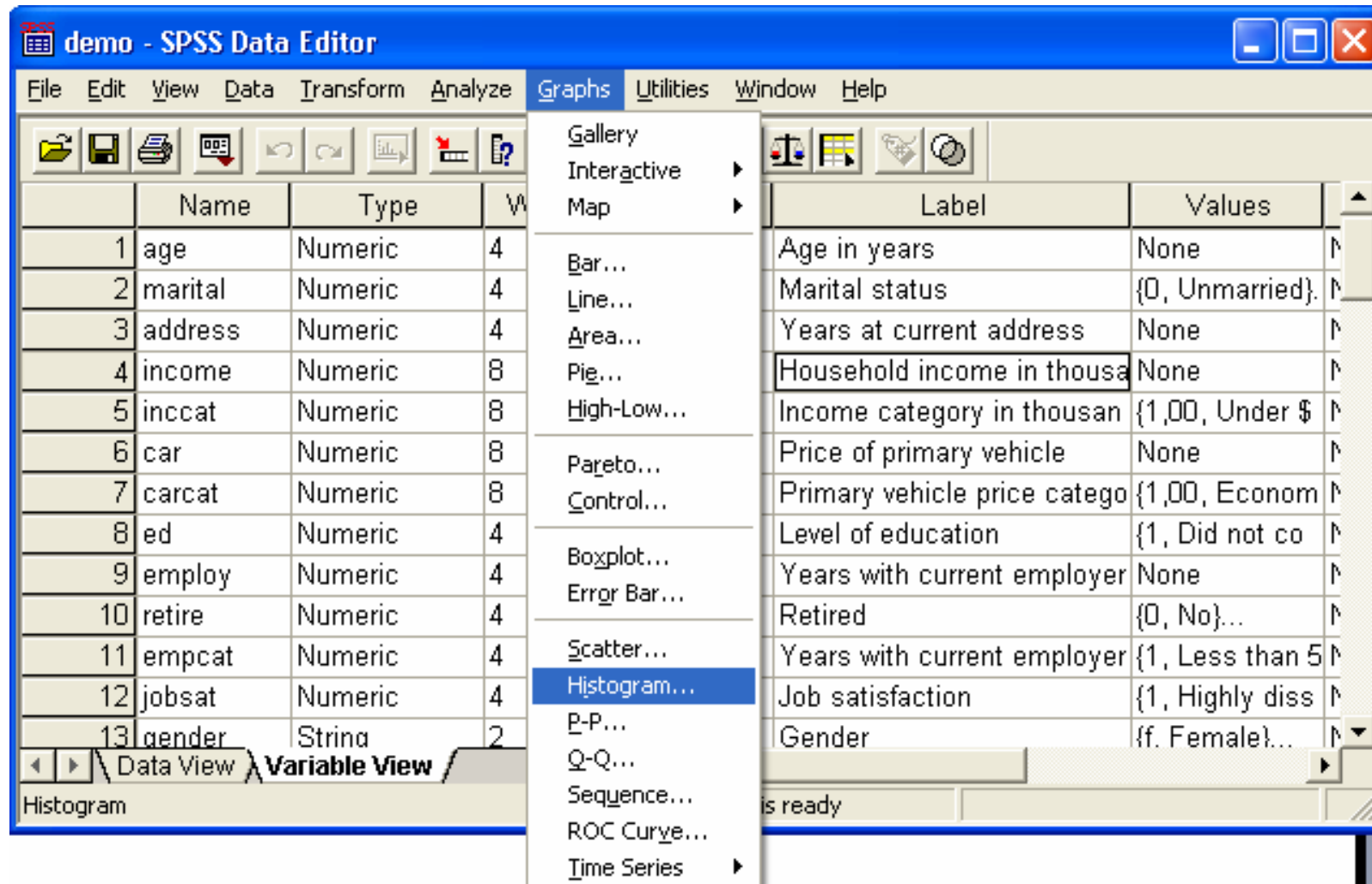
		Household income in thousands
N		6400
Exponential parameter. ^{a, b} Mean		69,4748
Most Extreme	Absolute	,171
Differences	Positive	,078
	Negative	-,171
Asymp. Sig. (2-tailed)		,000

P – Value (Probabilidad de Equivocarse al rechazar Ho: “La distribución es Exponencial”)

a. Test Distribution is Exponential.

b. Calculated from data.

