



BUSINESS SCHOOL
Te Kura Pakihi

ISSN 1178-2293 (Online)

University of Otago
Economics Discussion Papers
No. 1605

APRIL 2016

Bilateral foreign aid: How important is aid effectiveness to people for choosing countries to support?

Harry Cunningham, Stephen Knowles and Paul Hansen

Address for correspondence:

Stephen Knowles
Department of Economics
University of Otago
PO Box 56
Dunedin
NEW ZEALAND
Email: stephen.knowles@otago.ac.nz
Telephone: 64 3 479 8350

Bilateral foreign aid: How important is aid effectiveness to people for choosing countries to support?

Harry Cunningham, Stephen Knowles* and Paul Hansen

Department of Economics, University of Otago

Abstract

We conduct a discrete choice experiment (DCE) to determine how important aid effectiveness is to people relative to other criteria for choosing countries to support with bilateral foreign aid. We find that aid effectiveness is important, on a par with recipient-country need as proxied by the level of hunger and malnutrition. Both criteria are more important than others.

Keywords: foreign aid, aid effectiveness, discrete choice experiment, conjoint analysis, PAPRIKA method

JEL classifications: C90, D64, O1

* *Corresponding author:* Stephen Knowles, Department of Economics, University of Otago, Dunedin 9054, New Zealand; stephen.knowles@otago.ac.nz

1. Introduction

Most people would probably agree that bilateral foreign aid should go to countries where it is most likely to improve the wellbeing of the people living there. But how important to citizens – whose taxes fund the aid – is aid effectiveness relative to other allocation criteria, such as how poor the recipient country is, its ties with the donor country, etc? We investigate this question using a discrete choice experiment (DCE) (McFadden, 1974) involving students (current and future taxpayers) from a New Zealand university.

2. Related literature

Several studies use regression analysis to examine the extent to which the amount of aid countries receive is determined by their characteristics, which can be categorised into three broad groups. The first group of characteristics is recipient-country need, usually represented by income per capita (e.g. Alesina and Dollar, 2000) and also infant mortality rates (Trumbull and Wall, 1994) and balance of payments (Feeny and McGillivray, 2008).

The second group is the extent to which recipient-countries have strategic links with the donor country. These links are proxied, for example, by whether the recipient country is a former colony of the donor and whether they vote along similar lines at the United Nations (Alesina and Dollar, 2000).

The third group of characteristics, and of most relevance to the current study, is the potential for the aid to be used effectively. Burnside and Dollar (2000) and Berthélemy (2006) proxy this potential with an index of macro policy (inflation, openness and fiscal balance), with Alesina and Dollar also including measures of openness, democracy and civil liberties.

The above-mentioned studies find that all three groups of recipient-country characteristic determine bilateral aid allocations. Though we are interested in a different research question – what types of countries do *individual citizens* think should be supported with foreign aid? – these studies provide some guidance as to which characteristics might be important. In addition, several studies have directly investigated individuals' preferences.

Analysing the responses of both Australian citizens and the Australian government to natural disasters overseas, Feeny and Clarke (2007) finds that individuals are more likely to donate to countries that are geographically closer to Australia than ones further away, but geographic proximity is not significant for government aid.

In Metzger and Günther's (2015) dictator game subjects are offered the opportunity of buying information about the efficiency of the charity they are being asked to support by

paying a fee equivalent to 1% of the experiment's average earnings. As only 29% of participants chose to purchase this information, it appears that efficiency is not an especially important criterion.

Karlan and Wood (2014) conduct a field experiment in which solicitation letters are sent by an international development non-government organisation to people who have previously donated to the charity. The treatment group is told about the effectiveness of the charity's work, while a control group receives no such information. Although both groups donated the same amount of money on average, when donors were disaggregated into those who had previously made small or large donations respectively to the charity it was found that for large donors the information treatment increased donations but for small donors donations decreased.

