

POLS2044—WEEK 2 2024 THEORIES & CAUSALITY

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In Week 2 we are focusing on theoretical approaches to explaining causality in the political sphere, which is a fancy way of saying that we are building on Week 1's discussion of the scientific method and the ways we can use it to better conduct political science research.

My goals for Week 2:

1. Continue the discussion of the scientific study of political processes.
2. Drill down on one part of this process—developing causal theories of politics
 - a. What are they?
 - b. What makes a good causal theory?
 - c. How can we come up with good theories?
3. Discuss and apply these ideas in Week 2's tutorial.
4. Answer any remaining questions you might have about the class.

I. Reading notes and questions

The assigned reading this week is chapters 2 (pp. 25-51) and 3 (pp. 56-74) of the Kellstedt and Whitten (2018) textbook.

Chapter 2 focuses on theory-building. It highlights myriad strategies to develop good theories. We will discuss these strategies in more detail in the lecture. The second part of the chapter provides a brief introduction to formal theory. This discussion may on its surface seem harder to read than the first half of the chapter and appear less relevant to your interests and preferred approaches. There is no need to get lost in each of the examples the authors discuss, although they are fundamental to a number of political science subfields.

Several questions to consider while reading this chapter:

- Do any of these strategies for developing theories jump out to you as ones you might use? Why?
- What is the difference between utility and expected utility and why might it be important to consider when evaluating political behaviour? Relatedly, how might complete and incomplete information shape people's expected utility?

Several terms and dichotomies to pay attention to—complete & incomplete information, expected utility, formal theory, transitive & intransitive preferences; preference ordering, rational choice, rational utility maximisers, spatial & temporal dimensions, utility.

Chapter 3 turns to evaluating causal relationships. It highlights several threats to causal inference including incredible mechanisms, spuriousness, endogeneity, and confounding variables.

Several questions to consider while reading this chapter:

- What are the four causal hurdles theories need to cross?
- Given your causal story you chose last week, does it make it to the end of Figure 3.1's path diagram? Why or why not?
- Why do the authors think that most scholars get stuck at the fourth hurdle?

Several terms and dichotomies to pay attention to—bivariate vs multivariate, confounding variable, deterministic vs. probabilistic relationships, endogeneity, spuriousness.

II. LECTURE PART 1: Week 1 recap

Scientific method

A reiteration of the graph we talked about last week. The linear process here is a simplification of reality and can make it seem like the process is more clear-cut and one directional than it is often in practice. In many ways these steps can occur simultaneously or in the opposite direction. All we see in published work is the final cleaned product, so I want to stress that the reality which you are likely to face is normal and much messier.

KKV's (1994) characteristics of scientific research

Some important parts from one of this week's readings.

1. The goal is inference.
2. The procedures are public.
3. The conclusions are uncertain.
4. The content is the method not the subject matter.

Often the scaffolding of intellectual buildings is taken down after being built.

Today's motivating question

What makes for a "good" theory?

Put differently...

What do good theories do?

Today I want to focus on an element of research design that gets insufficient attention in many research design classes—theory development. This process motivates the rest of our research, but it can be one of the hardest to constructively design. Where do good ideas and theories come from? What if we think we have nothing to say? Today I want to try and provide some helpful tips and guidelines for developing theoretical models.

LECTURE PART 2: Theory development

In this section, I highlight several ways to develop solid and interesting research questions and theories to answer them.

10 ways to develop promising causal theories

1. Offer an answer to an interesting, important research question.
2. Solve an interesting puzzle.
3. Identify interesting variation (across time or space)
4. Move from a specific event to more general theories
5. Drop the proper nouns
6. Use a new Y
7. Use a new X
8. Add a new Z
9. Use the literature and contribute to it.
10. Make sure the theory can be disproven.

Let us go through each one in turn.

1. Motivating research question

What questions do you have about the world? No one has your lived experiences and unique combination of skills. What do you bring to the table? What questions do you have that have motivated previous study or that you were looking for an opportunity to pursue?

