

# CONTRIBUTION ANALYSIS

## OVERVIEW

'Contribution analysis explores attribution through assessing the contribution a programme is making to observed results.' Mayne (2008: 1) Four conditions are needed to infer causality in contribution analysis (Befani and Mayne 2014, Mayne 2008):

- **Plausibility:** The programme is based on a reasoned theory of change.
- **Fidelity:** The activities of the programme were implemented.
- **Verified theory of change:** The theory of change is verified by evidence such that the evaluator is confident that the chain of expected results occurred.
- **Accounting for other influencing factors:** Other factors influencing the programme were assessed; either they were shown not to have made a significant contribution or, their relative contribution was recognised.

Theory of change is thus key to undertaking contribution analysis and a specific understanding of causality underpins the analysis. Causation is multiple (multiple factors can be responsible for the outcome) and conjunctural (factors combine in complex ways to produce outcomes) (Befani & Mayne 2014).

## KEY ELEMENTS OF METHODOLOGY

Mayne (2008) sets out six steps in contribution analysis.

### Step 1: Set out the attribution problem to be addressed

Mayne (2008) emphasises the importance of acknowledging the 'problem' of attribution and recognising that there are often legitimate questions about the extent to which a programme has brought about the results observed. It is therefore important to:

- Determine the specific cause-effect question being addressed, ensuring that it is a reasonable question to ask in the context.
- Determine the level of confidence required, by looking at how evaluation findings will be used and the kinds of decisions that will be based on the findings.
- Explore the type of contribution expected, asking questions such as 'what would show that the programme made a difference?' and 'what kind of evidence would funders/decision-makers accept?'
- Determine other key influencing factors that will influence outcomes.
- Assess the plausibility of the expected contribution in relation to the size of the programme and, if it is not plausible, consider whether further work on cause and effect should be pursued.

### Step 2: Develop the theory of change and the risks to it

Contribution analysis is based on a well-developed theory of change that makes clear the results chain that links the programme to outcomes. The theory of change should not be overly detailed and can be refined later (Mayne 2008). When determining the expected contribution of the programme Mayne (2008) draws on Montague et al. (2002) to identify three circles of influence:

- *direct control* – where the programme has fairly direct control of the results, typically at the output level;
- *direct influence* – where the programme has a direct influence on the expected results, typically the immediate outcomes and perhaps some intermediate outcomes; and
- *indirect influence* – where the programme has less influence on the expected results due to its lack of direct contact with those involved and/or the significant influence of other factors.

For each element of the Theory of Change it is then necessary to identify the assumptions behind the theory e.g. what conditions have to exist for A to lead to B, and the risk to that condition (Mayne 2008). The Theory of Change should also consider how external factors influence outcomes. Finally, there may be alternative or competing theories of change amongst those involved in the programme. Alternative theories of change should be assessed with evidence gathered to confirm or discard alternative theories (Mayne 2008).

### Step 3: Gather existing evidence on the Theory of Change

The evaluator should next assess the logic of links in the Theory of Change. Evidence will need to be gathered in three areas (Mayne 2008):

- Evidence on results and activities: evidence should cover the occurrence (or not) of key results including outputs and outcomes as well as evidence that the programme was implemented as intended.
- Evidence on assumptions: evidence should demonstrate that assumptions in the Theory of Change are valid, or at least plausible and this is likely to involve reviewing existing research evidence. Depending on the scale of the evaluation this could potentially include some form of Systematic Review or Rapid Evidence Assessment.
- Evidence on other influencing factors: evidence should examine other significant factors that may have had an influence.

Mayne (2008) describes this as an iterative process.

### Step 4: Assemble and assess the contribution story, and challenges to it

The contribution story can now be assembled and assessed critically (Mayne 2008). This will involve examining links in the results chain and assessing which are strong and which are weak, assessing the overall credibility of the contribution story and seeing if stakeholders agree with the story. Mayne (2008) stresses that, so far, no 'new' data has been gathered other than from discussions with programme individuals and maybe experts and/or a literature search.