Overall, it seems that the importance of aid effectiveness relative to other recipient-country characteristics is ambiguous. This study seeks to resolve this ambiguity by confronting people directly via a DCE with trade-offs between aid effectiveness and the other recipient-country characteristics identified in the literature reviewed above. The study extends an earlier one involving the second and third authors that found that recipient-country need and strategic links with the donor country were the most and least important attributes respectively but that did not include aid effectiveness (Hansen et al, 2014).

3. The discrete choice experiment

The DCE includes these five recipient-country characteristics as attributes:¹ (1) hunger and malnutrition, (2) average income per person, (3) level of trade with New Zealand, (4) geographical proximity to New Zealand, and (5) likelihood of aid being effective.

The first two attributes represent recipient-country need, the third and fourth capture strategic interests, and the fifth relates to aid effectiveness. Because, as explained below, the DCE asks participants to consider trade-offs between *hypothetical* countries it is not necessary to come up with a proxy for aid effectiveness; instead simply specifying the probability of aid being effective is sufficient.

The DCE applied the PAPRIKA method (Hansen and Ombler, 2008), as implemented by 1000Minds software.² The PAPRIKA method – a partial acronym for 'Potentially All

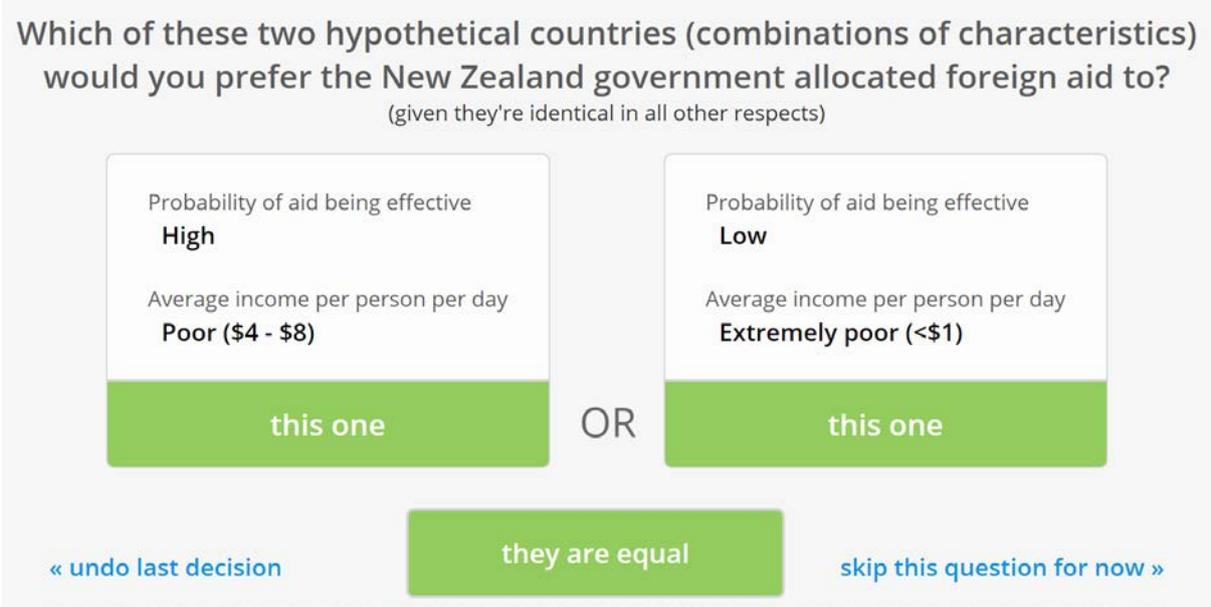
¹ See Table 1 for the wording of the attributes and their levels.

² 1000Minds is available for unfunded research for free from the third author or via www.1000minds.com. Other recent DCE applications of PAPRIKA and 1000Minds include selecting plant species for eco-system restoration (Graff & McIntyre, 2014), marine policy-making (Chhun, Kahui & Thorsnes, 2015), prioritising patients (White et al, 2015), disease classification (Johnson et

Pairwise Rankings of all possible **Alternatives**’ – is based on pairwise ranking, which has the methodological advantage of being a natural type of decision activity that everyone has experience of in their daily lives, and so results can be expected to be more valid and reliable than alternative methods (Moshkovich et al, 2002). Another advantage is that PAPRIKA yields a set of results – part-worth utilities (weights) – for each participant, in contrast to other DCE methods which produce aggregated data only, thereby permitting comparisons of results across participant sub-groups (e.g. male versus female).

