

Is Altruism Sensitive to Scope? The Role of Tangibility

By ALEX IMAS AND GEORGE LOEWENSTEIN*

With advances in technology, there has been an increasing separation between individuals' actions and their consequences for other people. For example, following centuries during which combat was hand-to-hand, combatants have grown ever-more distant from one-another, beginning with the separation provided by guns, to bombs dropped from airplanes, and culminating in intercontinental missiles. On the prosocial side, charity has come to be applied to populations that are progressively more remote from donors. Once a local affair consisting mainly of in-kind donations to individuals in one's own community, currently much if not most charity occurs across national boundaries and takes the form of monetary donations spent by NGOs in ways that are often opaque to donors.¹

* Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA 15206
(aimas@andrew.cmu.edu;
GL20@andrew.cmu.edu). Acknowledgments: We

¹ Some new developments, however, buck the trend, such as new modes of charitable giving (e.g., Givedirectly.org) that use technology to increase the identifiability of aid recipients, and drones, which, although they create physical distance between combatant and target, also increase the identifiability of the victim.

would like to thank Christine Exley and participants at the ASSA 2018 Winter meetings for helpful comments and suggestions.

This remoteness and lack of tangibility matters. The increasing separation of combatants from one-another as well as from civilians, it has been argued, have increased the level of brutality in conflicts (Glover 1999; but see Pinker 2012). Likewise, considerable research suggests that the increasing remoteness and anonymity of people in need of help has decreased generosity (Small & Loewenstein, 2003). Considerable research has also shown that people tend to behave more selfishly and less ethically when they act through delegates (Hamman, Loewenstein and Weber, 2010), and that third parties hold those who behave selfishly via proxies less accountable than those who do so directly (Bartling and Fischbacher 2012); people behave more selfishly, and are less blamed for doing so, when they get other people to do their 'dirty work' for them.

Here, we show that people are significantly more sensitive to the amount given to a charity – they work harder to give more -- when the giving is made more tangible through a manipulation of mental accounting.

Specifically, whereas prior research has found (and we replicate) that people who can work to raise money for charity are relatively scope-insensitive –they work the same to donate smaller or larger money amounts – *when donations are made on their behalf* (Imas, 2014), we demonstrate that when donations are made more tangible by giving individuals the money and then having them make the donation themselves, they are more sensitive to money amount – they work harder to donate larger money amounts. These findings have implications for the interpretation of studies testing different accounts of motives underlying charitable giving such as the ‘warm glow’ hypothesis (Andreoni 1990), and have practical implications for a wide range of other domains, such as financial and health disclosures, and the movement towards effective giving, in which tangibility can play an important role.

In showing that donation behavior is affected by whether people actually possess and then part with the money they donate, the current research connects to research on the impact of ‘realization’ on decision making under risk (Imas, 2016). This prior research shows that whether people who take risks and suffer losses become more risk-averse (as a result of experiencing the misery of losing) or

risk-taking (mainly by chasing losses) depends on whether prior losses are or are not realized. When the money lost is actually transferred from their account, people tend to make peace with their losses, close the mental account associated with prior outcomes, and to become subsequently more risk-averse. However, when the losses are unrealized ‘paper’ losses, people become more risk-seeking, chasing the losses in an attempt to pull even.

We argue that by increasing the tangibility of giving, realization is more likely associate the *outcome* of a prosocial act to the respective mental account than the act itself. When the outcome of a prosocial act is not tangible, the utility consequences for others are difficult to ascertain. In turn, people are more likely to focus on the act, e.g. I worked hard for charity, than the outcome, e.g. someone was made X better off as a result of my action. By focusing on the act rather than the outcome, people’s behavior exhibits scope insensitivity. However, if the outcome is made more tangible through realization, people are better able to access the utility consequences for others because the consequences for themselves from the same outcome become more salient; the fact that a 10 cent donation can buy very little becomes more salient if the person transfers it themselves. In turn, increasing the tangibility of the outcome

should lead to greater scope sensitivity in the prosocial domain. In contrast, people are used to spending earnings on themselves, and as a result, the accessibility of utility outcomes should be less influenced by the tangibility of the earnings. We present evidence for these hypotheses in the next section.

I. Experiment

We recruited students from a university wide subject pool to participate in the study for course credit. Subjects could earn more depending on the treatment condition and amount of effort exerted.