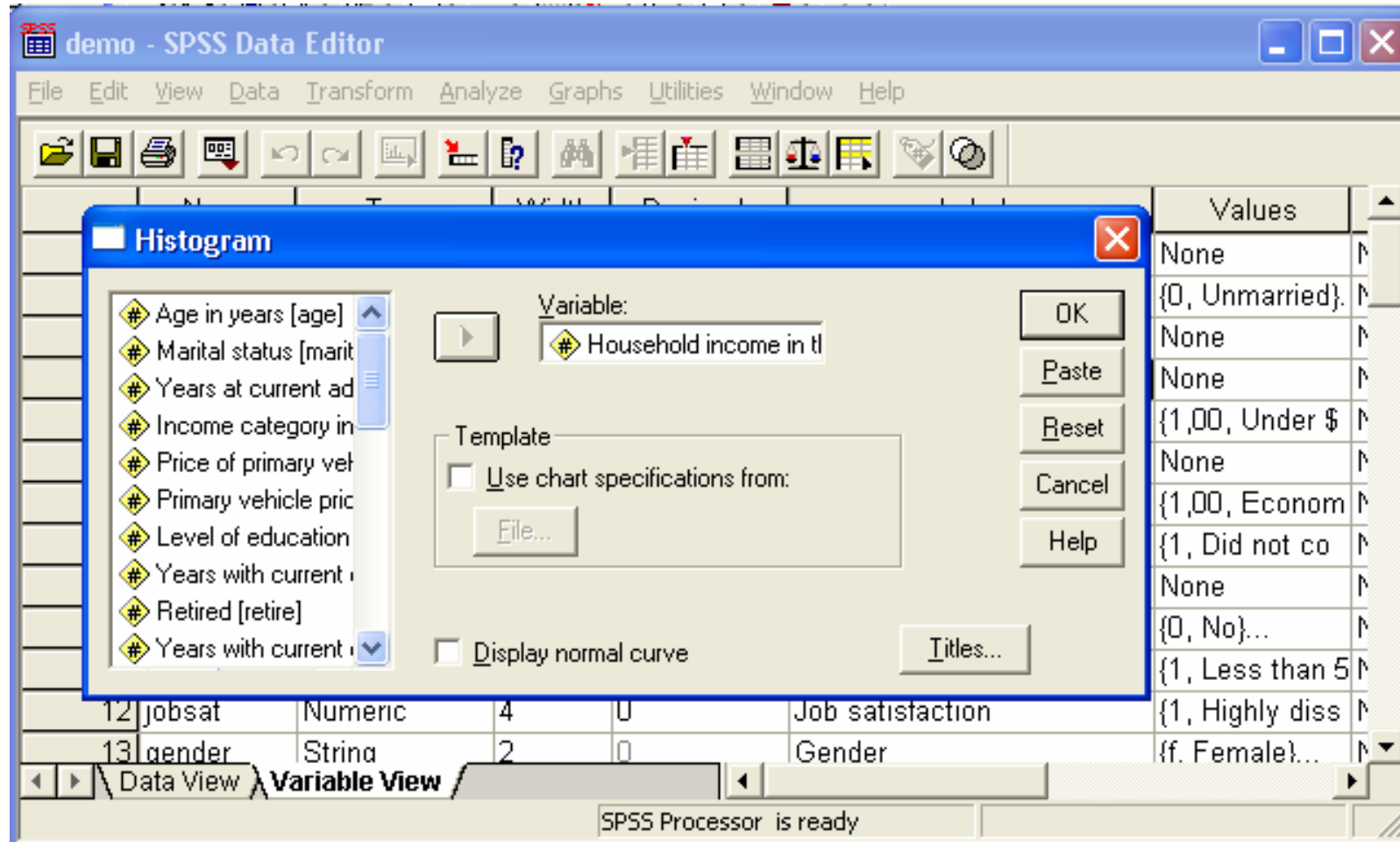
Gráficos (Ej: Histograma)