For example, I really enjoy being outdoors and climb mountains to get what John Muir called their “good tidings”. So, for one of my first international relations classes in my MA degree, I thought about trying to use my interests in a way that I had not seen used before. I had read many books about the early expeditions to try and find and climb the world’s highest mountains. I remembered how these expeditions were often funded and supported by their members’ governments, and successes on these expeditions were huge public relations coups back home. I also remembered that this was an era shortly after the peak years of the “Great Game” between Russia and the United Kingdom to maximize influence and access to the countries between Russia to the north and the British colonies in South Asia. So, I wrote a paper I am still proud of regarding the international relations of Everest expeditions leading up to the first successful ascent in 1953.

Why do people get struck by lightning?

The difficulty when you have an idea is considering alternate explanations. For example, why are people struck by lightning? The obvious answer is the proximate cause—the lightning being in the area. What might also be relevant are other factors. If we were trying to explain one example, maybe it is because the person was Benjamin Franklin, and he was flying a kite in a thunderstorm trying to get lightning to hit a key on the kite. Or perhaps the person had a death wish and had wrapped themselves in aluminium foil and was holding two hiking sticks to the sky on the top of the Telstra tower. Trying to come up with a question and the answers that come from them require some knowledge and context about the outcome under explanation.

Asking an interesting question

Here are some of the causal responses that you submitted during last week's lecture. They touch on several relevant topics and are easy to connect to some interesting research questions.

2. Find an interesting puzzle

For example, here are a few that have been quite influential in their relative subfields.

Democracies do not fight one another.

Suicide terrorism occurs despite expected utility models.

The chance of one vote mattering is very small, still people vote.

Zinnes' (1980) puzzles

- Do nations interact?
- Why are some nations war prone?
- Is polarisation a precondition for war?

3. Find some interesting cross-sectional variation

For example, why do some countries spend more on their military than others

2020 map of absolute military spending using SIPRI data.

You can look at the same thing in several different ways. Here are two further maps that may lead you in different directions. Here is one where the military spending is measured as a percentage of GDP. Here, the US is far less of an outlier and Saudi Arabia looks much redder. Or you could look at it on a per capita basis. Here Australia and New Zealand are much darker.

3. Find some interesting over-time (time series) variation

Or you could look at how something you care about varies over time. Here are two examples over different time frames—Boris Johnson and Anthony Albanese's approval over time.

4. Moving from specific to general

Often, we have a particular interest in a particular event—the storming of the beaches of Normandy or Gallipoli, 9/11, the signing of the Munich Agreement. Another approach to developing a theoretical question and approach is asking whether what happened in one specific event has any other parallels or broader meaning.

Connecting to this picture of Neville Chamberlain, appeasement failed to prevent WWII, but maybe it is more effective more broadly.

5. Remove proper nouns

Another similar approach is whether one event is generalizable. Instead of studying why Scott Morrison's government lost the recent election, you could ask why incumbent governments win or lose elections.

6. Use a new outcome variable (Y)

Another approach is to use an existing theory on a new outcome. For example, in these two articles, I first generated new data on human trafficking. Then (with a friend) I used this outcome to analyse whether existing theories of human rights neighbourhoods (countries in the same geographic region often have similar human rights practices). We also applied the waterbed theory of neighbourhood crime patterns—if you crack down on crime in one area, the rational criminal will move to a nearby area with less law enforcement.

7. Use a new explanatory variable (X)

This approach is a bit easier than finding an entirely new outcome to pursue. For example, in this article a friend and I look at all recent research on voter turnout to see what types of variables were included and which had the most robust relationship with turnout. Several had been used in minor case studies but were robust to a global analysis.

8. Add a mediating factor (Z) into the mix

As you have probably gotten the sense of by now, the world is a very complex place, and a fundamental part of the theoretical process is abstracting away from the process and simplifying reality. However, this abstraction can often miss something important, like an interactive effect between explanatory factors (X).

For example, see this paper I wrote with my dissertation advisor. We were looking at how economic crises can lead to violence, up to and including civil war. I was writing a dissertation on how non-traditional economic flows like remittances, private aid, and microfinance loans might be large enough to help smooth over difficult times. This paper shows how remittances increase during economic crises which significantly decrease the risk of conflict.

9. Use the literature and contribute to it

Yet another way to develop research questions and causal theories is to look at what research has already been done. Like Isaac Newton, we are standing on the shoulders of the giants who have come before.

