TEST Statement (*REG procedure*)

```
< label: > TEST equation < , ... , equation > < / options > ;
```

The TEST statement tests hypotheses about the parameters estimated in the preceding MODEL statement. Each equation specifies a linear hypothesis to be tested. The equations in the hypothesis are separated by commas.

Variable names must correspond to regressors, and each variable name represents the coefficient of the corresponding variable in the model. An optional label is useful to identify each test with a name. The keyword INTERCEPT can be used instead of a variable name to refer to the model's intercept.

The REG procedure performs an $F$ test for the joint hypotheses specified in a single TEST statement. More than one TEST statement can accompany a MODEL statement. The denominator is the usual quadratic form of the estimates; the mean squared error (MSE). If hypotheses can be represented by $L\beta = c$, then the numerator of the $F$ test is $Q = (Lb - c)' (L(XX)L')^{-1} (Lb - c)$ divided by degrees of freedom (rows of $L$), where $b$ is the estimate of $\beta$. i.e.

\[
F^* = \frac{(Lb - c)'(L(X'X) - L')^{-1}(Lb - c)}{\text{MSE}}
\]

For example:

```
model y=a1 a2 b1 b2;
aplus: test a1+a2=1;
b1: test b1=0, b2=0;
b2: test b1, b2;
```

The last two statements are equivalent; since no constant is specified, zero is assumed. One option can be specified in the TEST statement after a slash (/):

**PRINT:**

- Displays intermediate calculations. This includes $L(XX)L'$ bordered by $Lb - c$, and $(L(XX)L')^{-1}$ bordered by $(L(XX)L')^{-1}(Lb - c)$.

Revised from SAS on-line documentation