
Research Methodology for Public Policy

Lecture 12 — Qualitative Methods 2: Mixed Methods

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Welcome Back & Agenda

Quick Recap: Lecture 11

- Qualitative Methods
- Case selection logics: typical, deviant, extreme, diverse, most-similar, most-different
- Interviews: structured vs. semi-structured, key informants vs. representative samples
- Participant observation and ethnography: immersion, field notes, the overt/covert and active/passive choices
- Today we add two more small- N tools — process tracing and focus groups — and then ask: what happens when you combine small- N work with large- N work?

Today's Agenda

- Research Ethics
- Why combine qualitative and quantitative methods?
- Two more small- N methods: process tracing and focus groups
- Triangulation vs. integration
- Causal mechanisms: connecting X and Y
- Designs for mixing methods: nested analysis and pathway analysis
- Worked examples and practical guidance for your own research

Research Ethics

Why Research Ethics Matters

More Than a Compliance Checkbox

- Policy research routinely touches real people's lives — the questions we ask, and how we ask them, carry real stakes
- Ethical lapses don't just harm participants — they undermine the credibility of the whole research enterprise
- This isn't an abstract concern — it has a real, sobering history

A Brief, Sobering History

- **Tuskegee Syphilis Study** (1932–1972): Black men with syphilis denied treatment, without their knowledge, for decades, in the name of research
- **Milgram's obedience experiments** (1960s): participants deceived and placed under serious psychological distress
- These cases, among others, directly produced the modern system of research ethics oversight

Foundational Ethical Principles

The Belmont Report (1979)

Three core principles, still the backbone of research ethics today:

1. **Respect for persons:** individuals are autonomous agents; those with diminished autonomy deserve extra protection
2. **Beneficence:** maximize possible benefits, minimize possible harms
3. **Justice:** the benefits and burdens of research should be fairly distributed

From Principles to Practice: IRBs

- **Institutional Review Boards (IRBs):** committees that review research involving human subjects before it begins
- Apply the Belmont principles concretely — does this study's design adequately protect participants?
- Even seemingly low-risk policy research (surveys, interviews) usually requires some form of ethics review

Informed Consent, Confidentiality, and Vulnerable Populations

Informed Consent

- Participants must understand: what they're being asked to do, any risks and benefits, and that participation is voluntary
- Consent must be **ongoing** — participants can withdraw at any time, without penalty
- Deception is sometimes used in experimental research (Lecture 9) — when justified, it requires extra ethical scrutiny and a debriefing plan

Confidentiality and Anonymity

- **Anonymity:** even the researcher cannot link a response back to an individual
- **Confidentiality:** the researcher could link responses to individuals, but commits not to disclose that link
- Field and interview research (Lecture 10) raises distinct challenges — small communities, distinctive quotes, and identifiable contexts can unintentionally reveal identity

Vulnerable Populations

- Some populations need extra protection: children, prisoners, people with diminished capacity to consent, and populations in conditions of unequal power relative to the researcher
- Policy research often involves people in vulnerable circumstances (e.g., recipients of a social program) — the power imbalance itself is an ethical consideration, even when individuals aren't formally “vulnerable” by regulatory definitions

Ethics in the Era of Big Data and AI

New Terrain, Old Principles

- Administrative data, social media data, and algorithmic tools raise new versions of old questions
- Did anyone actually consent to having their data analyzed this way?
- Can “anonymized” data be re-identified when combined with other sources?
- Who is accountable when an algorithm, not a person, makes a consequential decision?

A Few Emerging Norms

- **Data minimization:** collect and retain only what you actually need
- Transparency about how AI/algorithmic tools were used in research — consistent with this course's own stance on code: illustrative and explainable, never a black box
- **Equity audits:** does a tool or model perform differently across subgroups?