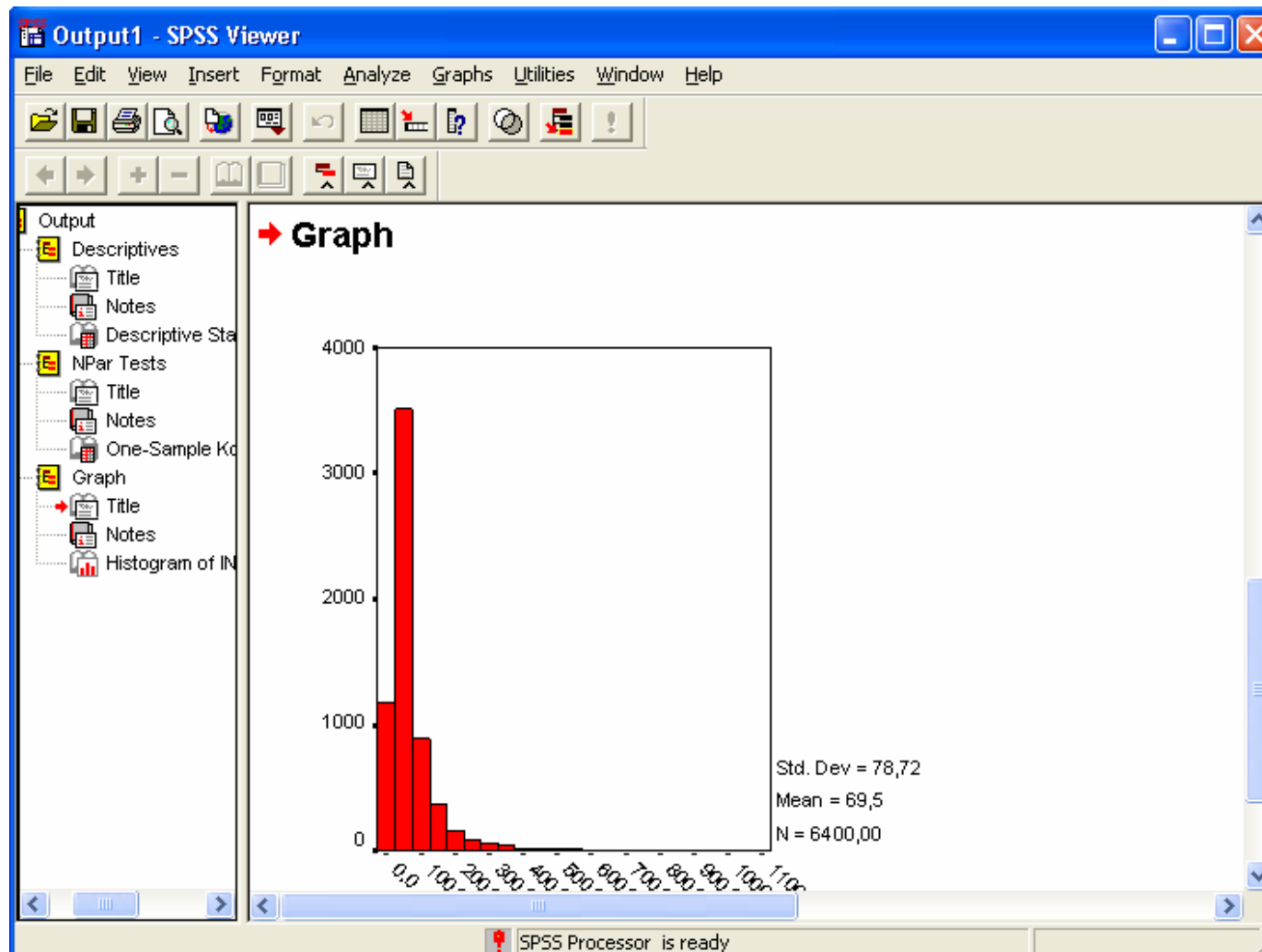
The screenshot shows the SPSS Data Editor window titled 'demo - SPSS Data Editor'. The 'Graphs' menu is open, and 'Histogram...' is selected. The 'Variable View' tab is active, showing a list of variables. The 'Label' and 'Values' columns are visible for each variable.

	Name	Type	Width	Label	Values
1	age	Numeric	4	Age in years	None
2	marital	Numeric	4	Marital status	{0, Unmarried}
3	address	Numeric	4	Years at current address	None
4	income	Numeric	8	Household income in thousand	None
5	inccat	Numeric	8	Income category in thousand	{1,00, Under \$
6	car	Numeric	8	Price of primary vehicle	None
7	carcat	Numeric	8	Primary vehicle price category	{1,00, Econom
8	ed	Numeric	4	Level of education	{1, Did not co
9	employ	Numeric	4	Years with current employer	None
10	retire	Numeric	4	Retired	{0, No}...
11	empcat	Numeric	4	Years with current employer	{1, Less than 5
12	jobsat	Numeric	4	Job satisfaction	{1, Highly diss
13	gender	String	2	Gender	{f. Female}...

