Process Tracing Case Study

Impact Evaluation with Small Cohorts: Methodological Guidance (34–41)

Methodology Steps
Ricks, J.I. and Liu, A.H. (2018). Process-tracing research designs: a practical guide. *PS: Political Science & Politics*, *51*(4), 842–846.
Available at:
https://www-cambridge-org.sheffield.idm.oclc.org/core/journals/ps-political-science-and-politics/article/processtracing-research-designs-a-practical-guide/1AD4062D94FD81299724B41699D1972E
(Open Access)

Case Study
Ricks and Lui (2018) Appendix. Available at:
https://static.cambridge.olerg/content/id/urn:cambridge.org:id:article:S1049096518000975/resource/name/S1049096518000975sup001.pdf
(Open Access)

Additional material from:
Delahais, T. and Lacouette-Fougère, C. (2019). Try again. Fail again. Fail better. Analysis of the contribution of 65 evaluations to the modernisation of public action in France. *Evaluation* 25(2), 131–148. https://doi.org/10.1177/1356389018823237
(No Open Access version is currently available)

Fabricated WP Example
Barkat, S. (2019.) Evaluating the impact of the Academic Enrichment Programme on widening access to selective universities: Application of the Theory of Change framework. *British Educational Research Journal*, 45(6) 1160–1185.
Available at: https://doi.org/10.1002/berj.3556
(No Open Access version is currently available)

The fabricated example draws on a Theory of Change developed by Barkat (2019) to document an academic enrichment programme for Y12 students. All the details below, however, are fabricated and do not refer either to the intervention or its evaluation as described in the paper.

In the table below, the 'Case Study' column breaks down the case study evaluation into a series of methodological steps as described in the Methodological Guidance. In the 'Fabricated WP Example' column, we apply the logic of these steps to a hypothetical evaluation of a fabricated widening participation

intervention to suggest how a Process Tracing approach to evaluation might unfold when applied to an intervention of this type. The nature of this 'Small *n*' approach means that there may be no single 'correct' way of applying this methodology. The example given should be considered illustrative rather than a definitive model.

Case Study	**Fabricated WP Example**
Ricks and Liu 2018 Appendix Application 4: Irrigation bureaucracy reforms in the Philippines. Outline of paper: Ricks and Liu describe a policy intervention in which a specific state agency, the National Irrigation Administration (NIA) successfully pushed through ambitious policy reforms despite an otherwise weak state. The summary below incorporates additional material from Delahais and Lacouette-Fougère (2019) to illuminate the kinds of empirical tests that might be applied to contribution hypotheses.	There are few published examples of the application of Process Tracing to the evaluation of WP-focused interventions. The example below is a hypothetical model to suggest how this approach could be used in the evaluation of a WP intervention. The starting point for this discussion draws on a Theory of Change documented in Barkat 2019, but the discussion below is based on an entirely fabricated example case study. Outline of paper: The article outlines the development of a Theory of Change approach to evaluating the impact of an academic enrichment programme for disadvantaged young people in Y12. Key evaluation question: Was the academic enrichment programme responsible for a documented increase in applications to Russell Group universities?
Step 1 - Identify hypotheses	
Ricks and Liu outline two main hypotheses for the success of the irrigation reforms, based on a review of academic literature: a) the presence of a group of benevolent and skilled bureaucrats which pushed the agency towards a more open and participatory approach b) a political crisis at that time which forced political leaders to emphasise and enhance state capacity through reform, marking a break with the usual incremental approach (29).	Quantitative data demonstrates that the rate of applications to Russell Group universities was 20% higher for participants in the academic enrichment programme than for a counterfactual group with the same initial attainment rates and demographic. A Theory of Change was constructed through i) interviews with key delivery staff, including programme leads ii) interviews with participants iii) a review of programme documentation