Publication Ethics and Research Integrity

Revisiting the Replication Crisis

- Recall Lecture 9: *p*-hacking, exploratory fishing, and the replication crisis
- Pre-registration and registered reports are partly an *ethics* response, not just a technical one — they protect against (often unintentional) self-deception
- Authorship, data sharing, and proper citation are also matters of research integrity, not just etiquette

Questionable Research Practices

- Selectively reporting only significant results — the “file drawer problem”
 - **HARKing**: Hypothesizing After Results are Known — presenting an exploratory finding as if it had been predicted in advance
 - Fabrication and falsification are rare, but devastating when they occur — and erode public trust in *all* research, not just the offending study
- Think back to foundational scientific principles of objectivity and unbiased reporting based on evidence

Bonus: Open Science and Looking Beyond This Course

Open Science Practices

- Pre-registration, open data, and open materials — letting others verify and build on your work
- All three textbooks for this course (EMPS, QRM, QUANT) are themselves open-access — a small example of the open-science ethos in action
- Replication isn't just defensive — it's how a field accumulates trustworthy knowledge over time

Finishing Discussion of Surveys

Survey Modes: Trade-offs

Mode	Response Rate	Anonymity	Cost	Limitations
Face-to-face	Highest	Low	High	Interviewer effects; logistically complex
Telephone	Moderate	Moderate	Moderate	Not suitable for long surveys; declining landline coverage
Online	Variable	High	Low	Computer

Participant Observation and Ethnography

Participant Observation, Defined

- **Participant observation:** the researcher participates in an organization, community, or group activity *as a member*, rather than only watching from outside
- “It involves a researcher immersing themselves within a community... [and requires] that the researcher build a strong bond of trust with the observed community.”
- Originally an anthropological method, now widely used across political science and policy research

The Active/Passive, Overt/Covert Grid

- Two design choices, usually made with an IRB: how *active* is your participation, and how *overt* is your presence?
- Passive + covert: the community may have no idea they are being studied
- Active + overt: the community knows who you are and why you're there — but your presence can itself change what you observe
- Neither option escapes the basic tension: visibility changes behavior; invisibility raises ethical questions

Covert Observation in Practice



- Covert observation buys you access to behavior people might suppress if they knew they were being watched
- It also raises the sharpest ethical and consent questions of any method in this course — Successful IRB review is not a formality here

A Field-Defining Example

- Mary Pattillo studied the Black middle class by moving into the Chicago neighborhood she would write about in *Black Picket Fences*
- She led the local church choir, joined the community's action group, and coached cheerleading at the local park — full immersion, not a site visit
- Her own account ties this back to her research question: the participant observation was “essential to describing the black middle class” in that setting
- This is the upper bound of commitment — most projects won't go this far, but it shows what the method can buy you

What Participant Observation Is *For*

- Best suited to **theory-building**: it surfaces process and mechanism that a survey or interview alone would miss
- EMPS Ch. 9 recommends pairing it with another method (often interviews), so the community can also narrate its own story in its own words
- The core discipline: meticulous field notes, written promptly, with explicit attention to the researcher's own biases as they form

Observing Policy in Public



- Not every setting requires deep immersion — public meetings, hearings, and agency proceedings are observable without covert access
- Still demands the same rigor: systematic notes on who spoke, what was contested, 22

Ethnography

- **Ethnography** is the broader project of studying a group of people and their lived experience, typically through sustained immersion and relationship-building
- Classic approach of cultural Anthropology
- Overlaps heavily with participant observation — the distinguishing feature is the emphasis on documenting culture, meaning, and relationships, not just behavior
- Especially valuable for **underrepresented communities**, where survey response rates are often low and trust in outside researchers may be limited — it documents emotions, attitudes, and relationships that are “sometimes impossible to capture in quantitative work” (*EMPS Ch. 9*)

Practical Guidance: Bias, Access, and Triangulation

Access and Rapport

- Unlike a public data set, qualitative access usually has to be *earned*: through gatekeepers, sponsorship, reputation, or sustained presence
- Plan for it explicitly in your research design — “I’ll just go interview people” is not a method, it’s a hope
- Snowball sampling, key informants, and institutional affiliations are common ways researchers build a path in
- Rapport can be built through how you present yourself — dress, demeanor, shared markers of identity — but it has to be genuine, not performed; what builds trust with a group of blue-collar workers may differ from what works with college students
- Rapport is a means to better data, not an end in itself — don’t let it become a substitute for systematic note-taking

Reflexivity and the Researcher's Own Bias

- Small- N fieldwork puts the researcher's own perspective directly into the data-collection process — there is no way to fully step outside it
- Discipline against this: constant self-questioning about what you are noticing, what you might be missing, and why
- Keep both mental notes and a notepad; write up observations immediately after leaving the field, while memory is still fresh

