EMPIRICAL ARTICLE

The potential and pitfalls of unit asking in reducing scope insensitivity

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Abstract
This article revisits and further investigates the extent to which scope insensitivity in helping contexts can be reduced by the unit asking (UA) method. UA is an intervention that first asks people to help one unit and then asks for willingness to help multiple units. In 3 studies ($N = 3{,}442$), participants took on the role of policymakers to allocate help (motivation to help and willingness to pay) to local aid projects. They underwent either UA or a control condition (in which they stated their willingness to help only to the multiple units). Against expectations, the first 2 studies found a reversed UA effect for helping motivation, such that help decreased when participants were in the UA condition. However, the third study found a UA effect for helping motivation when participants made the sequential assessments within one project (when the individual unit belonged to the multiple units-group), rather than between projects (when the individual unit belonged to another group). Thus, our results suggest that the 2 assessments critical for the UA method should be done within the same project rather than between 2 projects to successfully reduce scope insensitivity. Further, the age of the unit (child or adult), the number of the unit(s), the composition of the group (homogeneous or heterogeneous), and the size of the group did not substantially reduce scope insensitivity with UA.

1. Introduction

When do people become more sensitive to scope in helping contexts? Ample research shows that people fail to adjust their help response to the number of individuals in need. That is, they are scope insensitive (e.g., Baron & Greene, 1996; Butts et al., 2019; Dickert et al., 2015). This tendency to neglect quantity in one's response is found within charitable giving (e.g., Desvousges et al., 1993; Kogut et al., 2015), in purchase decisions (e.g., Chang & Pham, 2018; Hsee & Rottenstreich, 2004), and in emotional responses (e.g., Dunn & Ashton-James, 2008). Since this tendency can lead to negative personal (e.g., paying more for less) as well as humanitarian outcomes (e.g., overlooking millions of people in need), interventions to mitigate this have been developed. One promising intervention is the unit asking (UA) method, in which people are asked to first think of and help one hypothetical individual in need (a unit) before being asked to help a group of individuals. This intervention has previously been shown to boost donations and increase sensitivity to scope (Hsee et al., 2013; Karlsson et al., 2020). However, a recent paper failed to find consistent support for increased scope insensitivity using this method (Maier et al., 2023). Thus, research has so far not succeeded in identifying when the

intervention is successful in decreasing scope insensitivity and when it fails to do so (or possibly, even make it worse). The conflicting findings of the research using UA suggest that the method is not fully understood and that important moderators may still be missing. The current article addresses some of the boundary conditions of UA and is aimed at uncovering potential underlying mechanisms of the effect. We explore UA in a new setting and with a different paradigm compared to previous studies. Instead of an interpersonal giving context (i.e., donation), we test UA when people take on the role of a policymaker and distribute help to international aid projects.

Initially, we started this project relying on previous findings that have shown that UA boosts donations and increases sensitivity to scope (e.g., Hsee et al., 2013; Karlsson et al., 2020; Moche et al., 2023). Assuming that the UA effect is robust, we set out to test if UA would be affected by whether the unit recipient is a child or an adult and if the initial unit size differed between a single person and three persons (Study 1). However, in contrast to our predictions and to previous results, we did not find any UA effect and instead even found a reversed effect for helping motivation. Therefore, Studies 2 and 3 were designed to explore the reasons for these results. In Study 2, we explored the idea of making the target group in need of help more or less homogeneous (i.e., financing a project helping only children or only adults vs. financing a project helping both children and adults)—and thereby more in line with realistic requests for help. This extends previous studies, which have explored the UA effect only in relation to one homogenous target group at a time. We also explored the idea of increasing the number of target victims from the first to the second project, in line with previous research (i.e., going from 1 to 20 victims). Despite these changes, we failed to find a UA effect, and again, found a reversed effect for helping motivation. Thus, in Study 3, we explored whether the sequential assessment that the UA method entails needs to be within a single project (i.e., splitting the assessment into 2 decisions, but knowing of the group initially). In practice, this means that participants would receive information that child A–H needed help, then be asked about their willingness to help child A, and lastly be asked about their willingness to help children A–H (within one project), in contrast to first being asked to help child Z and then being asked to help children A–H (2 projects). We found a UA effect when participants made 2 sequential assessments within one project, but not if it was separated into 2 different projects. Thus, it seems that keeping the sequential assessment within a project is important to achieve a UA effect, whereas the age of the recipients (child vs. adult) and the number of recipients making up the unit or the group were not crucial factors for the UA effect in our studies.

1.1. The unit asking method

In the UA method, the control group indicates how much they value helping a group of recipients, whereas the UA group first indicates how much they value helping one unit (e.g., one person) before deciding on how much they value helping a group of recipients (Hsee et al., 2013). Previous results have shown that the donated amount to the complete set of units is significantly higher in the UA condition than in the control condition (Hsee et al., 2013). The method has also been replicated (Moche et al., 2023) as well as extended to other domains than helping people (e.g., saving animals; Karlsson et al., 2020). The original authors propose that the UA method raises participants' sensitivity to available quantitative information by taking advantage of the benefits of a joint evaluation mode (the benefit of having comparative information available, which in this situation relates to comparing one unit to a complete set of units) and people's perceived norm that all people are equally valuable in sequential valuations (e.g., by donating more when there are more compared to fewer recipients in need; Garinther et al., 2022). The increased scope sensitivity in UA compared to control conditions has been found both when the recipients are children—children at kindergarten (Study 1, Hsee et al., 2013 and Karlsson et al., 2020; Moche et al., 2023) or at school (Study 2; Hsee et al., 2013)—and when they are adults (Study 3; Hsee et al., 2013). This suggests that the method is effective in scaling up help regardless of the recipients' age. However, it is unknown how the method works for causes where both children and adults are displayed as needing help, which is arguably a more realistic setting in helping scenarios.

1.2. Age effect

In charitable giving, some recipients seem to be favored over others, in the sense that they receive more help or donations (Chapman et al., 2022). For example, previous work has found that an identified victim receives more donations than unidentified or statistical victims (Kogut & Ritov, 2005a; Small et al., 2007); an ingroup member receives more help than an outgroup member (e.g., James & Zagefka, 2017); and female recipients are more likely to receive help than male recipients (Weber et al., 2019). The tendency of some recipients to be favored over others can be referred to as situational factors affecting help—or helping effects, for short (Erlandsson et al., 2020). One helping effect of interest in relation to how the UA method has been tested is the age effect. This effect refers to the tendency that children or younger recipients are favored over adults or older recipients (e.g., Goodwin & Landy, 2014). For example, people have donated more or been more motivated to help children compared to adults, both when the 2 victim groups are evaluated separately (i.e., separate evaluation mode; Moche & Västfjäll, 2021), and when they are evaluated side by side (i.e., joint evaluation mode; Erlandsson, 2021). Further, Erlandsson (2021) and Erlandsson et al. (2020) found that significantly more people chose to support a project helping fewer children (e.g., 4 children) than a project helping more adults (e.g., 6 adults) when being forced to choose between these 2 options. That is, people preferred to help children even when the number of children was fewer than adults.

