

## Guide 6: Contribution Analysis

### 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 Mayne<sup>1</sup> 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 and 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 influence<sup>2</sup>. 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.

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<sup>1</sup> Mayne J (2001) *Addressing attribution through contribution analysis: using performance measures sensibly*. Canadian Journal of Programme Evaluation 16; 1-24

<sup>2</sup> Montague et al (2003) *Using circles to tell the performance story*. Canadian Government Executive.

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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<sup>3</sup>, 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<sup>4</sup>. In this broader definition, contribution analysis is very similar to a number theory based evaluation approaches, including Realistic Evaluation<sup>5</sup> and 'Theories of Change'<sup>6</sup>, 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.

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<sup>3</sup> Mayne J (2001) *Addressing attribution through contribution analysis: using performance measures sensibly*. Canadian Journal of Programme Evaluation 16; 1-24.

<sup>4</sup> Mayne, J. (2006) *Exploring Attribution through Contribution Analysis*, <http://www.cgiar-ilac.org/content/exploring-attribution-through-contribution-analysis>; Mayne, J. (2008) *Contribution Analysis: An approach to exploring cause and effect*, ILAC methodological brief, [http://www.cgiar-ilac.org/files/publications/briefs/ILAC\\_Brief16\\_Contribution\\_Analysis.pdf](http://www.cgiar-ilac.org/files/publications/briefs/ILAC_Brief16_Contribution_Analysis.pdf)

<sup>5</sup> Pawson, R and Tilley, N (1997) *Realistic Evaluation*, Sage Publications, London

<sup>6</sup> Connell, JP. At al (1995) *New approaches to evaluating community initiatives: concepts, methods and contexts*, The Aspen Institute, Washington DC; Fulbright-Anderson, K. (1998) *New approaches to evaluating community initiatives, vol.2: Theory, measurement and analysis*, The Aspen Institute, Washington DC

### **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 have begun 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.

### **National Outcome 12 'we value and enjoy our built and natural environment and protect and enhance it for future generations'**

A contribution analysis/mapping exercise for National Outcome 12 (NO12) was conducted jointly by Rural and Environment Analytical Services (REAS) and Greener Scotland Division for the Built and Natural Environment (BNE) Group, which oversees NO12 work. This represents an alternative approach in that it is an attempt to map future contributions – to understand how current activity might lead to the achievement of the outcome – rather than a retrospective analysis.

Thirteen mini-workshops were held with a policy lead and an analyst for each of the 13 'Key Activities' identified in the NO12 Delivery Plan. These workshops developed logic models for each area, making clear what short, medium and long-term outcomes were being targeted, and discussing whether 'success' could be evidenced from current data collection. In addition, policy leads and analysts completed a 'narrative' proforma, giving more nuanced information about the expected outcomes, the quality and suitability of the evidence base, and links to other national outcomes.

The report produced on the basis of these workshops includes some interesting findings, notably that short term 'outcomes' tended to focus on processes rather than actual outcomes on the ground; that longer term outcomes were largely rather ambitious, and not necessarily underpinned by medium term deliverables; and that the evidence base was not necessarily sufficiently developed to tell us whether these outcomes were being met or not. The report also raised real questions about whether an outcomes based approach has much meaning in terms of day to day policy working on NO12.

In addition to the report, a 'time-map' shows four overarching outcome themes - 'Processes', 'Public Awareness', 'Recreation, Enjoyment and Well-Being', and 'Protection and Enhancement' - over time and identifies the relevant short, medium and long term outcomes visually. The map and the accompanying report are currently being used by the BNE Group to consider whether policy activities are on track to deliver outcomes and whether any adjustments should be made to the policy activities or key outcomes.

### **Population Purpose Target**

One of the earliest examples of Contribution Analysis in the Scottish Government was conducted by the Strategic Research team in the Office of the Chief Researcher for the Population Purpose Target, which is for Scotland to match average EU 15 population growth over 2007- 2017 period. Since the target is relatively short term, immigration and retention will deliver greatest impact in the timescales,

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and therefore the analysis focused on these elements rather than the other two key aspects of population growth, fertility or healthy life expectancy.