Documents as a Complementary Source

Primary Sources	vs	Secondary Sources
A piece of evidence created by someone at the time of the event. Examples include: • Letters • Diaries • Government records • Autobiographies • Artifact • Computer software 		Information created by someone who was not present at an event, after an event happened. Examples include: • Newspaper articles • Textbooks • Biographies • Encyclopedias • Dictionaries • Atlases 

- Government records, organizational archives, media coverage, meeting minutes, personal papers
- Primary sources (created at the time, by someone present) and secondary sources

Triangulation

- **Triangulation:** corroborate a finding using multiple data sources or methods, so no single account carries the whole argument
- The disadvantage of small- N work is *not* less data — interviews, field notes, and archives generate plenty — it's a limited pool of *cases*
- “A responsible researcher will have to consider whether their case selection is representative... and how best to ensure that they are getting a diverse set of voices.” (*EMPS Ch. 9*)
- Combining small- N methods with each other, or with quantitative evidence, is the standard way to strengthen the resulting argument — a preview of Lecture 11

More Small-N Methods

Where We Left Off

- We've covered case selection, interviews, participant observation, and ethnography
- Two more small- N tools round out the qualitative toolkit, and both matter directly for mixed-methods designs:
 - **Process tracing** — tracing the causal chain *within* a case
 - **Focus groups** — structured group discussion, distinct from one-on-one interviews

Process Tracing: What It Is

- “Process tracing is a method of causal inference using descriptive inference over time.” (*EMPS Ch. 9*)
- The goal: collect evidence to evaluate hypotheses by working through the sequence of historical events within a case
- This is the qualitative engine behind the “mechanism” idea we’ll formalize later today — process tracing is *how* you actually trace a mechanism

Process Tracing: Four Tests of Evidence

EMPS Ch. 9 lays out four named tests for weighing a piece of process-tracing evidence against a hypothesis:

- **Straw-in-the-wind test:** “can increase plausibility but cannot determine that any event [is a] necessary [or] sufficient criterion” (*EMPS Ch. 9*) — weakens or slightly supports, never confirms
- **Hoop test:** establishes a *necessary* criterion — failing it eliminates a hypothesis, but passing it doesn’t confirm one
- **Smoking-gun test:** “provides a sufficient but not necessary criterion” (*EMPS Ch. 9*) — strong support for one hypothesis, and can substantially weaken rivals
- **Doubly decisive test:** evidence that is both necessary and sufficient — the rare case that confirms one hypothesis and eliminates the rest at once

Focus Groups: What They Are

- “Focus Groups, similar to individual interviews, require a researcher to set questions, recruit participants, and follow up with participants as necessary.”
(paraphrased from EMPS Ch. 9)
- Like an interview, a focus group needs a guide — structured questions and themes prepared in advance
- The key difference from a one-on-one interview: a focus group puts several respondents in the room *together*, and studies how they talk *to each other*, not just to the researcher

Focus Groups: Why Use Them

- “The advantage of a focus group is that a researcher is able to facilitate multiple respondents at once, which can lead to additional details and information you might not get in [a] series of single interviews.” (*paraphrased from EMPS Ch. 9*)
- Melissa Harris-Perry’s *Sister Citizen* used focus groups to spur discussion about stereotypes — a topic respondents might underplay one-on-one but reveal when reacting to each other (*EMPS Ch. 9*)
- A researcher records not just answers, but **group dynamics**: points of agreement, points of friction, who shifts position and why

Focus Groups: What to Watch For

- Group dynamics cut both ways — they can surface things individual interviews miss, but they can also produce **conformity pressure**, where quieter participants defer to louder ones
- A good moderator tracks impressions, points of contention, and general interaction patterns, not just a transcript of stated opinions
- Focus groups are well suited to *theory-building* — exploring how a group collectively makes sense of an issue — more than to testing a sharp, pre-specified hypothesis

Small-N Methods: The Full Toolkit

From Lecture 10

- Interviews
- Participant observation
- Ethnography

From today

- Process tracing
- Focus groups

- All five share the same logic: depth over breadth, mechanism over average effect — which is exactly why they pair so well with large- N quantitative work

Why Mixed Methods?

