Re: Unknown mean and known variance? Care to explain a little bit?

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- *From*: Richard Ulrich <Rich.Ulrich@xxxxxxxxxxx>
- *Date*: Fri, 04 Apr 2008 23:07:44 −0400

On Fri, 4 Apr 2008 15:11:48 −0700 (PDT), sarikan
<serefarikan@xxxxxxxxx> wrote:

> Hi,
> I've been using statistical methods for a while, but the problem is
> some of the usual practices common in many textbooks and courses
> sometimes get stuck in my head.
> There are a lot of statistical tools that can give you critical
> information about your data, and when you take statistics as a tool,
> usually people are not really bothered if you really know what the
> tool is doing for you or not. (well, most of them)
> I'd really appreciate your help about a well known scenario: you can
> find it in any statistics book, there is a population with an unknown
> mean, and a known variance. I'd love to hear a real life example for
> this, and an explanation. We have a population, and we do not know the
> mean, but the variance is about average deviation from the mean is it
> not? How do we know the spread of a population without knowing the
> point it is spread around?
> Maybe I'm a little bit confused, but I'd really like to get a little
> help

I've given some thought to the question before.

I will start by saying that the "known variance" scenario
is introduced, in part, for reasons of history; and also as
a small introduction to theory − the "theory" courses move
naturally from the simple "known variance" to the more
complex.

In practice −−
First, fixed variances arise naturally from data that are in the form
of untied ranks. That is why you see the rank tests achieved
with chi−squared tests, rather than F−tests.

Another sort of case that occurs naturally is when the

sub−sample is small, and, for the sake of robustness, one
elects to use the variance of the whole population.
Expanding on this, one might use the variance of a well−
developed, standardized test like IQ, in place of the measured
variance.

−−
Rich Ulrich

http://www.pitt.edu/~wpilib/index.html
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