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Education

The Wharton School, University of Pennsylvania 2015 – present
Ph.D. Operations, Information, and Decisions – Decision Processes
Dissertation Title: Prospective Outcome Bias: Incurring (Unnecessary) Costs to Achieve Outcomes That Are Already Likely
Dissertation Committee: Joseph Simmons (advisor), Deborah Small, Alice Moon

University of Warwick 2008 – 2011
First Class BSc (Hons) in Economics

Research Interests

Consumer Behavior; Consumer Judgment; Consumption under Uncertainty; Charitable Giving

Publications

Lewis, Joshua, Celia Gaertig, and Joseph P. Simmons (2019), "Extremeness Aversion Is a Cause of Anchoring," *Psychological Science*, 30(2), 159–173. https://doi.org/10.1177/0956797618799305

Lewis, Joshua and Joseph P. Simmons, "Prospective Outcome Bias: Incurring (Unnecessary) Costs to Achieve Outcomes That Are Already Likely," forthcoming at *Journal of Experimental Psychology: General.*

Working Papers

Lewis, Joshua and Deborah A. Small, "Ineffective Altruism: Giving Less When Donations Do More Good." Click for draft. *Note that this manuscript was rejected by Marketing Science but the editor encouraged resubmission with field data, which we are in the process of collecting.*

Lewis, Joshua, Alex Rees-Jones, Uri Simonsohn, and Joseph P. Simmons, "Diminishing Sensitivity to Outcomes: What Prospect Theory Gets Wrong about Diminishing Sensitivity to Price." Click for draft.

Lewis, Joshua and Joseph P. Simmons, "Anchors Alter the *Direction* of Adjustment – Not Just the Magnitude."

Green, Etan A. and **Joshua Lewis**, "The Forgone-Option Fallacy." Click for draft.

Green, Etan A. and **Joshua Lewis**, "Barely Plausible Anchor Values Maximize Bias."

Moore, Alexander, **Joshua Lewis**, Emma E. Levine, and Maurice E. Schweitzer, "Trusting Kind Friends and Fair Leaders: How Relationships Affect the Antecedents of Trust."

Selected Research in Progress

Lewis, Joshua and Joseph P. Simmons, "Too Good to Be True? Inferences about the Impact of Consumer Goods on Personal Goals."

Gaertig, Celia and **Joshua Lewis**, "Loss Reverse-ion: Matching, Choice, and When Loss-Aversion Looks like Gain-Loving."

Conference Presentations (including only presentations that I delivered)

Extremeness Aversion Is a Cause Of Anchoring. (Lewis, Gaertig, and Simmons).
- Behavioral Decision Research in Management Conference, Boston, MA, 2018.
- Society for Consumer Psychology, Dallas, TX, 2018.
- Society for Judgment and Decision Making, Vancouver, British Columbia, Canada, 2017.

Ineffective Altruism: Giving Less When Donations Do More Good. (Lewis and Small).
- Association for Consumer Research, Dallas, TX, 2018.
- Society for Consumer Psychology, Savannah, GA, 2019
- Whitebox Advisors Doctoral Student Conference, Yale, NH, 2018.

Adjusting the Wrong Way from Anchors. (Lewis and Simmons).
- Association for Consumer Research, Dallas, TX, 2018.

Prospective Outcome Bias: When Do People Invest to Improve Their Chances of Success? (Lewis and Simmons).
- Society for Judgment and Decision Making, New Orleans, LA, 2018.

Pre-registration Is Good, and Here Is How to Do It. (Lewis and Gaertig).
- Society for Consumer Psychology, Dallas, TX, 2018.

Awards and Honors

Wharton Social Impact Initiative Research Funding, 2019

The Jay H. Baker Retail Center Patty and Jay H. Baker Ph.D. Fellowship, 2017

The Wharton Risk Center Russell Ackoff Doctoral Student Fellowship Award, 2016 – present

Society for Personality and Social Psychology Student Travel Grant, 2018

Wharton Doctoral Programs George James Travel Award, 2017, 2018

GAPSA Travel Grant Award, 2019

Professional Service

Reviewer for:

- *Management Science*
- *Organizational Behavioral and Human Decision Processes*
- *Social Psychology and Personality Science*

Co-president of Penn Interdisciplinary Meeting of Minds (PIMM), Fall 2018 – Spring 2019

