

Class 38: Topic 27: Correlation Coefficient

Held: Friday, 2 May 2008

Summary: We consider ways to describe the relationship between two quantitative variables from a single population.

Notes:

- Due Monday: 27-9, 27-12, 27-18.
- You will find it useful to consult the R Notes on the Homework for Topic 27.
- Congratulations on a successful poster day!
- Yes, we still have a quiz today, and another quiz on Wednesday.
- I suggest that everyone look at the makeup quiz (even if you do well on the in-class quiz), since it raises some useful points.
- I am planning to spend as much of the weekend as I can catching up on grading. You will receive those grades on Monday.
- I will give you summary grades Friday after you fill out your evaluation forms.
- EC for: Hoofin' it on Saturday, Student Art Salon, Baseball, GIMP Musical, Ally training (unless it's happened already).
- I have a new permission slip: Scott Baumler in institutional research wants to share some of your posters with faculty and administrators.
- So, did you figure out what I thought was odd about the figures in Topic 26-3?

- Handouts: Applet: Guess the Correlation; R Notes for Topic 27.
- Due: 26-1, 26-2, 26-3, 26-4 (not to be turned in).

Overview:

- The Past: Quantitative Variables.
- The Present: Two Quantitative Variables per OU.
- Today: Numeric Measures of Relationships.

Debriefing on the Poster Session

- Message from Scott

It was my pleasure to attend. Thank you for inviting us.

Please extend to your students our appreciation and admiration of their work. I was really blown away by the creative diversity of topics drawn out of Freshman Survey dataset. Several levels of their work impressed me: statistical acumen, willingness & ability to discuss their findings, visual quality. And I was quite happy with the respect they demonstrated for the data, which I know extends from your thoughtful guidance.

Yes, I would love to be able to share the students' work; thanks for seeking their permissions for me. Their posters would, of course, be used exactly as they've presented them and with full attribution. I would like to share the material with other students, faculty members, and administrators on campus. Further, if permissible, I would like to be able to post locked PDF versions online.

- Quote from Katherine: "Although your class went through many fewer edits than the other classes, they were generally of equal quality."
 - As I said before, I think most of you all started fairly well
 - I was impressed by how quickly and carefully most of you
- I enjoyed seeing the variation between approaches between the classes.
 - I agree Kamp's class's posters were more visually interesting.
 - However, I think it was often easier to get the key data from the posters from the other two groups.
 - That is, there are advantages to following a common form.
 - I wonder what you think about the amount of text on a poster.
- My pride in you makes me feel that I saw fewer statistical errors on your posters than I saw on the other classes' posters.
- **Good job!**
- So, what did you think?

Where We've Been, Where We Are, and Where We're Going

- For the remainder of the semester, we are considering quantitative variables.

Recent Topics

- Topics 19 and 20: What one sample tells us about one population
 - Topic 19: Confidence intervals
 - Topic 20: Tests of significance (how likely a particular hypothesized mean is)
 - A.k.a. "*t*-tests".
- Topic 22: What two samples of the same variable from two populations tell us about the relationship between those two populations.
 - A.k.a. "two-sample *t*-tests".
- Topic 23: What samples of two similar variables from one population (or samples of the same variables from two linked populations) tell us about the expected relationship of those two variables.
 - A.k.a. "paired *t*-tests".

Current Topics

- We are currently exploring what a sample can tell us about the relationship between two different variables. (That is, we use two different variables from each observational unit.)
- Topic 26 explored visual ways to explore those relationships.
- Topic 27 develops a numerical way to represent these relationships.

Remaining Topics

- We will conclude by thinking about ways in which knowing a bit about relationships between two quantitative variables can help us make some predictions.
- That is, if we know that there is good correlation between two variables, and we know the value of one of the two variables for an observational unit, what can we say about the value of the other variable?

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