Experimental Design and Observational Analysis

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To call in the statistician after the experiment is done may be no more than asking him to perform a post-mortem examination: he may be able to say what the experiment died of.

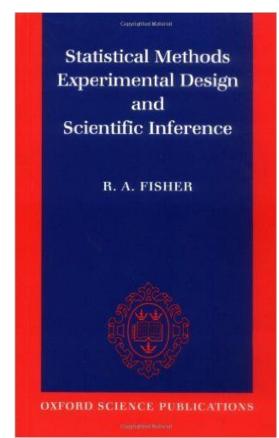


RA Fisher

Observational Versus Designed Experiments

A large dichotomy in analysis comes in whether an experiment is designed or data is just observed

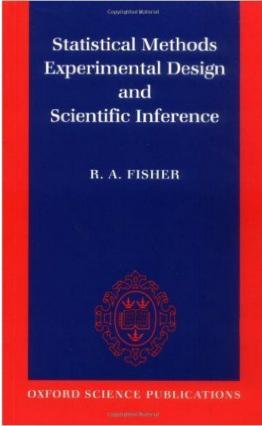
(experimental versus observational data)



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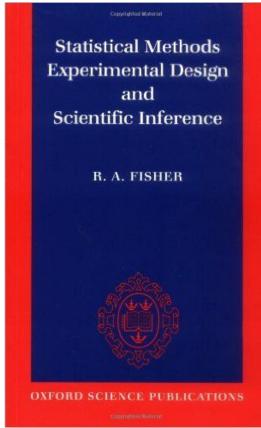
- Good experimental design can help
 - Account for known important factors (blocking, stratification)
 - Account for unknown factors (randomization)
 - Get an unbiased sample (random sampling)
 - Eliminate the need for complex analyses
 - Isolate effects of interest



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 - Isolate effects of interest
- Observational experiments
 - Often feasible when designed experiments are not
 - Have large sample sizes
 - Cheaper to execute
 - Often require more complex modeling



In the next few lectures

In the next few lectures, we'll look at some of the key topics in experimental design and observational analyses



Randomization and A/B Testing

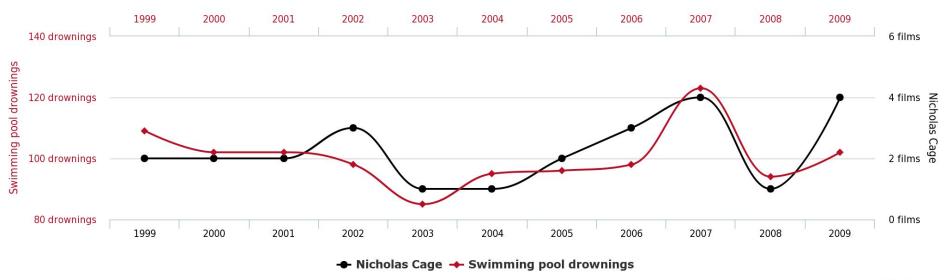


http://skillsprojects.files.wordpress.com/2009/10/like_for_like.jpg

Number of people who drowned by falling into a pool

correlates with

Films Nicolas Cage appeared in



tylervigen.com

Counterfactuals