This can be done in several ways. First, like the figure on the right, you can look at influential previous research. What is influential? It can be either influential on your own thinking about an issue, or influential according to some external metric. Here the most common is citation counts. You could see what is shaping debates over time, what kinds of research is being done by people who land jobs or get conference awards, or what keywords are being used (e.g., using Google Trends). During lockdown, I had to produce a lot of recorded lectures, and I used YouTube to help me figure out how to record videos. During this YouTube spiral I learned that many influential creators used

internal (and external) tools to see what search terms or what videos were popular. You can do something similar with academic research using tools like Google Scholar or Web of Science or some amazing work by researchers like Cullen Hendrix on what gets cited and how often work gets cited on average.

Building on the literature

Several additional questions you can ask when looking at published research:

What causes might be missed/overlooked?
Can theories be used elsewhere?
What are future implications?
Does it apply at a different unit of analysis?

Here is an example using bibliometric tools. The first network graph is all keywords used by five or more articles that evaluate causal theories of election violence using quantitative data. There are some clear patterns and the colours help us visualise different groups of factors behind election violence. However, what if we expand the universe of keywords to all those used by three studies. You see now that the graph is more complex, but it includes a number of factors that some argue are important but that have not been seized on by the larger literature.

10. Be open to being wrong

As hopefully the readings this week made clear, it is crucial to frame your questions and theories in a way that can be proven wrong. If not, the argument is tautological. Stories are interesting, but it can be hard to tell the difference between them. Falsifiable theories are crucial.

Summary slide for this section

Enough said.

LECTURE PART 3: Causality

In this section we focus on the causal part of causal theories. How can we determine why X causes Y?

Democretius (c. 460-370 BCE)

“I would rather discover one causal law than be King of Persia.” (Quoted in Kellstedt & Whitten (2018: 56)

Best known today for formulating an atomic theory of the universe.

Simplifying reality

Simplifying reality is what we must do every day to be able to survive. However, sometimes complexity and novelty can help push us into new ways of thinking. For example, there is evidence that travel can shape the development of our brains.

(<https://www.theguardian.com/education/2016/jan/18/travel-broadens-the-mind-but-can-it-alter-the-brain>).

When we simplify, we often narrow the focus to the types of bivariate relationships ($X \rightarrow Y$) we discussed above. However, sometimes there are limits to the simplicity and it is useful to think about limited multivariate relations (e.g., remittances * crises = less war).

When we simplify and make our causal theories it is with the recognition that our social world is probabilistic rather than deterministic. Just because incumbents are less likely to win with low pre-election job approval ratings does not mean that they cannot win the next election. Unlike formal theory, maths, or some hard sciences, we operate with innate uncertainty.

Four hurdles to establishing causality

When we think about causal arguments (our own or others), it is important to evaluate them according to the following hurdles:

1. Is there a credible mechanism connecting X and Y?
2. Can we rule out Y causing X (endogeneity)?
3. Is there covariation between X and Y?
4. Have we controlled for potential spuriousness (Z)?

2019 Westminster dog show example video

<https://youtu.be/qFNurioWZZY>

Hurdle 1: A mechanism connecting X & Y

The “how” and “why” questions we focus on in this class

Elster’s (1989) “causal mechanisms”

The mechanism must be credible/plausible.

Alien abduction and dead grandmothers require more supporting evidence to be considered plausible.

Example: Drownings and Nick Cage movies

Example: Arcade revenue and computer science PhDs

Example: Get-out-the-vote efforts and voter turnout in Brazil

Hurdle 2: Is it possible that Y causes X?

This hurdle can often be harder to pass over, especially in social sciences. Does economic growth cause democracy or does democracy cause economic growth? Or this

paper by Fjelde and Smidt (2022), peacekeeping may cause less violence, but it is also possible that violent areas attract more peacekeepers.

Hurdle 3: Covariation between X and Y

Do the variables covary? In other words, as one variable changes, is the other variable changing? Here the example is democracy and GDP. There is clearly covariation in this figure. It is also possible that the variation may be hidden because of the confounding effects of another variable. For instance, remittances and civil war may not seem to covary until you take in the effects of economic crises.

Hurdle 4: Have we controlled for potential spuriousness (Z)?

Is there some other factor that is causing both the outcome and the explanatory factor? For instance, educational attainment and election violence. Can you think of some variable that can increase the probability of both X and Y?

