

6th. July 1949.

Dear Maclean,

I have, as you requested, glanced through the paper, and will comment on it question by question, though extremely briefly.

Question 1. It is ridiculous to purport to teach school children the art of sampling survey, which, of course, would not be easy to attempt at post-graduate university level, see Yates' book "Sampling Methods for Censuses and Surveys", which is really the first connected treatise on the subject. Of course, I may be told that the little boys and girls who answer the questions will not actually have to know as much about it as Frank Yates, but what I criticise is teaching which gives the impression that the student is competent to draft a form of questionnaire, etc., and in the second part of the question to specify how the sample is to be obtained, should be given to children at the expense of the time necessary to learn and to carry out and understand the simple arithmetic processes in the easiest kinds of estimation, or of tests of significance.

Question 2 is equally out of place in a paper supposedly devoted to "Elementary Statistical Method". It requires, in fact, bibliographical information as to the official publications of

recent years bearing on a number of economic topics. What is a seventeen-year-old's "comment on the character of these published statistics" other than the repetition of some phrase used by his or her master or mistress? Is it supposed that the child has studied the 40,000 pages of the Blue Books referred to?

Both these first ~~two~~ questions are thus frankly bogus.

Question 3 is simple algebra with no specifically statistical bearing.

Question 4 gives some economic data grouped, and within classes "less than" and "over" more than 8% of the total numbers. The student is asked to compute the arithmetic mean, which cannot be done on the information so far supplied, and the median, which is equally impossible. The examiner has not apparently troubled to consider the difficulties which any child ~~knowing~~ the meaning of arithmetic mean and median must feel when faced with such a question.

Question 5 seems a suitable question.

Question 6 illustrates the same weakness as questions 1 and 2. Economists have got themselves in the last thirty years into very deep waters by the use of moving averages combined with seasonal fluctuations, and I doubt if the statistical work so far devoted to these subjects has altogether extricated them or supplied official statisticians with proper methods of procedure. I should emphasize again that the paper purports to be on Elementary Statistical Methods and not on Economics.

Question 7 is only connected with Statistics by the fact that the student is asked to draw a graph. He is not asked to carry out any statistical operations, but is expected to know the technical economic phrase "terms of trade" and to show that he understands it by commenting on the figures presented.

Question 8 is the calculation of a weighted mean, with half a page of irrelevant economic information thrown in. I do not object to it in a paper devoted really to Elementary Statistical Method, save that the arithmetic is rather long for the illustration of the simple notion of a weighted mean.

There is no hint in the whole paper that the student is supposed to be aware that estimates are not always exact by reason of sampling errors, or that tests of significance exist whereby yes or no answers can be elicited from observational data.

Thanks for your news. I do not expect to go to India this Winter.

Yours sincerely,