What is contribution analysis?

Contribution analysis is an approach to assessing the performance of policies and programmes towards an outcome or outcomes. This type of analysis was developed by John Mayne¹ for situations where designing an ‘experiment’ to test cause and effect is impractical. Contribution analysis attempts to address this head on by focusing on questions of ‘contribution’—specifically to what extent observed results (whether positive or negative) are the consequence of the policy, programme or service activity. In the Scottish Government context this may be used to assess the progress being made to achieve the outcomes set out in the National Performance Framework.

Thus, contribution analysis provides an alternative way of thinking about the problem of attribution to the traditional positivist approach of proving causality via a counterfactual. It does not attempt to prove that one factor – a policy – ‘caused’ the desired outcome, but rather to explore the contribution a policy is making to observed results. By developing a ‘theory of change’ showing the links between the activities, outcomes and contexts of the policy and collecting evidence from various sources to test this theory, the aim is to build a credible ‘performance story’. This can demonstrate whether policies and programmes were indeed an important influencing factor in driving change, perhaps along with other factors.

As well as addressing the problem of attribution, contribution analysis can also help to sharpen the planning and implementation of an initiative, as an emphasis on theory during the design phase may increase the probability that stakeholders will clearly specify intended outcomes, the activities needed to achieve them, and the contextual factors likely to influence them. Further, the measurement and data collection elements around the policy will be more focused and limited evaluation resources can be sensibly targeted on contested links in the theory.

Conducting a contribution analysis

Simplistically, the six steps of a contribution analysis (as articulated by John Mayne) are as follows:

1. **Set out the attribution problem to be assessed**: in the Scottish Government context this involves identifying which outcome or target you hope to improve or change. For others in the wider public sector contribution analysis may focus on the outcomes they have prioritised in their Single Outcome Agreements.

2. **Develop a theory of change / logic model**: in the Scottish Government context this often involves setting out exactly which policies are in place (or being developed) to contribute to achieving an outcome, understanding and articulating how the policy is expected to bring about that change, and being clear about the expected short, medium and long term outcomes. It is also important to articulate underlying assumptions and to the level of control the government may have – direct control, direct influence or indirect influence². This may be particularly important in the Scottish Government context given the current split between devolved and reserved responsibilities. Experience to date in the Scottish Government is that it is crucial that this stage is a collaboration between policy and analytical staff.

3. **Populate the model with existing data and evidence**: at this stage it is important to draw on the data and evidence already available to populate the model. This may include key statistical

---

information, existing evidence on the likely effectiveness of interventions, clear articulation of the underlying assumptions, and evidence on other, often external, influencing factors.

4. **Assemble and assess the ‘performance story’**: based on the existing data and evidence, the overall ‘performance story’ can be assembled and critically assessed in discussion with colleagues and stakeholders. The key weaknesses of the theory of change highlighted may inform future analytical activity (see step 5). Experience to date in the Scottish Government is that this step should include building a robust baseline drawing on statistical information and existing research and analysis. This can also help to clearly identify where the gaps in knowledge are, particularly on data to measure short and medium term outcomes.

5. **Seek out additional evidence**: at this stage we identify what new data and evidence is needed, adjust the theory of change / logic model, and gather more data and evidence. For example, if a link between a policy and the outcomes is uncertain, and there is little supporting evidence, this may be an area for further analytical work. Clearly the theory of change is dynamic and requires revisiting regularly. At this stage very close collaboration between policy and analysis is required.

6. **Revise the ‘performance story’**: the new data and evidence should start to refine the ‘performance story’. This is an iterative process and at this point the analysis may return to step 4 and reassess the strengths and weaknesses of the performance story.

**Contribution analysis and theory-based evaluation**

In its original formulation, contribution analysis was designed to deal with the attribution problem when working with existing routine monitoring data. However, Mayne later broadened the approach to cover any assessment of performance through evaluations or performance management. In this broader definition, contribution analysis is very similar to a number theory based evaluation approaches, including Realistic Evaluation and ‘Theories of Change’, all of which involve specification of how activities will lead to medium and long-term outcomes and the identification of contextual factors that may affect them.