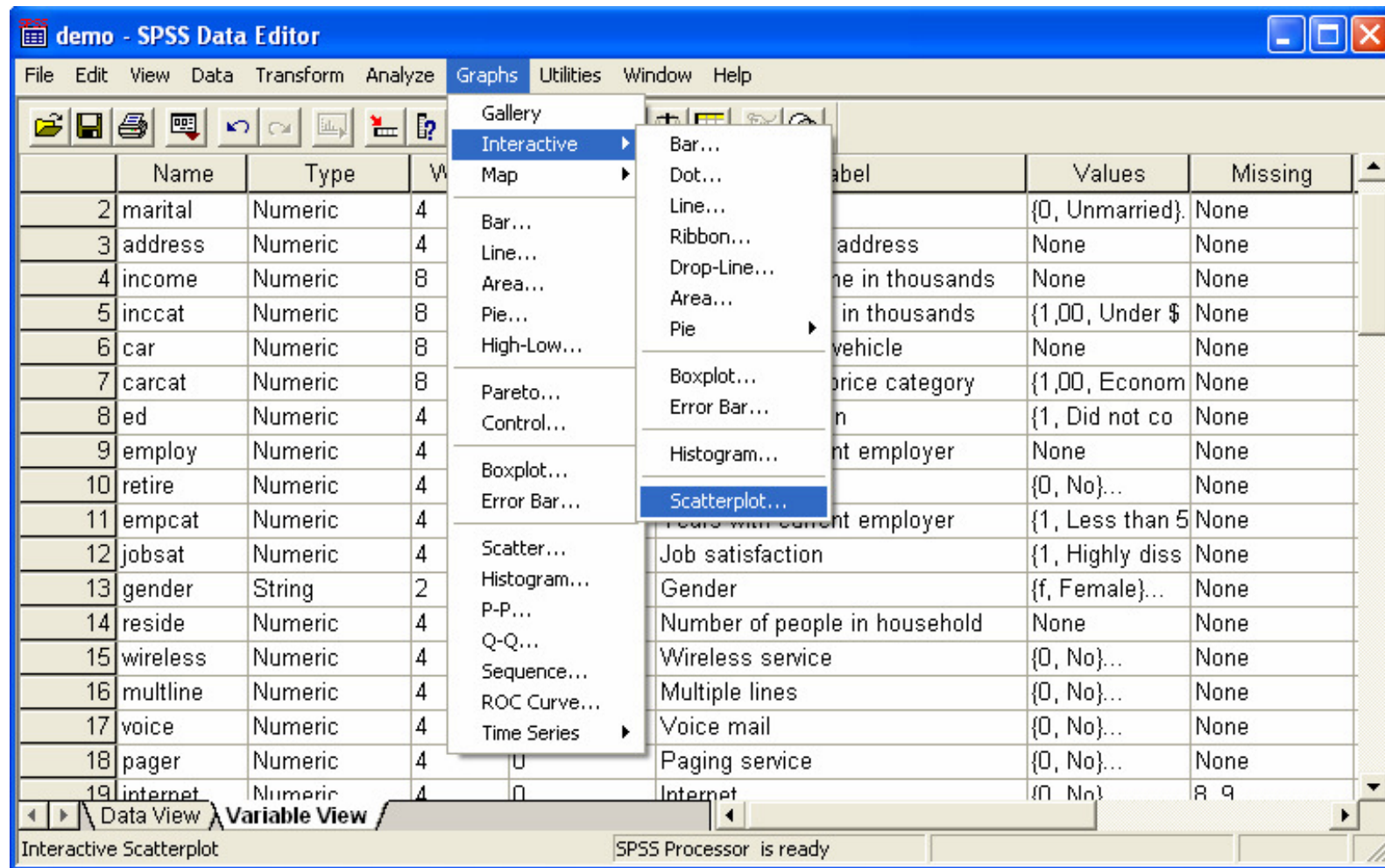
Gráficos (Ej: Histograma)



