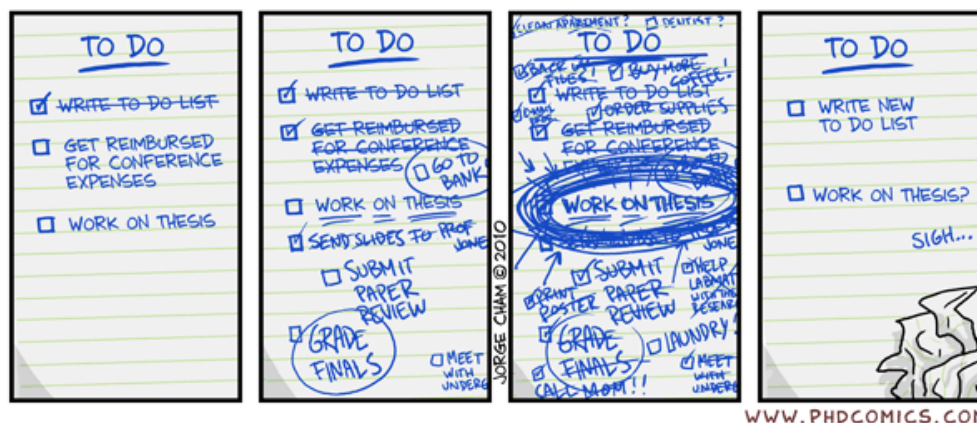


Research Methods for Political Science

MT week 4, lecture 1

Measurement error & The research plan

YOUR "TO DO" LIST



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Operationalization: From Abstract to Concrete

- “Democratic states tend to be more peaceful than non-democratic ones”
- Wars are increasingly frequent
- → operationalization: selecting observable phenomena to represent abstract concepts.

- Comparisons are accurate only to the extent that the indicators selected mirror the concept we intend them to measure.
- Operationalization almost always involves simplification
- What we compare are measures of indicators—not concepts. Hence choosing the right indicator is critical.
- Using multiple indicators

Example (I)

Concept: *Parliamentary activity*



“The degree to which MPs make use of the instruments they have at their disposal.”

Example (I)

- Variable: number of parliamentary questions asked
- Indicator: mean number of PQs per sitting day

Example (II)

- Freedom House *Freedom in the World 2010*
- Concept: 'freedom'
- Variables: political rights & political liberties
- Indicators: checklists of 10 & 15 indicators