The age effect seems to be a rather robust preference and has received considerable attention in the literature over the past decades, both in fields of judgment and decision making, health economics, and medicine (e.g., Goodwin & Landy, 2014; Johannesson & Johansson, 1997; Rodríguez & Pinto, 2000; Tsuchiya, 1999). The effect has been explained by children being perceived as more sympathy-evoking or needy-looking than adults (Moche et al., 2020), more valuable (Goodwin & Landy, 2014; Li et al., 2010), less responsible for their plight (Back & Lips, 1998), and more deserving or justified of help (Erlandsson, 2021; Tsuchiya et al., 2003). Another explanation for the age effect can be derived from the economic evaluation measure of quality-adjusted life-year (QALY), which is a measure that combines quantity and quality and is often used to evaluate healthcare programs. Using QALY, younger people will have higher weights compared to older people—with other things being equal—since they have completed a smaller portion of a normal life span (Rodríguez & Pinto, 2000). Children can therefore be perceived as less deserving of dying (Chasteen & Madey, 2003).

Charity organizations often depict a single or a group of children in their charitable appeals, even when adults are also victims of a particular humanitarian crisis (e.g., war, diseases). In such appeals, the child(ren) become the representation of a larger group in need of help—although they are often part of a family including adults. However, the effect of mixing children and adults in one appeal is relatively unknown. It might be that people represent a child differently than they do an adult (similar to how they represent a single person differently from a group of people; Hamilton & Sherman, 1996). Therefore, appeals that depict both children and adults (that are not related to each other) might be perceived as less positive and thereby receive less help than more homogeneous appeals. Further, the impact of using the age effect to scale up helping if embedded in an intervention is unknown. For example, implementing the age effect in the UA method can be done by varying which victim is highlighted as the unit (the child or adult) and if the group of victims consists of both children and adults or either only adults or only children. Such variations can have effects on whether help and scope sensitivity are increased.

1.3. Overview of the studies

This article includes 3 studies that investigate the UA method when combining children and adults in need. Specifically, we test whether the UA method is affected by who is displayed as the single unit (i.e., a child vs. adult; Studies 1–2), if the unit is a single person or several persons (i.e., one child vs. a child and a few adults; Study 1), if the larger group of people in need is a small group or a larger group (i.e., 4 people vs. 20 people in need; Studies 1–2), and last if the 2 valuations done in the UA method

are done within 1 or help projects (Study 3). This enables us to better understand when the UA method can help people be more sensitive to scope.

2. Study 1: Effects of victim age and unit size

Study 1 investigated whether the UA effect is influenced by whether the victim displayed as the unit is a child or an adult (Erlandsson et al., 2020; Moche & Västfjäll, 2021). This study also investigates this when the initial unit size differs, such that the 'unit' is either a single person or three persons in need.

2.1. Method

2.1.1. Participants
One thousand participants were recruited through Prolific and completed the study. All participants were US residents. However, 37 participants failed the attention check and were excluded, reducing the final sample to 963 participants (55.5% female, 43.2% male, 1.3% do not want to disclose/other; M_{age} = 33.50, SD = 12.05). A sensitivity power analysis on the actual sample size, with a power of 80% (α = .05) showed that our sample could detect a small effect size (f = .11, Critical F = 2.38).

2.1.2. Procedure and design
First, participants read a brief description of the study and consented to participate. After that, they were asked to imagine that they worked at an international NGO in a division that aimed to create policies about how the organization should allocate resources between different local help projects[1] that aimed to help people in need. Participants read that in this task they were presented with different kinds of help projects they should evaluate and that their job was to rate the projects based on some features and indicate the maximum acceptable cost to implement them. They were also told the projects should be evaluated independently and not be compared with each other. After this introduction, participants were asked to imagine that there was a proposed local help project that focused on helping sick people who suffered from an infectious disease called Schistosomiasis. The exact description of the first pages shown to participants can be seen in Table 1. These pages were identical to all participants regardless of condition. From page 3, participants read different information depending on which condition they were randomly assigned to.

Thereafter, participants were randomly assigned to 1 of 5 conditions in a between-subject design. From here, participants would read and evaluate 1 (i.e., project Bongolo) or (i.e., project Mukunda and project Bongolo) help projects, depending on which condition they were assigned to. The 5 experimental conditions are described in Table 2, along with the number of participants that were assigned to each condition. The names of the conditions refer to the type of condition and the recipient(s) highlighted as the unit. There were control conditions, which were identical except that in one of these participants only read and rated one help project (Bongolo) and in the other participants read and rated 2 identical help projects (Mukunda and Bongolo, both helping 3 adults and 1 child). The reason for having control conditions was to control for the possibility of finding an effect due to repeated ratings in the UA conditions. The remaining conditions were UA conditions where the initial 'unit' in the first project (Mukunda) differed, both in whether it helped a single or three persons and whether these were children or adults. Thus, the increase in number of persons that would be helped from Mukunda to Bongolo differed across conditions.

To illustrate, Figure 1 shows the exact descriptions shown to participants in condition UA 1 adult unit, first for project Mukunda and then for project Bongolo. Evaluation of project Bongolo is our primary dependent variable. More specifically, participants in all conditions, except those in the first control condition (i.e., control one project), first read and evaluated project Mukunda (named after a village in the Democratic Republic of the Congo, where the hypothetical persons in need lived).

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[1]The term used in the stimuli material, as read by participants in all 3 studies, was 'international emergency micro project'.

