



Lecture 9: Measurements in Empirical Research

Research Methods

Lecture 9

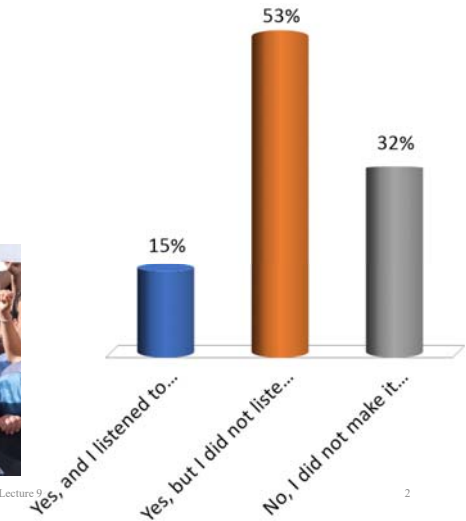
Did you go to the climate march on Friday?

1. Yes, and I listened to all speeches
2. Yes, but I did not listen to all speeches
3. No, I did not make it or did not plan to go



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Plan for today

One comment on getting out the vote experiments

Measurements

Unit of analysis

From Concepts/ Concept Definitions → Operational Definitions → Indicators

Accuracy, precision and levels of our measurements

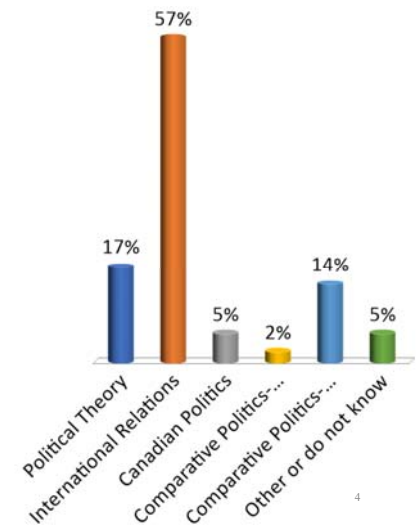
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Which subfield in political science interests you most?

1. Political Theory
2. International Relations
3. Canadian Politics
4. Comparative Politics-Developed
5. Comparative Politics-Developing
6. Other or do not know



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Getting out the Vote Experiments Effect Size versus number of people reached

What do you think is the most effective way to increase voter turnout?

- Face-to-Face canvassing
- Volunteer phone banks
- Commercial phone banks
- Direct snail mail
- Targeting via social media
- E-mail

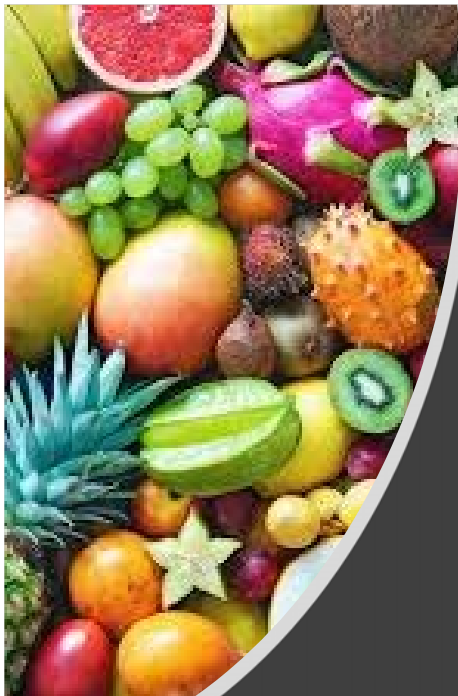


Measurement

Moving from concepts → variables → indicators.