PAPRIKA begins by identifying all pairs of, in the present context, hypothetical recipient countries defined on two criteria at-a-time and involving a trade-off. Each participant is repeatedly presented with pairs of countries in random order and asked to choose which country has higher priority for receiving aid. An example of a pairwise-ranking question appears in Figure 1. Each time the participant ranks a pair of countries, all other hypothetical countries that can be pairwise ranked via transitivity are identified and eliminated. For example, if someone prefers country *A* over country *B* and then she prefers *B* over country *C*, then – by transitivity – *A* is also prioritised over *C* (and so the method would not ask a question relating to this third pair of countries).

Figure 1: An example of a pairwise-ranking question



The elimination procedure explained above ensures that the number of questions participants are asked is minimised and yet each participant ends up having pairwise ranked

al, 2014), plant (Smith & Fennessy, 2014) and animal breeding (Martin-Collado et al, 2015) and retirement income policy-making (Au, Coleman & Sullivan, 2015).

all hypothetical countries differentiated on two criteria at-a-time, either explicitly or implicitly (by transitivity). From the participants' explicit pairwise rankings, the software uses mathematical methods based on linear programming³ to derive 'part-worth utilities' (or weights) representing the relative importance of the characteristics to each individual participant, and also on average for the group as a whole.

We administered the DCE in the New Zealand university where we work and study. Approximately 900 students in first-year classes in law, economics, statistics and politics and also in a residential college were invited to take part.

4. Results and discussion

The DCE was completed by 185 people (a 20% response rate, approximately), of whom 54% are females and the majority (84%) are aged 18-20. The mean weights for each attribute and their levels are reported in Table 1, and the marginal rates of substitutions between the attributes are reported in Table 2. No statistically significant differences between males and females were detected at the 5% level.

With a mean weight of 0.267 for aid effectiveness, and given there are five attributes and so if they were equally important their weights would all be 0.2, it is clear that aid effectiveness is important to participants on average. Although hunger and malnutrition has a higher weight of 0.283, the difference in weights for these two attributes is not statistically significant. The differences in weights between all other pairs of attributes are statistically significant.

Another way of analysing the DCE results is to focus on the percentage of participants for whom each attribute is the most important, second-most important, etc. Figure 2 reports the distribution of rank orderings across participants for each criterion, where it can be seen that hunger and malnutrition is the most important attribute for 42.8% of participants, followed by aid effectiveness (35.1%), average income (12.4%), trade (6.2%) and geographical proximity (3.6%). Focusing on the relative importance of these first two attributes, 70.4% of participants ranked aid effectiveness as the most or second-most important attribute, whereas 64.3% ranked hunger and malnutrition in this way. At the other end of the ranking, the least important attribute is aid effectiveness for 4.5% of participants and hunger and malnutrition for 2.8%.

³ For technical details, see Hansen and Ombler (2008).

Table 1: Part-worth utilities of the DCE participants (n = 185)

Attribute	Mean part-worth utility
<i>Hunger and malnutrition:</i>	
Low (most people aren't hungry)	0
Moderate (some starvation)	0.145
High (lots of starvation)	0.283
<i>Probability of aid being effective</i>	
Low	0
Moderate	0.157
High	0.267
<i>Average income per person:</i>	
Poor (\$4-\$8 per day)	0
Very poor (\$1-\$3 per day)	0.095
Extremely poor (<\$1 per day)	0.181
<i>Level of trade with New Zealand:</i>	
Low	0
Moderate	0.076
High	0.146
<i>Geographical proximity to New Zealand</i>	
Far away	0
Moderately close	0.070
Very close	0.122