Table 1. *The first 2 pages, after the study description and consent, shown to participants in all 3 studies.*

Page	Description shown to participants
1	Imagine the following: You have work at an international non-governmental organization (NGO). You work at a division that aims to create policies about how the organization should allocate resources between different international emergency micro projects aimed to help people in need. Every week you are presented with different kinds of micro projects that you should evaluate. The projects describe how many people in need they aim to help, who the people in need are, and what they need.
	Your job is to evaluate the micro projects by rating them based on some features, as well as to indicate the maximum acceptable cost to implement them.
	Note that each micro projects should be evaluated independently and not to be compared with other projects that you evaluate.
2	In this situation, you will be presented with an emergency micro project that focuses on treating sick people suffering from an infectious disease, called Schistosomiasis. These people live in remote areas of the Democratic Republic of the Congo.
	The infectious disease, Schistosomiasis, comes from being in contact with contaminated water. Those who have been infected often experience blood in the urine, diarrhea, bloody stool, and abdominal pain. To prevent severe symptoms such as liver damage, kidney failure, and bladder cancer (in adults), or poor growth and learning difficulties (in children), they need medical treatment. The cure rates of the recommended medicine are high, about 65–90% are cured after a single treatment. However, at the moment, this medicine is not accessible in this part of the country. Therefore, this emergency micro project intends to use advanced drones to transport rations of medicine and basic equipment to remote areas. This has the potential of preventing suffering and saving the lives of those who have been in contact with the contaminated water and got this disease.
	You will rate how good the emergency micro project seems to be, and what you think is the acceptable maximum cost to implement the project.

Table 2. *The overall design and descriptives of Study 1.*

Condition	Project Mukunda (unit)	Project Bongolo	N
Control one project		1 child, 3 adults	195
Control two projects	1 child, 3 adults	1 child, 3 adults	193
UA 1 child unit	1 child	1 child, 3 adults	191
UA 3 adults unit	3 adults	1 child, 3 adults	189
UA 1 adult unit	1 adult	1 child, 3 adults	195

Thereafter, participants evaluated project Bongolo (named after another village in the Democratic Republic of the Congo), which could always help 1 child and 3 adults. Participants in the first control condition read and evaluated project Bongolo as the only project. The project description shown to participants stated whether it helped children and/or adults suffering from this disease, explained why the project was called what it was, and how many people would be helped. Included in this description

MUKUNDA

Emergency micro project Mukunda will treat sick **adults** suffering from Schistosomiasis.

This project is called Mukunda, named after the village that will receive the help. Mukunda is located in the southeast part of the Democratic Republic of the Congo.

If emergency micro project Mukunda is implemented, **one adult** suffering from Schistosomiasis will be treated.

BONGOLO

Emergency micro project Bongolo will treat sick **children and adults** suffering from Schistosomiasis.

This project is called Bongolo, named after the village that will receive the help. Bongolo is located in the west part of the Democratic Republic of the Congo.

If emergency micro project Bongolo is implemented, **one child** and **three adults** suffering from Schistosomiasis will be treated.
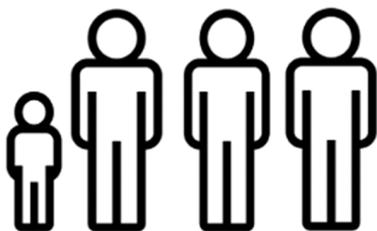
Figure 1. *The exact description is shown to participants in condition UA 1 adult unit for Study 1, first for project Mukunda on one page and second for project Bongolo on another page.*

was also an unidentified image that would illustrate the number and age of the person(s) that could be helped in the project (see Figure 1).

After having read about a project, participants answered 3 questions about the help project and the maximum acceptable cost for implementing the project. First, participants answered 3 questions

relating to their motivation to help the local help project on a slider scale from 0 (= *Very little*) to 100 (= *Very much*); (1) *How important is project Bongolo [Mukunda] to implement?* (2) *How prioritized is project Bongolo [Mukunda] to you?* and (3) *How worthy of financing is project Bongolo [Mukunda]?* The questions were later aggregated into a single dependent variable, which we refer to as helping motivation (Cronbach's alpha ranging from .92 to .96). Second, participants indicated the maximum acceptable cost to implement the help project, a measure of willingness to pay (WTP). To minimize the influence of individual differences in perceptions of acceptable costs and to provide boundaries to responses for WTP, participants also read that a normal local help project had an average cost of $600–1000. These questions were answered either once (for participants only seeing project Bongolo) or twice (for participants seeing both project Mukunda and Bongolo). Evaluation of project Bongolo was our primary dependent variable. For the participants who rated projects, they were told after the first one that they would see and rate another project that was similar to the previous one.

2.2. Hypotheses

Study 1 was pre-registered and can be found at https://osf.io/wk4yz/. The pre-registration also includes the exact formulations that participants read in the scenario and an overview of the design.

We hypothesized that we would find a UA effect, such that helping (i.e., helping motivation and WTP) would be significantly higher in the 3 UA conditions compared to the 2 control conditions (Hsee et al., 2013; Karlsson et al., 2020).

We also hypothesized that there would be an effect of age on the UA effect, such that the UA condition with an adult as the unit would lead to the largest UA effect (compared to UA 1 child unit and UA 3 adults unit). This is because the child will be the prominent victim in a scenario where child and adult victims can be helped (Erlandsson et al., 2020), so participants in the UA 1 adult unit condition might increase their helping in the second project because not only is there an increase of number of adults that can be helped, but it also adds the prominent child victim.

2.3. Results

Our primary outcome measures were helping motivation and WTP for project Bongolo. The WTP is the primary measure used in the UA literature, thus it was essential to include it in our studies as well. However, in our studies and with our paradigm, the WTP measure turned out to be unreliable (see Section 5). We have therefore opted to present the results of the WTP measure in the Supplementary Material for all 3 studies. We discuss the implications of using WTP in a policy setting in more detail in Section 5.

The overall results for helping motivation across conditions for Study 1 can be found in Figure 2.

