

Teaching Statistics Using the News Media

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Overview

- Background
- Using media to explain statistical concepts
- Evaluation
- Examples
- Challenges

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Background

- Everyone is bombarded continuously with information 24 hours a day via several forms of communication such as the internet and social media.
- There is a need to teach statistical concepts and how to apply them to understand the real world
- Deemphasize regurgitation and manipulation of statistical methods

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Background (cont.)

- Use of statistical thinking concepts
 - Schield states that "Statistical literacy is the ability to read and interpret summary statistics in the everyday media: in graphs, tables, statements, surveys and studies"
 - Help students critically evaluate media information in areas such as crime, health, science, and politics
 - Distinguish between information and propaganda

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Background (cont.)

- Use of statistical thinking concepts
 - Media ideal vehicle to accomplish task because wide variety of topics that are more exciting to students than pure mathematics

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Background (cont.)

- Teach
 - "Statistics in the News"
 - Non-quantitative majors such as criminal justice and journalism
- Large urban university
 - Diverse backgrounds
 - Wide age range
 - Mathematics anxiety

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Background (cont.)

- Teacher
 - Articles from the text, news media and internet
- Students
 - Bring in articles from the news media and internet
 - Evaluate the articles in groups during class and individually as homework assignments

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Media

- Forms
 - Internet
 - Journals
 - Newspapers
 - Magazines
 - Facebook
 - Twitter
 - Blogs

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Evaluation

- Questions
 - Interest
 - Target population
 - Source of research and funding
 - Researchers and how select who studied
 - Measurements or questions given to subjects
 - Measurement error and variability
 - Sample size

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Evaluation (cont.)

- Questions
 - Setting measurements taken
 - Differences in groups compared, factor of interest
 - Extent or size of any claimed effects

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Study Finds No Statin, Cancer Link

- Reuters Health July 20, 2011
- Findings in Journal of the American College of Cardiology
- Users of cholesterol-lowering statins appear no more likely to develop cancer than non-users
 - Based on patients in "real world" as oppose to clinical trial participants
 - Used database with electronic records for about 11 million Americans

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Study Finds no Statin, Cancer Link (cont.)

- 45,857 statin users and each statin user matched with another patient who never used statins with similar characteristics
 - weight, age, cholesterol levels, medical conditions
- Men ≥ 45 women ≥ 55
- $\frac{1}{2}$ on statins no more likely to develop cancer than non-users over 5 years
- 11.4% of statins vs. 11.1% non users
- no statistically significant difference in risk

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Study Finds No Statin, Cancer Link (cont.)

- Contradicts widely publicized 2008 clinical trial report
 - Found heart patients on statin Vytorin had higher cancer risk than placebo
 - Researchers say likely chance

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June 2011 Jobs Report

- *Job Growth Falters Badly, Clouding Hope for Recovery* (The New York Times Motoko Rich July 8, 2011)
- 18,000 new non-farm payroll jobs in June
 - Private 57,000 jobs, Public -39,000
 - Average of more than 200,000/month from February to April
- Separate survey (?) of households more people looking for jobs than in previous month.
 - 9.1% in May to 9.2% in June
- Federal Reserve see little improvement over last year's 2.9% growth rate

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Graphs

- *Rachel Maddow Show: MSNBC July 8, 2011*
 - Chart showing over 500,000 government jobs lost since President Obama's Inauguration
 - Chart constructed by Steve Benen showing private job deterioration
- Additional Graphs
- Bureau of Labor Statistics

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Over 500,000 Government Jobs Lost Since Obama's Inauguration

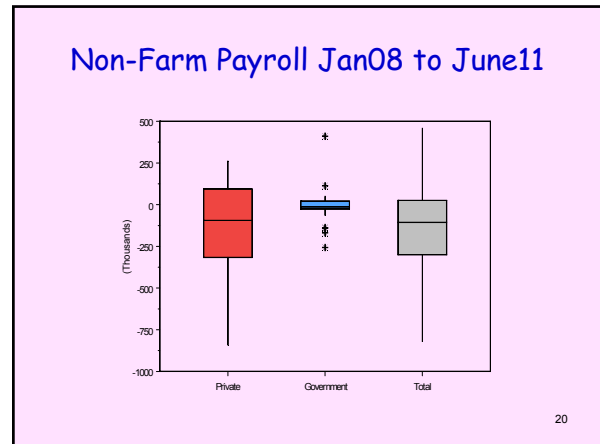
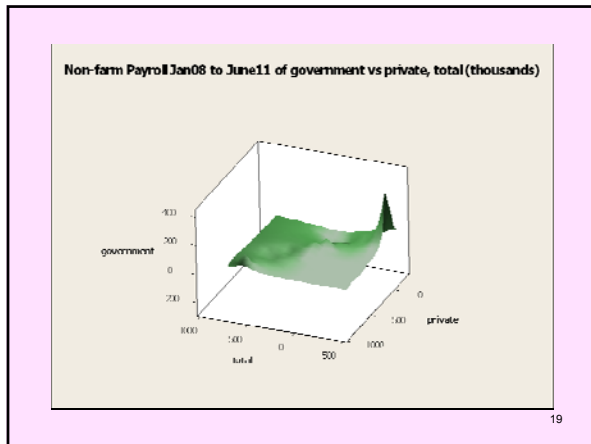
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Change in Number of Private Sector Jobs Jan08 to Jun11

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Change in Number of Jobs

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- ### Additional Questions and Observations
- Number of
 - layoffs versus new jobs by private sector
 - Private sector jobs lost since President Obama's inauguration
 - Other graphs that may be helpful
 - Mine data from the Bureau of Labor statistics
 - Limited space or finite time to present information in newspapers or other media
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- ### Challenges
- Finding enough interesting articles to evaluate that cover variety of subjects and use statistical concepts
 - Engaging the students in discussions
 - Getting all members of group to participate
 - Limitations of internet and news media to present information due to limited space and/or time segment
 - Need to further research
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