To measure effort, we followed the general protocol of Imas (2014), which tested the effectiveness of prosocial versus standard incentives in motivating effort, while varying the size of the stakes. In the current study, subjects squeezed a hand dynamometer that recorded force output in Newtons, twice, both times under one of eight incentive treatments.² Specifically, subjects were randomly assigned to one treatment in a 2 (For Self vs. For Others Incentives) x 2 (Low vs. High Incentives) x 2 (Low vs. High Tangibility) between-subjects design. Unlike Imas (2014), in which subjects first squeezed the device for 60 seconds for no compensation, participants received the same

incentives in both rounds of effort provision. This difference in protocol was necessary to give subjects experience with the experimental treatment so as to manipulate tangibility. At the end of each round, subjects learned their average effort provision in Newtons and their total earnings for that round.

The size of incentives varied between Low (\$0.05 per 25k Newtons) and High (\$2.00 per 25k Newtons). Subjects were told that in the For Self incentive scheme they would receive the amount earned directly; the amount earned under the For Others incentive scheme (prosocial) would be donated to the Make a Wish Foundation. In the Low Tangibility treatments, subjects were informed of their earnings (either to themselves or the charity) at the end of each round, but did not actually receive the money until the end of the experiment. In the High Tangibility treatments, subjects received their earnings in physical currency. In the For Self treatments, the currency was left at the subject's lab station; in the For Others treatments, subjects were handed the currency and then asked to deposit it in an envelope marked for the Make a Wish Foundation.

The total force exerted during the second round of effort provision was our dependent measure. This measure allows us to test for the independent effects of incentive type, stake

² See also Gneezy & Imas, 2014 for use of hand dynamometers to measure effort.

size and tangibility level on effort.³ Based on previous work using the hand dynamometer (Gneezy & Imas, 2014), we account for differences in baseline levels of exerted force by controlling for gender in the analyses.⁴

Results

Figure 1a below shows that the magnitude of incentives has a similar effect on effort under conditions of low or high tangibility when an individual is working for themselves. Figure 1b shows, in contrast, a dramatically different effect of incentive values on effort under conditions of low and high tangibility when people are working for others.

Testing the significance of the patterns in Figures 1a and 1b, Table 1 presents results from OLS regressions of effort on incentive magnitude, tangibility (Column 1) and their interaction (Column 2) For Self Incentives, and on incentive magnitude, tangibility

³ Imas (2014) used the ratio R of total force exerted during the second round to that exerted in the first round as the measure of effort. We cannot use this measure here because, unlike in Imas (2014), subjects were exposed to different treatment conditions before the first round. Results in the first round mirror those in the second round, and are included in the online appendix.

⁴ Gender was the only additional variable collected in the experiments other than effort across the two rounds.

(Column 3), their interaction (Column 4) For Others Incentives.

Figure 1a: For Self Incentives

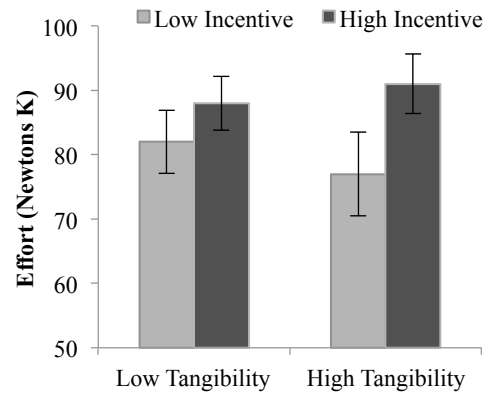
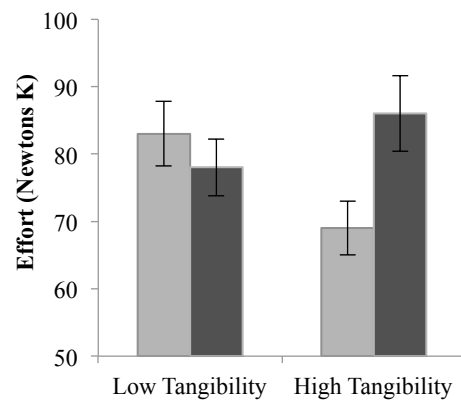


Figure 1b: For Others Incentives



As the figure 1a suggests, when working for self, there is a significant effect of incentives and no impact of tangibility (Column 1). When the interaction effect is added, the effects of incentive magnitude and the interaction are both not significant (Column 2). When subjects are working for others,

however, the direct effects of incentives and tangibility are both non-significant (Column 3), but the interaction is highly significant (Column 4), indicating that incentives have a positive effect on motivation to work for others under conditions of high but not low tangibility.

When participants were working for charity and incentives were not tangible, we replicate the basic effect that people do not respond to stakes: the difference in effort between Low and High Incentive conditions was not significant (t -test, $p = .44$). Importantly, however, when incentives were tangible, there was a significant positive response to increased incentives: subjects worked significantly harder For Others in the High Incentive condition than in the Low Incentive condition ($p = .02$).