To investigate the UA effect, we conducted planned contrast. First, we compared the 2 control conditions to the 3 UA conditions for project Bongolo, showing a significant difference, $t(958) = 2.96$, $p = .003$, $d = 0.20$. Contrary to our hypothesis, participants in the control conditions were more motivated to help ($M = 71.90$, $SD = 22.87$) than participants in the UA conditions ($M = 67.08$, $SD = 25.80$). This shows that not only did we fail to find a UA effect, but also found a reversed UA effect. Second, we compared the UA conditions for project Bongolo to investigate which of these was the most effective. The contrast between UA 1 child unit and UA 1 adult unit was significant, $t(958) = -2.029$, $p = .043$, $d = .21$, with the child unit eliciting higher helping motivation than the adult unit, indicating that the age of the unit influenced the subsequent help to project Bongolo. The comparison between UA 1 adult unit and UA 3 adults unit was also significant, $t(958) = -2.236$, $p = .026$, $d = .23$, with the 3 adults unit eliciting higher helping motivation than one adult unit, indicating that the number of adult units influenced the subsequent help to project Bongolo. The comparison between the UA 1 child unit and UA 3 adults unit was not significant, $t(958) = 0.212$, $p = .832$. Overall, these results suggest that we did not find support for our second hypothesis (i.e., that UA 1 adult unit would lead to the highest UA effect), but rather find effects in the opposite direction.
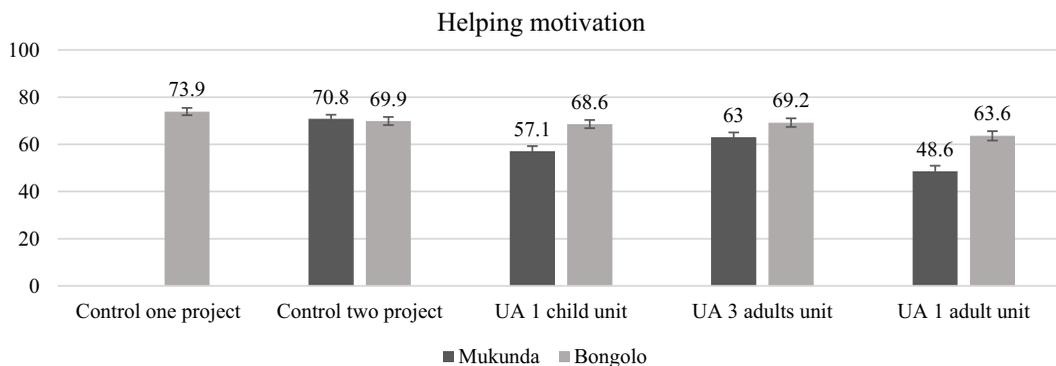
Figure 2. *Helping motivation for the 5 conditions in Study 1, both for project Mukunda and Bongolo. Error bars represent the standard error of mean (SE).*

Last, testing for a possible age effect, we conducted a planned contrast between UA 1 child unit and UA 1 adult unit with helping motivation to project Mukunda as the dependent variable (i.e., 1 child vs. 1 adult). This showed a significant result, $t(764) = 2.90$, $p = .004$, $d = .30$, with participants being more motivated to help a child than an adult (i.e., an age effect in the expected direction).

2.4. Discussion study 1

In Study 1, we set out to examine the UA method when the group of victims was a mix of both children and adults, by manipulating whether the unit was a child or an adult, and if the unit size was or 3 recipients. In line with expectations, our study demonstrated that people were more willing to help children than adults, but against expectations, we did not find any UA effect. In fact, we even found a reversed effect for helping motivation, meaning people were more motivated to help in the control conditions than in the UA conditions. The contrasting result of the UA effect compared to previous studies can be due to differences in the methodology and paradigm of this study. For example, some differences constituted the relatively small group of victims (4 victims instead of 20, as in Hsee et al., 2013) and mixing the group with children and adults. In Study 2, we will test these possibilities to gain a better understanding of when the UA method is effective in increasing sensitivity to scope.

3. Study 2: Effects of homogeneous versus heterogeneous group

We conducted Study 2 to better understand what caused the unexpected results in Study 1. In the original paper (Hsee et al., 2013), as well as in the extended replication (Karlsson et al., 2020) and in yet unpublished replications (Moche et al., 2023), a consistent UA effect has been found. One difference between Study 1 and previous UA studies was the increase in the number of recipients that needed help from the first to the second project. In Study 1, the increase went from 1 (or 3) needy people in project Mukunda to needy people in project Bongolo. In previous UA studies, the increase is normally from 1 needy person (or animal) to 20 people, meaning the increase has been much larger in previous studies compared to Study 1. Therefore, in Study 2 we increase the number of people that can be helped in the second project, project Bongolo.

Another difference compared to previous studies was the mix of 'types' of needy people in Study 1. In project Bongolo, both children and adults would be helped. In previous UA studies, the help projects have either helped only children (Study 1 by Hsee et al., 2013; Moche et al., 2023), only adults (Study 3 by Hsee et al., 2013), or only one type of animal (Karlsson et al., 2020). Therefore, the mix of ages among the people in need in the second project can be a potential explanation for the lack of a UA effect in Study 1. For example, the mix of children and adults might have made the group of victims seem like

less of a unified unit (e.g., Bartels & Burnett, 2011), and therefore eliminated a UA effect. Therefore, in Study 2, we compare the effects of helping only children, only adults, or a mix of children and adults.

3.1. Method

3.1.1. Participants

A total of 1,403 US residents recruited from Prolific completed the study. Of these, 1 participant did not consent, and 64 participants failed the attention check. Therefore, our final sample consisted of 1,338 participants (50.1% female, 48.8% male, 1.1% do not want to disclose/other; M_{age} = 35.16, SD = 11.84). A sensitivity power analysis on the actual sample size, with a power of 80% (α = .05) showed that our sample could detect a moderate effect size (d = .29, Critical t = 1.97).

3.1.2. Procedure and design

In Study 2, the procedure and description of the scenario that participants were asked to imagine was identical to that of Study 1. The first pages were the same as those in Study 1 (Table 1) and so was the description of the project(s) (Figure 1). The only difference between the studies was the number of people in need (children and/or adults) that could be helped in project Mukunda and project Bongolo (see Table 3). Stimuli for Study 2 (and the other 2 studies) can be found in the Supplementary Material.

Participants were randomly assigned to 1 of 7 conditions. The conditions differed in either being a control condition or a UA condition, and if the presented local help projects helped only children, only adults, or a mix of children and adults. Table 3 describes the overall design of the 7 conditions, along with the number of participants that were assigned to each condition. The names of the conditions refer to the type of recipients that could be helped.

Table 3. *The overall design and descriptives of Study 2.*

Condition	Project Mukunda (unit)	Project Bongolo	N
Control children		20 children	196
UA children	1 child	20 children	191
Control adults		20 adults	197
UA adults	1 adult	20 adults	188
Control mix		5 children, 15 adults	197
UA mix, child unit	1 child	5 children, 15 adults	182
UA mix, adult unit	1 adult	5 children, 15 adults	187

3.1.3. Measures

The measures in Study 2 were identical to those of Study 1: Helping motivation (Cronbach's alpha ranging from .92 to .97), and WTP. In Study 2, we removed the description of what similar local help projects costs. This was done to stay closer to how the UA method has been investigated in previous studies, which have not had any prescribed boundaries for the measure. For this measure, we pre-registered to winsorize values under and over the 5th and 95th percentile. Similar to Study 1, the results of the WTP measure can be found in the Supplementary Material.