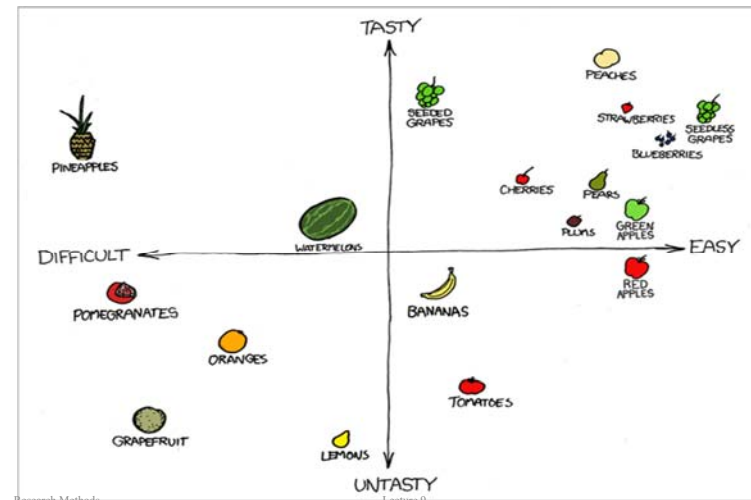
Levels of measurement vs. units of analysis.

Validity & Reliability:
Improving measurement accuracy and precision.



Think about fruits. With which variables could you classify each fruit to compare them in some manner?

Examples of Measurements for Fruits



```
graph TD; A[Find a Puzzle/Theory] --> B[Formulate the research question]; B --> C[Develop a proposition & corresponding hypothesis]; C --> D[Identify plausible alternative explanations of the hypothesized relationship and research design]; D --> E[Choose indicators to represent the IV, DV & control variables]; E --> F[Collect & analyze the data]; F --> A;
```

Find a Puzzle/Theory

Formulate the research question

Develop a proposition & corresponding hypothesis

Identify plausible alternative explanations of the hypothesized relationship and research design

Choose indicators to represent the IV, DV & control variables

Collect & analyze the data

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Design by Colin Scott

Generally you should collect data on the unit of analysis in your hypothesis

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Category	Percentage
Village	74%
Social capital	19%
TV channels	6%
Country	1%
Other	1%

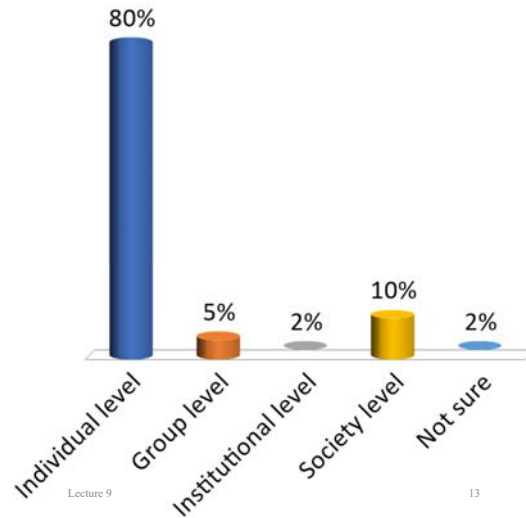
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Survey data such as the Canadian Election Study is collected at which unit of analysis?

