

# Review of CBA advice to support budget initiatives

The impact of CBAx and lessons for future budget  
processes

NZIER report to the Treasury

12 September 2018



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Each year NZIER devotes resources to undertake and make freely available economic research and thinking aimed at promoting a better understanding of New Zealand's important economic challenges.

NZIER was established in 1958.

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# Key points and recommendations

NZIER was commissioned by the Treasury to review the quality of advice provided by agencies to support 50 budget initiatives from 2015-2018, in order to:

- Investigate whether the introduction of CBAX and the CBAX approach led to improvements in the quality of advice.
- Explore whether variations in quality followed any particular pattern in strengths and challenges, or across agencies, sectors, and initiative type.
- Make recommendations to support continued improvements in the quality of advice on budget initiatives.

## Key findings: quality has improved...

Our overall conclusion is that important improvements in the quality of advice followed the introduction of CBAX.

However, this is shown mainly through improvements in problem definition and identification of impacts. These improvements *support* value for money judgements, but are not *sufficient* to provide confidence in the estimated return on investment that agencies report to the Treasury. Confidence in the results could be improved by clearer expression of what difference the initiative makes compared to the situation without it, and greater attention to the uncertainties and risks around quantified inputs.

We found that the proportion of the initiatives reviewed that provided quantitative analysis increased with successive years.

We also saw qualitative improvements, with more emphasis on impacts, a wider range of impacts covered, and more transparent explanations of assumptions made.

The definition of problems to be addressed has become clearer over time, even for initiatives that do not provide a quantitative CBAX.

## ... but challenges remain

Applying CBAX has placed a heavy burden of work on some agencies, and led them to use supporting evidence of variable quality for some impacts which are difficult to quantify or monetise.

The counterfactual is not always well described, and CBAX may have contributed to a fixation on the final net present value rather than a careful examination of alternatives or incremental analysis of options.

Now that agencies have learned to use CBAX, it is important to maintain momentum and make better use of the material to inform decisions. One way is to avoid making undue changes to the structure of the tool while its use is bedded in. Another is to introduce selective changes and targeted assistance that improve the information that can be presented to support decisions. The remaining challenges are diverse and sufficiently widespread to limit the usefulness of CBAX results for their intended purpose of informing decisions.

We provide several recommendations overleaf, split between budgetary requirements and agency support.

## Recommendations on budgetary requirements

### **Align requirements with objectives**

We recommend that Treasury adopts the position that credibility should be the primary objective of any requirement.

Set objectives that budget requirements are expected to achieve and attach priorities to them, recognising that this can create incentives and trade-offs between them. No process or tool can be expected to meet a set of objectives that are not mutually supportive. Being clear about the main objectives would also reduce the tendency to load up analyses with co-benefits of tenuous connection and uncertain scale which may have undue weight on the NPV and ROI results.

### **Focus on the quality of inputs**

We recommend Treasury removes the outputs sections of the CBAX model where outputs are particularly hard to quantify.

Consider re-framing CBAX as an intervention logic model to encourage agencies to focus on the quality of inputs rather than on the results of analysis for overall NPV and ROI. This will reduce the incentive to load the analysis with benefit estimates of dubious quality to achieve a positive NPV.

### **Make requirements more flexible**

We recommend that Treasury provides options to let budget requirements be met in the context. By flexibility we mean using the right tools for the task at hand.

The requirements of the new budget process have put agencies into compliance mode: supplying the right documents, filling in the right sections, saying the right things. But programmes at the frontier of public policy need original analysis and creative thinking.

Examples include allowing cost-effectiveness analysis to be used for long term programmes or where benefits are hard to monetise; and a well-developed logic model and evaluation plan for areas where there is already some pre-commitment.

### **Reduce focus on fiscal issues**

We recommend that future tools and templates put wider societal values first.

The Treasury wants agencies to think widely about impacts and says that the focus of budget decisions is on the best outcomes to New Zealanders. However, the budget initiative templates put information about fiscal costs and benefits first, with societal costs and benefits second. The order of information is a message about priorities.

### **Introduce changes to improve quality of information on unmonetised impacts**

We recommend Treasury provides guidance on how to describe unmonetised impacts succinctly and on the use of evidence to support a heavily quantified description of unmonetisable impacts (e.g. with reference to surveys, etc.).

We also recommend that initiative templates have sections specifically for describing unmonetisable effects/impacts and intermediate outcomes. We found the information about impacts that can be monetised improved over time, but this did not apply to those that could not be monetised.

### **Be more realistic about ranges and sensitivity analysis**

We recommend that if sensitivity analysis is required, it should be done by Treasury analysts. This will reduce the burden on agencies who are developing multiple budget initiatives in CBAX form.

## Recommendations on agency support

### **Increase transparency about what agencies need to do to be successful**

We recommend Treasury provides clear feedback to agencies, tailored to the agency, about what was well done, what wasn't well done, and how it was received. Such understanding should be the primary goal of transparency around the budget process.

The amount of work agencies put into budget initiatives is substantial. But in many budget initiatives descriptions/arguments or weakly supportive evidence are less likely to be decisive than political determination or pre-commitments. Agencies are providing this material because, in part, they do not understand what is required to be successful in providing a useful budget initiative.

### **Take a CBA approach to requirements**

We recommend Treasury apply the principles of CBA to budget requirements.

In many cases, little is gained from conducting a CBA, even using CBAx, and yet agencies invest resources in this work.

Agencies have limited capability and time, so investing too much in one initiative impacts the quality of other initiatives. The same is true of Treasury. For smaller initiatives, and initiatives liable to political determination, the costs of CBA may outweigh the benefits.

One way of cutting costs for both agencies and Treasury is to reduce the process requirements for small cost pressures, initiatives beneath a given funding threshold, and initiatives already served by a relevant, high-quality CBA.

### **Provide better support for cost pressure initiatives**

We recommend that the Treasury assumes a clear role in informing a consistent approach to cost pressures by providing forecasts of common price increases.

We found that where the Treasury requires a CBA of cost pressure initiatives, agencies require more support.

### **Provide more support for break-even or reverse analysis**

We recommend that the Treasury support agencies to make more use of these alternatives to CBA.

Break-even or reverse analysis can be employed in place of a CBA using uncertain values. We saw few instances of this in the initiatives we reviewed, but where used, it communicated the potential value of the initiative. Treasury could provide more guidance on how to use these approaches and the conditions under which they are most suitable.

### **Target support to areas where there are clear challenges**

We recommend that Treasury build on its existing guidance to agencies to assist them to recognise where and how incremental analysis can be informative, how to use external evidence of impacts that may be of variable quality or relevance to their initiatives, and how to succinctly examine the robustness of results to changes in key input variables and assumptions.

Quantifying and monetising impacts in areas where other agencies have primary responsibility is often difficult for agencies without the subject area knowledge and access to other agencies' data and expertise. For non-social sector agencies in particular, it is a challenge to identify impacts outside of their own sector.

**Develop and promote guidelines for compatible CBA reports**

The Treasury should issue clear guidance to agencies about commissioning CBAs so they will be suitable for budget bids.

Agencies often conduct or commission CBAs. We saw instances of pre-existing CBAs applied to budget initiatives with mixed results. Pre-existing CBAs do not always have the data and results needed to be used as inputs to CBAs.

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# 1. Background

## Treasury introduced a new approach to developing budget bids in 2015

CBAX is an approach to cost-benefit analysis (CBA) introduced by the Treasury to encourage agencies to develop clearer information on the expected impacts of budget initiatives.

Treasury expects agencies to use CBAX to test scenarios for budget initiatives, fine-tune the design of the initiative to improve the return on investment (by changing the target population, for example), and report on assumptions, evidence and results.

From a decision-maker's point of view, CBAX should enable transparent, complete, and comparable cost benefit analysis of interventions across all sectors, even where impacts are very different. It requires agencies to think more broadly about impacts, include non-fiscal as well as fiscal impacts, and consider impacts outside of the sector.