All Methods Are Flawed

- Every method we've covered this course — regression, experiments, case studies, interviews, process tracing — rests on assumptions that can fail
- The key insight behind mixed methods: **all methods are flawed, but they are flawed in different ways**
- Combining methods doesn't eliminate every assumption — but it can let one method's strengths cover another's weaknesses
- We can combine strategically

Limits of Quantitative Inference

- Data limitations: sometimes a good quantitative measure doesn't exist, or existing data is poor quality
- Without an experiment, cross-sectional regression results may not be robust to omitted variables
- Outliers: regression can flag *that* a case doesn't fit, but not *why*
- Variable-oriented and theory-driven: regression flattens the world into categories the researcher already chose to measure
- Mechanisms: regression is good at *whether* X relates to Y , not very good at *how*

Limits of Qualitative Inference

- “The major disadvantage of small n methods is that a researcher is working from a small pool [of cases].” (*paraphrased from EMPS Ch. 9*)
- Case selection can be (deliberately or accidentally) biased toward cases that fit the researcher’s story
- Weak empirical leverage when there are more variables and questions than cases
- Risk of researcher subjectivity in drawing conclusions, and limited replicability
- “It is difficult (but not impossible) to generalize from the use of small n research.” (*paraphrased from EMPS Ch. 9*)

The Complementary Pattern

Quantitative is strong at

- Establishing *whether* X relates to Y , on average
- Generalizing across many cases
- Ruling out chance with formal tests

Qualitative is strong at

- Establishing *how* and *why* X produces Y
- Going deep on a small number of cases
- Discovering mechanisms not yet in the model

- Mixed methods is the deliberate decision to use both, in the same project, for the same underlying question

Triangulation vs. Integration

Two Strategies for Combining Methods

- **Triangulation** (Tarrow 1995): ask the same causal question using different methods, and see whether the answers agree
- **Integration** (Seawright 2016): use each method for what it does best, so each method's assumptions help justify the others'
- Both strategies start from the same premise: convergence across different, independently-flawed methods is more convincing than any single method alone

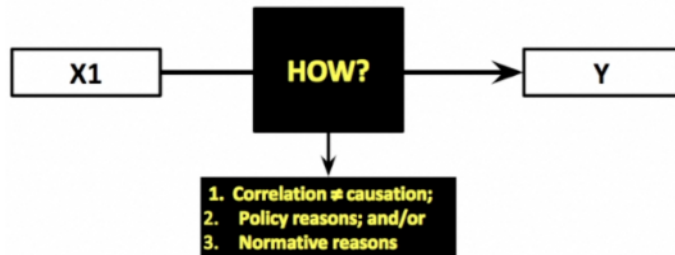
Triangulation, Illustrated

- Suppose you want to know whether a new transparency law reduced corruption in local government
- A **triangulation** design might run a difference-in-differences regression on corruption indices *and* conduct interviews with officials in several municipalities, asking each method the *same* question independently
- If the regression shows a drop and officials independently describe behavior change, that convergence is more convincing than either result alone
- If they disagree, that's informative too — it tells you to dig into *why* before trusting either result

Integration, Illustrated

- An **integration** design doesn't ask the same question twice — it splits the question into parts and assigns each part to the method best suited for it
- Example: a regression establishes that the transparency law is associated with lower corruption, on average, across municipalities
- Process tracing within a handful of those municipalities then establishes *whether and how* the law's disclosure requirements actually changed officials' incentives
- Each method does a *different* job; together they support a single causal story neither could support alone

The Question of How



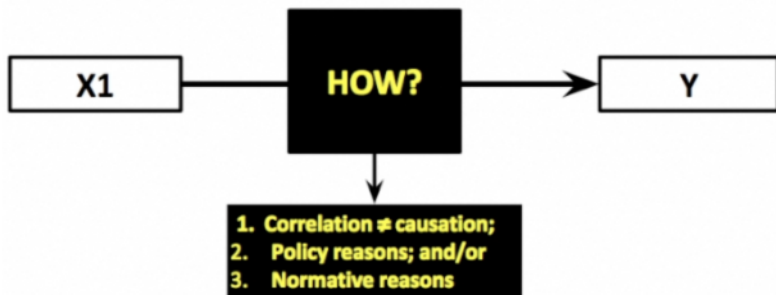
- Case studies and cross-case (large- N) designs trade off systematically: case studies are strong on internal validity, mechanisms, and hypothesis generation; cross-case studies are strong on external validity, average effects, and hypothesis testing
- Mixed-methods designs work because these strengths and weaknesses are largely

Mechanisms: Connecting X and Y

What Is a Mechanism?