1. Individual level
2. Group level
3. Institutional level
4. Society level
5. Not sure

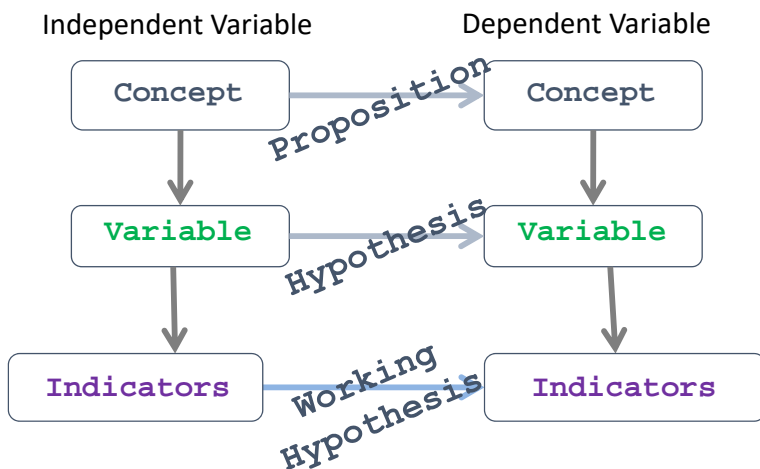


The Problem of Cross-Level Inference

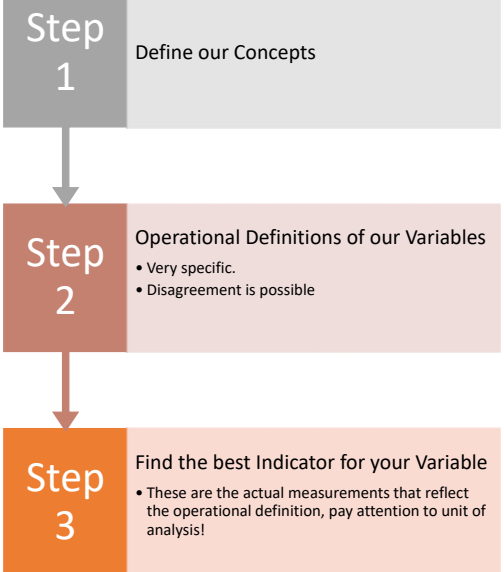
Cross-Level Inference:
Attempting to make inferences about one unit of analysis with data from another unit of analysis

Example: ecological fallacy - making a mistaken conclusion about individual-level behavior based on group-level data.

Making propositions testable



How to get from concept to indicator

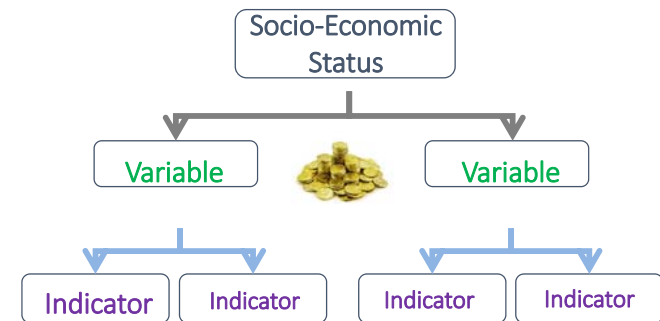


How to get from concepts to indicators?

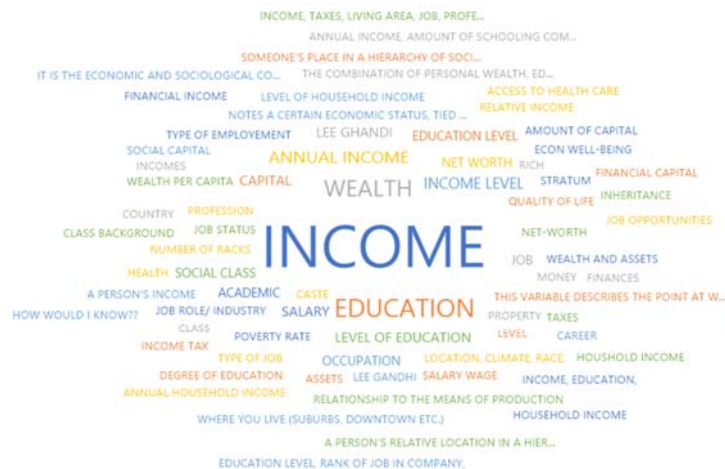
- Assume your Step 1: **Define your Concepts**
 - Example DV: Political Participation – what do you think it means? Literature!!! E.g. voluntary actions that influence powerful actors and the public
- Step 2: **Operational Definitions of our Variables**
 - What behaviours are reflective of “political participation”? Be specific. Disagreement is possible.
 - How can we operationalize PP? Are there dimensions of pp we must consider? Still literature!!!
 - Perhaps distinguish electoral and non-electoral forms of political participation. Or others?
- Step 3: **Find the best Indicator for your Variable**
 - How specifically do you measure pp, what is your indicator and where do you take it from?
 - Multiple indicators are good
 - Electoral: Survey asks whether R voted or not, and whether they gave to a campaign contribution
 - None-electoral: Survey asks whether R took part in a protest, signed a petition, or acted politically online

Operationalizing ‘Socio-Economic Status’

Socio-Economic Status: ‘a person’s relative location in a hierarchy of material advantage’.