A logic model was produced 'working backwards' from the 5 key policy activities in place. This identified short and medium term outcomes and external factors impacting on the Purpose target, e.g. economic conditions. The model was revised and updated in discussion with policy and analytical stakeholders and accompanied by a narrative of each pathway through the model showing how each policy is expected to contribute to the Purpose Target. Existing evidence was also collected and mapped against each of the intermediate outcomes and the links between policies and outcome and between different outcomes. This identified evidence gaps and supported forward research planning.

### Contribution analysis in NHS Health Scotland

Contribution Analysis has informed NHS Health Scotland's work on outcome planning and evaluation.

The six steps approach of Contribution Analysis has informed the development of their evaluation of Scotland's new Alcohol Strategy (although the Advisory Group is not keen on using what is seen as unnecessary extra jargon). The baseline report is available at <http://www.healthscotland.com/documents/5072.aspx>

Health Scotland is seeking to embed an outcomes approach to planning, performance management and reporting internally and through local capacity-building support. A series of evidence-informed outcomes frameworks have been constructed for the key policy areas of tobacco, alcohol, obesity, employment, mental health and wellbeing. In the latter two outcome areas, Health Scotland is facilitating the application of these outcome frameworks to local strategic planning working with local partnerships.

Health Scotland is also trying out the use of 'Results Planning' - this is a management tool that has been developed by Steve Montague ([www.pmn.net](http://www.pmn.net)) for the process of operationalising Contribution Analysis in the Canadian context of Results Based Management. For performance reporting, Health Scotland is trying out the use of 'Performance Stories', a short one-page report focused on the series of expected changes set out in the programme's 'theory of change' as well as the lessons learned and any consequent adaptations. To date, Results Planning and Performance Stories are being applied to local anticipatory care programmes and local suicide prevention programmes.

Information about all these tools and related resources can be accessed via the Health Scotland's webpages <http://www.healthscotland.com/scotlands-health/evaluation/planning/index.aspx>

For further information about this work contact [tamara.mulherin@nhs.net](mailto:tamara.mulherin@nhs.net)

This work will be featured in a special issue of the Evaluation journal on Contribution Analysis edited by John Mayne, due for publication in 2012.

### Further Reading

Mayne J (2001) Addressing attribution through contribution analysis: using performance measures sensibly. *Canadian Journal of Programme Evaluation* 16; 1-24. earlier (1999) version available at:

**The original paper introducing contribution analysis**

Mayne, J. (2006) Exploring Attribution through Contribution Analysis, available at

<http://www.cgiar-ilac.org/content/exploring-attribution-through-contribution-analysis>

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

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Mayne, J. (2008) Contribution Analysis: An approach to exploring cause and effect, ILAC methodological brief, available at [http://www.cgiar-lac.org/files/publications/briefs/ILAC\\_Brief16\\_Contribution\\_Analysis.pdf](http://www.cgiar-lac.org/files/publications/briefs/ILAC_Brief16_Contribution_Analysis.pdf)

**Methods briefing paper setting out six steps**

Blamey, A., Judge, K. and Mackenzie, M. (2002) Theory-based evaluation of complex community-based health initiatives, available at [http://www.nice.org.uk/aboutnice/whoweare/aboutthehda/evidencebase/keypapers/conferenceandseminarproceedings/theorybased\\_evaluation\\_of\\_complex\\_communitybased\\_health\\_initiatives.jsp](http://www.nice.org.uk/aboutnice/whoweare/aboutthehda/evidencebase/keypapers/conferenceandseminarproceedings/theorybased_evaluation_of_complex_communitybased_health_initiatives.jsp)

**Useful introduction to theory based evaluation**

Blamey, A. and Mackenzie, M. (2007) Theories of Change and Realistic Evaluation: Peas in a Pod or Apples and Oranges? Evaluation, Vol. 13, No. 4, 439-455, available at <http://evi.sagepub.com/cgi/content/abstract/13/4/439>

**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**