Example #1: happiness and democracy

1. A credible mechanism connecting X and Y?
2. Can we rule out Y causing X (endogeneity)?
3. Is there covariation between X and Y?
4. Have we controlled for potential spuriousness (Z)?

Example #2: Jobkeeper —> more jobs kept

1. A credible mechanism connecting X and Y?
2. Can we rule out Y causing X (endogeneity)?
3. Is there covariation between X and Y?
4. Have we controlled for potential spuriousness (Z)?

Example #3: Height —> electoral success

1. A credible mechanism connecting X and Y?
2. Can we rule out Y causing X (endogeneity)?
3. Is there covariation between X and Y?
4. Have we controlled for potential spuriousness (Z)?

Example #4: Chocolate—>good health

1. A credible mechanism connecting X and Y?
2. Can we rule out Y causing X (endogeneity)?
3. Is there covariation between X and Y?
4. Have we controlled for potential spuriousness (Z)?

Causality summary

Determining causality is as much art as science.
It is an effort at simplifying reality in order to uncover an otherwise hidden truth.

It requires thinking deeply about your causal mechanism and considering alternate mechanisms that may be in play.

The strength of any causal mechanisms depends on considerations of plausibility, endogeneity risk, important covariation, and spuriousness risk. Underlying assumptions are crucial to recognise and consider.

LECTURE PART 4: Developing Good Ideas

How do we develop good ideas?

Here are nine ideas and benchmarks:

1. Intellectual taste
2. Personality
3. Our interests
4. Logic
5. Avoids relabelling
6. Stands the test of time
7. Can be described to others clearly and briefly.
8. Simplifies the world.
9. Learning from bad ideas

Mark Rober's (2015) TED talk is also worthwhile.

His main points: curiosity, hard work, and luck.

TED talk: <https://youtu.be/L1kbrlZRDvU>

Important terms from this week's readings

Chapter 2:

Complete & incomplete information
Expected utility
Formal theory
Transitive & intransitive preferences
Preference ordering
Rational choice
Rational utility maximisers
Spatial & temporal dimensions
Utility

Chapter 3:

Bivariate vs multivariate
Confounding variable
Deterministic vs. probabilistic relationship
Endogeneity
Spuriousness

Today's discussion recap slide

III. WEEK 2 WORKSHOP

Logistics: From 5 minutes past to 5 minutes to the hour. Be on time, as we will start at 5 past the hour. Also, make sure that you know where your workshop room is. ANU Timetabling always has the most up-to-date information. There are two workshops. Sign up for one if you have not done so already. There are only a few availabilities left. The *MyTimetable* website also makes it possible to keep an eye on workshops just in case a student moves or withdraws from one that is better for you.

Requirements: Make sure to bring a laptop (or other internet-connected device). Also be sure to have your readings (pdfs or printouts if you are old-school) for that week with your notes and questions on them (or in a separate document). This may be the first meeting, but I have designed it to be as engaging and action-packed as all subsequent weeks. Be aware that there may (read: will) not be enough charging ports for every student to plug in their computer at the same time. Workshops are held in normal rooms, not computer labs.

Workshop Quizzes: This week we will have our first workshop quiz. Over the course of this term the ten quizzes will collectively be worth 30% of your final mark. As I mentioned in week 1, life happens, so your overall mark will not be affected if you miss one workshop. If you make all workshops, then each quiz will be worth 3% of your final mark in this class. If you miss one workshop, then your quiz mark will be determined by the nine quizzes you did complete. If you miss more than one workshop, then you will receive a 0 for the quizzes you did not complete after the first one.

This week's quiz will be on paper and has five questions, each worth 20% of the week's quiz mark. There are four different versions of the quiz. Please be sure to bring a pen or pencil as I do not have enough to share with the entire class!

You will have up to 15 minutes to complete this quiz.

If you have an EAP and believe you need special accommodations for the weekly quizzes, please reach out to me before workshop to discuss possible accommodations. If EAP students do not reach out to me before workshop, I will conclude that they plan on completing the assessment on paper with the rest of the class in the same time frame.

Overall, I hope workshop quizzes provide an opportunity to (a) have an external enforcement mechanism helpful in regularly completing the lecture and readings and (b) think about the topics and issues we cover each week in a timely and systematic fashion.