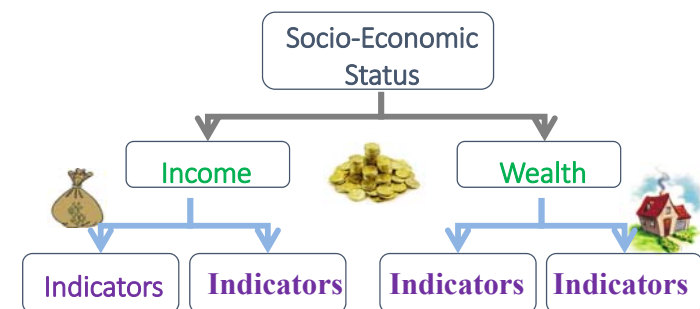


What do you think are some good operational definitions (at variable stage) of socio-economic status?



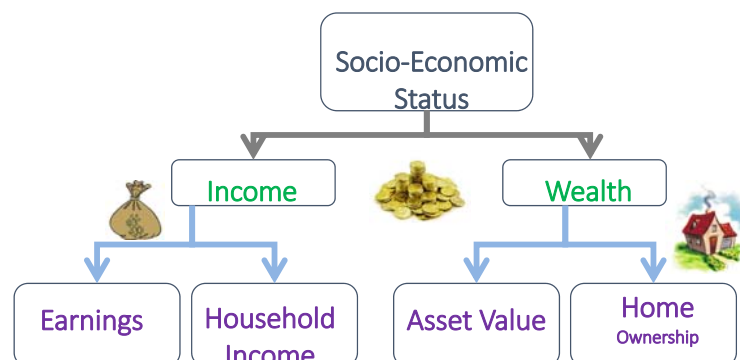
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Operationalizing 'Socio-Economic Status'

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Countries with IMF loans will experience more political instability and unrest than countries without IMF loans.

- What is meant by "political instability and unrest"?
- Defining the concept: Political instability means riots or mass demonstrations related to national politics.
- Operational definition: e.g. Any event with more than 1000 participants and a publicly stated goal related to national politics.
- Indicators: ??
- Practice!



Any questions about transfer from concept to indicator?

Variables can be measured at different levels

What is the difference?

Is country X a democracy?

How democratic is country X?

Which formulation offers the most information?

Levels of Measurement: How much information do your measures contain?

Four levels of measurement

- I. **Nominal** (often just a label, unordered categories)
- II. **Ordinal** (still just a label, but allows for ranking, ordered categories)
- III. **Interval** (numerical values; with meaningful space between numbers, very rare)
- IV. **Ratio** (numerical values with a true 0 point; height, weight, turnout etc. however temperature in kelvin)

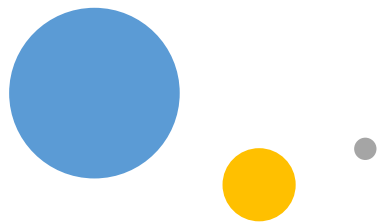
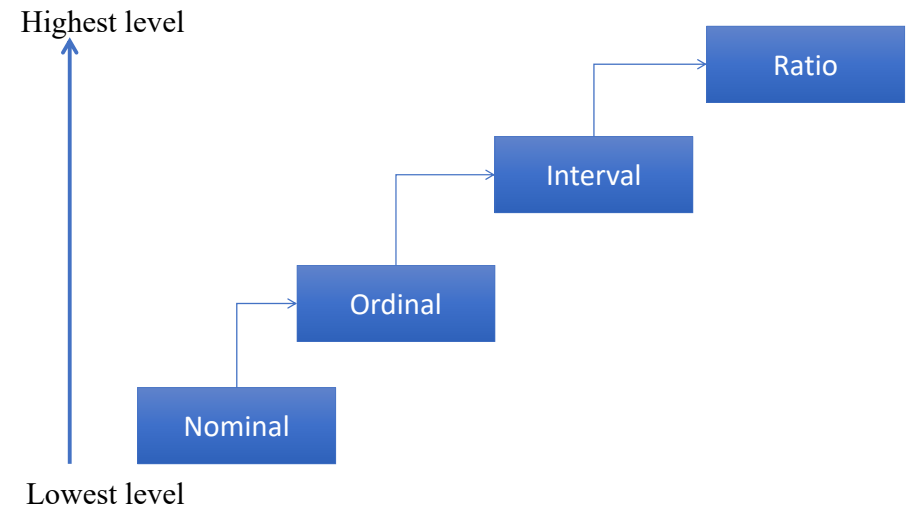
For our purposes we'll treat interval and ratio often as the same level of measurement.

