

## Freshman Honors Seminar: Class Introduction

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## Economics Majors

- Wall Street Journal has declared it a hot 'major'
- Between 1999 and 2004, # majors increased 40%
- Awarded 16K degrees in top 272 colleges
- Most popular major at Duke, Harvard, NYU, plus many others
- 25% of the graduating class at Chicago in 2004 were econ majors

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- At Notre Dame, majors have increased from 60 to 350 in 4 years

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## Most Likely Reasons

- Economic majors find good jobs and are paid well
- National Association of Colleges and Majors survey
  - Average starting salary of \$43,000
  - One of top 5 desirable majors according to employers

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## What we hope are the reasons

- Unfairly labeled as the 'dismal science'
- In times gone by, the first thought about economics was interest rates and the stock market
- But the scope of topics examined by economists is rather broad
- Economics has exploded as a discipline as it has branched out into many other areas

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## What is the primary lesson of economics?

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- Economics is at its best when it demonstrates that incentives matter in seemingly uneconomic settings
- Applied to many non-business settings
  - Families, crime, addictive substances, nuclear strategies, AIDS, obesity, global warming and sumo wrestling
  - All topics that at first blush would seem outside of economics
  - But upon closer inspection...

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## Example: An Economic Look at Obesity

- Rapid increase in obesity since 1970
  - In 1970, 14% of the population was obese
  - Today, rates are around 30%
- Differs from long-term increase in weight since the turn of the century
- Increase in obesity is broad based – all groups have been impacted

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## Obesity Rates Over Time

| Group    | Obesity |         | Overweight |         |
|----------|---------|---------|------------|---------|
|          | 1971/74 | 1999/00 | 1971/74    | 1999/00 |
| All      | 14.6    | 30.9    | 47.7       | 64.5    |
| Males    | 12.2    | 27.7    | 54.7       | 67.0    |
| Females  | 16.8    | 34.0    | 41.1       | 62.0    |
| Black F. | 29.7    | 50.8    | 60.5       | 78.0    |

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- A rise in obesity is caused by
  - Reduction in energy expended
  - Increase in calories consumed
- What are some candidate reasons for the rise in obesity?

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What does a theory about the rise in obesity have to explain?

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An economic model

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### One economic interpretation – technological change

- Major advances in food preparation such as vacuum packing, microwaves, freezing, preservatives, etc.
- Technology has reduced the time and direct cost of food preparation
- Evidence: time spent on food preparation among non-working mothers has fallen 50% in past 25 years

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### How will technological change alter calories?

- Greater variety of food (e.g. junk food now much more prevalent –reduced cost)
- More calories/dollar
- More meals (almost all of the increase in calories has been an increase in calories between meals, not calories within meals).

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### Relative Price Changes for Certain Foods, 1/1980 – 11/2003

- All consumer prices 137%
- Fresh fruit 276%
- Fresh vegetables 252%
- Dairy products 96%
- Frozen food 83%
- Frozen potatoes 93%
- Potato chips 77%
- Ground beef 90%
- Soda 53%

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### What I hope to accomplish in this class

- Develop an appreciation for economics as a social science
  - What makes it a science?
- Focus on the central role that incentives play in everyday life
- Understand how causal relationships are determined in a primarily non-experimental discipline

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## Basic economic model

- People/firms/organizations are purposeful
- Examples
  - Firms maximize profits
  - People maximize happiness/utility
- There are however limits or constraints on behavior

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## Consumers

- Derive happiness from consumption of 'stuff'
- Forced to pay prevailing prices for stuff
- Can only spend what you have -- constrained by you budget

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## Firms

- Firm wants to sell cereal in a market
- Must pay
  - prevailing prices for ingredients
  - prevailing wages for workers
  - Prevailing interest for capital
- Must compete in a market, taking into consideration prices of the other competitors

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## Result

- Economics is a 'predictive' science
- Interested in how behavior changes when external conditions are altered
  - What happens to demand when prices increased?
  - What happens to firm sales when retail prices drop?

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## Problem?