## CBAX comprises a spreadsheet model...

The CBAX tool is a spreadsheet model which provides:

- A common model for organisations to use when analysing costs and benefits of initiatives.
- A common basis for assumptions when quantifying and monetising the impacts of different proposals.
- A common database to help organisations estimate broader societal impacts, making analysis quicker and providing consistent assumptions.

## ... and a supporting database, to be updated annually

The CBAX database contains New Zealand-specific publicly available data that organisations can use to value impacts. An impact value provides a numerical value in relation to one or more impacts of an initiative.

The current values in the CBAX database are predominantly of fiscal costs incurred or benefits of avoiding them, providing limited guidance on what values to apply to societal costs and benefits. Agencies may arrive at their own numbers from various sources, potentially reducing the comparability of results across different analyses.

Agencies can also make suggestions as to what values would be helpful to have included in the CBAX database.

Many initiatives have required the addition of values relevant to the initiative and these are added only in the spreadsheet used for that initiative. However, if Treasury judges these to be more generally useful, they may be included in future years' databases.

As agencies build their CBA capability, CBAX will become and remain familiar. Model improvements can be made in response to user feedback and suggestions, but there are risks in frequent structural changes that could compromise agencies' accumulated 'learning by doing.'

## 2. Overview of approach

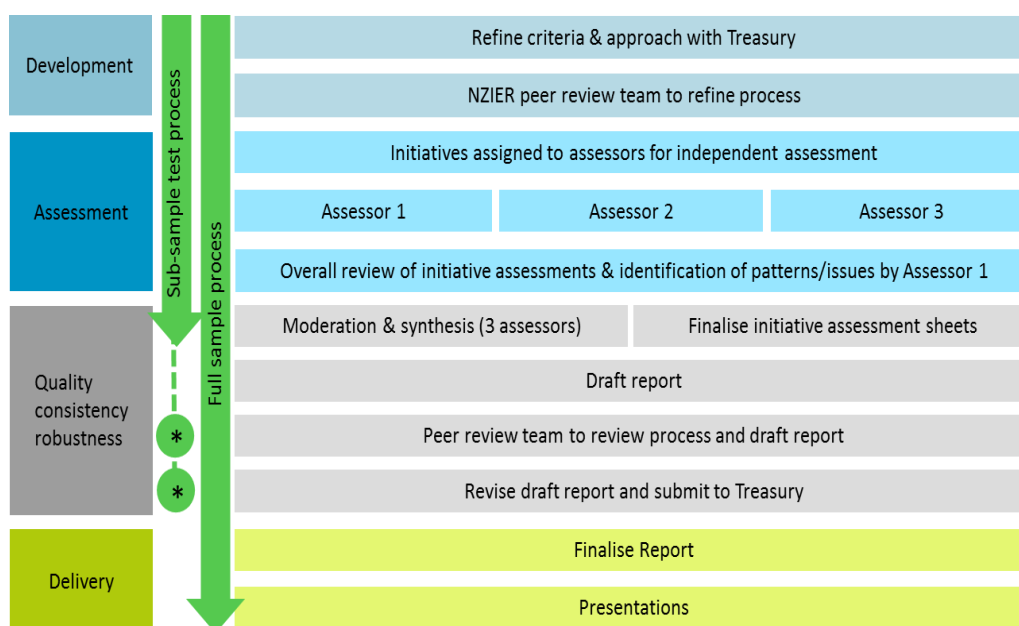
Treasury asked NZIER to conduct a review of the advice provided by agencies to support budget initiatives from Budget 2015 to Budget 2018.

We had three objectives:

- To investigate whether the introduction of the CBAX tool and the CBAX approach led to improvements in the quality of advice in budget initiatives.
- To investigate whether variations in quality followed any particular pattern across agencies, sectors, and initiative type.
- To make recommendations to support improvements in the quality of advice on budget initiatives.

We agreed an assessment process with the Treasury, as illustrated in Figure 1 below. More details on the sample, process and approach are in Appendix A.

**Figure 1 Our approach**



Source: NZIER

We scored each initiative out of 10. A score of 7 indicated that the initiative advice met our defined quality criteria sufficiently well to be helpful for Ministers.

In the context of budget initiatives, we determined this to mean that:

- The problem definition was clear.
- The nature of the intervention was clear.
- At least one major impact was both quantified and monetised, or, in cases where impacts could not be monetised, the quantification and monetisation of a major impact was replaced with a thorough description of the impact and a sense of its magnitude or importance.

## 3. Results

The requirement to identify, quantify and monetise impacts of budget initiatives is not insignificant. Budget initiatives often represent interventions at the frontier of public policy, where little is known about the size and value of potential impacts.

Where impacts *can* be identified, quantifying and monetising them is challenging even under ideal circumstances. For many impacts, no directly relevant values exist and conducting research to establish values would be outside of what can be achieved in a normal budget process.

Identifying and analysing impacts beyond their own sector requires expertise that most agencies lack. The ability to draw on other agencies' expertise is constrained by those agencies prioritising the preparation of their own initiatives.

Despite these and other challenges, we found that CBAX appears to be associated with improvements in the quality of advice. This is reflected in a marked increase in the average score for budget initiatives from 2016 on.

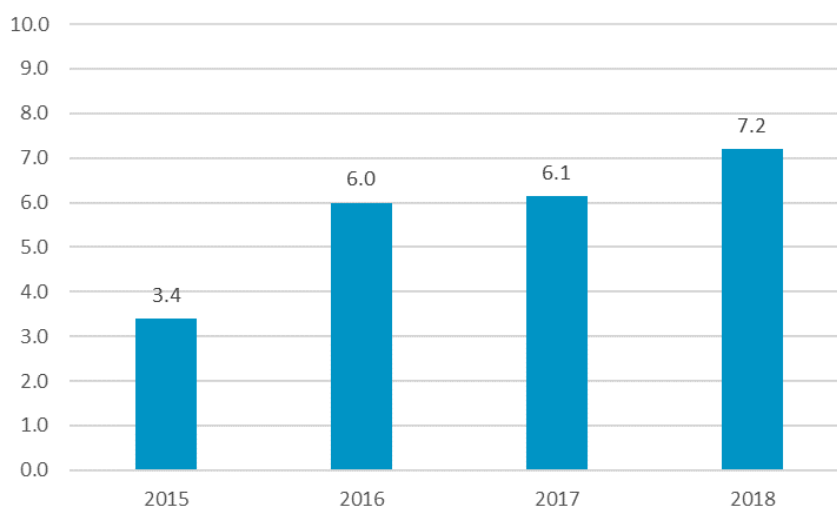
In addition, after the introduction of CBAX, initiatives with a completed CBAX spreadsheet had a higher mean score than those without.

### 3.1. Overall quality scores improved over time

We found the overall quality of advice to have improved from 2015 to 2018, with the mean score increasing from 3.4 in 2015 to 7.2 in 2018 (see Figure 2 below).

**Figure 2 Mean score of sample budget initiatives**

2015-2018



Source: NZIER

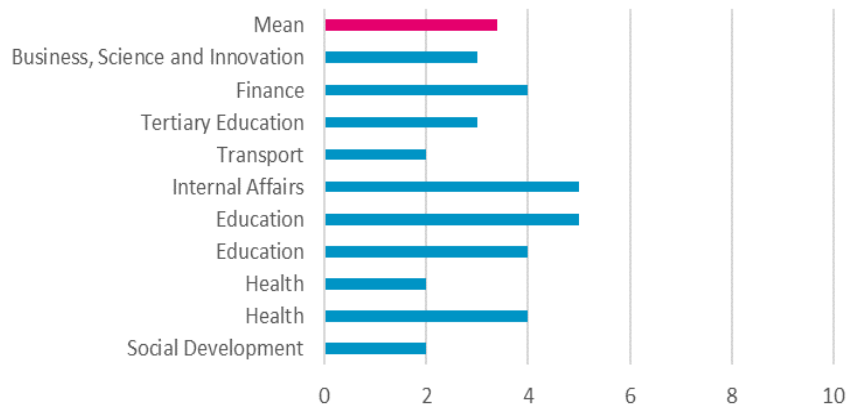
## 3.2. Proportions meeting criteria also improved

Moreover, the quality improvement was most marked in the proportion of the sample initiatives that were acceptable. No initiatives met the criteria (score of 7 out of 10) in 2015, but an increasing percentage of initiatives achieved this standard from 2016 onwards (see Figure 3 below).

