

International Relations Lab #2: Evidence and Measurement in IR

PS 3210 – International Relations
Prof. Vanessa A. Lefler
Middle Tennessee State University
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Introduction

Power is a central concept in International Relations. Realists, as we know, point to power as an explanation for much of the behavior we observe in global politics. And though scholars from different schools of thought do not give *power* such primacy, they still recognize that power is an important factor in states' decision-making.

The purpose of this lab is to more deeply explore the concept of *power* through two commonly used measures of power in International Relations scholarship: the Correlates of War Composite Index of National Capabilities (CINC) and national wealth, measured as Gross National Income (GNI).

Learning Objectives

Through this lab you will

- Be introduced to fundamentals of systematic investigation of IR phenomena;
- Evaluate theory using empirical evidence; and
- Learn basic data analysis and collection skills.

It is expected that, from completing this lab and exercise, you will develop a set of basic research skills that will prepare you for advanced study in Political Science and International Relations (e.g., PS 3001) and that might guide you in other analytical work.

Using Empirical Evidence in International Relations

This lab focuses on the use of *quantitative* evidence, which associates factors and outcomes of interest with numbers (Roselle and Spray 2012). For example, quantitative evidence of a country's propensity for conflict might be measured by counting the number of borders it shares with other countries.

This is different from *qualitative* evidence, which ascribes terms and definitions to these same factors (Roselle and Spray 2012). Instead of simply counting borders to capture conflict propensity, we might, construct a qualitative assessment of hostility: Does the country appear have significant enmities with its neighbors?

There is no absolute advantage for either quantitative or qualitative evidence. However, we focus on quantitative evidence because of its regular use in International Relations scholarship and because of its more widespread applicability outside IR, as well.

Regardless of whether one uses quantitative or qualitative evidence, it is important that one strives for consistency and validity in how one measures, or *operationalizes*, concepts. In technical terms, what we are looking for are *external* and *internal* validity.

External Validity

External validity concerns how well a measurement may be generalized across similar situations or factors. Does your measurement of your evidence mean the same thing in different contexts?

If you can easily apply your measure to several different situations without changing its meaning, then your concept is said to have *external validity*.

Internal Validity

Internal validity, in part, addresses the logical consistency of a measure and its relation to other outcomes of interest. Does your measure mean what you actually think it means? Does your measurement always mean the same thing within the context in which you are working?

One common threat to internal validity, in this definition of the term, is instrument change. A quantitative or qualitative measure loses internal validity if the original metric is changed during the data collection process.

For example, if you were to begin an analysis of conflict propensity based on hostility toward neighbors with a definition of hostility based on the demonstration of hostile acts, but later change your definition to also include threatening language, the evidence you gathered after the change is no longer consistent with the evidence collected under the original definition.

Evidence that is collected using a logically and procedurally consistent definition is said to have *internal validity*.

Power in International Relations

Of all the concepts relevant to International Relations, *power* is important. It is also difficult to measure. On one hand, theory provides only a basic guide: Realists, Liberals, and Radicals disagree, for instance, on what is the central source of power for states. Realists emphasize military capabilities while Liberal and Radicals include economic wealth.

On another hand, operating under one definition of power, such as military power, is also fraught with challenges because states keep much information regarding their material capabilities secret. The task for scholars of international relations, then, is to construct measures of power that reflect the essence of the term and that are comparable across different countries.

Two common measures of power in International Relations are the Composite Index of National Capabilities (CINC) and GNI.

Composite Index of National Capabilities

The Composite Index of National Capabilities (CINC) project defines power as "the ability of a nation to exercise and resist influence" (Singer 1987; Singer, Bremer, and Stuckey 1972). The scholars behind this project subsequently measure this power according to six different dimensions meant to capture any country's *potential* to exercise power.

