

/* Transform quantitative variables in classes
DECEMBER 2007

Programmers: Adrien FRANCAIS and Aurélien Vesin
Statistical Enginners

Albert Bonniot Institute
Team 11-Outcome of cancer and critical illnesses
UJF-INSERM U823
38706 LA TRONCHE CEDEX
FRANCE
04 76 54 94 00

MACRO VARIABLES

TABLE : work table which includes origin variable .

TABLEEND : table which contains the obtained variable

VAR : quantitative variable

NB : percentiles to define

 If you want separe variable by decile, you have to put : NB=10

 If you want separe variable by quartile, you have to put : NB=4

TYPE : type of variables created

 type=1 : several binary variables

 type=2 : only one variable defined in NB classes of percentiles

Before using this macro, you have to :

- Prepare your database with correct variables
- Compile the macro.
- Execute the macro :

Example to compute on your computer to directly and easily apply the macro:

```
data try;  
input age ;  
cards;  
74  
35  
89  
47  
87  
96  
75  
101  
41  
42  
71  
75  
59  
54
```

```
79
37
81
44
84
94
77
99
40
44
.
72
73
24
;
run;
```

```
%quanti_in_classes(table=try,tableend=sortie,var=age,nb=4,type=2);
```

You can see LOG screen for information of algorithm.

If you use this macro for work to be published please use the following citation:

Francais Adrien and Aurélien Vesin
Transform quantitative variables in classes
*/

```
%macro quanti_in_classes(table=,tableend=,var=,nb=,type=);
%let error=0;
/*some errors messages*/
%if &table = %then %do;
    %put %upcase("ERROR: You didn't give the table name : Please enter a correct table
name");
    %let error=1;
%end;
%if &tableend = %then %do;
    %put %upcase("ERROR: You didn't give the name of table which contains the
variables obtained : Please enter a correct table name");
    %let error=1;
%end;
%if &var = %then %do;
    %put %upcase("ERROR: You didn't give the quantitative variable to transform :
Please enter a correct quantitative variable");
    %let error=1;
%end;
%if &nb = %then %do;
    %put %upcase("ERROR: You didn't give the number of classes to transform variables
: Please enter a correct number between 1 and 20");
    %let error=1;
```

```

%end;
%if &type ne 1 and &type ne 2 %then %do;
    %put %upcase("ERROR: You didn't give a correct type of variable to obtain : Please
enter 'type=1' for several binary variables or 'type=2' for variable in classes");
    %let error=1;
%end;

```

```

%if &error = 1 %then %do;
    %put "PLEASE CORRECT ERROR(S) DETAILED ABOVE";
%end;

```

```

/*if there is no error then we start the macro*/
%if &error ne 1 %then %do;

```

```

    /*we calculate the threshold from the number of classes*/
    %let threshold=%eval(100/&nb);
    /*we obtain quartiles for the variable to transform*/
    %put %upcase("we obtain quartiles for the variable to transform");
    proc univariate data=&table noprint; var &var;
    output out=percentile pctlpre=P_ pctlpts=0 to 100 by &threshold;
    run;

```

```

    /*we create binary variables*/
    %if &type=1 %then %do;
        %put %upcase("we create binary variables");
        data percentile;set percentile;merge=1;run;
        data temp;set &table;merge=1;run;
        data percentile;merge temp percentile;by merge;run;
        %do i=0 %to 100 %by &threshold;
            data percentile;set percentile;
            if &var>p_&i then &var._sup_&i=1;else if &var ne . then
&var._sup_&i=0;
            run;
        %end;

```

```

        data &tableend;set percentile;
        %do i=0 %to 100 %by &threshold;
            drop p_&i merge;
        %end;
        run;
        title 'Delete tables';
        proc datasets ;delete percentile ;run;
        %put %upcase ("The final table &tableend is printed in the Results section");
    %end;

```

```

    /*we create variable in classes*/
    %if &type=2 %then %do;
        %put %upcase("we create only one variable in classes");
        data percentile2;set percentile;

```

```

%let i=-1;%let pct=0;
/*we recover each value of percentile like a global variable*/
%put %upcase ("we recover each value of percentile like a global variable");
%do %while(&i<&nb);
    %let i = %eval(&i+1);
    call symput("Q_&i",P_&pct);
    %let pct = %eval(&pct+&threshold);
%end;
run;

data &tableend;set &table;
%let j=0;%let k=-1;
/*We create the new variable by testing 2 percentiles*/
%put %upcase ("We create the new variable by testing 2 percentiles");
%do %while(&j<&nb);
    %let j = %eval(&j+1);%let k = %eval(&k+1);
    %let inf=&Q_&k; %let sup=&Q_&j;
    if &inf<=&var<&sup then &var.class=&j;
%end;
/*if the variable is the maximum of the distribution*/
%let last=%eval(&Q_&nb);
if &var=&last then &var.class=&nb;
run;

title 'Delete tables';
proc datasets ;delete percentile percentile2;run;
%put %upcase ("The final table '&tableend' is printed in the Results section");
%end;
%end;
%mend;

```