	iv) a literature review of research exploring the decisions made by disadvantaged students when applying to HE, with a particular focus on factors influencing decisions to apply to 'selective' institutions. In terms of the increased number of applications to Russell Group institutions, two main hypotheses were developed: A) The academic enrichment programme included a specific component designed to increase academic confidence and create a perception among participants that they were capable of achieving the high entry requirements for selective institutions. B) The participants in the programme were selected from schools/colleges with a successful record (performance indicators) of students progressing to Russell Group universities and, therefore, the schools' culture and ethos were responsible for the higher application rate.
Step 2 - Establish timelines	
The evaluators established a timeline of events to describe the series of – and relationship between – events that led to the reforms. A simplified timeline is available in the appendix of Ricks and Liu (2018) (31). In summary, the timeline charts how the NIA was established in 1964 and subsequently grew rapidly to support increased national agricultural production. A series of legal and administrative changes in the 1970s aligned NIA incentives with farmers' interests, causing a shift in orientation and increasing the agency's capacity for working with agricultural stakeholders. Continued success encouraged an expansion of NIA programmes.	An intensive case study of a small group of participants was conducted through a series of workshops and interviews designed to track the processes involved in deciding to apply to a Russell Group university. The timeline begins in secondary school, when initial consideration was given to post-school options. Case study participants did not initially consider applying to selective institutions. The school provided a range of university visits to both selective and non-selective universities. On entering sixth-form college, case study participants report being encouraged to consider their options. They joined the academic enrichment programme six months before formalising their application.
Step 3 - Construct causal chain/graph	
The evaluators focused specifically on the agency's institutional reforms in the 1970s. In Hypothesis A, the presence of benevolent bureaucrats was the direct cause of agency reforms, supporting and facilitating changes.	The evaluators focused specifically on the case study participants' experiences from Y11 to Y13 as the key HE decision-making period. Case study participants note that they made final decisions about institutions between one and two months before submitting their application.

In Hypothesis B, in an additional step, a political crisis rather than the bureaucrats themselves forced the prioritisation of reform and created the conditions for change (32). A table of these causal hypotheses is available in the appendix of Rick and Liu (2018) (32) and is included below. This information can be represented as a formal graph or diagram, as here, to represent visually the relationship between the different steps in the causal chain.	In Hypothesis A, most case study participants report that they were inhibited from applying to highly selective institutions by a lack of confidence in their own ability to meet the academic entry requirements. The academic enrichment programme included unpacking examples of HE-level work and demonstrated how the relevant assessment criteria were applied to award an appropriate grade. This exercise demystified HE-level academic expectations and enabled participants to assess their own relative performance. Given the academic criteria for inclusion in the programme, all participants were considered capable of meeting selective university entry requirements. The exercise was intended as positive reinforcement to build confidence and encourage them to consider applying to selective institutions. Hypothesis B – The selection pool for programme participants was drawn from schools/colleges with significantly higher than average national performance indicators for student progression to Russell Group institutions. These partner schools/colleges promote a culture and ethos of HE progression and expectations about applying for highly selectively institutions. See below for diagrams indicating causal chains.
Step 4 - Identify alternative choice or event	
The evaluators focused on each of the stages in the causal chain and identified alternative pathways that could have resulted in the event of different decisions or outcomes, giving rise to a series of hypothetical counterfactual outcomes. Possible alternatives for the two hypotheses are: a) there were no benevolent bureaucrats in positions of sufficient authority to push through the reforms; b) there was no political crisis to create the political expediency for change.	The evaluators focused on each of the stages in the causal chains and identified alternative pathways if different decisions or outcomes had occurred. This resulted in a series of hypothetical counterfactual outcomes. Possible alternatives for the two hypotheses are: Hypothesis A A1) Participants are not inhibited from applying to selective institutions and/ or do not lack confidence in their academic potential.