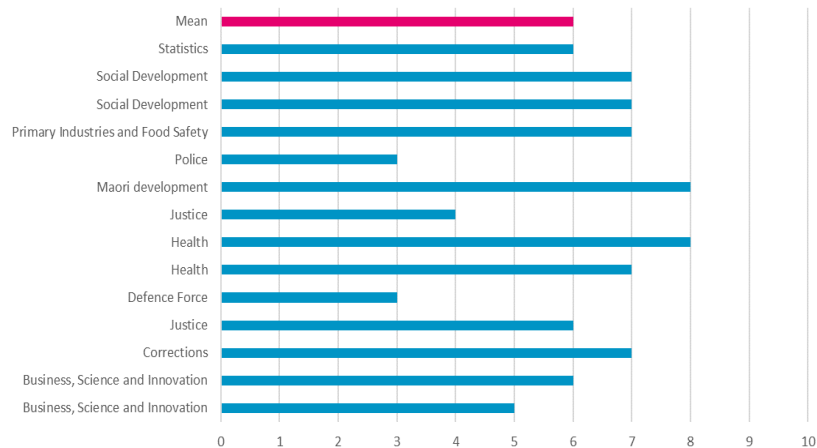
**Figure 3 Overall quality of advice scores**

An assessment meets criteria sufficiently if it scored 7 or more

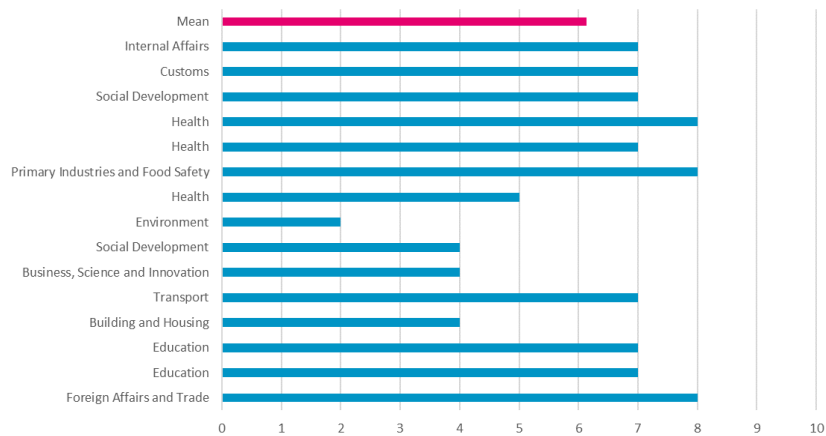
**2015 (Mean=3.4)**



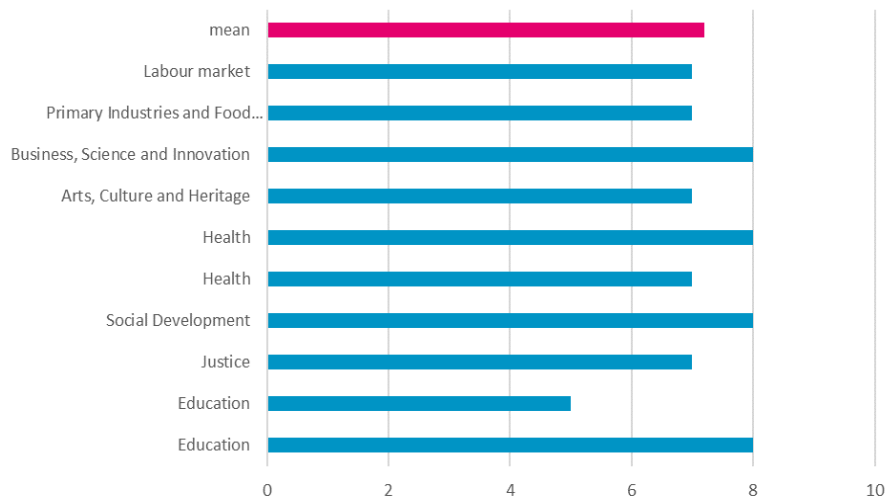
**2016 (Mean=6.0)**



### 2017 (Mean=6.1)



### 2018 (Mean=7.2)



Source: NZIER

## 3.3. More met criteria as means rose

The mean scores were lower in the early years, dragged down by low scoring initiatives which were not informative about why the bid was needed, what it would do and what outcome it was expected to have.

Over time the mean rose to the point where in 2018 it surpassed the criteria for sufficient quality to advise Ministers. And at the same time poorer scores became scarce, clustering the results. Overall fewer initiatives exceeded the mean, although more met the criteria.

**Table 1 Papers scoring higher than the mean and meeting quality criteria**

A paper met quality criteria if it scored greater than 6 out of 10

Year (sample)	% scoring > mean	% meeting quality criteria
2015 (10)	50%	0%
2016 (15)	47%	47%
2017 (15)	67%	67%
2018 (10)	40%	90%

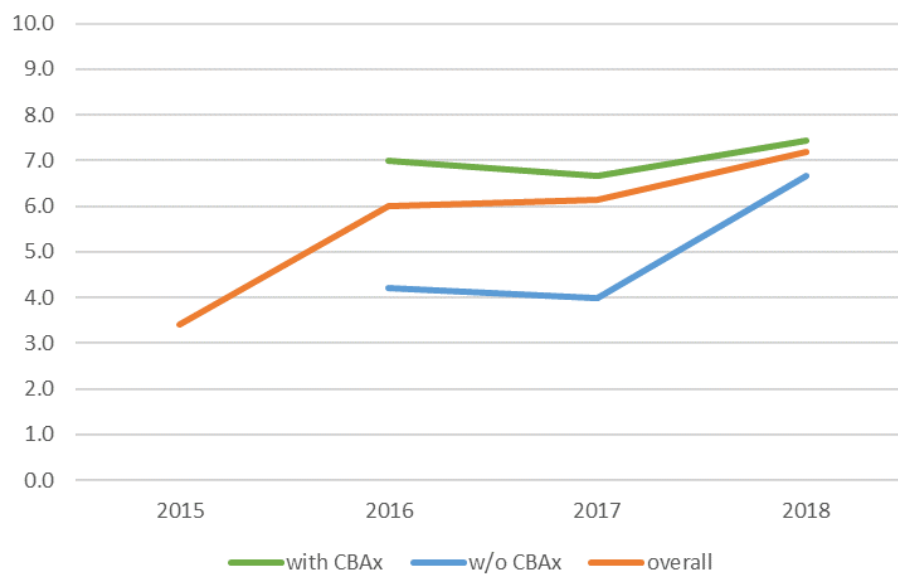
Source: NZIER

### 3.4. Even initiatives without CBAX improved

Looking at the trends in mean scores from 2015 to 2018 according to whether the initiatives had a completed CBAX spreadsheet or not, we found the wide gap that occurred in the sample in 2016 had closed significantly by 2018 (see Figure 4).

**Figure 4 Trends in mean score by CBAX status**

2015-2018



Source: NZIER

The number of initiatives examined is too small to be statistically representative, but the results indicate that agencies are becoming more accustomed to, and accomplished in, providing information in a form that would assist decision-makers.

## 4. CBAX strengths

### 4.1. Summary of strengths

We found that initiatives supported by a formal CBAX model tend to:

- Have a clearer problem definition.
- Have a better identification and description of the target population.
- Put more emphasis on impacts rather than outputs and activities.
- Include a wider range of impacts.
- Be more transparent about assumptions.
- Use evidence.
- Be open and realistic about confidence.
- Use correct discounting.

### 4.2. Clearer problem definition

Problem definition has improved over time with the application of CBAX, in both qualitative and quantitative terms. Initiatives have become clearer about wanting to achieve something to address a problem, rather than just doing something to provide outputs.

Identification of intervention logic, such as addressing market failure, information failure, or other causes of loss of societal well-being, was less well developed in a number of initiatives.