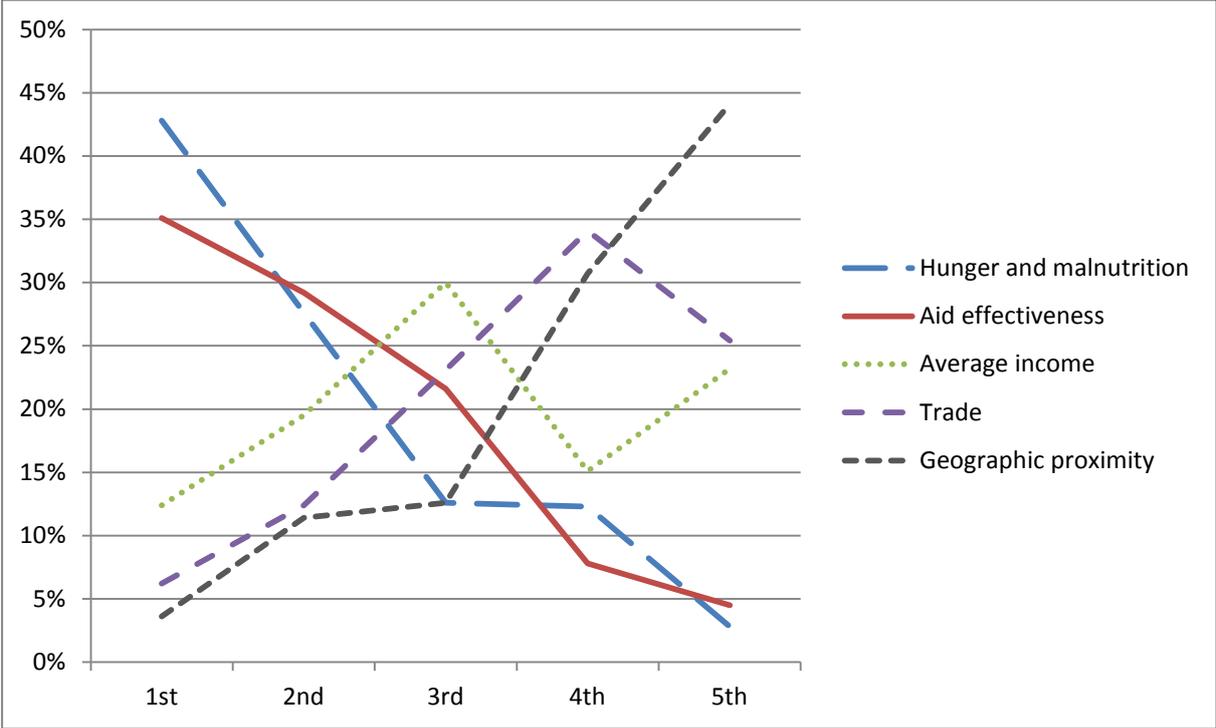
Note: Bolded values represent the relative weights of the attributes overall (i.e. these bolded values sum to one).

Table 2: Marginal rates of substitution of attributes

	<i>Aid effectiveness</i>	<i>Average income</i>	<i>Trade</i>	<i>Geographic proximity</i>
<i>Hunger and malnutrition</i>	1.06	1.56	1.94	2.32
<i>Aid effectiveness</i>		1.48	1.82	2.20
<i>Average income</i>			1.24	1.48
<i>Trade</i>				1.20

Note: Each number is calculated by dividing the part-worth utility value corresponding to the highest level of the corresponding row attribute by that of the corresponding column attribute from Table 1. For example, the upper-left entry $1.06 = 0.283/0.267$.

Figure 2: Distribution of respondents by their ranking of each attribute



5. Conclusion

Aid effectiveness is important to people when choosing countries to support with bilateral foreign aid, on a par with recipient-country need as proxied by the level of hunger and malnutrition. Both criteria are more important than others. The least important attribute is strategic links between the donor and recipient countries. Overall, it seems that people would like aid to be targeted at countries where it is most likely to improve the wellbeing of the people living there, but not if this means the aid is not going to where suffering is the greatest.

Acknowledgements

Thank you to the people who participated in the discrete choice experiment. Funding from the Department of Economics, School of Business at the University of Otago is gratefully acknowledged.