3.2. Hypotheses

Study 2 was pre-registered, which can be viewed at https://osf.io/v7qdw/. The exact formulations read by participants can be found in the pre-registration, along with hypotheses and the overall study design.

We hypothesized that helping for project Bongolo would be significantly higher in the UA conditions than in the control condition among participants reading about only children or only adults. This is
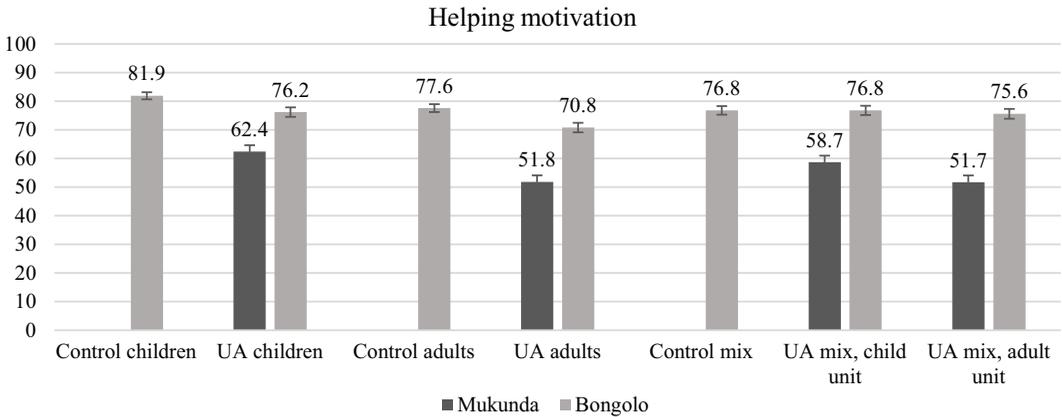
Figure 3. *Helping motivation for the 7 conditions in Study 2, both for project Mukunda and Bongolo. Error bars represent the standard error of mean (SE).*

based on previous findings that projects helping only children or only adults have found a consistent UA effect (Hsee et al., 2013; Karlsson et al., 2020). However, we expect a weaker UA effect among participants reading about both child and adult victims.

3.3. Results

Because the second project, Bongolo, differed across conditions (i.e., 20 children, 20 adults, or 5 children and 15 adults), our main analyses compared the control condition and UA condition for each respective 'pair'.

Figure 3 shows helping motivation across conditions in Study 2, both for projects Mukunda and Bongolo.

First, we conducted an independent t-test comparing the control and UA condition that helps only children. The result was significant, $t(385) = 2.72$, $p = .007$, $d = 0.28$, showing that helping motivation to project Bongolo helping 20 children was significantly higher in the control condition ($M = 81.85$, $SD = 17.41$) than in the UA condition ($M = 76.22$, $SD = 22.97$). Thus, there is no support for a UA effect and instead, as in Study 1, we find a weak effect in the opposite direction. We also conducted a non-parametric Mann–Whitney test for this comparison, which did not reach significance (but went in a similar direction as the t-test), $U = 16\ 586.5$, $p = .052$.

Second, comparing the control and UA condition that helps only adults, the result of an independent t-test was once again significant, $t(383) = 3.18$, $p = .002$, $d = 0.32$. The helping motivation to project Bongolo helping 20 adults was significantly higher in the control condition ($M = 77.62$, $SD = 19.41$) than in the UA condition ($M = 70.75$, $SD = 22.91$). Thus, once again, there was no support for a UA effect, but instead a weak effect in the opposite direction was found. A non-parametric Mann–Whitney test for this same comparison also revealed a significant result, $U = 15\ 324.00$, $p = .003$.

Third, comparing the control and UA conditions that helped a mix of children and adults, we conducted 2 independent t-tests. First, comparing the control condition and the UA condition with a child as the unit, the result was not significant, $t(377) = 0.01$, $p = .989$. A Mann–Whitney test for this same comparison also revealed a non-significant result, $U = 17\ 584.00$, $p = .747$. Second, comparing the control mix condition and the UA condition with an adult as the unit instead, the result was not significant either, $t(382) = 0.53$, $p = .595$. A Mann–Whitney test for this same comparison also revealed a non-significant result, $U = 18\ 234.50$, $p = .865$. Thus, the results indicate that helping motivation to project Bongolo helping 5 children and 15 adults did not differ between the UA conditions and the control condition.

Last, to test for a possible age effect, there are possible comparisons one can make for helping motivation: 2 for project Mukunda and 2 for project Bongolo. First, for project Mukunda, we conducted a planned contrast between UA children and UA adults (i.e., 1 child vs. 1 adult). This was significant ($p = .001$, $d = .34$), in line with an age effect. Second, a similar comparison between UA mix, child unit and UA mix, adult unit was also significant ($p = .033$, $d = .22$), in line with an age effect. Third, for project Bongolo, we conducted a planned contrast between Control adults and Control children (i.e., 20 children vs. 20 adults). This was significant ($p = .049$, $d = .20$) in line with an age effect. Last, a similar comparison but between UA children and UA adults was also significant ($p = .013$, $d = .25$), in line with an age effect. Thus, we found a consistent age effect for helping motivation.

3.4. Discussion study 2

Study 2 investigated if scope insensitivity can be reduced with the UA method when increasing the size of the group and keeping the target group homogeneous (children vs. adults). The study demonstrated an age effect for helping motivation but again no UA effect. Instead, we found a reversed UA effect again. Thus, people were not more scope sensitive if they first saw a single unit, regardless of whether the unit victim was a child or an adult, or if the group was homogeneous (rather, the contrary). In this study, as well as in Study 1, participants rated separate projects (Mukunda and Bongolo), which makes the sequential assessment that is characteristic of the UA method different from other UA studies. Splitting the assessment between the unit and the group into 2 separate projects and decisions, as has been done here, can therefore possibly disrupt the mechanism of the UA method. To gain a better understanding of whether this is the case, we test this in Study 3.