- Many of the question we are interested in addressing are about how 'choices' impact other 'choices'
- Examples
  - Impact of children on parents' labor supply
  - Teen motherhood on education
  - Education on earnings
  - Neighborhood on economic outcomes

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- In these situations, it is tough to say what came first
  - Do women have fewer children because they want to work, or do women work less because they have fewer kids
- The fact that many 'treatments' mean it is difficult to identify a 'casual' relationship between two variables

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## Gold standard

- Random assignment clinical trial
- Treatment determined by random
- Compare outcomes of treated/control
- Method of choice in medicine and most physical sciences
- Can easy 'replicate results'
- Not confounded by choices

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## Problem

- Cannot randomly assign many 'treatments'
- Sample questions: Consequences of
  - teen birth
  - More education
  - Obesity
  - More children in the household
- Standard comparisons of people in different treatment groups will not work

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## Washington Post, August 15, 1997, page A3

*Lasting Effects Found From Spanking Children  
Antisocial Behavior Is Increased, Study Says*

Spanking children is apt to cause more long-term behavioral problems than most parents who use that approach to discipline may realize, a new study reports.

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Children who get spanked regularly are more likely over time to cheat or lie, to be disobedient at school and to bully others, and have less remorse for what they do wrong, according to the study by researchers at the University of New Hampshire. It is being published this month in the medical journal Archives of Pediatrics and Adolescent Medicine. "When parents use corporal punishment to reduce antisocial behavior, the long-term effect tends to be the opposite," the study concludes.

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## A More "Economic" Example

- Public finance economists are interested in the productivity of government spending
- A large chunk of local spending is directed to public safety
- Will hiring more police reduce crime?

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- Let  $y$ =crime rate (crime per person)
- Let  $x$ =police employed per person
- Interested in estimating the gradient
- $\Delta y/\Delta x$  how will crime change when a city hires more police

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- Collect data on a cross section of cities
- In this example, 61 cities with populations in excess of 250K
- Example the basic relationship between the two variables

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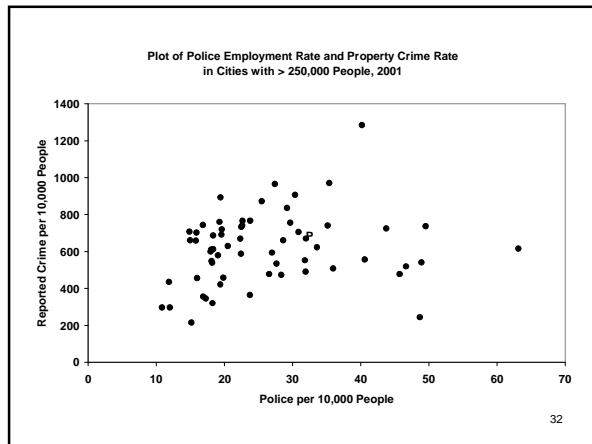
- Function  $y=f(x)$ , so can take the derivative  $dy/dx$
- To make it easy, assume the function is linear  $y = a+bx$
- In this model, what do you think is the most frequent sign (+ or -) on police?

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## Highest violent crime rates

