

Asking Sensitive Questions in Surveys

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THE purpose of this class exercise is (a) to reinforce the student's grasp of tree diagrams, probability calculations, etc., and (b) to mention a topic of considerable practical importance, the *randomised response* technique. It comes from Hutchinson (1993).

Suppose I wish to determine what proportion of the population drive faster than the speed limit, fail to pay taxes, go to church on Sunday, etc. I am not the least bit interested in whether a *specific individual* drives faster than the speed limit, but I do want to get an honest overall estimate for the whole population and people are often not honest when answering questions like these. The randomised response method can be used here. It relies upon the respondent **knowing that** the interviewer does not know whether the respondent is answering the sensitive question, or is answering a perfectly harmless question. An example suitable for class use is the following.

- Spin a coin twice. Show no-one the results.
- If the first spin resulted in a head, answer the question marked H. If the first spin resulted in a tail, answer the question marked T.

H: Outside of class, do you study for at least 15 hours per week?

T: Did the second spin of the coin result in a tail?

Let p be the proportion of students who study for at least 15 hours per week outside of class. The tree diagram can be drawn, and used to find that the proportion answering "yes" is $\frac{1}{2}p + \frac{1}{4}$. Having determined the proportion answering "yes", p may be deduced.

For more on the randomised response technique, see, for example, Greenberg et al. (1986).

References

Greenberg, B.G., Abernathy, J.R., and Horvitz, D.G. (1986). *Randomised response*. In *Encyclopaedia of Statistical Sciences*, Volume 7, 540-548. New York: Wiley.

Hutchinson, T.P. (1993). *Essentials of Statistical Methods*, in 41 Pages. Rumsby Scientific Publishing, PO Box Q355, Queen Victoria Building, Sydney 2000, Australia. Price: £4 per copy (sterling), or £2.60 per copy (sterling) when ordering 8 or more copies.