Defining the counterfactual was also variable, with some initiatives falling into circular arguments that without funding they would not be able to do what they set out to do.

### 4.3. Better identification and description of the target population

The application of CBAX has also improved the quantification of populations affected by an initiative. Quantifying the target population was rarely done in initiatives not supported by CBAX.

For instance, one initiative was simply seeking continuation of funding for elective surgery to meet a pre-existing target; but it did not demonstrate a case for such funding by identifying the types of elective surgery it could fund, the demand for such surgery or characteristics of the population that would benefit.

### 4.4. More emphasis on impacts

We found that the use of CBAX has also led to more emphasis being placed on the description of outcomes and impacts, not just activities and outputs. In some cases,



this led to impacts being quantified, and in some of these cases they have been monetised.

However, even with CBAX, consideration of how the rate of uptake affects the outcomes is not often examined in any detail, and the instruction to prefer ranges to single number estimates is rarely complied with in the final results.

## 4.5. Wider range of impacts

Initiatives using CBAX appear to be looking beyond the fiscal implications to consider effects from within the sector and from other sectors, as well as private impacts.

This is useful in considering a wider societal perspective than the fiscal focus (often only on one Vote) that budget bids have traditionally had. For instance, an assessment of an energy efficiency initiative identified the cost of installations of appliances and the deadweight cost of taxation to cover government funding, but also covered the economic surplus for producers, householders' energy savings and health benefits from warmer homes, a portion of which have fiscal implications in publicly funded hospitalisation and medicines. That example drew heavily on a pre-existing CBA prepared by outside consultants and incorporated that into the CBAX frame.

## 4.6. More transparent assumptions

CBAX enables assumptions to be more transparent, either implicitly through the CBAX tool – many assumptions can be read directly from the spreadsheet – or explicitly through the impacts summary table.

This could be improved by asking agencies to specifically cite evidence or indicate assumptions within this table.

## 4.7. A longer time horizon

Within CBAX some intergenerational impacts are being considered. However, there are often tenuous causal links between short-term initiatives and outcomes over long timeframes, so these might be best advised as to be unmonetised only.

Some initiatives have calculated a 50-year NPV, which implies an incredibly enduring impact from short-term budget initiatives. There may be rare examples where such long-term effects are valid – e.g. early childhood interventions to reduce risk of incurring life-changing injuries – but putting these into a discounted analysis can be counter-productive if it understates their future impact; it may be better to focus on the incidence of risk and the number of people who could be affected and compare the cost effectiveness of an intervention with other options for reducing similar long term adverse outcomes, than subject these to heavily discounted monetised analysis.

## 4.8. Use of evidence

We found that, over time, agencies are using more evidence, particularly academic style citations and numerical sources to support assumptions and to describe populations and problem definitions.

Some initiatives, however, continue to use evidence more for support than illumination, using broad averages or generic evidence to build a case for very specific changes or programmes.

## 4.9. An open and realistic assessment of confidence

Agencies appear to have been open and not unduly optimistic about their confidence in the evidence used and also transparent about their assumptions.

However, specialist knowledge is required to assess the validity of this evidence for the specific issues being addressed by initiatives. Details such as sample size, representation and geographic origin are rarely clear in the CBAX documentation.

## 4.10. Correct discounting

As this is imposed by the CBAX tool, the application of discounting will have improved. Initiatives not supported by CBAX which did any modelling involving discounting were rarely clear about discount rates, timeframes or application methods. This matters because correct and consistent discounting supports better comparisons.

## 5. CBAX challenges

### 5.1. Summary of challenges

We found that real challenges remain, despite the apparent success of CBAX in driving clear quality improvements in budget initiative advice.

These challenges are diverse, but amount to a sufficiently serious set of issues to inhibit the use of results generated through CBAX for the intended purpose.

Indeed, in our opinion, if the following challenges are not addressed, the potential for further quality improvements may not be realised. These challenges are arranged so that those at the top are most likely to be addressed by Treasury through the guidance it puts out on use of CBAX; those at the bottom are more readily addressed by the agencies raising their game; and two in the middle, about variation in use of spreadsheets and the burden of effort put into preparing assessments could be addressed by both Treasury guidance and interpretation within agencies:

- A 'one-size-fits-all' approach that undermines the credibility of the process and, in some cases, the quality of advice.
- An inability to reconcile CBAX with pre-existing CBA analysis.
- An appearance of excessive focus on fiscal concerns and final numerical result.
- Variations in the use of templates for reporting assumptions and results, which impedes the ability to compare initiatives.
- A heavy burden of work on agencies with unrealistic expectations of significant amounts of work that would not be justified by the very small additional benefit from completing them.
- A failure to clearly and consistently describe the assumed counterfactual.
- A failure to extend CBAX to options analysis to ensure that the best options are being put forward for budget consideration.
- An inability to quantify or monetise some impacts and a lack of guidance for dealing with these. And,
- Low quality output for the intended decision-making.

### 5.2. The 'one-size-fits-all' approach undermines credibility and quality

Although the budget initiative approach allows agencies some flexibility in how to use it and the ability for exemptions to be sought from vote analysts, the current set of requirements for budget initiatives resembles a one-size-fits-all approach. Agencies submit budget initiative analysis and advice to the Treasury which includes a budget initiative template and supporting documents such as the CBAX model.

The templates and CBAX model are highly technical in requiring initiative descriptions, inputs and results to be presented in prescribed ways. This approach can often have

the effect of shifting agencies into 'compliance mode'. This may undermine original thinking and the use of 'best fit for context' analysis.

Actions such as imposing full CBAX requirements where there is already a spending commitment, and appearing to encourage wild assumption-making in areas where little is known or evidence is weak reduce the credibility of the initiatives and budget bids.

Together with the heavy burden of analytical work that CBAX demands, this threatens the ability to ensure continued quality improvements.

It would also be useful to explore whether the uptake of the service was likely to be high enough to warrant increasing the size of the programme. If there is doubt about the uptake, the smaller option could be used like a pilot to test its effectiveness and defer expansion to a later date if warranted by demand uptake.

### 5.3. Inability to reconcile CBAX with pre-existing CBA

When a good quality CBA has already been done and is well explained, additional analysis using CBAX does not appear to add value in answering the question of whether the benefits exceed the costs.

In principle, applying the CBAX template should improve the comparability of different initiatives, but in practice it may not. The mix of government and societal costs and benefits varies widely between initiatives and the CBAX database is predominantly filled with government fiscal (not societal) costs and benefits, so the consistency and comparability is largely limited to these government items.

Furthermore, although Treasury guidance to agencies has encouraged them to seek and use evidence to support initiatives, agencies have no incentive to seek out pre-existing CBA reports as these are often not amenable to being adapted to CBAX (we found that examples where this has been attempted were not particularly successful).

Pre-existing CBA reports may provide a better evidence base than what the agency is able to produce in CBAX within the timeframe, particularly where societal costs and benefits are a major part of the assessment of whether a budget programme is needed at all.

The question, then, is whether a pre-existing CBA produced to address a particular problem not necessarily tailored to the budget bid is more informative than a standard CBAX prepared by the agency under time pressure, often with the proposed initiative having been altered repeatedly in reaching a preferred option.

In our view, a pre-existing CBA may give a more independent view of likely costs and benefits and risks around the analysis than agency analysts using a CBAX frame on a proposal they have designed.

## 5.4. Approach appears focused on fiscal concerns

In our view, the approach, templates, and database all appear to prioritise fiscal concerns, incentivising agencies to focus on programmes with employment outcomes that reduce welfare dependency.

But the model can be used to examine wider effects on societal well-being, and some agencies in the health space are applying CBAX for this purpose.

There is also a wide range of societal and environmental outcomes that fit less well with the CBAX tool because values are not primarily centred on avoided fiscal cost. There are no widely accepted New Zealand-based societal values for many of these outcomes to use in the analysis.

## 5.5. Variation in use of templates

We found the reporting of assumptions underlying the spreadsheet values to be highly variable, potentially due to lack of specificity in the impacts summary table as to what needs to be included.

The Treasury's description of CBAX suggests that "the advantage of the CBAX tool is that it makes assumptions explicit".

