

Re: r-Squared Question

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- *From:* Jerry Dallal <gdallal@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* Thu, 14 Jul 2005 17:21:43 -0300
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Reef Fish wrote:

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Rather it is usually defined
as $1 - \text{ResSS}/\text{TSS}$ (or RegSS/TSS),

No. But it's equivalent to the usual $\text{RegSS}/\text{TotSS}$ because
 $\text{RegSS} + \text{SSE (your ResSS)} = \text{TotSS}$.

Isn't that what "or" means, as in "3/6 or 1/2"?

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My "no" was referring to "it is usually defined as".

I probably never read the book from which you got your definition, because I've NEVER seen R^2 DEFINED as "1-ResSS/TSS".

I'm willing to concede the point, but for the fun of it I pulled four texts from my shelf:

Draper & Smith, 2nd: $\text{RegSS}/\text{TotSS}$, as "Percentage Variation Explained"

Netter et al., latest ed: $R^2 = \text{RegSS}/\text{TSS} = 1 - \text{ResSS}/\text{TSS}$

Kleinbaum et al., latest: $(\text{RegSS} - \text{ResSS})/\text{TotSS}$

Searle: the square of the cc between observed and predicted!

If one uses the formal definition of R^2 to calculate it for this example, R^2 turns out to be -0.03, which says the problem is with the model, not R^2 .

This is your ERROR, Jerry.

The definition of Multiple R^2 CANNOT lead to a negative value!

I'm not sure what the issue is here. R^2 cannot lead to a negative value in the land of sanity and least squares.

Excuse me. Are we discussing statistics in Alice in

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Wonderland?

In this instance, yes!

Then why not tell it in Plain English that R^2 is a mathematical quantity that CANNOT possibly take on a negative value UNLESS someone is mangling it by introducing something improper! I mentioned the economist's use Adjusted R^2 as another example of Quackery.

Your follow-up did not clarify or rectify the issue that whatever the OP did, it was statistical NONSENSE.

You might look at it that way. You might also look at it as answering the question, "How does this measure work if applied to arbitrary models?" and leaving it to the reader to draw his/her own inference about $R^2 = -0.03$.

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