- A **mechanism** is the pathway or process by which a cause produces its effect — the *how*, not just the *whether*
- Regression alone tells us X and Y are related; a mechanism tells us *why*

The Question of How



Why Mechanisms Matter for Mixed Methods

- Quantitative work is well-suited to establishing *that* an average relationship exists, across many cases
- Qualitative work — process tracing, case studies, interviews, focus groups — is well-suited to showing the mechanism connecting cause to effect, within cases
- Mixed-methods designs are often built explicitly to pair these two strengths

Mechanisms and Process Tracing Work Together

- Process tracing is, in practice, the main *tool* researchers use to establish a mechanism once a quantitative result has flagged a relationship worth explaining
- The straw-in-the-wind, hoop, smoking-gun, and doubly-decisive tests from earlier give you a vocabulary for how *strong* a piece of mechanism-tracing evidence really is
- A regression coefficient says “ X and Y move together”; a doubly-decisive piece of process-tracing evidence says “and here is why, confirmed”

Designs for Combining Methods

Nested Analysis

- One approach (Lieberman 2005): start with a large- N regression to establish the average relationship, then select cases from that regression for in-depth, qualitative follow-up
- The regression tells you *where* to look; the case study tells you *why* the pattern holds (or doesn't) in that case

Nested Analysis: Choosing Cases From the Regression

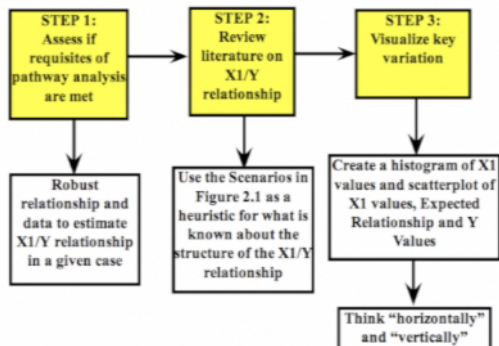
- Cases aren't picked at random — they're picked using the residuals and fitted values from the regression itself
- **On-the-line cases:** fit the model well — good for confirming the mechanism the model implies
- **Off-the-line cases** (positive or negative residuals): the model under- or over-predicts — good for discovering what the model is missing
- This is the same logic as the “deviant case” idea from Lecture 10, applied directly to your own regression output

Putting Nested Analysis to Work

- Suppose a regression finds that international aid is associated with improved health outcomes, on average, across many countries
- A nested case study could then ask: in one well-chosen recipient country, did aid actually flow through the mechanism the theory proposes (e.g., aid → clinics built → access → outcomes)? Or did it stall somewhere along the way?
- This single case can't tell you the *average* effect — but it can tell you whether the story you're proposing for that average effect is plausible

Pathway Analysis

- Weller and Barnes (2014): a structured method for using qualitative evidence to test *which* causal pathway connects X to Y , given a binary outcome Z
- X : the independent variable of interest from your regression
- Y : the expected relationship the regression model identified
- Z : the binary outcome you're tracing within a specific case



Finding Pathways, Step by Step

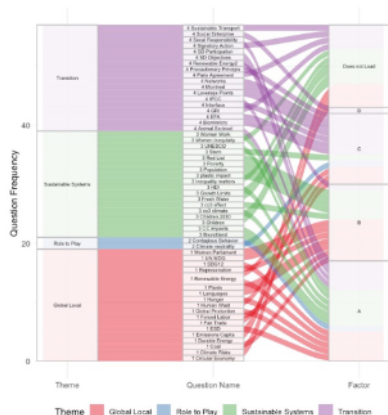


- Pathway analysis works through a case systematically: did the evidence at each step match what the proposed mechanism predicts?
- If a case's evidence breaks the chain at some step, that's informative — it tells