This was clearly the intention, and there is no doubt that there is more transparency with CBAX than there had been previously. However, in many instances, agencies fail to provide adequate transparency around assumptions, despite completing both the templates and the spreadsheet with a reasonable amount of evidence and a good intervention logic.

## 5.6. Heavy burden of work on agencies

Is CBAX worth the effort in all cases? Some agencies are doing far more than is necessary and creating long, wordy documents containing relatively little useful information.

Agencies need to assess a large amount of evidence for relevance to the problem, intervention and outcomes – often in a short time. They also need to transfer a large amount of data into templates with explanations around assumptions, subject to multiple revisions, given the reality of frequent re-thinks of an intervention.

Sensitivity analysis and alternative scenario modelling tend not to be undertaken – possibly due to running out of time.

Ranges for values and sensitivity analysis are not coming through, despite Treasury guidance. This is likely because there is too much uncertainty and additional estimates are seen as adding confusion to decisions and not worth the extra work involved.

Agencies are expected to use the CBAX tool to test scenarios for budget initiatives, to fine-tune the design of the initiative to improve the return on investment, and to report on assumptions, evidence and results. But that does depend on sufficient timeframe to adequately explore the options.

We found that when sensitivity analysis and scenario testing were undertaken, they were not always described in a way that is informative. This may be due to lack of template space, or a fixation on the single number for NPV or ROI.

## 5.7. Failure to describe the counterfactual

Although some agencies attempted to capture some semblance of a counterfactual, and the CBAX spreadsheet implicitly identifies one, we found no consistent and coherent approach to this issue in the sample.

The counterfactual is important as it sets the expectations of the decision-maker regarding the future nature and magnitude of the problem under an alternative scenario against which the initiative is being judged. This alternative scenario is not always the 'do nothing' scenario, nor is it always a 'business as usual' option. In such circumstances it is not always easy to agree on a counterfactual – care must be taken to ensure the selection process is sound.

By and large, agencies fail to address this fundamental question. This suggests insufficient guidance has been provided and agencies may require more training and advice to identify the most appropriate counterfactual. Such guidance could include:

- Being clear about an intervention or programme's causal effect on the problem being addressed
- Distinguishing the two states of the world – with the intervention and without it – from which to identify the change caused by intervention
- Noting that an intervention's impact is not just the difference between before and after intervention, because of other changes taking place
- Allowing for other factors that influence outcomes, in particular accounting for underlying trends that change the world with or without intervention.

The counterfactual requires forecasting two future outcomes, one without the intervention and one with it. Each requires explicit consideration of how the main drivers of the issues being addressed – changes in population, income levels, people's tastes and demands etc – is likely to change under each alternative state, with clear reasoning for how intervention will change the "with" scenario.

Similarly, we found difficulties in discussing the reasoning behind assumptions – even those crucial to the results. We suggest a cooperative approach with agencies in such situations – the use of prompting with specific questions to draw out what is assumed, and why.

## 5.8. Failure to extend CBAX to options analysis

One of the major benefits of CBA is the ability to use it to choose between options. Agencies do not appear to be using CBAX for this purpose.

We also found that options analysis remains under-developed: if options are considered at all, details of any analysis of them are not provided, and there is little consideration of the marginal or incremental benefits and costs of changes to the scale or scope of the initiatives.

In one initiative, superficial consideration of alternatives resulted in the agency choosing a preferred option which, on the numbers provided, is clearly not more cost effective than the discarded alternative. It recommended the option that served the most people, even though the average cost of the additional people served was almost double the cost per person served in the smaller alternative. The assessment neither suggested a justification for this higher cost nor recognised it in the figures it used.

In such a setting it would be informative for the assessment to consider whether there was any reason for costs to increase with scale (e.g. whether it would be aimed at more difficult cases).

## 5.9. Inability to quantify or monetise some impacts

The Treasury's CBAX guidance states that "There will sometimes be gaps in the evidence for how effective an initiative might be, for example when trying something new." This is likely to be an understatement.

Most budget initiatives (other than cost pressure responses) involve trying something new, so gaps in evidence are the rule, not the exception. We often saw heroic assumptions, including long chains of causal links where monetisable impacts are longer term and assume more of the same.

Social, cultural, and environmental values were particularly problematic and there are limited values available in the CBAX database. Agencies may feel uncomfortable applying inappropriate values and concerned that other agencies are using different values that result in higher ROI.

Agencies are also likely to judge the process by what they perceive as the quality of the inputs. The credibility of the process is undermined if agencies feel forced to find values without believing that these values are particularly relevant.

The Treasury's description of CBAX suggests that one advantage of the approach is that it values different types of costs and benefits in a consistent way. This is true for the more straightforward costs and benefits, such as emergency room visits, for example. But less straightforward costs and benefits are not valued consistently.

Mortality is one example where agencies would benefit from more guidance on situations where VoSL is appropriate, or when another value such as QALYs would be better, and whether these values include associated dimensions like lost income.

We found that even what might be seen as a straightforward value, employment income, was handled inconsistently, with some agencies making vastly different assumptions due to lack of knowledge about the target population, or accounting differently for displacement.

## 5.10. Low quality of output for decisions

The strength of the CBAX approach is in encouraging better clarity around input variables, not in generating better quality output variables.

While our assessment scores indicate there has been improvement in the way agencies are using CBAX to be explicit about their assumptions and expectations, there are also risks in the way the results are presented around the weight placed on the outputs.

The nature of the quantitative analysis in CBAX and focus on monetised results can result in misplaced confidence. In particular, the results should be treated with caution when these are derived from combining societal benefit values of very variable reliability.

We found that agencies tended to load up a benefit stream with benefit values, usually derived for another purpose, of variable reliability. It would be more informative to present results for government ROI based on reliable inputs, and societal ROI using only the most reliable social value inputs and using break-even analysis to see how large other effects would need to be to change the result.

Another questionable practice is the presentation of 50-year NPVs from short-term programmes. While there are some interventions with very long benefit streams – like childhood vaccinations that eliminate an individual’s risk of serious disease – in social policy interventions the causative link to benefits is often more questionable and subject to decay over time. At a 4% discount rate the present value of a dollar falls below 50 cents 17 years from the present, and would be just 14 cents in 50 years’ time from now (other things held constant), so in many cases a 50 year timeframe is not going to materially add to the analysis, but it does increase the risk of poorly supported-inputs affecting the apparent outcome of the analysis.

Encouraging agencies to choose long timeframes and populating spreadsheets with numbers of variable quality does not improve the tool as a basis for informing funding decisions and allocations across activities competing for scarce resources. Changing the focus to more credible inputs and shorter-term outcomes would reduce some of the uncertainty around just what is driving the CBAX results.



## 6. Recommendations

### 6.1. Recommendations on budgetary requirements

#### 6.1.1. Align requirements with objectives

Through the roll-out of CBAX, the Treasury was working toward various objectives:

- The immediate objective of CBAX is to assist agencies to provide better advice to Treasury officials, and help Ministers make better choices amongst options based on CBA advice.
- A longer-term effect is lifting the capability of agencies to conduct CBA and ultimately improve outcomes for New Zealanders as a result of better budget decisions.
- It could also improve the transparency of the decision process so that agencies understand better how decisions are made and tailor their information gathering and commissioning to improve that process.

It is not often that a single tool will achieve multiple objectives. In this case, agencies face both constraints and incentives that make an expectation of meeting all objectives unrealistic.

The Treasury's preference to run a transparent process and to enable agencies to use CBA to fine-tune initiatives and select amongst options are both supported by the ability of agencies to observe and influence the CBA outputs. However, by making the CBA outputs visible to agencies, the Treasury incentivises agencies to alter input assumptions to improve return on investment and ensure a winning bid.

This in turn undermines the objectives of quality analysis and of generating a good basis for value for money judgements.

Formally, the effect is to shift the burden of assessment from checking results of the analysis of the proposed initiative onto a different part of the process – the evidence claims.