	A2) Analysis of examples of HE-level work against the assessment criteria is not felt by participants to close the gap between their current and later HE-levels of study. A3) There is no relationship between academic confidence and the decision to apply to highly selective institutions. Hypothesis B B1) Participants are not initially inhibited from applying to selective institutions and/or do not lack confidence in their academic potential. B2 / B3) Although their school culture and ethos promote an expectation that students will apply to highly selective institutions, this does not impact or influence student attitudes or decision-making.
Step 5 - Identify counterfactual outcomes	
Hypothesis A: In a 'thought experiment' to explore the counterfactual pathway that would have occurred had there not been benevolent bureaucrats in place, the following alternative outcomes may have resulted in an: o Increased influence of international donors o Emergence of alternative officials who also pushed for reform. In this counterfactual narrative, the evaluators concluded that the same outcomes (NIA reform) were likely to have occurred if benevolent bureaucrats had not been leading the NIA. Therefore, Hypothesis A is weaker. In a counterfactual version of Hypothesis B in which no political crisis occurred, it is likely that the NIA would have continued to exist in a similar form. Without the financial constraints accompanying the political crisis, the Philippines would not have had to rely on external loans or increased alignment with farming interests and would have avoided these sources of pressure for reform. The country would also have been likely to continue importing rice, reducing the drive towards self-sufficiency in this regard. This analysis makes Hypothesis B appear stronger (33).	Counterfactual outcomes: A1) If participants were not inhibited from applying to selective institutions or did not lack academic confidence they may lack an incentive to participate in the programme. A2) If the experience of the relationship between HE-level work, grades and assessment criteria did not close the gap between participants' academic self-assessment and the demands of HE-level study, participants might remain reluctant to or be further deterred from applying to highly selective institutions. A3) If there is no relationship between academic confidence and applications to highly selective institutions, there will be no increase in applications to Russell Group institutions as a consequence of the programme. B1/B2) If participants have no pre-existing inhibition about applying to highly selective institutions or no lack of confidence in their own academic abilities, school culture is likely to have no impact on application rates and there are unlikely to be differences in target student groups applying to Russell Group universities. B3) If students do not internalise the prevailing school culture, this does not impact their HE decision-making.

Step 6 - Finding evidence for primary hypothesis	
Each of the two hypotheses is interrogated by a series of tests that seek to establish strong evidence of causal influence. These tests are defined by the extent to which they confirm or refute the primary and rival hypotheses (Delahais and Lacouette-Fougère 2019). <u>Straw in the wind tests</u> provide weak or circumstantial evidence for or against a hypothesis. Hypothesis A – Although bureaucrats can influence policy and make recommendations, other evidence suggests that politicians have a stronger influence on the country's policy-making process. *No definitive confirmation or refutation of Hypothesis A.* <u>Hoops tests</u> (as in jumping through hoops). A positive outcome does not definitively prove the hypothesis but can strengthen the case. Hypothesis A – Specific benevolent bureaucrats were in leadership roles in the NIA when the reforms happened. However, additional evidence suggests that other key bureaucrats also associated with the changes were not in leadership positions when the changes took place. *Although the evidence does not refute Hypothesis A, it further weakens it.* <u>Smoking gun tests</u> test unique factors that significantly strengthen, but do not definitely prove, the hypothesis. Hypothesis A – Benevolent bureaucrats were demonstrably involved in proposing and passing policy reforms. *Smoking gun evidence would include documentary evidence for the involvement of bureaucrats in proposing, framing or championing key pieces of legislation or policy. This could also be supported by interviews with those closely associated with events. Currently, there is no documentary evidence available to confirm or refute Hypothesis A in this way.* <u>Doubly-Decisive tests</u> draw on evidence that is unique, necessary and sufficient to confirm one hypothesis and eliminate all the others.	Due to limitations of space, only Hypothesis A2 will be tested. <u>Straw in the wind</u> A2) Although research suggests that academic confidence can be related to students' perceptions of their own ability, a range of other factors influence an individual's academic confidence. *No definitive refutation of Hypothesis A2 although the case is weakened slightly.* <u>Hoops Test</u> A2) Interviews with participating students as well as a literature review suggested that academic confidence can be fragile, and the experience of failure in one area can translate into a general lowering of confidence. *The relationship between negative confirmation (via a student's experience of failure) and lower exam outcomes suggests a relationship between academic confidence and assessment outcomes. This serves to strengthen the hypothesis that increasing academic confidence can increase attainment. Hypothesis A2 passes this test.* <u>Smoking gun test</u> The literature review produced research that correlates student academic confidence with a scaffolded approach that builds in progress through carefully calibrated, incremental increases in challenge. *Although this evidence reinforces Hypothesis A2, it does not explicitly refer to the specific conditions and design of the programme and, therefore, cannot act as smoking gun evidence.* <u>Doubly-Decisive test</u> For this test to be passed, sufficient evidence (e.g. a peer-reviewed paper) would need to be found that confirms that academic confidence could only be developed by the incrementally calibrated academic challenge upon which the programme is constructed.

