Re: r−Squared Question

Source: http://sci.tech−archive.net/Archive/sci.stat.math/2005−07/msg00332.html

- *From*: "Reef Fish" <Large_Nassau_Grouper@xxxxxxxxx>

- *Date*: 14 Jul 2005 15:12:22 −0700

Jerry Dallal wrote:
> Reef Fish wrote:
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> >>>>Reef Fish wrote:
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> >>>>
> >>>>>Jerry Dallal wrote:
> >>
> >>>>Rather it is usually defined
> >>>>as 1−ResSS/TSS (or RegSS/TSS),
> >>>
> >>>
> >>>No. But it's equivalent to the usual RegSS/TotSS because
> >>>RegSS + SSE (your ResSS) = TotSS.
> >>
> >>Isn't that what "or" means, as in "3/6 or 1/2"?
> >
> >
> > 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: RegSS/TotSS, as "Percentage Variation Explained"

So THEY contributed to the misconception and TWO ERRORS ("Percentage"

and "Explained") I wrote about.

> Netter et al., latest ed: R^2 = RegSS/TSS = 1−ResSS/TSS

I've taught from Neter et al (several editions) and R^2 was
always DEFINED as RegSS/TotSS. Yours must've been some "Netter". :−)

> Kleinbaum et al,, latest: (RegSS−ResSS)/TotSS

IMPOSSIBLE! It's WRONG. That's not R^2 at all. I assume it's
your copying error.
>
> Searle: the square of the cc between observed and predicted!

That's a baddy, as a definition.

>
> >>>>If one uses the formal definition of R^2

What formal definition, Jerry? Now that you've listed three (and
one typo) from statistics textbooks?

> >>>>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 Wonderland?
>
> In this instance, yes!

Actually Beyond Alice in Wonderland! :−) See above references to
Kleinbaum, your "formal definition of R^2" and R^2 = −.03.

>
> > 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.

There's no other valid way to look at it, Jerry.

> 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.

How does WHAT measure work? There is some weak excuse for using
the Searle−like "definition" to get some correlation, but even
Searle's definition would NOT yield a NEGAGIVE number, unless
Searle can get an complex number i*sqrt(−0.3) as a correlation.

−− Bob.

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- ***Follow−Ups***:
  - ♦ ***Re: r−Squared Question***
    - ◊ *From:* Jerry Dallal

- ***References***:
  - ♦ ***r−Squared Question***
    - ◊ *From:* Predictor
  - ♦ ***Re: r−Squared Question***
    - ◊ *From:* Radford Neal
  - ♦ ***Re: r−Squared Question***
    - ◊ *From:* Predictor
  - ♦ ***Re: r−Squared Question***
    - ◊ *From:* Jerry Dallal
  - ♦ ***Re: r−Squared Question***
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  - ♦ ***Re: r−Squared Question***
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- Prev by Date: ***Re: multiple regression (intercept)***
- Next by Date: ***Re: r−Squared Question***

- Previous by thread: ***Re: r−Squared Question***
- Next by thread: ***Re: r−Squared Question***
- Index(es):
    - ***Date***
    - ***Thread***