Unless the Treasury has the capacity to soundly assess the quality of evidence that agencies use to support input values – itself a task that is likely to be almost as demanding as working up the CBAX – the process will wind up compromised. Agencies will be responding to the instruction to look for and use evidence which will then be in danger of being treated lightly.

All the experience we have is that agencies are quick to respond to incentives; we don't see this area being any different. But in terms of the foundation of the approach – to try and shift the mechanics of assessing budget bids to a more formal and analytical basis – it will undermine the credibility of the requirements and the process if CBAX becomes an exercise in stacking analysis with questionable evidence to get a result rather than interrogating evidence and identifying how critical are particular input values in changing the analysis results.

While our assessment found that agencies are generally open and honest about their confidence in evidence used to support their CBA, this information does not enhance the Treasury's ability to interpret the estimated ROI, as it is presented.

The Treasury might consider re-framing CBAX as an intervention logic model to encourage agencies to focus on the *quality of inputs* rather than on the results of analysis. To support the focus on inputs, we suggest removing the outputs sections of the CBAX model.

Although this would prevent agencies from using CBAX to evaluate options, the tool does not appear to have been used in this way to any significant degree. Options were generally not well developed nor subjected to comparative CBA in the initiatives we assessed.

Above all, we recommend that process credibility should be a priority in objectives for the budget mechanisms. If the requirements and process are not credible, or are seen as simply a box filling exercise to obtain a particular threshold value of NPV or ROI, agencies will not invest the time and effort to ensure quality inputs and advice.

There is some risk of a misallocation of public sector resources if agencies place excessive effort in assessing budget initiatives where prior commitments or Ministers' pronouncements make the result a foregone conclusion, or conversely make too little effort on assessments that could make a real difference to decisions made. More guidance on how the budget initiative assessments feed through to advice to Ministers and what is required for decision-aiding could help agencies customise their assessments to be more informative and proportional to the decisions being made.

### 6.1.2. Make requirements more flexible

The enlarged requirements of the budget process appear to have put agencies into compliance mode, supplying the right documents, filling in the right sections, trying hard to say all the right things.

But lifting the capability of agencies to undertake CBA and make best use of CBA results in decision-making needs to recognise that programmes at the frontier of public policy require original analysis and creative thinking.

To support this, the Treasury could provide options that allow budget requirements to be met while encouraging agencies to adjust ways of thinking to best fit the context.

An example might be allowing cost-effectiveness analysis to be used for programmes where any monetisable impact is many years away but data on useable intermediate outcomes are available.

For example, early childhood education programmes could be evaluated based on cost-effectiveness in achieving key school age outcomes, rather than a CBA based on possible adult earnings with a long and tenuous chain of causal links.

Similarly, areas where there is already some pre-commitment could provide equally useful information with a well-developed logic model and evaluation plan. Both of these can be highly quantitative and would require agencies to be clear about target population and expected impacts while also being a credible requirement for an agency fully expecting to be required to deliver on commitments.

### 6.1.3. Emphasise robustness over precision

The CBAx framework combines elements of financial accounting needed for fiscal budgeting with broader welfare concepts covering both market and non-market effects on people's well-being. The former demands exacting precision which cannot be matched by the latter where, regarding matters relating to social, cultural and environmental well-being, precise valuation is rarely possible and the available estimates are less important than the patterns they reveal about how values change across different circumstances.

When considering the impacts on societal well-being it is the robustness of the analysis rather than its precision that is more important, its ability to tell a credible story about the existence of problems and the opportunities for improvement through intervention. A key advantage of CBA is the focus it requires on the adequacy of inputs, not just obtaining a favourable result. Agencies could be assisted in being more discerning in their compilation of evidence, focusing on the fitness of evidence used for the purposes they serve, and limiting numerical analysis to inputs of highest confidence rather than loading the analyses with figures of questionable reliability.

### 6.1.4. Reduce focus on fiscal issues

The Treasury would like agencies to think widely about impacts and is often heard claiming that the focus of budget decisions is to deliver the best outcomes to New Zealanders. However, the budget initiative templates require agencies to first record information about fiscal costs and benefits, with societal costs and benefits appearing secondary.

Although this seems like a minor point, the order of information conveys a subtle message about priorities. We recommend that future tools and templates present and request wider societal values first.

### 6.1.5. Introduce changes to improve quality of information on unmonetised impacts

While the quality of information on impacts that can be monetised improved over time, no equivalent improvement was seen in the quality of information on impacts that could not be monetised. That is, when agencies could not monetise the impact, relatively little effort was put into identifying, describing, and quantifying these impacts.

We recommend that initiative templates include separate sections specifically for describing unmonetisable effects/impacts and intermediate outcomes. We recommend the Treasury provides guidance on how to describe these succinctly to avoid lengthy and unhelpful narratives.

Specific guidance on use of evidence to support a heavily quantified description of unmonetisable impacts (e.g. with reference to surveys, etc.) may also be required.

### 6.1.6. Be more realistic about ranges and sensitivity analysis

Completing the requirements for multiple budget initiatives has meant a heavy burden of work for agencies. Often, identifying one value for CBA is challenging enough. If the Treasury wants to test alternative values, this could be done by Treasury analysts when spreadsheets are submitted.

## 6.2. Recommendations on agency support

### 6.2.1. Increase transparency about what agencies need to do to be successful

From 2016 onwards, the amount of work that agencies have put into budget initiatives has been substantial. This will have been a challenging and resource-intensive exercise for agencies.

However, most budget initiatives did not benefit from lengthy descriptions and arguments or large amounts of weakly supportive evidence. That agencies are going to these lengths suggests that, by and large, they do not understand what is required to be successful. This understanding should be the primary goal of transparency around the budget process.

We recommend the Treasury provides agencies with clear feedback, tailored to each agency, about what was well done, what wasn't well done, and how it was received. This feedback should also inform agencies about what information in previous initiative templates was superfluous and recommend ways of streamlining advice to what is really needed.

### 6.2.2. Take a CBA approach to requirements

The principles of CBA should be applied to budget requirements. In many cases, little is gained from putting a lot of effort into conducting a CBA, even using CBAX, and yet agencies invest a significant amount of resources in completing the work. The effort put into CBA, and even whether to use it at all, should be proportional to how important is the decision it is intended to inform.

Because agencies have limited capability and time, investing too much in developing one initiative can have an impact on the quality of other initiatives.

At the same time, Treasury officials face a challenging task in assessing vast amounts of material, much of which provides very little useful information. Larger initiatives are riskier, which warrants investing in CBA. For smaller initiatives, and initiatives that are highly likely to be funded for political reasons, the heavy burden of work may mean the costs of CBA outweigh the benefits.

One way of reducing the costs on both agencies and Treasury officials would be to reduce the requirements for small cost pressures, initiatives requiring less than a threshold amount of funding, and initiatives where there is a relevant pre-existing CBA. Another is to focus on the usually few key inputs which make a big difference to

numerical results, and to concentrate effort on getting these as robust as possible rather than attempting to cover everything with a dubious precision.

### 6.2.3. Provide better support for cost pressures initiatives

Where the Treasury requires a CBA of cost pressure initiatives, agencies require more support. We suggest the Treasury provides agencies with consistent indicators and standard forecasts of price increases in specific areas. Many agencies have little capability for this.

For instance, it may be easier to prepare bids for initiatives facing cost pressure with guidance on:

- Costs specific to particular service areas, such as medical supplies or imported components for processes undertaken in New Zealand
- Generic influences on service delivery, such as general rates of inflation, changes in transport availability or congestion
- Changes in the regulatory environment with an influence on cost of service delivery, such as labour costs, capacity utilisation or additional costs required to undertake certain actions (health and safety regulations).

### 6.2.4. Provide more support for break-even or reverse analysis

An alternative to using highly uncertain values for CBA is to conduct break-even or reverse analysis. There were few instances of this in the assessed sample, however where it *was* used, it was successful in communicating the potential value of the initiative.

We recommend that the Treasury supports agencies to make more use of these alternatives to CBA.

### 6.2.5. Target support to areas where there are clear challenges

Agencies face considerable struggles in identifying, quantifying and monetising impacts.