Hypothesis A – The influence of benevolent bureaucrats was the same before and after the reforms (i.e. they were not a necessary pre-condition for the reforms to happen). *For hypothesis A to pass the doubly-decisive test, satisfactory evidence would need to be found to support it and definitely exclude other explanations. In this case, this could take the form of documentary evidence demonstrating the clear involvement of the NIA in policy formation, development and implementation. The current evidence is inconclusive on this matter and, therefore, Hypothesis A does not pass this test.* At this stage, there is some evidence to support Hypothesis A, but it is neither conclusive nor definitive. There is also no evidence at this point to exclude other explanations, including Hypothesis B.	*No evidence of this type was uncovered. On the contrary, the available evidence suggests that academic confidence is a multi-layered construct informed by a range of factors. Hypothesis A2 would fail this test*
Step 7 - Find evidence for rival hypothesis	
The same set of tests is conducted on Hypothesis B. <u>Straw in the wind tests</u> Hypothesis B – Politicians control policy decisions and care about irrigation. Documentary evidence confirms the interest of political leaders in irrigation and puts them in charge during the period of reform. *This does not definitively confirm Hypothesis B, but does add circumstantial evidence sufficient to strengthen it.* <u>Hoops tests</u> Hypothesis B – A political crisis occurred immediately prior to the reforms. There is documentary evidence of political crisis in the period leading up to the reforms, including a further devaluing of the national currency and specific environmental conditions, including extreme weather, that led to significant falls in rice production. These economic and environmental crises placed significant pressure on political leaders and created the conditions conducive to a focus on irrigation reform. *Although the evidence does not definitely confirm Hypothesis B it adds significant contextual strength.*	Due to limitations of space, only Hypothesis B3 will be tested. <u>Straw in the wind tests</u> Research evidence and interviews with students suggested that the prevailing school culture and ethos can be broadly described by students within an institution. *This suggests that the mechanism underpinning the hypothesis has precedent and that the underlying principle is reasonably sound.* <u>Hoops test</u> A review of school documentation, policies and web resources, as well as teacher guidance on supporting HE applications, confirms that a formal component of the school culture and ethos focuses on progression into highly selective universities. *Although this evidence does not confirm Hypothesis B3, it does support the pre-conditions required for a relationship between school culture and patterns of HE application.* <u>Smoking gun test</u>