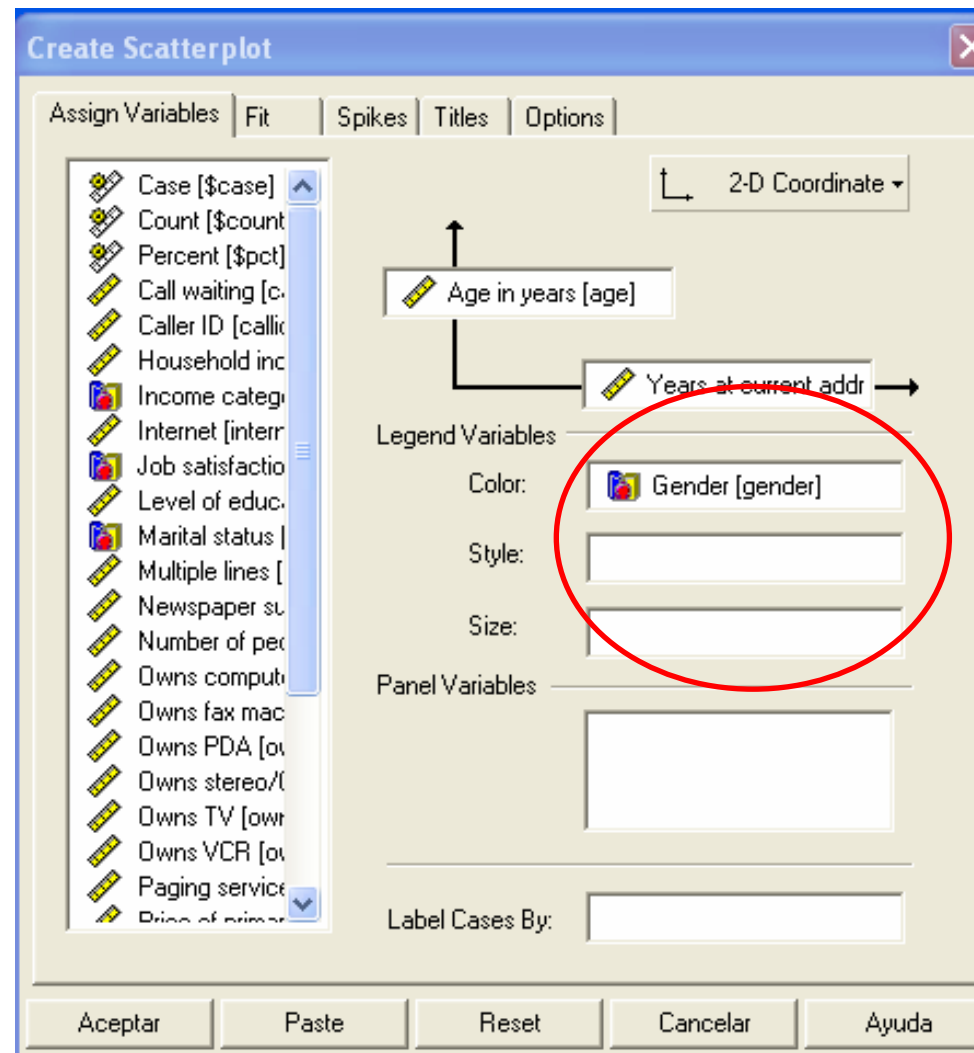
Gráficos (Ej: Histograma)



Gráficos (Ej: Dispersión)



Gráficos (Ej: Dispersión)



Identificar los puntos en función de alguna variable



Otras Funciones Útiles

- Variables estandarizadas (Media = 0 y Varianza = 1)
 - “Zvariable”, en ANALYSE > DESCRIPTIVE STAT > DESCRIPTIVES
- “Split File” (“Segmentar archivo”): DATA -> SPLIT FILE
 - Separar los resultados en función de alguna variable (categórica)
- Seleccionar datos (“Seleccionar casos”): DATA -> SELECT CASES
 - Utilizar sólo una parte de los datos
- Ponderar casos: DATA -> WEIGHT CASES
 - Darle distinto peso a cada una de las observaciones
- ¡Help! (Buenísimo)



Para la tarea 1

- Justificar el interés de hacer la investigación
- Verificar los supuestos necesarios para aplicar ANOVA
 - Homocedasticidad (por ej: Test de Levine)
 - Normalidad (KS)
- ¿Qué pasa si las hipótesis no se cumplen?
 - ¿En qué medida las conclusiones son válidas?
 - Test robustos a la heterocedasticidad: (Welch y Brown-Forsythe)
- En general:
 - Énfasis en los análisis de resultados y conclusiones
 - Cuidar formato, redacción y ortografía (¡para el resto de las tareas también!)