Pathway Analysis Meets Process-Tracing Tests

- Each step in a Weller-and-Barnes pathway is itself a small process-tracing exercise — you're asking whether the evidence at *this* step passes a hoop test, a smoking-gun test, or only a straw-in-the-wind test
- A pathway that survives several doubly-decisive steps in a row is much stronger evidence than one that only clears straw-in-the-wind tests throughout
- This is the payoff of learning both frameworks together: pathway analysis gives you the *map*, process-tracing tests give you the *ruler* for how much to trust each step

Visualizing Multiple Pathways



- Mechanisms rarely run through a single, clean channel — a diagram like this shows how cases can flow through multiple distinct pathways toward the same (or different) outcomes

Horizontal and Vertical Comparisons

- Weller and Barnes also distinguish two ways of comparing cases once you have several pathway-traced cases on hand
- **Horizontal comparisons:** cases with *similar* values on X but *different* outcomes — why did the mechanism work in one but not the other?
- **Vertical comparisons:** cases with *different* values on X but the *same* outcome — is the relationship doing the work you think it is, or is something else?
- Both comparisons use the same underlying case evidence, just sliced in different directions to stress-test the proposed mechanism

A Worked Example

Putting It All Together

- Research question: does international election observation reduce post-election violence?
- **Step 1 (large- N):** regression across elections worldwide finds observed elections have, on average, less post-election violence
- **Step 2 (nested case selection):** select a few cases — some on-the-line, some off-the-line — for closer study
- **Step 3 (process tracing):** within each case, trace the proposed mechanism (observers present → fraud less likely to go undetected → losing side has less reason to claim the election was stolen → less violence)
- **Step 4 (pathway analysis):** at each link in that chain, ask what evidence would pass a hoop test or smoking-gun test, and look for it

What Each Step Buys You

- The regression buys you confidence the relationship isn't a fluke across the whole population of elections
- The case selection buys you a defensible reason to focus on *these* cases rather than convenient ones
- The process tracing buys you evidence about *why* the relationship holds (or doesn't) in a specific case
- The pathway analysis buys you a disciplined way to grade how strong that evidence actually is, link by link

Mixed Methods Beyond Case + Regression

- Representative survey + survey experiment
- Large- N regression + formal model
- Regression + focus groups (explaining *why* survey respondents answered as they did)
- Interviews + archival research
- Case study + process tracing
- Ethnography + administrative data

Practical Guidance for Your Own Research

Choosing a Mixed-Methods Design

- Start from your research question, not from a list of methods — what does *this* question actually need?
- Ask: what would convince a skeptical reader that your causal story is right, not just that a correlation exists?
- Decide early: is this **triangulation** (same question, two methods) or **integration** (different parts of the question, different methods)? Say so explicitly in your write-up
- Budget realistically: mixed-methods designs are valuable, but they cost more time and access than a single-method design

Sequencing Your Methods

- **Quant** → **qual** (nested analysis): use a large- N result to motivate and select cases for deep qualitative follow-up — the most common sequence in this course's examples
- **Qual** → **quant**: use small- N fieldwork to generate a hypothesis or build a measure, then test it across a larger sample
- **Concurrent**: collect both kinds of evidence in the same time frame and let them inform each other as you go, rather than waiting for one to finish before starting the other
- There's no universally “correct” sequence — it depends on what you already know going in

Matching Method to Case-Selection Logic

- The case-selection logics from Lecture 10 — typical, deviant, extreme, diverse, most-similar, most-different — aren't just for stand-alone qualitative work
- In a nested design, *which* logic you use depends on your goal:
 - Confirming a mechanism → **typical** or **on-the-line** cases
 - Discovering what the model misses → **deviant** or **off-the-line** cases
 - Building a new hypothesis → **diverse** cases across the range of X
- Be explicit in your methods section about which logic drove your case selection, and why

Practical Steps for a Nested or Pathway Design

1. Run the large- N analysis first and inspect the residuals
2. Choose cases deliberately — on-the-line for confirmation, off-the-line for discovery — and say which you picked and why
3. Build an explicit pathway: list the steps your theory predicts between X and Z
4. For each step, gather evidence and ask which process-tracing test it passes
5. Report where the chain held and where it broke — a broken chain is a finding, not a failure