For non-social sector agencies, the challenge lies in identifying any impacts outside of their own sector. Social sector agencies are more likely to be able to identify impacts outside of their own area, but these tend to be other social sector impacts.

Quantifying and monetising impacts in areas where other agencies have primary responsibility is sometimes less well-developed, most likely due to a lack of access to the full range of other agencies' data and expertise.

## 6.2.6. Develop and promote guidelines for use of compatible CBA reports

Agencies often conduct or commission CBA. Many instances of pre-existing CBA have been applied to budget initiative requirements with varying success. This is because pre-existing CBA reports do not always make specific impacts, probabilities of impacts, and impact values clear enough to enable them to be used as inputs to CBAX.

If CBAX is to continue to be used, we recommend the Treasury issues clear guidance to support agencies commissioning CBA reports to enable more of them to be appropriately pre-designed for use in budget contexts.

This should recognise that not all CBAs are about government initiatives and it would be detrimental if all government-commissioned CBAs were expected to use the CBAX format. However, careful attention to the describing and reporting of each cost and benefit would enable such values to be applied within a CBAX model.

Such analysis would require commissioned reports to provide:

- Similar outputs to those of CBAX in distinguishing societal NPV and ROI and separable societal costs and government costs
- Similar information about the inputs used, and the reliability of the evidence on which they are based
- Details of any modelling that does not fit the CBAX template, and any comments on its interpretation and incorporation in the CBAX frame.

# Appendix A Methodology

## A.1 The process

The assessment process included two phases: A sub-sample test process and a full sample process.

The sub-sample test process involved working with the Treasury to develop the assessment criteria and assessment template and conducting a test of the draft assessment template and process by the assessment team.

Refinements to the assessment template were then discussed with Treasury and a final assessment template was completed.

The Treasury then selected a sample of budget initiatives on which to conduct the full sample process.

The full sample process consisted of:

- Assessing the content of material provided for each initiative against the assessment template
- Completing a template for each initiative
- Filling in a summary spreadsheet to track scores, trends, and emerging themes as well as note issues for discussion in moderation meetings and initiatives that required additional consideration
- Contributing to a working document of observations and insights which helped to shape discussions about themes and possible recommendations
- Two moderation processes during which initiatives and assessments were discussed
- A synthesis meeting with Treasury officials to discuss findings and the direction for recommendations
- A review of the process with the quality assurance team.

## A.2 The sample

The sample that was subject to full assessment consisted of material provided to Treasury in support of a total of 50 budget initiatives. The initiatives spanned budgets from 2015 to 2018.

Some of the 2016, 2017 and 2018 initiatives had a CBAX requirement whereas the 2015 initiatives and some of the later ones had no such requirement (see Table 2 below).

One budget initiative was removed from the sample due to missing documentation that could not be located (2016 initiative 9268).

**Table 2 Summary of budget initiative material assessed**

	2015	2016	2017	2018
Total initiatives in sample	10	15	15	10
Initiatives included in analysis	10	14	15	9
CBAx required	0	7	8	3
CBAx completed	0	9	9	7

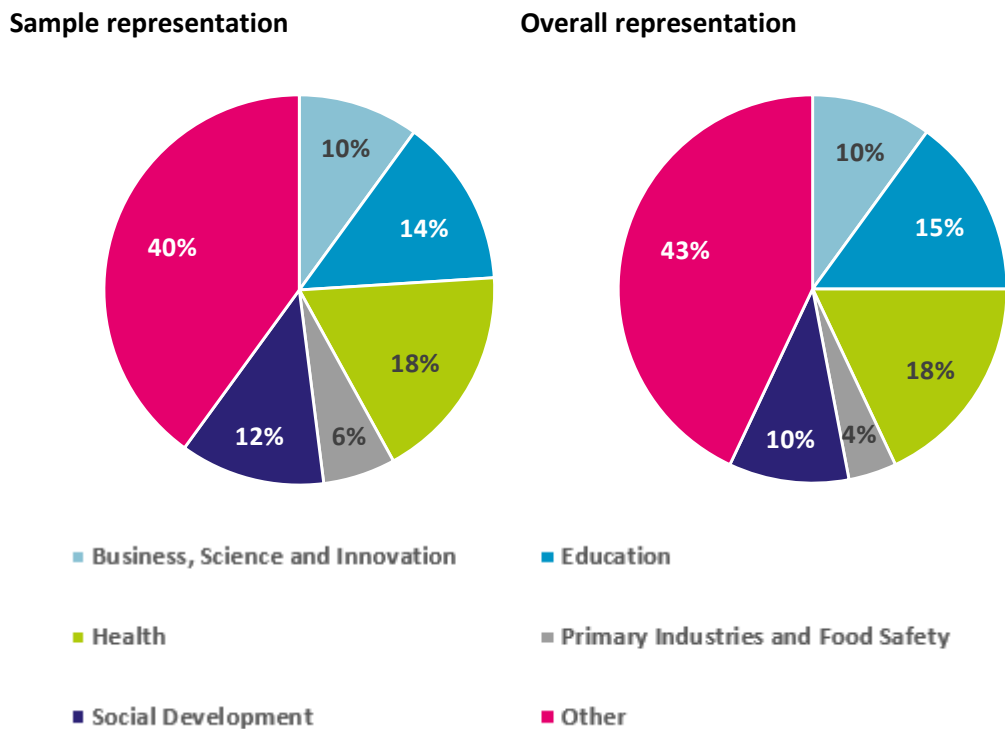
Source: NZIER

Our sampling approach generated a set of budget initiatives that was broadly consistent with the overall representation by Vote in the total set of budget initiatives over the 2015 to 2018 period.

The Votes responsible for the majority of budget initiatives (Education; Health; Business, Science and Innovation; Social Development; and Primary Industries and Food Safety) accounted for approximately the same proportion in the sample (60 percent) as in the total population of budget initiatives (63 percent) – see Figure 5 below.

**Figure 5 Major budget initiative contributors**

Sample versus overall



Source: NZIER

However, the number of budget initiatives analysed for each Vote was small, which made reliable assessment of trends within Vote areas impossible.



## A.3 The approach

To assess the initiatives, we developed an assessment template with the Treasury. The template reflects the seven steps of CBA suggested by the Treasury's Guide to Social Cost Benefit Analysis:<sup>1</sup>

- Define the policy and counterfactual
- Identify who gains and who loses
- Identify the costs and the benefits
- Value the costs and benefits
- Discount and compare costs and benefits
- Assess the CBA and conduct further work as needed
- Prepare the final report / budget initiative proposal.

We set out detailed criteria under each CBA step, with assessments requiring each item to be identified and overall comments for each step.

In addition to the seven steps, the assessment also considered whether the advice was:

- **Analytically sound:** Including information on assumptions, uncertainties and gaps in information or evidence; whether the CBA helped to improve the overall analysis; whether any major impacts were not monetised; and whether the analysis was consistent with Treasury guidelines; and
- **Evidence-based:** Whether the diagnosis of the problem, opportunity or solution were informed by data, evidence, insights, research or relevant experts; whether the methods were sound with an explicit level of confidence/certainty in the empirical base; and whether the advice provides best judgement despite imperfections, with limitations acknowledged and implications of limitations communicated.

Finally, we included a section in the assessment template to draw out system insights and learning, thus identifying good practice and common challenges and patterns.

We scored each initiative out of 10. A score of 7 indicated that the initiative advice met the quality criteria sufficiently. In the context of budget initiatives, this was determined by the assessment team to mean that:

- The problem definition is clear.
- The nature of the intervention is clear.
- At least one major impact was both quantified and monetised, or, in cases where impacts could not be monetised, the quantification and monetisation of a major impact was replaced with a thorough description of the impact and a sense of its magnitude or importance.

It was not necessary for budget initiatives to monetise all impacts. It was also acceptable for impacts to be quantified and monetised based purely on assumption if such assumptions were explained.

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<sup>1</sup> New Zealand Treasury. Guide to Social Cost-Benefit Analysis. July 2015, Wellington. Accessed 1 May 2018 from: <https://treasury.govt.nz/sites/default/files/2015-07/cba-guide-jul15.pdf>

The use of evidence and monetisation of a more complete set of impacts, along with clear problem definition and intervention, tended to generate higher scores.