References

- Alesina, A. & Dollar, D. (2000), Who gives foreign aid to whom and why?, *Journal of Economic Growth*, 5, 33-63.
- Au, J., Coleman, A. & Sullivan, T. (2015), A practical approach to well-being based policy development: What do New Zealanders want from their retirement income policies?, *New Zealand Treasury Working Papers*, 15/14.
- Berthélemy, J.-C. (2006), Bilateral donors' interest vs. recipients' development motives in aid allocation: do all donors behave the same?, *Review of Development Economics*, 10, 179-194.
- Burnside, C. & Dollar, D. (2000), Aid, policies and growth, *American Economic Review*, 90, 847-868.
- Chhun, S., Kahui, V. & Thorsnes, P. (2015), Advancing marine policy towards ecosystem based management by eliciting public preferences, *Marine Resources Economics*, 30, 261-275.
- Feeny, S. & Clarke, M. (2007), What determines Australia's response to emergencies and natural disasters?, *Australian Economic Review*, 40, 24-36.
- Feeny, S. & McGillivray, M. (2008), What determines bilateral aid allocations? Evidence from time series data, *Review of Development Economics*, 12, 515-529.
- Graff, P. & McIntyre, S. (2014), Using ecological attributes as criteria for the selection of plant species under three restoration scenarios, *Austral Ecology*, 39, 907-917.
- Hansen, P., Kergozou, N., Knowles, S. & Thorsnes, P. (2014), Developing countries in need: Which characteristics appeal most to people when donating money?, *Journal of Development Studies*, 50, 1494-1509.
- Hansen, P. & Ombler, F. (2008), A new method for scoring multi-attribute value models using pairwise rankings of alternatives, *Journal of Multi-Criteria Decision Analysis*, 15, 87-107.
- Johnson, S., Naden, R., Fransen, J., van den Hoogen, F., Pope, J., Baron, M., Tyndall, A., Matucci-Cerinic, M., Denton, C., Distler, O., Gabriellio, A., van Laar, J., Mayes, M., Steen, V., Seibold, J., Clements, P., Medsger, T., Carreira, P., Riemekasten, G., Chung, L., Fessler, B., Merkel, P., Silver, R., Varga, J. & Allanore, J. (2014), Multicriteria decision analysis methods with 1000Minds for developing systemic sclerosis classification criteria, *Journal of Clinical Epidemiology*, 67, 706-714.
- Karlan, D. & Wood, D.H. (2014), The effect of effectiveness: Donor response to aid effectiveness in a direct mail fundraising experiment, *NBER Working Paper No. 20047*.

- McFadden, D., Conditional logit analysis of qualitative choice behaviour. In P. Zarembka (Ed.), *Frontiers in econometrics*, Academic Press, New York, 1974, 105-142.
- Martin-Collado, D., Byrne, T. J., Amer, P. R., Santos, B. F. S., Axford, M. & Pryce, J. E (2015), Analyzing the heterogeneity of farmers' preferences for improvements in dairy cow traits using farmer typologies, *Journal of Dairy Science*, 96, 4148-4161.
- Metzger, L. & Günther, I. (2015), Making an impact? The relevance of information on aid effectiveness for charitable giving. A laboratory experiment, *Discussion Paper No. 18*, Courant Research Centre, Göttingen.
- Moshkovich, H.M., Mechitov, A.I. & Olson, D.L (2002), Ordinal judgments in multiattribute decision analysis, *European Journal of Operational Research*, 137, 625-641.
- Smith, K. & Fennessy, P. (2014), Utilizing conjoint analysis to develop breeding objectives for the improvement of pasture species for contrasting environments when the relative values of individual traits are difficult to assess, *Sustainable Agriculture Research*, 3, 44-55.
- Trumbull, W. & Wall, H. (1994), Estimating aid-allocation criteria with panel data, *Economic Journal*, 104, 876-882.
- White, D., Solanki, K., Quincey, V., Minett, A., Tam, G., Doube, A. & Naden, R., (2015), Development of a multi-dimensional additive points system for determining access to rheumatology services, *Journal of Clinical Rheumatology*, 21, 239-243.