A Word of Caution

- Combining methods is not a substitute for doing either one well — a sloppy case study doesn't get rescued by a clean regression, or vice versa
- Be explicit about *why* you're combining methods (triangulation? integration? something else?) — don't just gesture at “mixed methods” as a buzzword
- Don't cherry-pick the case that happens to confirm your story — use a stated case-selection logic and report it, even when the chosen case complicates the narrative
- Group dynamics in focus groups and observer effects in ethnography are real threats to validity — name them and address them, don't ignore them

Common Pitfalls to Avoid

- Treating “mixed methods” as automatically more rigorous than either method alone
- Letting the qualitative half become an anecdote search for examples that fit
- Skipping case-selection justification entirely
- Using a different research question for each method instead of one coherent design
- Underestimating the time and access that good fieldwork requires
- Failing to say which steps in a pathway are confirmed vs. merely plausible

My Humble Advice

. . .for policy data scientists in SE Asia 1. Advocate for scientific principles and quantitative analysis 1. Find and collect the data you need(it might be hiding) 1. Spend time on effectively communicating data 1. Now that R is your BFF, AI can be constant third wheel - “vibe-coding is fire, bruh” 1. This skillset is extremely valuable if you can sell it

Key Terms from Today

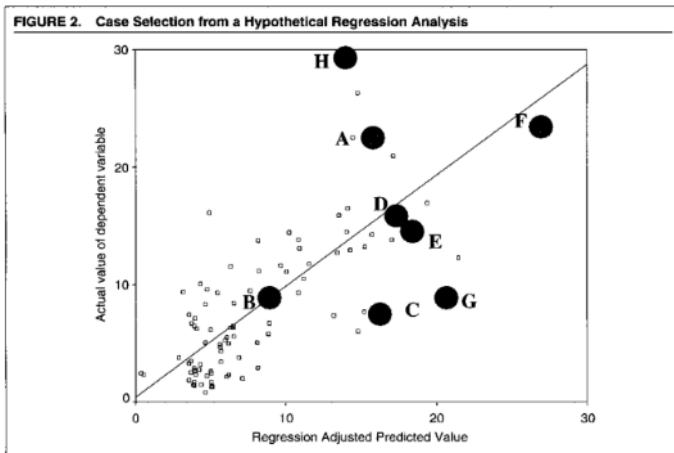
- Process tracing
- Straw-in-the-wind / hoop / smoking-gun / doubly-decisive tests
- Focus groups
- Triangulation
- Integration
- Mechanism
- Nested analysis (on-/off-the-line cases)
- Pathway analysis ($X \rightarrow Y \rightarrow Z$ framework)
- Horizontal vs. vertical comparisons

Questions?

Thank you —

Appendix: Additional Mixed-Methods Figures

Appendix: Nested Analysis Case Selection (Lieberman 2005)



- Lieberman's own illustration of case selection from a regression: lettered cases (A–H) sit at varying distances from the fitted line

Appendix: Case Study vs. Cross-Case Tradeoffs (Gerring)

Table 4.1 Case study and cross-case research designs: affinities and tradeoffs

	Affinity	
	Case study	Cross-case study
Research goals		
1. Hypothesis	Generating	Testing
2. Validity	Internal	External
3. Causal insight	Mechanisms	Effects
4. Scope of proposition	Deep	Broad
Empirical factors		
5. Population of cases	Heterogeneous	Homogeneous
6. Causal strength	Strong	Weak
7. Useful variation	Rare	Common
8. Data availability	Concentrated	Dispersed

- Gerring's tradeoff table lays out, point by point, why case studies and cross-case designs pull in different directions: hypothesis generating vs. testing, internal

Appendix: Cross-Case Methods of Case Selection (Seawright & Gerring)