A lack of monetisation, when monetisation was possible and reasonable, or a lack of problem definition, resulted in lower scores consistent with failing to meet criteria.

# Appendix B Assessment template

## Quality Advice Panel: Feedback on CBA Advice

**Budget Initiative title:**

**Vote:**

**Budget:**

**Agency:**

**Budget stream:**

**CBAx required:**

**CBAx provided:**

**Material assessed:**

**Overall Advice  
Score:**

---

**Overall assessment (see Annex 1 for rating and scoring guide):**

**Problem definition**

**General comments on the quality of CBA analysis and advice**

---

**CBA analysis covered CBA steps (Shaded means adequately covered). Overall:**

1		2		3		4		5		6		7	
---	--	---	--	---	--	---	--	---	--	---	--	---	--

**Major impacts are monetised?**

**Is it, or would it be, helpful to monetise more impacts?**

**Where impacts are not monetised, would it be possible?**

**What could be done?**

**Estimated effort?**

Analytical rigour – CBA and impact analysis for the CBA steps					
	Y/N	IDENTIFIED	QUANTIFIED	MONETISED	Comments
<b>CBA Step 1. Define Policy and Counterfactual</b> <ul style="list-style-type: none"> <li>Is the intervention clear?</li> <li>Clear counterfactual? Intervention logic?</li> <li>Robust reasoning and logic</li> <li>Advice has a clear problem definition, evaluation of options against criteria, and assessment of risks and opportunities.</li> <li>Are options presented?</li> </ul>					
<b>CBA Step 2. Identify the people who gain and lose</b> <ul style="list-style-type: none"> <li>Government and wider societal impacts</li> <li>Immediate sector and cross sectors?</li> <li>Considers diverse impacts (impacts on different groups and sub-groups)?</li> </ul>					
<b>CBA Step 3. Identify the costs and the benefits, and allocate to time periods</b> <ul style="list-style-type: none"> <li>Breadth of identified C/B (different sectors)</li> <li>Fiscal and non-fiscal impacts</li> <li>Short term – long term</li> </ul>					
<b>CBA Step 4. Quantify benefits and costs within ranges</b> <ul style="list-style-type: none"> <li>Transparent assumptions about: who impacted (segmentation?) when? by how much relative to counterfactual? for how long?</li> <li>Point estimates vs ranges (ranges better)</li> </ul>					
<b>CBA Step 5. Discount to a common period, compare C/B</b> Monetisation and modelling <ul style="list-style-type: none"> <li>Major impacts</li> <li>Minor impacts</li> <li>Clear PVs for individual impacts? NPV?</li> <li>Is the modelling included? Explained?</li> <li>Consistent with initiative advice?</li> <li>Correct discounting? Sensitivity analysis?</li> </ul>					
<b>CBA Step 6. Clear results? Further work?</b> <ul style="list-style-type: none"> <li>Are assumptions transparent?</li> <li>Transparent quality of evidence base</li> <li>Strength of evidence base*</li> <li>Signs of iterations</li> <li>Scenarios?</li> <li>Transparent about what is not included?</li> </ul>					
<b>CBA Step 7. Write budget initiative proposal</b> <ul style="list-style-type: none"> <li>Is the government and societal Rol clear?</li> <li>Confidence in CBA advice?</li> <li>Good basis for providing value-for-money advice and making decision?</li> </ul>					

\* Indicate whether the agency has provided any justification for the level of certainty or discussion of the quality and relevance of evidence used

Advice is analytically sound					
	Y/N	DOES NOT MEET STANDARD	MEETS STANDARD	EXCEEDS STANDARD	COMMENTS
<b>Advice is analytically sound</b> <ul style="list-style-type: none"> <li>• There is information on assumptions, uncertainties and gaps in information or evidence, and how these impact on decision making</li> <li>• CBA successfully used to improve analysis? Use of CBA in the proposal. Were impacts monetised?</li> <li>• Excluded major impacts?</li> <li>• Consistent with Treasury guidelines?</li> </ul>					
<b>Evidence-based</b> – supported by relevant evidence <ul style="list-style-type: none"> <li>• Diagnosis of the problem, opportunity or solution is informed by data, evidence, insights, research or relevant experts.</li> <li>• Empirical methods are sound, explicit level of confidence/certainty in empirical base</li> <li>• Advice provides best judgement despite data imperfections; information limitations are acknowledged and the implications of those limitations communicated.</li> </ul>					

System insights and learning	
<b>Example of good practice, eg</b> <ul style="list-style-type: none"> <li>• Overall advice</li> <li>• Specific CBA steps</li> <li>• Specific impacts</li> </ul>	
<b>Example of common challenge, eg</b> <ul style="list-style-type: none"> <li>• Unreasonable assumptions</li> <li>• Lack of evidence</li> <li>• Confidence in CBA/value story</li> </ul>	
<b>Illustrate common pattern, eg</b> <ul style="list-style-type: none"> <li>• Types of initiatives where CBA is useful / not useful</li> <li>• Types of impacts that are monetised</li> <li>• Use of RoI / CB ratios</li> </ul>	

# Appendix C Rating and scoring guide

Based on Policy Project Ex-post Assessment Template – Characteristic: Advice is analytically sound; analysis is informed by evidence and insights.

## Rating against detailed quality criteria

The assessment sheet sets out detailed criteria under each of the four characteristics. The star ratings signal strengths of the paper and highlight areas for improvement.

★ or ★★ means not meeting the standard

★★★ means meeting the standard and is the default setting

★★★★ or ★★★★★ means exceeding the standard

## Giving a final score

Each paper is given a final score using the scoring guide below. For further guidance, see 'Ex-post assessment – guide on panels and processes'.

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### Scoring guide

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The score applied to each paper should be reached through a balanced consideration of the paper's overall performance against the quality characteristics and criteria that are relevant to the papers purpose.

The overall score should be a judgement, not a calculation based on the star ratings, however:

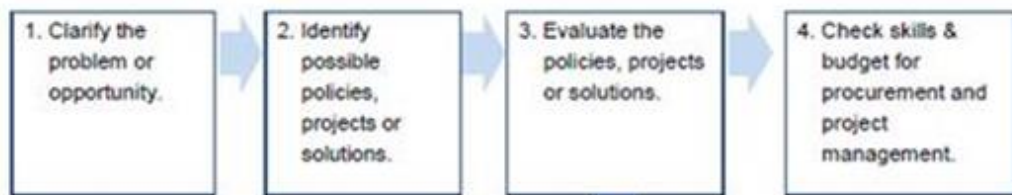
- A paper for which any relevant and important criteria is rated ★ is likely to score 6 or less overall.
- A paper for which any relevant and important criteria is rated ★★★★★ may be a candidate to score 8 or better.

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1 to 3	seriously deficient in quality criteria and needs substantial reworking, potentially from scratch
4 to 5	deficient in a number of quality criteria and needs considerable improvement
6	nearly 'across the line', and with relatively minor improvements could have met the quality criteria
7	meets the quality criteria sufficiently (is of a suitable quality to send to the Minister)
8	exceeds a number of the criteria and represents good practice
9	exceeds standards on the majority of relevant criteria and can be considered best practice
10	exceeds standards on all relevant criteria and can be considered best practice

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## CBA steps



Policy evaluation using CBA	
Undertake CBA on each of the feasible policy options	
<b>Inputs to CBAX</b>	<p><b>Step 1:</b> Define policy and counterfactual</p> <p><b>Step 2:</b> Identify the people who gain and those who lose</p> <p><b>Step 3:</b> Identify the benefits and costs; allocate to time periods</p>
<b>Analysis in CBAX</b>	<p><b>Step 4:</b> Quantify the benefits and costs within ranges</p> <p><b>Step 5:</b> Discount to a common period, compare benefits and costs</p>
<b>Outputs from CBAX</b>	<p><b>Step 6:</b> Is the result clear enough? If not, consider whether it is worth investing in more research, and repeat above steps</p> <p><b>Step 7:</b> Write report</p>