These six measures are:

- *Iron and Steel Production* – measured in thousands of tons to convey industrial capacity.
- *Military Expenditures* – measured in thousands of U.S. dollars
- *Military Personnel* – measured in thousands of personnel
- *Energy Consumption* – measured in thousands of coal-ton equivalents to convey economic and industrial capacity.
- *Total Population* – measured in thousands to represent the potential population from which to draw troops.
- *Urban Population* – measured as the number of people (in thousands) living in cities of greater than 100,000 people.

Question: What are some other components of power that this index misses?

According to the Composite Index of National Capabilities, the 10 most powerful countries in 2007 (the last year they recorded their data) were:

Rank	10 Most Powerful States
1	China
2	United States
3	India
4	Japan
5	Russia
6	Brazil
7	Germany
8	South Korea
9	United Kingdom
10	France

Gross National Income

Gross National Income is a second commonly used measure – especially by Liberal scholars – to measure a state’s economic influence. Realist scholars also note the importance of economic wealth under the assumption that money is easily converted into material capabilities.

Using data from the World Bank, the top 10 countries based on Gross National Income (GNI) in 2014 were:

Rank	10 Wealthiest States
1	China
2	United States
3	India
4	Japan
5	Germany
6	Russia
7	Brazil
8	France
9	Indonesia
10	United Kingdom

Puzzles in Measuring Power

Question: Looking at these two lists, are there any surprises? What might explain those surprises? Or, in other words, what additional information would we need to explain the countries we observe as being among the most powerful, compared to the countries that we do not?

What are some other factors that we might take into consideration to develop a more complete picture of power in international relations?

Assigned Tasks

We will explore these questions through two sets of tasks:

1. In class, we will complete an analysis of power and international conflict.
 - The analysis uses components from the CINC project and GNI to study the measurement of power and power's relationship to conflict.
 - Using Balance of Power theory and Power Transition theory, you will use time-series data on these components to make predictions about interstate conflict.

From this exercise, we will begin to appreciate which factors related to a state's CINC score are more and less important in explaining interactions in international relations (Kim 2010; Signorino and Xiang 2011). This will help you begin to conceive of your next task:

2. On your own, you will write Unit Lab #2.
 - Unit Lab #2 asks you to conceive of your own measure of *power* in international relations according to four different dimensions: natural capabilities, synthetic capabilities, and resolve, and soft power.

Both of these tasks are designed to encourage you to think more systematically and analytically about concepts in international relations, like *power*.

Lab #2: Measuring Other Dimensions of Power

Directions:

1. Construct your own measures of *power*.

In particular, construct a definition and measure of power for each of the four components we discussed in lecture: *natural*, *synthetic*, *resolve* and *soft power*.

2. Describe your definitions and explain why you came to that measure.
3. Then, for each measure, identify which countries would be among the 5 most powerful. List the countries, their rank, and their value on your selected measures in tables.

Note: You will have to do quite a bit of research on-line to find these values. I have included a number of datasets on D2L for you to view. Other good places to search are the CIA World Factbook and the World Bank.

You might also check out *The Military Balance*, published by the International Institute of Strategic Studies, and available in our Library.

Be conscientious about the value of your sources. You will want to get as close to a primary source as possible. Avoid directly using websites like *Wikipedia* or *Maps of the World*.

4. Last, use your four definitions of power to construct a composite measure of power. You will do this by identifying the three most powerful countries in the world on all accounts. Explain how you came to your conclusions about these top three, making sure to describe how your investigation into the other four measures of power led you to this conclusion.

Formatting

In 700-1200 words, type your analysis using complete sentences and paragraphs, placing power rankings in tables. The format of your paper should conform with the following rules:

- 1-inch margins, all around. Standard, serif (e.g., Times) or non-serif (e.g., Calibri, Arial) font, between 10 and 12 point size.
- The heading, which includes the “top matter” and title, should be single spaced, with double-spacing between the title and the body of the paper. In the header, each page should give your last name followed by the page number.
- If you use any sources outside the textbook, cite them at the end of the paper, using APSA or Chicago rules.
- Save the document as a **.pdf** and deposit it in the Dropbox on D2L.

Papers not submitted in .pdf format will be penalized 10%.

Works Cited

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