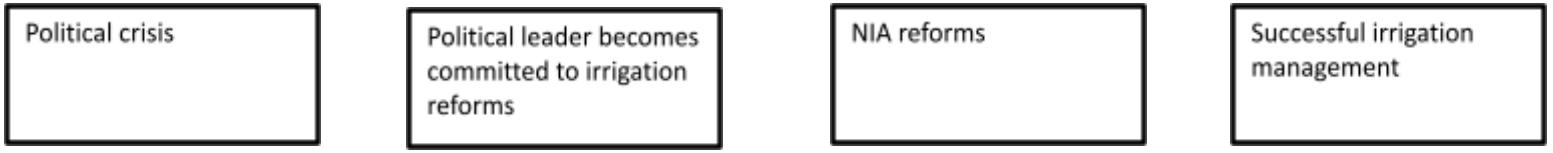
<u>Smoking gun tests</u> Hypothesis B – Politicians explicitly responded to the political crisis when supporting reforms. Smoking gun evidence would include i) documentary or other evidence of political leaders addressing concerns about irritation or rice production and ii) documents explicitly linking them to the process of NIA reform. While there is substantial evidence for i) in terms of records of speeches and statements, none explicitly describes the relationship of i) with the specific reforms in which we are interested. *There is strong evidence for political leaders' concern with relevant and connected issues, but no direct evidence supporting their involvement in the development and implementation of NIA reforms. There is, therefore, no smoking gun evidence confirming Hypothesis B at this point.* <u>Doubly-Decisive test</u> Hypothesis B – The influence of benevolent bureaucrats changed after the crisis. *Doubly-decisive evidence would support Hypothesis B while definitely excluding other explanations, including Hypothesis A. In this case, we have evidence that at least one reforming bureaucrat was in post in the NIA, giving Hypothesis A some explanatory power and we do not, therefore, have doubly-decisive evidence for Hypothesis B.* At the end of this process, two causal hypotheses for NIA reforms remain. The current evidence makes a stronger case for Hypothesis B but does not entirely refute Hypothesis A. Further research and evidence gathering are required. The evaluators noted additional evidence indicating that political leaders exerted strong control over bureaucrats, and that one bureaucrat recognised to be influential in pushing through reforms was not in the NIA administration during the key changes. We have no evidence for what would have triggered the bureaucrats to push through reforms in the key period, but a clear set of	B3) School-level application data confirms that schools participating in the academic enrichment programme have 20% higher rates of progression to Russell Group universities than the national average. *This is clear evidence that a school effect is impacting student HE application patterns. This strengthens Hypothesis B but does not disprove alternative explanations.* <u>Doubly-decisive test</u> B3) An attitudinal test applied to a random sampling of students in two of the participating schools indicated that an average of 80% of respondents intended to apply to a selective university. It also confirmed that 75% of respondents were confident that they had the academic potential to succeed in degree-level studies. *This evidence strongly suggests that upon entering the academic enrichment programme many participants will already be considering selective universities and already have high levels of confidence in their academic ability and potential to succeed in their university studies. This being the case, Hypothesis A2 is likely to be irrelevant, since participants will already possess the required academic confidence, irrespective of the intervention.* At the end of this process, the evidence makes a stronger case for Hypothesis B3 (students internalise the prevailing school culture and ethos which inculcates an expectation of success in applications to selective universities). While this does not completely refute Hypothesis A2 (observing a close relationship between current and future HE academic contexts increases confidence), it significantly weakens it as a causal factor.

evidence indicating why this would have been a concern for the political leadership. The conclusion, therefore, is that the balance of evidence strongly suggests that Hypothesis B (the role of the political leaders) is a more credible explanation for the reforms, but that it is not possible to discount entirely the role of bureaucrats in these changes (Hypothesis A).	
Conclusion	**Conclusion**
Ricks and Liu note that process tracing is an effective evaluation approach requiring rigour and attention to detail. The process is iterative and involves further gathering of evidence until one hypothesis can be demonstrated to be credible and alternative explanations eliminated or until the balance of evidence is strong enough to support the dominance of a particular causal hypothesis.	By breaking the academic enrichment programme down into a detailed series of stages, the evaluators were able to map the causal theory underpinning its design. The conclusion of the evaluation process weakens the causal relationship between the programme and both academic outcomes and patterns in HE applications, by demonstrating that the pre-existing school culture is a stronger determinant of these outcomes.

Causal Chains for Ricks and Liu (2018) – Appendix (32)

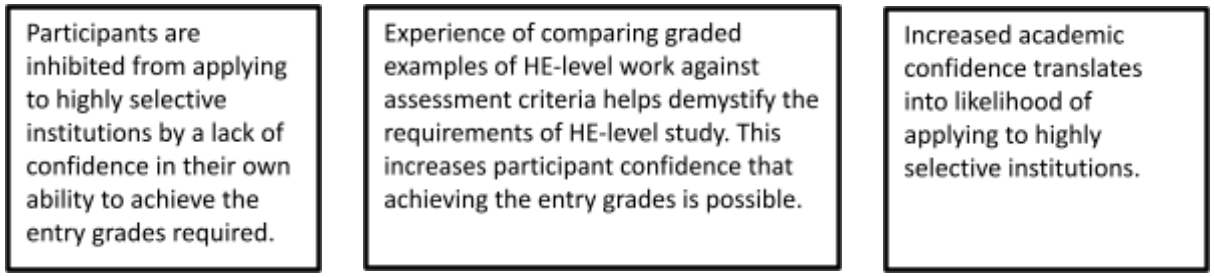
Hypothesis A

Hypothesis B



Causal chains for Fabricated WP intervention

Hypothesis A



Hypothesis B