### Step 5: Seek out additional evidence

Based on assessing how robust the contribution story is, the evaluator next identifies what new data is needed to address challenges to the credibility of the story (Mayne 2008). At this stage it might be useful to update the Theory of Change or look at certain elements of the theory in more detail. Generally gathering evidence from multiple sources and triangulating findings is preferable. Contribution analysis does not specify particular data collection and analytical strategies. Mayne (2008) gives examples that include surveys, case studies and using monitoring data to track variations in programme implementation over time. He also suggests the possibility of conducting a component evaluation on an issue or area where performance information is weak and synthesising research and evaluation findings.

At this point in the process:

*'[I]f one can verify or confirm a ToC [Theory of Change] with empirical evidence – that is, verify that the steps and assumptions in the intervention ToC were realised in practice, and account for other major influencing factors – then it is reasonable to conclude that the intervention in question has made a difference, i.e. was a contributory cause for the outcome.'*

(Befani & Mayne 2014: 21)

### Step 6: Revise and strengthen the contribution story

Contribution analysis works best as an iterative process and should, ideally, be seen as an ongoing process that incorporates new evidence as it emerges (Mayne 2008). This might include responding to evolution within the theory of change as well as new monitoring data or the results of a longitudinal survey.

## MULTI-METHOD APPROACHES

Contribution analysis is closely related to Theory of Change, with a Theory of Change being the starting point for the use of contribution analysis.

Befani and Mayne (2014) have noted that contribution analysis and Process Tracing are similar, both seeking to make causal inferences using non-counterfactual approaches, based on causal mechanisms and theories of change. They also note that a potential limitation of contribution analysis is that 'it is an approach, and does not spell out detailed steps to follow in data collection or discuss explicitly the types and strength of evidence used.' (Befani & Mayne 2014, p. 25). They, therefore, suggest combining the two approaches so that the evaluator follows the logic of contribution analysis but uses the various tests developed in Process Tracing to provide an indication of what evidence to look for and what criteria to use to judge the strength of the evidence. This strengthens Step 5 of the contribution analysis approach in particular by encouraging the evaluation to ask specific questions related to data collection such as: 'What kind of evidence is (mostly) necessary and/or (mostly) sufficient to confirm/disconfirm a causal explanation?'. Thus the evaluator would make use of three of the tests developed by Van Evera (1997): the 'smoking gun', 'hoop' and 'doubly decisive' tests used to assess evidence for hypotheses that are being tested.

In practical terms this involves introducing an additional, three-stage procedure at Step 5, which might be repeated at Step 6 as required. The three stages are to carry out tests of the intervention's main mechanism, other causal mechanisms external to the intervention and the comprehensive Theory of Change, including the intervention and external factors. The intervention's main mechanism and other causal mechanisms external to the intervention are tested using 'hoop tests' designed to disconfirm the causal mechanisms under analysis and then 'smoking gun' tests designed to confirm them. Combining these two tests maximises certainty in the case of the hoop test and uniqueness in the case of the smoking gun test. The final stage, if the evaluator is confident that they have good evidence on all relevant causal factors is to try to test the whole Theory of Change using a doubly-decisive test, described in 3.3.2 (Befani & Mayne 2014).

## RESOURCES REQUIRED

### Skill set for evaluators

In Steps 1 – 4 of contribution analysis a range of mostly qualitative research skills are required including interviewing stakeholders, workshops to develop theories of change, analysis of documentary evidence and literature reviews which might include the use of systematic review and meta-analysis techniques.

A broader range of research and analysis skills might be required in Steps 5 and 6. Mayne suggests a range of research activities including surveys and using existing monitoring and performance management or administrative data as well as more in-depth qualitative research, implying that the evaluator(s) will also have some skill and experience in quantitative research methods.

