

Lecture Notes 10

Econ 29000, Principles of Statistics

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Other Examples using Hypothesis Tests:

1. In a medical study (reference below), people were randomly assigned to use either antibacterial products or regular soap. In total 592 people used antibacterial soap; 586 used regular soap. It was found that 33.1% of people using antibacterial products got a

$$\sqrt{se^2 + se^2}$$

cold; 32.3% of people using regular soap got colds.

$$\sqrt{\frac{p_1(1-p_1)}{n_1} + \frac{p_2(1-p_2)}{n_2}}$$

E.L. Larson, S.X. Lin, C. Gomez-Pichardo, P. Della-Latta, (2004). "Effect of Antibacterial Home Cleaning and Handwashing Products on Infectious Disease Symptoms: A Randomized Double-Blind Trial," Ann Intern Med, 140(5), 321-329.

2. A study of workers and managers asked both how much management listened to workers' suggestions (on a scale of 1-7 where "1" indicates that they paid great attention). Managers averaged a 2.50 (standard deviation of 0.55); workers answered an average 2.08 (standard deviation of 0.76) – managers ignore their workers even more often than the employees realize. There were 137 workers and 14 managers answering.
3. A recent survey by Intel showed that 53% of parents (561 were surveyed) were uncomfortable talking with their children about math & science. Previous surveys found that 57% of parents talked with their kids about sex & drugs.
4. The New York Times reported on educational companies that over-sell their products and gave the example of "Cognitive Tutor" (CT) that helps math students. The CT students improved by 17.41 (standard error of 5.82); the regular students improved by 15.28 (standard error of 5.33). There were 153 students in the new program and 102 regular students.
(and of course this from the exam)
5. Bloomberg News reported on a US audit of mortgages, showing that the average number of "seriously delinquent" loans originated by Countrywide (now owned by Bank of America) was 6.76%, versus a general average of 3.59% made by all other originators. There were 4050 loans made by Countrywide. (H. Son, D. Kopecki, D. Griffin, Oct. 5, 2011, "BoFA May Face Fraud Claims for Soured Loans," Bloomberg News.)