In fact, when incentives are tangible, participants respond to an increase in incentive size in the same way when working for charity as when they work for themselves: Participants work significantly harder when incentives are high than when incentives are low in both the For Others and For Self treatments ($p = .02$ and $p = .03$, respectively). Moreover, the interaction between incentive type and incentive size is not significant, suggesting that participants are just as sensitive to the size of incentives when

working For Others as when working For Self when incentives are tangible.

Table 1 – Effort and Incentives (OLS)

Effort (Newtons)	For Self (1)	For Self (2)	For Others (3)	For Others (4)
High Incentives	10126.7** (4468.0)	6845.0 (6336.8)	538.9 (4017.0)	-7561.9 (5474.8)
High Tangibility	-4040.4 (4480.4)	-7194.1 (6222.1)	621.84 (4019.0)	-7469.9 (5474.8)
High Tangibility X High Incentives		6547.8 (8950.4)		17102.9** (7944.8)
Gender	-34326.7*** (4529.8)	-34256.5*** (4537)	-37379.3*** (4038.5)	-36613.4*** (4015.6)
Constant	96066.1*** (4328.6)	97559.8*** (4791.4)	98799.0*** (3878.1)	102092.1*** (4134.4)
<i>N</i>	172	172	191	191

*, **, *** correspond to $p < .1$, $p < .05$ and $p < .01$, respectively.

Notes: Dependent variable: Total effort over second round, in Newtons. Standard errors in parentheses. Gender dummy variable corresponds to Male=0, Female=1.

II. Conclusion

In this paper, we demonstrate that people's sensitivity to the scope of prosocial behavior depends critically on the tangibility of its outcomes. Replicating prior findings, we show that people are not sensitive to the size of charitable outcomes when those outcomes are not tangible: increasing the level of prosocial incentives does not significantly affect how hard people work. In contrast, people work significantly harder for larger prosocial incentives than lower ones when the outcomes become tangible. In fact, their sensitivity to

the scope of incentives when working for charity becomes the same as when they work for themselves when incentives are made tangible.

These findings provide new support for the importance of tangibility in decision making. Many of the situations in which suboptimal decision making has been attributed to high rates of time preference, or present-bias, could equally well be explained by intangibility (Rick and Loewenstein 2008). For example, overeating and smoking (two of the most deadly activities of modern life) can be explained, in part, not by a lack of concern for the delayed consequences, but by their lack of tangibility: No one snack will make one fat, and no one cigarette will give one cancer. The impact of tangibility can also be seen in consumer choice – for example, appliance purchasers' under-weighting of energy costs relative to purchase price, printer purchasers' overweighting of the price of the printer relative to the price of ink, and mutual fund purchasers' distaste for load fees, which are upfront and hence tangible, as compared with expenses, which are deducted from earnings and hence largely invisible (Barber, Odean and Zheng 2005). This is supported by the work of Bushong et al. (2010) who show that people's willingness to pay for a variety of foods such as potato chips increased by 40-61

percent when they became more tangible – when the form of display went from text displays to displays of the actual items. Moreover, much of the goal of mandatory disclosure policies is to increase the tangibility to consumers of considerations and attributes that consumers might otherwise underweight or even ignore.

The role of tangibility is especially important for prosocial behavior. Research on the identifiable victim effect (e.g., Small and Loewenstein 2003), and related constructs has shown that people tend to care a lot, and provide support for, tangible individual people in need of help as compared with less tangible groups of individuals or, even less tangible, individuals who are not currently in need of help but predictably will be in the future – Schelling's statistical victims. Our findings also have significant applications for the movement towards more effective giving. Organizations such as GiveWell aim to guide philanthropists towards charities that maximize the impact for the target cause per dollar spent. However, if people are generally not sensitive to the outcome of their contributions, the road towards more effective giving may be a steep one. Our findings suggest that by increasing the tangibility of giving, more effective charities can increase t

donations to their cause.⁵ Relatedly, people seem to be more sensitive to donations of time -- a more tangible resource -- than money, even when the costs to the self and benefits to others are kept constant (Brown, Meer and Williams, 2017). A lack of tangibility also undoubtedly plays a role in the world's collectively tepid response to climate change (Marshall 2014), a problem that threatens to destroy life as we know it, not only for future, but even for currently living, generations.

Both the likelihood of responding to tragedies unfolding in different parts of the world (Unger 1996), and even humanity's ability to survive into the future may well hinge on our ability to bring tangibility to problems that might otherwise be out of sight and out of mind.