The emphasis, particularly in Steps 2 and 4 on engaging with stakeholders and in Step 1 in understanding the needs of decision-makers and funders implies evaluators with good people skills and the confidence and authority to engage with a wide range of people from front-line staff to senior managers and organisational leaders.

### Scope of evaluation

Contribution analysis requires in-depth engagement with the case and an iterative approach that will require repeated engagement with key stakeholders through the development of the Theory of Change, building contribution stories, gathering data to test them and repeating the process as required.

## CASE STUDY

There are relatively few published examples of the use of contribution analysis. Delahais and Toulemonde (2012) published an article in the journal *Evaluation* that draws on five evaluations applying contribution analysis in the context of EU policies in the areas of development aid, agriculture, employment, and governance. All five evaluations are interesting because they explore different elements of the methodology, illustrating some of its strengths and weaknesses and describing how the authors applied key steps in the methodology in real-world situations. For example, one of the evaluations looks at two programmes, funded by the European Commission, aimed at encouraging citizens to debate European issues, through 'citizen consultations' run by selected non-governmental organisations. The debates were intended to make citizens' voices heard in EU policy-making processes. Contribution analysis was used by the authors to answer a question about 'the contribution of the programme to citizens' debates on the future of the EU and the impact of the EU on their daily lives'. They developed a logic model based on a literature review and expert views on what could reasonably be expected from the programme. The model was tested through 21 case studies that attempted to balance evidence confirming and disconfirming each intended contribution in the logic model, and to explore all other contributory factors. As the draft contribution story was quite negative, it was strongly challenged by the programme managers. This meant that several findings had to be either consolidated by further evidence or reformulated. Findings included that, despite enthusiasm among most of the participants about the deliberative process itself, programmes failed to trigger any debates outside their own small audience, contrary to the expectations of the promoters of the programme. They failed to obtain mass media coverage, and therefore had no influence on public opinion.

### Reference

Delahais, T., & Toulemonde, J. (2012). Applying contribution analysis: Lessons from five years of practice. *Evaluation*, Vol.18(3) pp.281–293. <https://doi.org/10.1177/1356389012450810>

## RESOURCES

### Web resources

An interesting lecture that includes Jonn Mayne talking about contribution analysis (19 minutes in) and starts with a worked example (3 mins 25 seconds in) can be found at: <https://www.youtube.com/watch?v=VkBbr8dOisk>

### Key reading

**The originator of contribution analysis, John Mayne has published several articles. The most commonly cited one, that sets out the key elements of contribution analysis in a concise and accessible form is:**

Mayne, J (2008). *Contribution Analysis: An approach to exploring cause and effect*. Brief 16, Institutional Learning and Change (ILAC) Initiative

**More recently, he has again revisited contribution analysis:**

Mayne (2019) 'Revisiting Contribution Analysis', *Canadian Journal of Program Evaluation*. Vol.34(2) pp. 171 - 191

**A paper that provides practical examples of the use of contribution analysis and a discussion of key concepts such as contribution claim, causal mechanism, and strength of evidence.**

Delahais, T., & Toulemonde, J. (2012). Applying contribution analysis: Lessons from five years of practice. *Evaluation*, Vol.18(3) pp.281–293. <https://doi.org/10.1177/1356389012450810>

## Further references

**Befani, B. & Mayne, J.** (2014) Process Tracing and Contribution Analysis: A Combined Approach to Generative Causal Inference for Impact Evaluation, *IDS Bulletin* Vol.45(6)

**Mayne, J** (2008). *Contribution Analysis: An approach to exploring cause and effect*. Brief 16, Institutional Learning and Change (ILAC) Initiative

**Montague, S., Young, G. & Montague, C.** (2003) Using circles to tell the performance story. *Canadian Government Executive* Vol.2: 12-16.

**Van Evera, S.** (1997) *Guide to Methods for Students of Political Science*, New York: Cornell University Press