

Why Use PROC TABULATE?

Example without Using PROC TABULATE 4

Example with Using PROC TABULATE 4

SAS software provides hundreds of ways for you to analyze your data. You can use the DATA step to slice and dice your data, and there are dozens of procedures that will process your data and produce all kinds of statistics. But odds are that no matter how you organize and analyze your data, you'll end up producing a report in the form of a table.

Whether your reports are for an article in a scientific journal, a market analysis for a client, or an internal report for your boss, what you need is a concise table with all of the pertinent results in one place.

This is why every SAS user needs to know how to use PROC TABULATE. While the TABULATE procedure doesn't do anything that you can't do with other procedures, the payoff is in the output. PROC TABULATE computes a variety of statistics, and it neatly packages the results in a single table.

Instead of running two or three procedures and then having to either turn in your results as a big stack of output or retype the results into a table, you can use PROC TABULATE to create a single piece of output that's ready for delivery.

To illustrate the similarities and differences between PROC TABULATE and other SAS procedures, the following example takes the same analysis and produces the results, first using PROC MEANS and then using PROC TABULATE.

Example without Using PROC TABULATE

Here's the situation: your boss wants to know the average age, income, and education of your customers, overall and by gender. "No problem," you say, "SAS software can do that easily."

To get the overall means, you use the following code:

```
PROC MEANS;  
  VAR AGE INCOME EDUC;  
RUN;
```

This produces Output 1.1. The column under the heading MEAN has your desired results. But wait a minute, didn't your boss also want the results broken down by gender? Now you have to add another procedure to your program. To get the breakdown by gender, you repeat the same PROC MEANS, adding a BY statement:

```
PROC MEANS;  
  BY GENDER;  
  VAR AGE INCOME EDUC;  
RUN;
```

This produces Output 1.2. Your additional results are shown in two columns, one under GENDER=Female and one under GENDER=Male. So now you've got everything your boss wants. The only problem is that it is scattered across three different places in two separate pieces of output.

You can retype the data into a table in your word processor, but that takes time and may introduce errors. Or, you can give your boss the pages of output with the relevant results circled — not a very professional solution. Or, you can turn to a different procedure that's more suited to the task: PROC TABULATE.

Example Using PROC TABULATE

To produce exactly what your boss wants, use the following code:

```
PROC TABULATE;  
  CLASS GENDER;  
  VAR AGE INCOME EDUC;  
  TABLE (AGE INCOME EDUC)*MEAN, GENDER ALL;  
RUN;
```

This generates Output 1.3. It has all of the numbers your boss wants in a single table and is ready for delivery.

Okay, so if PROC TABULATE is so great, why doesn't everybody use it? The answer is that many users find PROC TABULATE hard to learn. The syntax is not as intuitive as some other SAS procedures. The goal of this book is to debunk the myth that PROC TABULATE is impossible to learn. The following chapters walk you through the process of building PROC TABULATE tables step by step, with plenty of examples. Then when you're ready to build your own tables, all you need to do is copy one of the examples and modify it to suit your needs.

Output 1.1

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
AGE	Age	6639	48.614	16.598	25.000	90.000
INCOME	Income	6639	25065.797	23850.488	0.000	263253.000
EDUC	Education	6639	13.040	2.953	4.000	19.000

Output 1.2

GENDER=Female

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
AGE	Age	3559	49.528	17.158	25.000	90.000
INCOME	Income	3559	17780.087	17070.596	0.000	263253.000
EDUC	Education	3559	12.932	2.899	4.000	19.000

GENDER=Male

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
AGE	Age	3080	47.558	15.864	25.000	90.000
INCOME	Income	3080	33484.577	27520.481	0.000	251998.000
EDUC	Education	3080	13.165	3.011	4.000	19.000

Output 1.3

		GENDER		
		Female	Male	ALL
Age	MEAN	49.53	47.56	48.61
Income	MEAN	17780.09	33484.58	25065.80
Education	MEAN	12.93	13.17	13.04