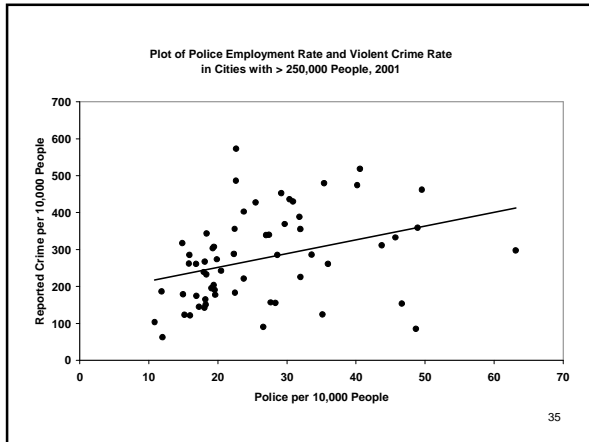
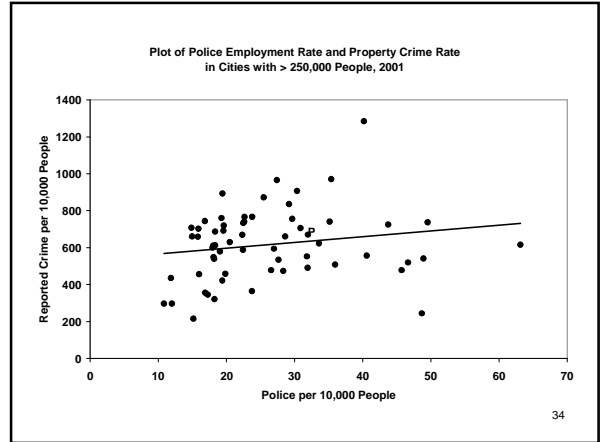
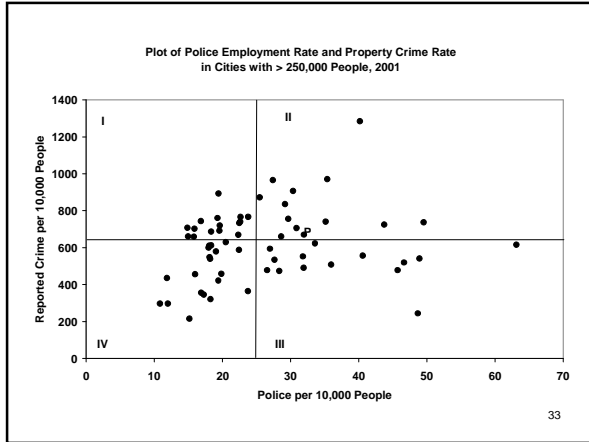
- Crime Rank
- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

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### Example 2: Impact of Early Childbearing

- Teen mothers tend to have substantially worse economic outcomes.
  - Lower HS graduation, college entrance,
  - Lower employment and wages
  - Higher use of welfare programs
  - Less likely to be married
  - Children do poorer in school
- Are these differences 'caused' by teen motherhood, or might it signal something else?

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- What family characteristics are most likely to predict economic success in the future?
- What family characteristics are most likely to predict delayed childbearing?
- Are teens a random sample of the population

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**Table 1**  
Background Characteristics of Teenage Mothers and Women Who Delayed Childbearing until after Age 18

| Characteristic                         | Teenage Mothers |                   | Not Teenage Mothers |                   |
|--|-----------------|-------------------|---------------------|-------------------|
|  | Mean            | Standard Duration | Mean                | Standard Duration |
| Black                                  | 0.33            | 0.47              | 0.12                | 0.33              |
| White                                  | 0.58            | 0.49              | 0.82                | 0.39              |
| Hispanic                               | 0.09            | 0.29              | 0.06                | 0.24              |
| Family on welfare in 1978 <sup>a</sup> | 0.19            | 0.39              | 0.11                | 0.31              |
| Family income in 1978 <sup>b</sup>     | \$30,532        | \$22,401          | \$50,717            | \$31,841          |
| In female-head household at age 14     | 0.20            | 0.40              | 0.12                | 0.33              |
| In intact household at age 14          | 0.69            | 0.46              | 0.84                | 0.37              |
| Mother's education                     | 9.88            | 2.86              | 11.67               | 2.76              |
| Father's education                     | 9.94            | 3.37              | 11.91               | 3.56              |
| AFQT score <sup>a</sup>                | 25.81           | 21.39             | 49.58               | 27.49             |
| Number of observations                 | 603             |                   | 4,323               |                   |

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### Some fundamental ideas (from *Freakonomics*)

- Incentives are the cornerstone of modern life
- Conventional wisdom is often wrong
- Dramatic effects have distant subtle causes
- Knowing what to measure and how to measure is usually the key to answering the question

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### At the end of the day

- Want you to be a healthy skeptic
  - When you read a newspaper article, question whether they have identified a causal mechanism
- Appreciate a clever idea when one pops up

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