4. Study 3: Sequential assessment within one or two projects

When participants donated to the unit and the group in previous UA studies, they did so within a single 'project', meaning they knew that they, for example, would help a kindergarten with 20 children when asked to hypothetically donate to one of these children. They were also reminded of this in the UA instruction, stated as 'Before you decide how much to donate to help these 20 children, please first think about one such child and answer a hypothetical question: How much would you donate to help this one child?'. In contrast, participants in our Studies 1–2 were simply asked about their willingness to help project Mukunda first and then project Bongolo, meaning they saw them as independent helping projects. It is possible that a boundary condition to the UA effect is to be aware of the need in the group when helping the single unit, and that the effect is evident only when participants make the decisions within a single help project rather than between 2 different help projects. Practically, this would mean that participants who make the assessments within a single project would initially receive information that child A–H needed help, then be asked to think of and help child A, and lastly help children A–H. In contrast, participants who make the 2 assessments between 2 projects would first be asked to help child Z and then be asked to help children A–H, without being aware of children A–H when helping child Z. We manipulate and test the importance of whether the 2 assessments should be within a project rather than between 2 projects in Study 3.

4.1. Method

4.1.1. Participants

We recruited 1,207 US residents from Prolific that completed the study. Due to the sudden increase of young female participants in Prolific shortly before we conducted this study,[2] we collected the data in 2 rounds: the first half of participants were female participants only and the other half were male participants only. This minimized the risk of having skewed data with predominantly young females as

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[2]See the description of this incident here: https://www.prolific.co/blog/we-recently-went-viral-on-tiktok-heres-what-we-learned.

Table 4. *The overall design and descriptives of Study 3.*

Condition	Unit project	Project Bongolo	N
Control condition		20 children	384
UA two projects	Mukunda: 1 child	20 children	373
UA one project	Bongolo: 1 of 20 children	20 children	384

our participants. A total of 66 participants failed the attention check and were excluded. Thus, our final sample consisted of 1,141 participants (49.3% female, 49.4% male, 1.3% do not want to disclose/other; $M_{age} = 29.73$, $SD = 9.49$). A sensitivity power analysis on the actual sample size, with a power of 80% ($\alpha = .05$) showed that our sample could detect a small effect size ($f = .09$, Critical $F = 3.00$).

4.1.2. Design

Participants were randomized to 1 of 3 groups. The 3 groups were a control condition and UA conditions, one where participants assessed 2 help projects (Mukunda and Bongolo) and one where participants only assessed one help project (Bongolo). Table 4 describes the overall design of the conditions in Study 3, along with the number of participants that were assigned to each condition. More specifically, the 2 dependent variables in the study were counter-balanced, resulting in a 3(Control/UA one project/UA two projects) × 2 (Helping motivation/WTP presented first) between-subject design. However, since this did not result in any order effect for the results of the Bongolo project, we merged these, so we had conditions (Table 4).

4.1.3. Procedure

The procedure of Study 3 was identical to Studies 1 and 2 (see Table 1 and Figure 1) except for 2 changes. First, all conditions only had children as recipients in the local help projects, and second, one of the UA conditions consisted of a single help project (i.e., UA one project). The procedure of the UA condition with 2 projects (i.e., UA two projects), as well as the control condition, was identical to those of Study 1 and 2. For participants in the UA condition where they only assessed one help project, there were 2 main differing aspects compared to the UA condition with 2 projects. Figure 4 shows the exact descriptions shown to participants in the UA condition with one project, including the 2 sets of questions that participants replied to. First, when project Bongolo was described in condition UA one project, the unidentified picture with the 20 children's silhouettes had child highlighted in a different color. Second, the participants in this condition were asked to reply to the 2 measures by first thinking about and assessing 1 of the 20 children, before being asked to think about all the 20 children and answering the dependent variables with all children in mind. Thus, the measures in Study 3, helping motivation (Cronbach's alpha ranging from .85 to .94) and WTP, were identical to those of Study 1 and 2 but slightly adapted for the UA condition with one project. More specifically, participants in this condition answered the 3 questions for helping motivation by first reading '*Before you evaluate project Bongolo, please first think about 1 of these 20 children and answer the following questions*'. and then answered the 3 questions with a focus on this single child (e.g., '*How important would it be to help this one child?*'). After, they did this for the group of children, by reading '*Now please think about all 20 of these children. Based on the information you have, please evaluate project Bongolo*'. For WTP, participants in this condition first indicated WTP for a single unit, with the instruction '*Before you decide how much you think the acceptable maximum cost is to implement project Bongolo, please first think about 1 of these 20 children and answer a hypothetical question: How much would you think an acceptable maximum cost is to help this 1 child? Answer this question by indicating your preferred value in USD ($)*'. Later, they did this for the group of children, with the instruction '*Now please think about all 20 of these children. What is the maximum acceptable cost of implementing project Bongolo? Answer this question by indicating your preferred value in USD ($)*'. In Study 3, as in Study 2, there

BONGOLO

Emergency micro project Bongolo will treat sick children suffering from Schistosomiasis.

This project is called Bongolo, named after the village that will receive the help. Bongolo is located in the west part of the Democratic Republic of the Congo.

If emergency micro project Bongolo is implemented, **20 children** suffering from Schistosomiasis will be treated.

Before you evaluate project Bongolo, please first think about **one** of these 20 children and answer the following questions.

Very little									Very much	
0	10	20	30	40	50	60	70	80	90	100

How important would it be to help this one child?

How prioritized would it be to you to help this one child?

How worthy of financing would it be to help this one child?

Before you decide how much you think the acceptable maximum cost is to implement project Bongolo, please first think about **one** of these 20 children and answer a hypothetical question: **How much would you think an acceptable maximum cost is to help this one child?**
Answer this question by indicating your preferred value in USD ($).

Now please think about all 20 of the children that can be helped in project Bongolo.

Figure 4. *The exact description is shown to participants in condition UA one project in Study 3, including the dependent variables participants replied to.*

was no description of what a normal local help project costs. Similar to Studies 1 and 2, the results of WTP are placed in the Supplementary Material.

4.2. Hypotheses

Study 3 was pre-registered, and the pre-registration can be found at https://osf.io/tbh23/. The pre-registration includes a description of the scenario(s) read by participants, hypotheses, and the overall study design.