In-person—There are no options for online workshops as the university has shifted back to normal teaching conditions. If you have a documented illness (including COVID) or a current EAP, please email me as soon as possible. Only documented medical conditions will be noted as excusable absences. We will then provide more information for ways to participate for the week you are unable to attend. The initial student survey suggests that many of you have time constraints including work commitments. I understand the difficulties this can create all too well. While participation is 10% of your final grade (and thus easy to write off for some) and workshop activities are 20%, lectures, readings, and workshop activities are designed to be integral to coming on this research design journey with us. It is like trying to fly a 90% operational aircraft. It might work for a while, but it is not likely to end terribly well. Deciding

to fall behind (or neglect) regular participation and engagement with the course will likely have much more than a 10% effect on your final mark because you are less likely to understand the terms, techniques, and assumptions underlying the assessments and because you will have had less time to develop the skills to apply them.

WORKSHOP ACTIVITIES

Given that this is the first workshop, the focus is on (1) introductions, (2) addressing initial questions and issues about the course, and (3) linking the reading and lecture material to students' own research interests.

For the items 2 and 3 below, students need to submit their responses BEFORE THE END of the workshop they are enrolled in. This will be cross-referenced by us to the attendance sheet. Responses are marked out of three (3) points. 1=minimal & insufficient response; 2=a response that meets the brief; 3=a response that exceeds the brief by creatively or originally linking it to existing theories, readings, lectures, or workshop discussion. Results will be made available within two weeks of the week in which the workshop discussion occurred.

1. Instructor and student introductions

What is your name and what are you interested in (or have already) researched?

2. Students (on their own) should write down:

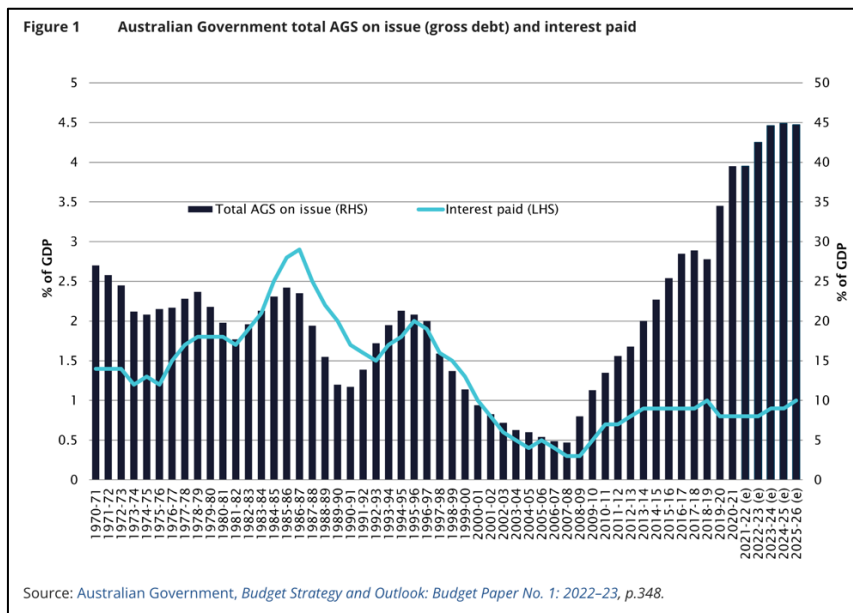
- One research question of interest to them
- One causal theory that answers (or may answer) this question
- All students should submit both their question and theory to “Wattle/Week 2/workshop item 1.”

3. Students should then present their efforts to another student.

- This student should listen then develop:
 - One strength of this approach
 - One question you have about this approach
- Then the roles reverse, and the presenter becomes the presentee.
- All students should submit their comments on another students' research (both at least one strength and one question) to “Wattle/Week 2/ workshop item 2.”

4. As one workshop group look at the graph below on Australian government debt over time.

- Come up with three (or more) potential causal explanations for the variation over time.
- Now use the link below (or search online) for a reputable source of comparable government debt across countries.
- Try and develop three (or more) causal explanations for the variation across countries.



Source: O'Brien, Gregory. 2022. "Australian government debt in historical and international perspective." Parliament of Australia.

(https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/BriefingBook47p/AustralianGovernmentDebt)

5. General questions about the course or the terms used in lecture or reading?