4d – A Guide to
Cost-Benefit Analysis

Royal Geographical Society with IBG
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Cost-Benefit Analysis is a useful method for identifying the overall consensus about an issue when considering many different opinions on a range of different aspects. Cost-benefit analysis makes use of **weighted scores**, whereby the relative importance of different issues is taken into consideration when scoring their negative and positive points.

Why would we use a cost-benefit analysis?

A researcher looking into future proposals or prospective modelling for a geographical idea will find it is very useful to consider the relative weaknesses and merits of different options. A cost-benefit analysis allows a researcher to consider different perspectives with a greater degree of objectivity by allowing mathematical scores to determine an outcome rather than emotions.

Worked Example:

A researcher may ask questionnaire participants to consider the relative merits of a range of different flood protection schemes, and the strength of their negative impacts in a range of different areas:

	Impact you feel there will be on… Score 1 (low negative impact) to 5 (high negative impact)				
	Visual attractiveness	Traffic	Noise	House prices	Insurance Premiums
Scheme A					
Scheme B					
Scheme C					
Scheme D					

To some sets of participants, the importance of a change in the value of their home may be far greater than a change to the visual attractiveness of their area. Therefore, more 'weight' should be added to the former score as it is more important to them. The researcher can choose the exact scale given to this weighting, or they might like to carry out a pilot study that asks public respondents to allocate a 'weight' to each of the criteria based on how important they feel those issues are. In this case, weighting the score out of three, where three is most important and one least important, allows the final score to reflect the relative importance of each of the categories.

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	Impact you feel there will be on… Score 1 (low negative impact) to 5 (high negative impact)														
	Visual attractiveness			Traffic			Noise			House prices			Insurance Premiums		
	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**
Scheme A		2			2			1			3			3	
Scheme B		2			2			1			3			3	
Scheme C		2			2			1			3			3	
Scheme D		2			2			1			3			3	

Weighting a score means that the original score is multiplied by the 'weight' added to it. The same weighting must be used for each choice (in this case flood management scheme) so a direct comparison between them can be made. To allow the researcher to choose the flood management scheme most favoured by the participants, the total weighted score for each scheme should also be considered.

	Impact you feel there will be on… Score 1 (low negative impact) to 5 (high negative impact)															**TOTAL SCORE**
	Visual attractiveness			Traffic			Noise			House prices			Insurance Premiums			
	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	Score	Weighting	**Weighted Score**	
Scheme A	1	2	**2**	3	2	**6**	1	1	**1**	2	3	**6**	1	3	**4**	**19**
Scheme B	3	2	**6**	3	2	**6**	2	1	**2**	3	3	**9**	1	3	**4**	**27**
Scheme C	5	2	**10**	1	2	**2**	4	1	**4**	5	3	**15**	2	3	**6**	**35**
Scheme D	2	2	**4**	1	2	**2**	2	1	**2**	1	3	**4**	2	3	**6**	**18**

Therefore, according to this cost-benefit analysis, Scheme D is deemed by the participants in this survey to have the least negative impact, while Scheme C will have the most negative impact.