Teaching Experience

Guest Lecturer
- Business Research: Design Fundamentals and Applications (Undergrad, Spring 2018)

Teaching Assistant
- Managerial Decision Making (MBA, Spring 2018, Fall 2018)
- Negotiations (MBA, Fall 2016, Spring 2017)

Undergraduate Advising
- Judgment and Decision Making Research Immersion (Undergrad, Fall 2016 to present)

Selected Experience Prior to Wharton

Warwick Policy Lab 2014 – 2015
Researcher

Henderson Global Investors 2011 – 2014
Fixed Income Analyst

Professional Affiliations

Association for Consumer Research; Society for Consumer Psychology; Society for Judgment and Decision Making

Referees

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Research Abstracts

Lewis, Joshua, Celia Gaertig, and Joseph P. Simmons (2019), "Extremeness Aversion Is a Cause of Anchoring," ***Psychological Science,*** **30(2), 159–173.**

When estimating unknown quantities, people insufficiently adjust from values they have previously considered, a phenomenon known as anchoring. We suggest that anchoring is at least partially caused by a desire to avoid making extreme adjustments. In seven studies (*N* = 5,279), we found that transparently irrelevant cues of extremeness influenced people's adjustments from anchors. In Studies 1–6, participants were less likely to adjust beyond a particular amount when that amount was closer to the maximum allowable adjustment. For example, in Study 5, participants were less likely to adjust by at least 6 units when they were allowed to adjust by a maximum of 6 units than by a maximum of 15 units. In Study 7, participants adjusted less after considering whether an outcome would be within a smaller distance of the anchor. These results suggest that anchoring effects may reflect a desire to avoid adjustments that feel too extreme.

Lewis, Joshua and Joseph P. Simmons, "Prospective Outcome Bias: Incurring (Unnecessary) Costs to Achieve Outcomes That Are Already Likely," forthcoming at ***Journal of Experimental Psychology: General.***

How do people decide whether to incur costs to increase their likelihood of success? In investigating this question, we offer a theory called prospective outcome bias. According to this theory, people tend to make decisions that they expect to feel good about after the outcome has been realized. Because people expect to feel best about decisions that are followed by successes – even when the decisions did not cause those successes – they will pay more to increase their chances of success when success is already likely (e.g., people will pay more to increase their probability of success from 80% to 90% than from 10% to 20%). We find evidence for prospective outcome bias in nine experiments. In Study 1, we establish that people evaluate costly decisions that precede successes more favorably than costly decisions that precede failures, even when the decisions did not cause the outcome. Study 2 establishes, in an incentive-compatible laboratory setting, that people are more motivated to increase higher chances of success. Studies 3-5 generalize the effect to other contexts and decisions, and

Studies 6-8 indicate that prospective outcome bias causes it (rather than regret aversion, waste aversion, goals-as-reference-points, probability weighting, or loss aversion). Finally, in Study 9, we find evidence for another prediction of prospective outcome bias: people prefer small increases in the probability of large rewards (e.g., a 1% improvement in their chances of winning $100) to large increases in the probability of small rewards (e.g., a 10% improvement in their chances of winning $10).

Lewis, Joshua and Deborah A. Small, "Ineffective Altruism: Giving Less When Donations Do More Good," ***working paper.***
Despite well-meaning intentions, people rarely allocate their charitable donations in the most cost-effective way possible. The manner in which cost-effectiveness information is presented can be a contributing factor. In four studies (N = 2,725), when we inform participants of the cost of a unit of impact (e.g. the cost of a mosquito net), they perversely donate *less* when the cost is *cheaper*. This result arises because people want their donation to have a tangible impact, and when the cost of such an impact is lower, people can achieve it with a smaller donation. A remedy for this inefficiency is to express cost-effectiveness in terms of "units per dollar amount" (e.g. 5 nets provided per $10 donated), thus leaving the cost of providing one tangible item unstated and rendering it less salient as a target donation amount. Across Studies 2 and 3, we demonstrate both the inefficient use of cost-effectiveness information and the effectiveness of this remedy using incentive-compatible donations decisions about providing meals, oral rehydration therapy, deworming medication, and measles vaccines.