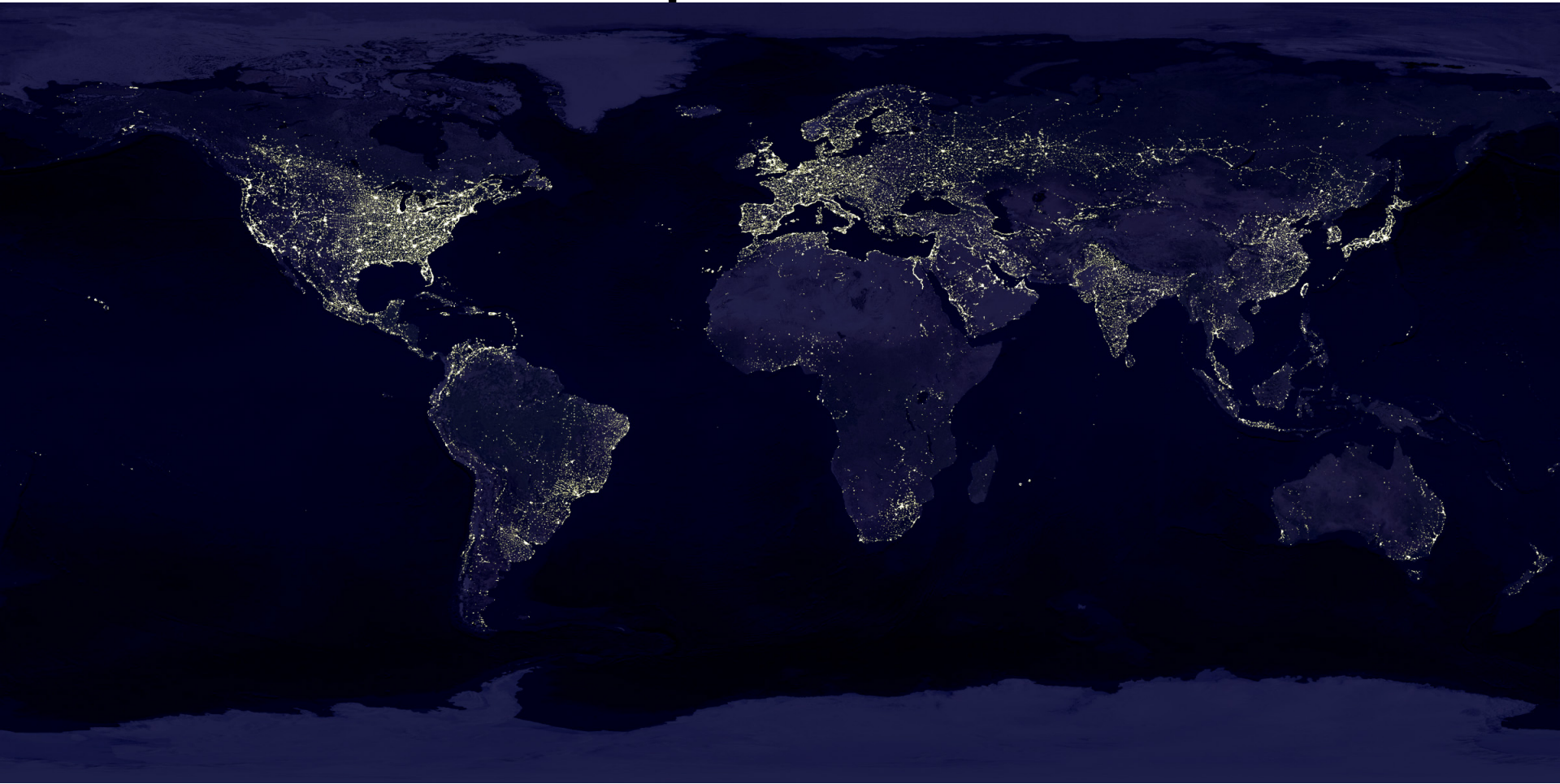
Be creative

- Often there is no pre-existing measure of your variable.
- E.g., wealth
- E.g., GDP for quality of life/ standard of living
- E.g. birthplace for race
- Years of education for cognitive ability