Table 1
Cross-Case Methods of Case Selection and Analysis

Method	Definition	Large- <i>N</i> technique	Use	Representativeness
Typical	Cases (one or more) are typical examples of some cross-case relationship.	A low-residual case (on-liner)	Confirmatory; to probe causal mechanisms that may either confirm or disconfirm a given theory	By definition, the typical case is representative, given the specified relationship.
Diverse	Cases (two or more) exemplify diverse values of <i>X</i> , <i>Y</i> , or <i>X/Y</i> .	Diversity may be calculated by (1) categorical values of <i>X</i> or <i>Y</i> (e.g., Jewish, Catholic, Protestant), (2) standard deviations of <i>X</i> or <i>Y</i> (if continuous), or (3) combinations of values (e.g., based on cross tabulations, factor analysis, or discriminant analysis)	Exploratory or confirmatory; illuminates the full range of variation on <i>X</i> , <i>Y</i> , or <i>X/Y</i>	Diverse cases are likely to be representative in the minimal sense of representing the full variation of the population. (Of course, they may not mirror the distribution of that variation in the population.)
Extreme	Cases (one or more) exemplify extreme or unusual values of <i>X</i> or <i>Y</i> relative to some univariate distribution.	A case lying many standard deviations away from the mean of <i>X</i> or <i>Y</i>	Exploratory; open-ended probe of <i>X</i> or <i>Y</i>	Achievable only in comparison with a larger sample of cases.
Deviant	Cases (one or more) deviate from some cross-case relationship.	A high-residual case (outlier)	Exploratory or confirmatory; to probe new explanations for <i>Y</i> , to disconfirm a deterministic argument, or to confirm an existing explanation (<i>true</i>)	After the case study is conducted, it may be corroborated by a cross-case test, which includes a general hypothesis (a new variable) based on the case study research. If the case is now an on-liner, it may be considered representative of the new relationship.
Influential	Cases (one or more) with influential configurations of the independent variables.	Hat matrix or Cook's distance	Confirmatory; to double-check cases that influence the results of a cross-case analysis	An influential case is typically not representative. If it were typical of the sample as a whole, it would not have unusual influence on estimates of the overall relationship.

- Typical, diverse, extreme, deviant, and influential cases, each defined precisely and paired with its corresponding large-*N* diagnostic (residuals, Cook's distance, etc.) 68

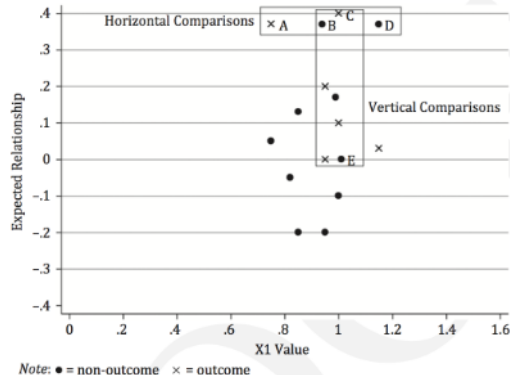
Appendix: Cross-Case Methods of Case Selection (continued)

Most similar	Cases (two or more) are similar on specified variables other than X_i and/or Y .	Matching	Exploratory if the hypothesis is X - or Y -centered; confirmatory if X/Y -centered	Most similar cases that are broadly representative of the population will provide the strongest basis for generalization.
Most different	Cases (two or more) are different on specified variables other than X_i and Y .	Inverse of the most similar method of large- N case selection	Exploratory or confirmatory; to (1) eliminate necessary causes (definitively) or (2) provide weak evidence of the existence of a causal relationship	Most different cases that are broadly representative of the population will provide the strongest basis for generalization.

Note: X_i refers to the causal factor of theoretical interest.

- The same table's most-similar and most-different rows — extending the Most Similar / Most Different Systems Design logic from Lecture 10 into the case-selection-from-regression framework used today

Appendix: Horizontal and Vertical Comparisons, Visualized

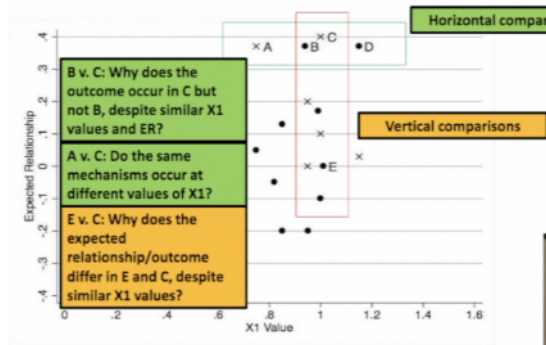


Scatterplot with expected relationship, X1 value, and observed outcome

- A direct visualization of the horizontal/vertical comparison idea: boxed cases share a value on one axis but differ on the other

Appendix: A Worked Horizontal/Vertical Comparison

Thinking Vertically and Horizontally



- Weller and Barnes's own worked questions: "Why does the outcome occur in C but not B, despite similar X_1 values?" is a horizontal comparison; "Do the same

See You in the Practicum