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Levels of measurement



Lets practice what
we have learned | !

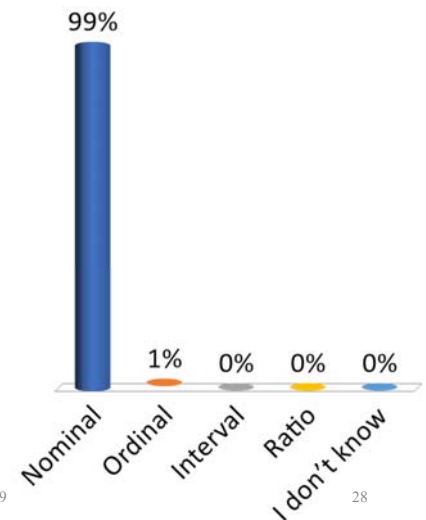
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Somebody's religion or religious affiliation is a _____ level variable?

1. Nominal
2. Ordinal
3. Interval
4. Ratio
5. I don't know



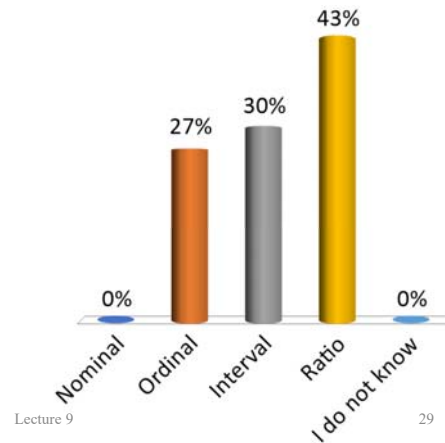
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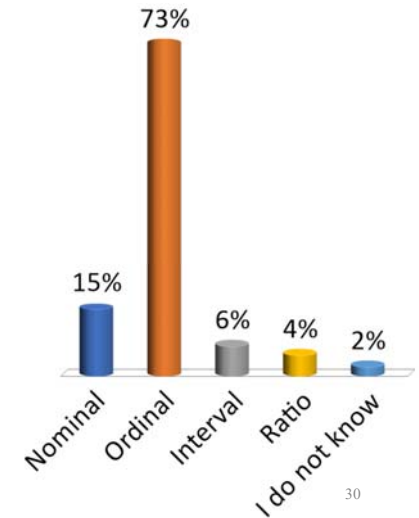
Religious attendance measured by times spent per month in a church/mosque/temple etc. is a _____ level variable.

1. Nominal
2. Ordinal
3. Interval
4. Ratio
5. I do not know



I like to know the extent to which you agree with the statement: I learn a lot in this class!!!

1. Nominal
2. Ordinal
3. Interval
4. Ratio
5. I do not know



In sum,
what do
we need
to develop
good
measures?

- A **clear definition** of the concept you want to measure.
- Concepts are too abstract to measure. Make them **concrete** by operationalizing them into variables.
- Select **one or more** indicators that give you information about your variables.
- Good measures adequately assess **all dimensions** of a concept.
- If we were to repeatedly apply a measure to the same observations, we should get **about the same** results.

→ good measures are both **reliable** and **valid**.

Assignment #3



Research Question



A fully specified testable Hypothesis with DV and IV and the specific relationship you expect, at least two references to academic work in this area



Briefly explain the causal mechanism



Suggest a unit of analysis



Think through the operational definition of your variables and propose two single measurements/indicators per variable and,



Suggest a data set or survey that might be used to test your ideas, discuss its suitability summarize the data set in a paragraph, link the url.

What to expect in next few weeks

Thursday: case studies and comparative method

Next week: guest lectures

Oct 15 lecture as usual

Oct 17—midterm

- Midterm Study Guide: Part 1: MCQ; Part 2: Short answers
- Resources: study guide, lecture notes, readings, your notes, Study groups, online clinic, TA emails, Prof emails
- Misc: Seating/stuff up front/bring pencil/pen/eraser only MCQ sheet in pencil

Points	Team	Points	Team
5.33	Comparative Politics...		
4.27	Comparative Politics...		
4.23	International Relations		
4.13	Political Theory		
3.98	Other or do not know		
3.41	Canadian Politics		

Team Scores