

# Quasi-experimental methods

Better  
Evidence  
in Action

## In brief

Quasi-experimental methods are designed to explore the causal effects of an intervention, treatment or stimulus on a unit of study. Although these methods have many attributes associated with scientific experiments, they lack the benefits of the random assignment of treatments across a population that is often necessary for broad generalisability. Yet purposive sampling also has its benefits, especially when assessing small sub-groups that random sampling can miss. Researchers using these methods typically conduct tests in one of two ways: over time (pre-test, post-test) or over space (one-time comparisons), by establishing near-equivalence in factors that influence primary outcomes across treatment and control groups.

For development policy purposes, quasi-experimental methods are typically designed to show an intervention's impact on a target population — most commonly at household level. Controlling for confounding factors in such complex settings is particularly challenging, largely because it is near impossible to achieve absolute spatial or temporal equivalence across units in fluid and evolving human settlements. Confounding factors often make causal claims less definitive, so the boundaries of measurement error are typically unknown.

**Monitoring, evaluation and learning; food and agriculture**

*Keywords:*

Research methods, climate resilience, food production, sustainable intensification

### When can we use them?

Quasi-experimental methods help us establish the effect of an intervention on a target population or the absence of an expected effect. They also allow us to investigate the effects of policies on different components of individual and household wellbeing. For example, by affecting a household's productive and convertible assets, an intervention can affect their incomes, production levels and nutritional intake.

At a minimum, such methods can help us build on narrative-based approaches that construct a story around the impact of an intervention. By attempting to control for alternative explanations in the analysis, quasi-experimental methods allow us to systematically compare factors that led to the outcome. These methods also provide a degree of analytical rigour when working in challenging environments — such as Least Developed Countries — where high-quality data collection exercises are the exception.

### Strengths for gathering better evidence

One of the greatest strengths of this approach is its transparency, which contributes to its generalisability and external validity. It is important that researchers ensure they thoroughly scope their research, contextualise the research area and use existing theoretical knowledge to inform their experimental design. This can help them integrate local and collective experience with the scientific rigour of quasi-experiments. Transparency and external validity help ensure any findings are communicable to both scientific and policy communities, particularly other research institutes, donors, academics and development institutions.

Because we tend to use quasi-experimental methods when we need to find answers for practical questions — for example, to establish policy or intervention impact — these evaluations are often action oriented. Although it is normally outside the mandate of this approach to inform action-oriented change for community-level actors, we can use real-time reflection on interim results to improve intervention design. So findings can inform changes to programming, even if empowerment does not flow down to local communities.



Data collection near Lake Hawassa, Ethiopia (2015)

Credit: Sam Barrett/IIED

### Aspects to keep in mind

Because we construct quasi-experiments according to a series of rules that encourage exploration of theoretical and conceptual weaknesses, these methods often raise awareness of their own limitations.

They can also leave much unanswered in terms of the highly contextual and cultural factors that influence effectiveness within interventions. For example, in highly complex socioecological settings, we cannot use these methods to control for confounding factors or assess the importance of alternative explanations of the outcome in question.

Regardless of how we construct our research — whether over time or space — unobservable factors, feedback and reverse causality all interfere with findings about assumed linear relationships. If a study does not have the resources it needs, shallow scoping exercises or inadequate time for determining the theoretical bases we need to design our research can affect our findings. And even when we have the resources we need, unobservable factors in social settings can distort our findings.

This method typically does not allow us to triangulate different perspectives. The research design is based on a sole source of information (survey data collection) and, while other sources may inform particular components, they do not systematically contribute further perspectives. As a result, the research cannot access and compare multiple perspectives to improve validity.

### Considering power, inequality and gender

The best way to incorporate power, inequality and gender issues into quasi-experimental method approaches is through the original research framing. This can include using the method to directly address questions around power, inequality and gender.

We can also incorporate a focus on inequalities into the sampling strategy and the analysis approach once we have collected data. It is important to consider who the research is aimed at — so, for example, we can stratify our sampling groups according to wealth, gender, age or other characteristics associated with the unequal impact of a policy intervention. Purposive sampling and stratified analyses are both strong vehicles for illustrating the distributional effects of policies or interventions, generating evidence on equity.

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Toolkit

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This research was funded by UK aid from the UK Government, however the views expressed do not necessarily reflect the views of the UK Government.

## Quasi-experimental methods in action

IIED is developing a quasi-experiment to demonstrate the effectiveness of climate-resilient agriculture interventions around Lake Hawassa in southern Ethiopia. Using household surveys, this longitudinal study matches treatment and control smallholders based on socioeconomic characteristics. Subsequently, the study compares intervention households in terms of their capacity to achieve productive, income and nutritional outcomes. Using accounting of income, farm yields and nutrition, we assess how different components of the intervention — conservation agriculture, crop intensification and start-up livestock assets for women — have helped improve incomes, on- and off-farm production, and nutrition levels in recipient households.

Based on two surveys (undertaken in December 2015 and June 2016), our findings to date indicate that recipient households have higher incomes despite similarities with control households in terms of assets, livestock valuations and technical capacity. This is particularly pronounced among households receiving conservation agriculture and crop intensification interventions. Across households receiving interventions, recipient households are less likely than those in the control group to shed assets during the hunger period. This is particularly so among households receiving livestock assets. The general functionality of assets — in terms of adult household members, their tools, equipment and livestock — is also better among recipients than in the control group. The assets of the former generate more income and are better at meeting basic nutritional needs than those belonging to the latter. We have also discerned improvements in yield among those receiving climate-resilient seed varieties, after making adjustments from rainfall shocks throughout the growing season.

This document is part of the 'Better Evidence in Action' toolkit.

### Further reading

White, H and Sabarwal, S (2014) Quasi-experimental Design and Methods, Methodological Briefs: Impact Evaluation 8. UNICEF Office of Research, Florence.