We hypothesized that helping for project Bongolo would be significantly higher in the UA condition than in the control condition, but only for the UA condition where participants read and made 2
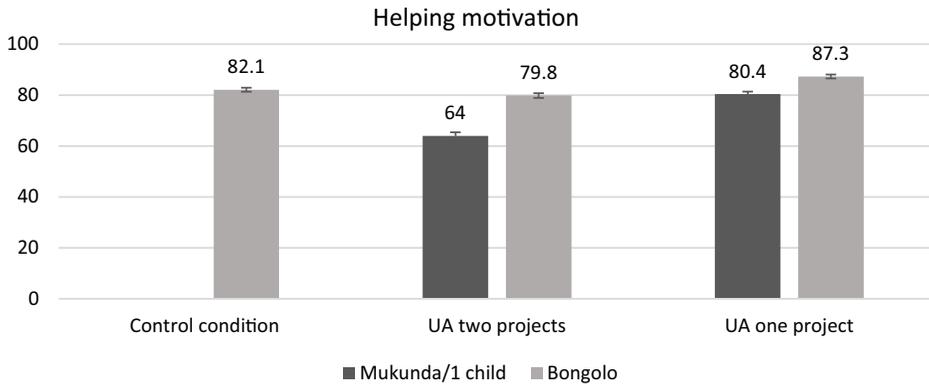
Figure 5. *Helping motivation for the 3 conditions in Study 3, both for the unit project and project Bongolo. Error bars represent the standard error of mean (SE).*

decisions within one project. However, we expected a weaker UA effect in the UA condition where participants read and rated 2 separate helping projects.

4.3. Results

Figure 5 shows the means for helping motivation for the 3 conditions, both for project Bongolo and for the unit project.

We conducted an ANOVA with helping motivation for project Bongolo as the dependent variable and conditions as the independent variable. The result was significant, $F(2, 1138) = 21.80$, $p < .001$, $\eta_p^2 = .04$. In line with our hypotheses, Bonferroni post hoc test showed that helping motivation to project Bongolo helping 20 children was significantly higher in the UA condition with one project ($M = 87.30$, $SD = 15.04$) than in the control condition ($M = 82.11$, $SD = 15.20$; $p < .001$) and in the UA condition with 2 projects ($M = 79.78$, $SD = 17.91$; $p < .001$). There was no significant difference between the control condition and the UA condition with 2 projects ($p = .141$). These results were also found with a non-parametric Kruskal–Wallis test, $H(2, N = 1141) = 52.13$, $p < .001$.

4.4. Discussion study 3

Study 3 tested if the UA method can reduce scope insensitivity when the sequential assessment is made within the same project instead of between different projects. For helping motivation, we found a UA effect when the 2 assessments were made within the same project. Thus, for the UA method to be viable in increasing scope sensitivity, the results from Study 3 suggest that one needs to already know of the larger group when making the unit assessment. The 2 assessments within a project resemble a joint evaluation mode since there is more comparative information that is relevant to use in the decision process. In contrast, making assessments for different projects resembles a separate evaluation mode, which decreases scope sensitivity (e.g., Erlandsson, 2021; Kogut & Ritov, 2005b).

5. General discussion

In 3 studies, we investigated when scope insensitivity can be reduced with the UA method. We employed a new paradigm for testing the UA method, with participants taking on the role of a policymaker to distribute help to local aid projects rather than focusing on interpersonal giving. The results show that we not only failed to find a UA effect but even found a reversed UA effect for helping

motivation in the 2 first studies. However, the third study yielded a UA effect when participants made the 2 sequential assessments within the same project.

5.1. The reversed UA effect in the first two studies

Why did we find a reversed UA effect in our first studies? Participants were more motivated to help a group of victims in the control conditions than in the UA conditions. This is in direct contrast to our expectations and to previous UA studies which have found the opposite pattern (Hsee et al., 2013; Karlsson et al., 2020; Moche et al., 2023). There are several possible explanations for this unexpected finding, such as (1) crowding out, (2) mental accounting, (3) a sense of completion, and (4) moral licensing. All of these are related and to some extent overlapping. According to the crowding out explanation, people perceive their resources to be limited, so allocating money to one project (Mukunda) creates an impression of having less resources when considering financing the second project (Bongolo). Previous studies have also found partial evidence of crowding-out effects in prosocial domains, such as in blood donations (Mellström & Johannesson, 2008) and recycling (Wollbrant et al., 2022). Thus, help to the first project can have crowded out help to the second oneleading to a reversed UA effect.

Our results can also be explained by a mental accounting effect (Thaler, 1999). The money spent on one project means there is less in a mental account to spend on another project. Like the crowding out explanation, participants would thus have a concern with the budget and thereby be wary to contribute to a second project.[3] That we found a UA effect in Study 3, when participants allocated help within a single project, supports both of these explanations. The unit was then perceived as part of the project, so participants did not feel their resources had already been used on other projects. This explanation is in line with recent research demonstrating that bundling several helping projects into one reduces the perceived cost of donations (Rubaltelli et al., 2020).

Another explanation for the reversed UA effect is a sense of completion or closure after the first decision was made. After the first assessment, participants might have judged that they had already contributed and 'done their part'. Similarly, the sense of already having contributed can also cause a sense of moral licensing effect (Merritt et al., 2010), such that the moral behavior of helping the first project gives participants a free pass from helping the second project. The UA effect found in Study 3, when participants helped the unit within a single project, also supports these explanations since the sense of completion or licensing could not occur until the second assessment had been made.[4]

5.2. The UA effect within a project

The fact that we found a UA effect in Study 3 when the assessments were made within the same project suggests that this feature of the UA method could be central. Thus, assessments should be done within the same project and not between projects to increase scope sensitivity. This constitutes an important boundary condition and suggests that the initial assessment (helping for one unit) is not merely an anchoring and adjustment process as previous research has shown where people anchor on completely arbitrary numbers (e.g., social security number) when producing an estimate of willingness to pay (e.g., for a bottle of wine; Ariely et al., 2003). Instead, our results suggest that an essential part of the UA method in increasing scope sensitivity is that there is a holistic impression of the 2 assessments, such that they follow and affect each other (i.e., made within the same project) rather than being separated and independent (i.e., made between 2 projects).

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[3]One might argue against this due to the results of the control condition with 2 identical projects in Study 1 (i.e., Control 2 projects). There, the second project gathered a similar amount of help as the first project. Note, however, that the projects were identical in this condition (i.e., helping 1 child and 3 adults), which prompted participants to be consistent in their assessments of the projects. This was not the case in the other conditions or studies, where the 2 projects differed in who and how many would be helped.

[4]We thank André Mata for these suggestions.