Environmental conditions and their effect on XYZ

- How to measure environmental conditions in 1500?
- Tree rings

Example: Wealth



E.g., displaced population

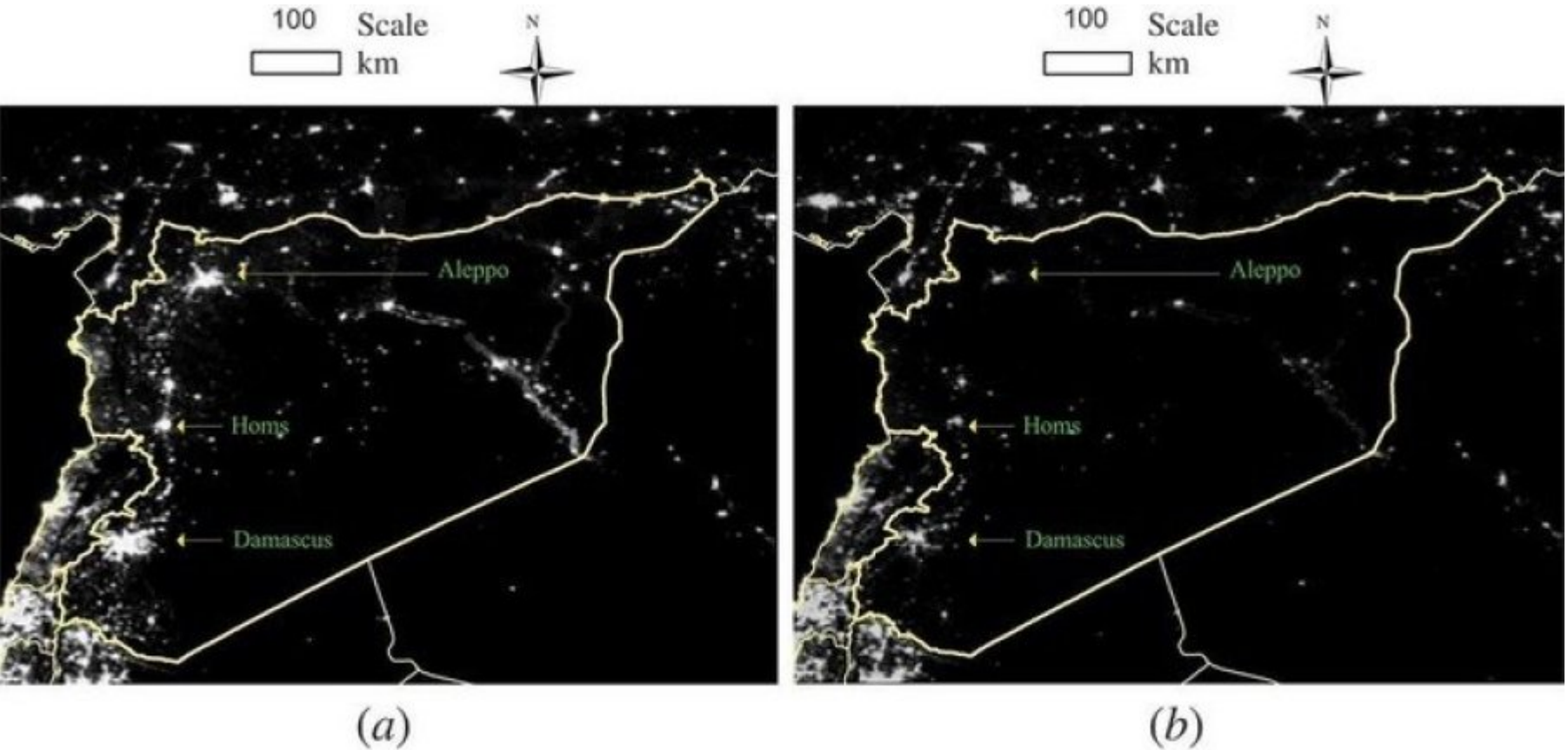


Fig.1 The night-time light monthly composites: (a) March 2011; and (b) February 2014.

Conflict-related deaths per capita in pre-agrarian societies



Anger

Political Culture

- Surveys
- Indicators of migrational streams at time of initial settlements.

- Political interest
- Hegemony
- Bicameralism

THREATS TO OPERATIONALIZATION

Measurement error



Measurement error

- E.g., historical casualties in war
- Shocks (uncontrolled for):
 - GDP changes suddenly
- Interpretation of question
 - E.g., are you happy
- Selection bias. E.g.,
 - Effect of Treaties
 - Unemployment / out of job market

Two main types of measurement error

- Systematic -> affects validity
- Random -> affects reliability

Validity



Validity

- The extent to which our measures and/or cases correspond to the concepts they are intended to reflect
- *Do we really measure the concept or something else?*

Validity

- Must be:
 - Appropriate: number of teachers in city schools is inappropriate to measure quality of public education
 - Complete: student/teacher ratio is appropriate, but incomplete: quality of education is also a function of libraries, facilities, etc.

Internal vs external validity

- Internal validity: are we measuring what we think we are measuring?
- External validity: are our results generalizable?
 - Particularly a problem with experiments / surveys
 - Selection effects

Reliability



Testing reliability

- Inter-coder reliability
- Test-retest reliability
- Inter-method reliability
- Internal consistency reliability

Valid but unreliable



Reliable but not valid

