

2. Data and Statistics

ASW, Chapter 1 and Lecture Notes

A) Introduction

- Take a look at the gasoline price story.
- What ECONOMIC questions might we want to answer from these stories?

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Other Examples of Key Economic Statistics

Why this slump isn't like the '90s

Kevin Carmichael and John Partridge, Globe and Mail
August 9, 2008

The weakest economy since the recession of the early 1990s has claimed another victim: the labour market.

Canadian employers slashed a net 55,200 jobs in July, marking the biggest one-month decrease since 1991, when Canada's growth contracted as the U.S. went to war with Iraq and oil prices soared.

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Ontario bears brunt of inflation wallop

Heather Scoffield, Globe and Mail, Aug. 22, 2008

The once-overheated Western economy is no longer the inflation hotbed of Canada. That dubious distinction now belongs to the slow-growing Eastern provinces. Ontario, where economic growth is non-existent but food and fuel prices are rising fast, is the stagflation centre of the country ...

The national annual inflation rate was 3.4 per cent in July, the highest in 5½ years, and up from 3.1 per cent in June.

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Canadian GDP: Oops

David Berman, July 31, 2008, Globe and Mail

The Canadian economy shrank in May, shocking economists who had been expecting at least modest growth

In May, GDP fell 0.1 per cent from the previous month, versus a consensus expectation from economists for growth of 0.2 per cent – establishing what looks like an unsettling picture of, at best, an economy that is floating just inches above a technical recession.

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B) Definitions and Types of Data

- **Data:** "Facts and figures collected and analyzed and summarized".
- **Data Set:** All of the data in a study.
- **Elements:** Entities on which data is collected.
- **Variables:** Characteristic of an element.
- **Observation:** Set of characteristics for an element.

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Scales of Measurement

- **Nominal** = labels or names (including numbers).
- **Ordinal** = label where the ranking is important.
- **Interval scale** = numeric and ordinal, where size of differences have a meaning.
- **Ratio scale** = interval scale *and* the ratio of numbers is meaningful.

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Qualitative and Quantitative

- **Quantitative variables:** numeric values, how much or how many.
- **Qualitative variables** are nominal or numeric.
 - Categorical data.
 - Summary stats → only frequencies.

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Cross-sectional and Time-Series Data

- **Cross-section data:** measured at one point in time.
- **Time-series data:** collected over several periods in time.

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C) Quality of Data

- Economists rarely get to do **controlled experiments**.
- Sometimes **natural experiments**.
- **Observational data** sets, collected by someone else.

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Data Quality cont'd

- How is the data produced (collected)?
- Are good questions asked that elicit good responses?
- How good are the survey collectors?
- Can the respondents remember the correct answers?

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Data Quality cont'd

- How do we clean up anomalies that indicate potential data errors?
 - Erroneous data, missing data.
- Uncontrolled data set → mixture of effects going on.
 - Must control with proper statistical approach.

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Data Quality cont'd

- Can you trust the agency that gathered the data?
 - Know the agency.
 - Or study carefully how they gathered it.
- Data from the web?

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D) Key Economic Data Sets

- Assignment 1.
- The class website lists many key sources in the resource book "Help Topics."
 - Statistics Canada.
 - Bank of Canada
 - Sask. Bureau of Statistics.
 - U.S. Bureau of Statistics.
 - World Bank, IMF, OECD.
 - Crucial CANSIM Tables.

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E) Construction of Data Sets

- Key: data are collected/produced.

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Consumer Price Index

- Based on a fixed basket (600 goods, spending of an average urban household).
- Monthly price survey.

$$\text{CPI} = \frac{\text{current cost of basket}}{\text{base year cost of basket}} \times 100.$$

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Labour Force Survey

- 55,000 households, 100,000 people, on 6-month rotating basis.
- Divided up by city, region, etc.
- A variety of labour market related questions.

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Gross Domestic Product

- Attempt to measure the production/income of the economy.
- Measured in two ways:
 - Spending on the different components: consumption, investment, government, exports, imports.
 - Income earned by the producers of the different components – labour and owners.
- So, it is built up from surveys in a wide varieties of different components.

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E) What's Next

1. Descriptive statistics: summarizing the data.
2. Analyzing the data – statistical inference.
 - Population → take a sample.
 - Analyze sample → insight into the population.