Our findings also have implications for the interpretation of prior research on pro-social behavior. Much of the evidence on under-reactance to changes in prosocial outcomes comes from studies where the outcomes of prosocial acts are not tangible. An example comes from the classic study showing that mandatory taxation does not fully crowd out individual contributions to the public good (Andreoni, 1993). In the experiment, participants chose how much of their

endowment to contribute to a public good. In one condition, participants did not have to contribute anything; in the other, part of their endowment was automatically contributed as a lump-sum tax. Andreoni (1993) found that contributions in the latter treatment decreased by a smaller amount than the size of the tax, i.e. crowd out was incomplete, leading those participants to contribute more overall than those in the former treatment. However, neither the individual contributions nor the deduction of the tax was very tangible: participants chose a number to contribute from a table, and the tax constrained the number they could choose. Our results suggest that if the transfers of the tax and the individual contribution were made more tangible, then this could lead participants to be more sensitive to the changes in the giving environment.

At the most general level, these findings have implications for how one should interpret experimental result. Imas' (2014) earlier study suggested that the motivation to give to charity is insensitive to reward magnitude, in contrast to the motivation to work for oneself. The current study mostly replicated this effect, but found that the result depends critically on a third variable -- tangibility -- that was not considered in the original analysis. If we had not thought of studying tangibility, then, we

⁵ We would like to thank Christine Exley for bringing up this important point.

and readers of the paper would have assumed that the result was general. The problem is that for any experimental result drawing a causal connection between variables, there are an infinity of possible third variables that could potentially alter, and even reverse, the observed effect. This points to the conclusion that experimental results should be properly treated more as existence proofs of effects, and that caution should be taken in interpreting results as being generally applicable across situations, subjects and domains of behavior.

REFERENCES

- Andreoni, James. 1990. Impure Altruism and Donations to Public Goods: A Theory of Warm Glow Giving. *Economic Journal* 100: 464-477.
- Andreoni, James. 1993. "An Experimental Test of the Public-Goods Crowding-Out Hypothesis." *American Economic Review* 83 (5): 1317-1327.
- Barber, Brad M., Terrance Odean, and Lu Zheng, 2005. "Out of sight, out of mind: The effects of expenses on mutual fund flows." *Journal of Business*. 78(6): 2095-2120.
- Bartling, Björn, and Urs Fischbacher. 2012. "Shifting the Blame: On Delegation and Responsibility" *Review of Economic Studies* 79 (1): 67-87.
- Brown, Alex, Jonathan Meer, and J. Forrest Williams. 2017. Why Do People Volunteer? An Experimental Analysis of Preferences for Time Donations. *Management Science*, forthcoming.
- Bushong, Benjamin, Lindsay M. King, Colin F. Camerer, and Antonio Rangel. 2010. "Pavlovian Processes in Consumer Choice: The Physical Presence of a Good Increases Willingness-to-Pay." *American Economic Review* 100 (4) : 1-18.
- Glover, Jonathan. 1999. *Humanity*. New Haven, CT: Yale University Press.
- Gneezy, Uri, and Alex Imas. 2014. The Materazi Effect and the Strategic Use of Anger. *Proceedings of the National Academy of Sciences* 111 (4): 1334-1337.
- Hamman, John R., George Loewenstein, and Roberto A Weber. 2010. "Self-interest through delegation: An additional rationale for the principal-agent relationship." *American Economic Review* 100 (4): 1826-1846
- Imas, A. 2014. Working for the 'Warm Glow': On the Benefits and Limits of Prosocial Incentives. *Journal of Public Economics*, 114: 14-18.
- Imas, A. 2016. "The Realization Effect: Risk-Taking After Realized versus Paper

Losses.” *American Economic Review*, 106 (8): 2086-2109.

Marshall, George. 2014. *Don't Even Think About It: Why Our Brains Are Wired to Ignore Climate Change*. New York and London: Bloomsbury.

Pinker, Stephen. 2012. *The better angels of our nature: Why violence has declined*. London: Penguin Books.

Rick, Scott, and George Loewenstein. 2008. “Intangibility in intertemporal choice.” *Philosophical Transactions of the Royal Society B: Biological Sciences* 363 (1511): 3813-3824.

Small, Debora A. and George Loewenstein. 2003. „Helping a Victim or Helping the Victim: Altruism and Identifiability.” *Journal of Risk and Uncertainty* 26 (1): 5-16.

Unger, Peter K. 1996. *Living high and letting die*. New York: Oxford University Press, Inc.