However, one can also take a critical stance to this explanation and consider alternative reasons for the UA effect in Study 3. For example, a recent paper by Johnson and Finkel (2023) might argue against the within-project explanation. This article investigated the UA method in a policy setting, where respondents were asked to indicate how much the nation should spend on an action that would prolong 100 American lives (indicating a range). In the UA condition, respondents were asked a question about a hypothetical action to prolong one American's life (indicating a specific amount). This one life was not specified as being part of the 100, but was presented on its own, and the 100-lives question was presented after as a separate hypothetical action. As the study found a clear UA effect, the within-project explanation might not be all there is since participants in the UA condition could have interpreted the assessments as separate, rather than within one project. However, it is likely that the help actions in the UA condition (i.e., first prolonging 1 American's life and then 100 Americans' lives) could have been perceived as helping one group since both actions would help recipients of the same nationality. Thus, this would support our explanation of the within-group feature. Also, an important difference is that this study implied less accountability for participants compared to ours, since the stated WTP in their study would be divided by millions of households (the whole nation), rather than befall on the single participants (or the particular NGO). Nevertheless, future studies could further examine our suggested boundary condition to the UA method, as well as other boundary conditions. For example, one could test the UA method in different domains (the within-project explanation might be valid for certain domains, but not others, e.g., policymaker vs. interpersonal giving; Persson & Tinghög, 2020) or vary the similarity between groups to find out whether this influences the UA effect.

Future studies could also backtrack even further to better understand the mechanism of the UA method. The original authors (Hsee et al., 2013) suggest that the mechanism lies in a consistency effect (i.e., after being asked for the value of X, people are bound to be consistent when indicating the value of $n \times X$), but it is also possible that it lies in priming a proportional mindset or creating an individuation effect (i.e., thinking of an individual triggers a stronger empathic response which then spills over to the group). For example, it would be possible to test these mechanisms by reversing the UA method, such that some participants first think of and assess the group and thereafter a unit, whereas others do the traditional UA method with the unit first and then the group. If the first 2 mechanisms are correct, the reversed UA method should set the value of the individual in the second assessment at group-value/n. However, if the individuation effect is correct, then the reversed UA method will not work as well because there would be no empathic trigger from the individual.

5.3. Which measure to use?

This article has investigated the UA method using 2 measures: helping motivation and willingness to pay (WTP). However, the results of the WTP turned out rather noisy, especially in Studies 2 and 3 where there was no indicated range to what normal local help projects could cost. In short, we found no significant UA effects for WTP in Studies 1 and 3 (non-parametric tests), whereas in Study 2, we found a reversed UA effect for the adults-only condition, but otherwise no UA effects. Thus, the results of the WTP did not align well with the results of the helping motivation measure. Ultimately, we concluded that in study designs such as ours, WTP is probably less valid and reliable to use compared to the helping motivation measure. There are several possible explanations for this, with the main reason being the experimental context. The major difference between our studies and previous UA studies (e.g., Hsee et al., 2013; Karlsson et al., 2020; Moche et al., 2023) is that we have tested it in a policymaking setting, whereas previous studies tested it in an interpersonal giving setting (i.e., donations). This leads to 2 very different roles the participants take on; Interpersonal giving concerns small, personal donations to individuals, which simply requires participants to judge how much of their own money they want to donate. Instead, a policymaking setting concerns policy decisions, which arguably require more elaborate thinking and knowledge. This involves humanitarian and economical tradeoffs that one does not need to make as an individual donating their own money. Thus, our studies probably measured the allocation of funds more than WTP.

Also, the funds one need to allocate as a policymaker are beyond most people's budget, experience, and knowledge. This is evidenced in the radically changed means and standard deviations for WTP in Studies 2 and 3 compared to Study 1 once we removed the suggested budget for a help project. Thus, participants in Study 1 probably used the suggested range as a guideline in knowing what amount to give for the local help projects. Thus, in hindsight, it would have been better to keep the suggested range in Studies 2 and 3 as well.

For future studies, more suitable measurements should be used to minimize the likelihood of participants indicating some very high, and dubious, amounts—which is especially important to consider in a policy setting. To do so, one could for example ask participants to indicate a range rather than a specific amount that they would find acceptable (either for themselves, as an organization, or divided over a nation's households), preferably with some contextual information that gives participants an indication of what is reasonable (see Johnson & Finkel, 2023). Similar to Study 1, one could also tell participants a range in which most people (e.g., policymakers) consider suitable, possibly with a translation of large amounts to something easier to grasp (e.g., cost per citizen to support the project). A third way is to not focus on a specific WTP but ask participants to indicate a perceived value (e.g., from 0 to 10) of the help project (similar to Kemp & Willetts, 1995), or better off, to let participants allocate funds across different expenditure categories rather than one specific project (similar to Kemp, 1991). Last, one could also do as Maier et al. (2023), who approached the WTP with Bayesian models with lognormal likelihood and non-parametric frequentist solutions to accommodate the skew in observed responses. Note, however, that their setting was interpersonal giving, not policymaking.

5.4. A consistent age effect, without influencing UA

We also found support for an age effect in both Studies 1 and 2. The child(ren) received more help than the adult(s), which is in line with previous studies on the age effect (e.g., Erlandsson et al., 2020; Goodwin & Landy, 2014). Thus, this adds to the literature suggesting that child victims are perceived as more valuable to help, even when there is no direct comparison to an adult (i.e., separate evaluation mode, as also found by Moche & Västfjäll, 2021). However, this age effect had no particular effect on the UA method. Also, our other manipulations had no consistent effect on UA. In addition to varying whether the 2 assessments were within 1 or 2 projects, we investigated the size of the unit (Study 1), if the group was homogeneous or heterogeneous (i.e., children or/and adults; Study 2), the age of the unit victim (Studies 1–2), and how many were in the larger group (Studies 1–3). These manipulations had no substantial effect on scope insensitivity (see Maier et al., 2023 for some similar results). For example, having a homogeneous group (only children/adults) resulted in a reversed UA effect (in contrast to Hsee et al., 2013; Karlsson et al., 2020), whereas a heterogeneous group did not. Also, anchoring on one unit (or a few units) did not reduce scope insensitivity in general, but this might be due to the format of the 2 separate assessments (i.e., 2 projects) in Study 1, since we elsewhere have found that the number of units can increase scope sensitivity when done in a joint evaluation mode (Moche et al., 2023).

6. Conclusion

This article explored how the UA method can reduce scope insensitivity in a prosocial policy domain. Out of 3 studies, 2 studies found a reversed UA effect, such that helping decreased when participants underwent the UA method. However, in the third study, we found a UA effect when participants made the 2 sequential assessments within one project. Thus, our results suggest that the 2 assessments critical for the UA method should be done within the same project rather than between 2 projects to successfully reduce scope insensitivity, whereas the age, number of recipients, or group constellation were not substantial features to produce an UA effect.

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