The key difference between contribution analysis and theory based evaluation is the emphasis on identifying plausible alternative explanations to the policy to account for outcomes, such as other related government programmes, economic or social trends or behaviour unaffected by the programme. Contribution analysis involves explicitly exploring the most likely alternative explanations, presenting evidence to discuss them, and where appropriate, discounting them. This will help reduce the uncertainty about the contribution made and strengthen the argument in favour of the policy's impact.

**Contribution analysis in the Scottish Government**

In the Scottish Government contribution analysis can, in principle, be applied to purpose targets, national outcomes and indicators in the National Performance Framework. Following the introduction of the framework, the focus for analysts was initially on getting the measurement framework in place which can effectively monitor change in purpose targets, national outcomes and indicators. However, a number of areas within the Scottish Government are now beginning to use

---

contribution analysis to help understand what is driving change (whether desirable or not); and what government action is actually contributing to (or detracting from) improvement in national outcomes.

Contribution analysis being conducted internally differs slightly from the examples on which the principles of the approach are based, in that they focus on broad policies behind the national outcomes rather than specific programmes and interventions. As such, theories of change tend to be more complex, operate at a higher level of abstraction and include less detail on outputs and delivery processes. However, in principle it should be possible to ‘drill down’ into each link in the logic model to elaborate on more specific programmes.

Contribution analysis in the Scottish Government is in very early stages of introduction, so established completed case studies are not available. To date, most contribution analysis activity has focused on step two – developing a theory of change for a relevant outcome. Contribution analysis has proved useful in providing a framework for discussions with policy colleagues about the government interventions being designed and delivered to meet outcomes and in making explicit the underlying assumptions behind why the policy is expected to work. For example, analysts in local government research have developed a theory of change for National Outcome 15 ‘Our public service are high quality, continually improving, efficient and responsive to local needs’. Through discussion with relevant policy colleagues and other analysts the theory of change was revised and is currently at the stage of being agreed by policy leads.

Contribution Analysis is also being discussed or used for other outcomes, and in developing evaluation frameworks for relatively large government programmes. These include the population target, outcome 8 (we have improved the life chances for children, young people and families at risk), outcome 13 (we take pride in a strong, fair and inclusive national identity) and the Evaluation Framework for the Scottish Science Centres.

Contribution analysis in NHS Health Scotland

NHS Health Scotland have been working closely with the Scottish Government’s Public Health Directorate and local delivery partners (local NHS Boards, local authorities and third sector) to develop an outcomes-focused, evidence-informed performance framework for health improvement that is aligned with the priorities identified in the National Performance Framework and the evolving SOA processes (Step 1). They have used contribution analysis to produce a set of ‘tools’ for Community Planning Partners to assist with outcome planning and performance reporting for the set of shared health outcomes linked to National Outcomes (primarily ‘We live longer healthier lives’ and ‘We have tackled the significant inequalities in Scottish society’) and related National Indicators.

These tools use a variety of visual devices (outcome triangles, logic models, single and multiple results chains) to help link a series of time-sequenced outcomes to actions (broken down to inputs, activities, and outputs). The tools are underpinned by detailed and nested logic models (‘outcome frameworks’) that are formed by drawing on existing evidence and theory related to the plausibility of the linkage (Steps 2 & 3). Stakeholders are being involved at key stages to critically assess the pathways to outcomes, especially where existing evidence is weak (Steps 2 & 4). These tools can be accessed at http://www.improvementservice.org.uk/health-improvement/health/tools-for-soa-processes/. The outcome frameworks are being used both for policy development, local outcome planning in the context of SOAs and as the basis for developing monitoring and evaluation plans for new strategies.

For further information about this work contact Neil Craig, Senior Public Health Adviser in the evaluation team, neil.craig@health.scot.nhs.uk

Contribution analysis is the methodology underlying NHS Health Scotland’s work; Erica Wimbush has been awarded an ESRC Fellowship based at the University of Edinburgh Business School to further develop the methodology and during 2009/10 will be developing a series of case studies applicable to the Scottish context. Contact: erica.wimbush@ed.ac.uk from 1 July 2009.
Further Reading


Paper setting out a revised, broader formulation of contribution analysis, with a particular focus on complex systems


Methods briefing paper setting out six steps


Useful introduction to theory based evaluation


Paper setting out similarities and differences between Theories of Change and Realistic Evaluation

This guide was prepared by Franca Eirich and Anita Morrison in the Office of the Chief Researcher, with a contribution from Erica Wimbush at NHS Health Scotland