Including All Variables in the Original Data Set If There Are Empty Fields

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ABSTRACT
Have you ever checked the number of observations in a data set prior to PROC REPORT step? If it is zero, you will output shell listings/tables with text indication “No observations” per shell listings/tables requests. This paper will describe a simple, straightforward way to return the number of observations in a data set or an empty data set with the words “No observations” in the specified variable using PROC SQL, and a small MACRO. The text “No observations” will appear for each display, rather than having empty outputs for the display after using PROC REPORT.

THE SETUP
You will need a few things to get this set up.

(1) Macro variable to determine the number of observations in each datafile.
(2) PROC SQL to insert the temporary variable with the text “No observations” into original data set.

THE PROC SQL
This PROC SQL procedure insert temporary variable TEMP_VAR into original data set &_DSN_.

```sql
proc sql noprint;
   alter table &_dsn_
      add temp_var char(20);
   insert into &_dsn_
      set temp_var = "No observations" ;
   select * from &_dsn_
run;
```

ALTER TABLE statement adds columns to, drop columns from, and changes column attributes in an existing table. INSERT statement add raw to new or existing table. The INSERT statement uses the SET clause, which specifies or alter the values of a column.

THE MACRO
This macro should be located in a central place such as project macro area.

```macro
%MACRO num_obs(_dsn_, temp_var) ;
   %GLOBAL _numobs_ ;
   DATA _NULL_
      IF 0 THEN SET &dsn_ NOBS=how_many ;
      CALL SYMPUT("_numobs_", LEFT(PUT(how_many,10.))) ;
      STOP ;
   RUN ;
   %IF %EVAL(&_numobs_) EQ 0 %THEN %DO ;
      proc sql noprint;
         alter table &dsn_
            add temp_var char(20);
         insert into &dsn_
            set temp_var = "No observations" ;
            select * from &dsn_
run;
   %END ;
%END num_obs;
```
This macro takes the macro variables _dsn_, temp_var and _numobs:

- _dsn_ - Data set to check for the number of observations before PROC REPORT step
- temp_var - The data set variable to add the indicator for words “No observations”
- _numobs_ - Macro variable with the number of observations in original data set

THE MACRO CALL STATEMENTS
Prior to the PROC REPORT, call this macro as example:

```sas
%num_obs (final, site);
```

THE RESULT
This program would result in 2 kinds of display after you using PROC REPORT:

1. If original data set has observations, the PROC REPORT will output the variables and observations into output display as shell listings/tables specified.
2. If zero observation is indicated in original data set, the PROC REPORT will output the variables and one observation with value “No observations” into output display as shell listings/tables specified.

QUESTIONS
How many of you have been used PROC SQL to creat SAS data sets and data views, macro variables, data listings? PROC SQL is a powerful tool in the SAS system.

CONCLUSION
This is a simple way to check number of observations in a data set prior to PROC REPORT step, and if zero (0), will output shell listings/tables with text indicating “No Observations”. The advantages are

1. The macro call can be used for any listing, table programming.
2. You only need to use data set name and the variable name which will display words “No observations” in the macro call before PROC REPORT.

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