Lewis, Joshua, Alex Rees-Jones, Uri Simonsohn, and Joseph P. Simmons, "Diminishing Sensitivity to Outcomes: What Prospect Theory Gets Wrong about Diminishing Sensitivity to Price," ***working paper.***
Prospect Theory assumes that decision makers are diminishingly sensitive to gains and losses. For example, as losses get larger, the perceived harm of any additional increase in the loss gets smaller. A well-known demonstration of this phenomenon involves prices: people are more interested in saving $5 off a $15 purchase than in saving $5 off a $125 purchase (e.g., the "Jacket/Calculator" scenario). However, we present evidence that diminishing sensitivity to price changes is separate from Prospect Theory and arguably inconsistent with it. Across four studies, we find that people exhibit diminishing sensitivity with respect to outcomes that do not align with their evaluations of gains and losses. Specifically, while the reference point determines whether a price is coded as a gain or a loss, the magnitude of the overall transaction determines how large or small a given gain or loss is perceived to be. This implies that, contrary to Prospect Theory, diminishing sensitivity does not occur with increases in gains and losses per se, but rather, it occurs with increases in the magnitude of the underlying transaction.

Lewis, Joshua and Joseph P. Simmons, "Anchors Alter the *Direction* of Adjustment – Not Just the Magnitude," ***working paper.***
When people estimate an unknown quantity after previously considering a high candidate value (or "anchor"), they estimate higher values than they would have done after considering a low anchor. In explaining this effect, previous anchoring research has emphasized the *distance* between the anchor and the estimate. However, across 5 studies (N = 5,662), we find a directional anchoring bias: people disproportionately estimate values that are higher than high

anchors and lower than low anchors, and this bias accounts for between 10% and 20% of the total anchoring effect (Study 1). The bias seems to result from people expressing their intuitions about estimation quantities. For example, when estimating an intuitively high quantity (such as the weight of an elephant), people tend to express their intuition that the quantity is “high” by adjusting their estimates upwards from the anchor. When anchors are higher, a decision to adjust upwards necessitates a higher estimate, so higher anchors lead to higher estimates. Consistent with this mechanism, we find that participants’ intuitions about the stimuli moderate the directional anchoring bias (Studies 2-5). In addition, we demonstrate the adverse effects of this bias for estimation accuracy (Study 3) and consumer choice (Studies 4 & 5).

Green, Etan A. and Joshua Lewis, “The Forgone-Option Fallacy,” *working paper.*
Forgoing an option motivates decision makers to achieve outcomes that "justify" the initial choice. Analyzing a natural experiment in the National Football League, we find that forgoing an option motivates professional athletes to do no worse than they would have done had they taken the option in the first place. We complement this result with evidence from survey experiments.

Green, Etan A., Joshua Lewis, and David Rothschild, “Barely Plausible Anchor Values Maximize Bias,” *working paper.*
Anchors such as list prices and first offers bias judgments. Which anchor values maximally bias judgments? Analyzing a three-year field experiment in which thousands of participants estimated dozens of familiar probabilities, we generate a 95% confidence interval for the extremity of the bias-maximizing anchor. The lower bound for this interval is 1.5 standard deviations from the mean estimate. However, because we observe similar levels of bias for anchor extremities of up to 3 standard deviations from the mean estimate, we do not obtain an upper bound for this interval. Thus, in the context of probability estimates, bias-maximizing anchors may be maximally extreme, and lack any semblance of credibility.

Moore, Alexander, Joshua Lewis, Emma E. Levine, and Maurice E. Schweitzer, “Trusting Kind Friends and Fair Leaders: How Relationships Affect the Antecedents of Trust,” *working paper.*
While a robust literature explores the antecedents of trust in organizations, thus far, none has addressed how and why the nature of trust differs across relationships. In the present research, we demonstrate that the nature of trust in friends and leaders is fundamentally different. Specifically, trust in friends relies on perceptions of benevolence, whereas trust in leaders relies on integrity. We establish these results across one pilot study, three main experiments, and three replications (total N = 1,387) that explore how individuals trust targets as friends and leaders subsequent to observing these targets resolve ethical dilemmas that involve tradeoffs between benevolence and integrity. Across our studies, we use both attitudinal and behavioral measures of trust, and a range of ethical dilemmas. This research deepens our understanding of both trust and the relationship between morality, hierarchy, and relationship formation.