

Re: how to determine the variance of dependant variable when all the var. of ind. variables r known in a linear relation

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- *From:* Bruce Weaver <bweaver@xxxxxxxxxxxxx>
 - *Date:* Thu, 16 Nov 2006 18:06:20 -0500
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Old Mac User wrote:

Greg...

I think it would be nice if you would give this person the answer without asking him/her to dig further into $\text{VAR}(y) = E\{ (y - E\{y\})^2 \}$

IMHO, when a person comes to this board with a reasonable question... expresses that question in "plain English"... then we should provide a direct and practical answer without asking them to "learn all about statistics".

Tutoring students who are attending courses for credit is one thing. Helping someone with a simple question is another. As a consultant I'm expected to "answer questions", not drive my clients to dig into matters of little or no concern to them.

Full Disclosure: I'm a chemical engineer and also a statistician.

Something like...

$$\text{Var}(y) = (a^2) * \text{Var}(X1) + (b^2) * \text{Var}(X2)$$

assuming that a, b, and c are constants which are not subject to random variation
and assuming that the errors in X1 and X2 are not correlated with each other.

OMU

And if they are correlated, I believe it would be:

$$\text{Var}(y) = (a^2) * \text{Var}(X1) + (b^2) * \text{Var}(X2) + 2ab * \text{COV}(X1, X2)$$

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Have I got that right?

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