Environmental Inequality and the Distribution of Necessary Evils

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Introduction

- Desires for fairness often leads people to prefer equal outcomes
- Environmental inequalities are common (e.g., differences in air or water quality).
- Yet, we know little about what drives people's preferences for allocations of environmental resources
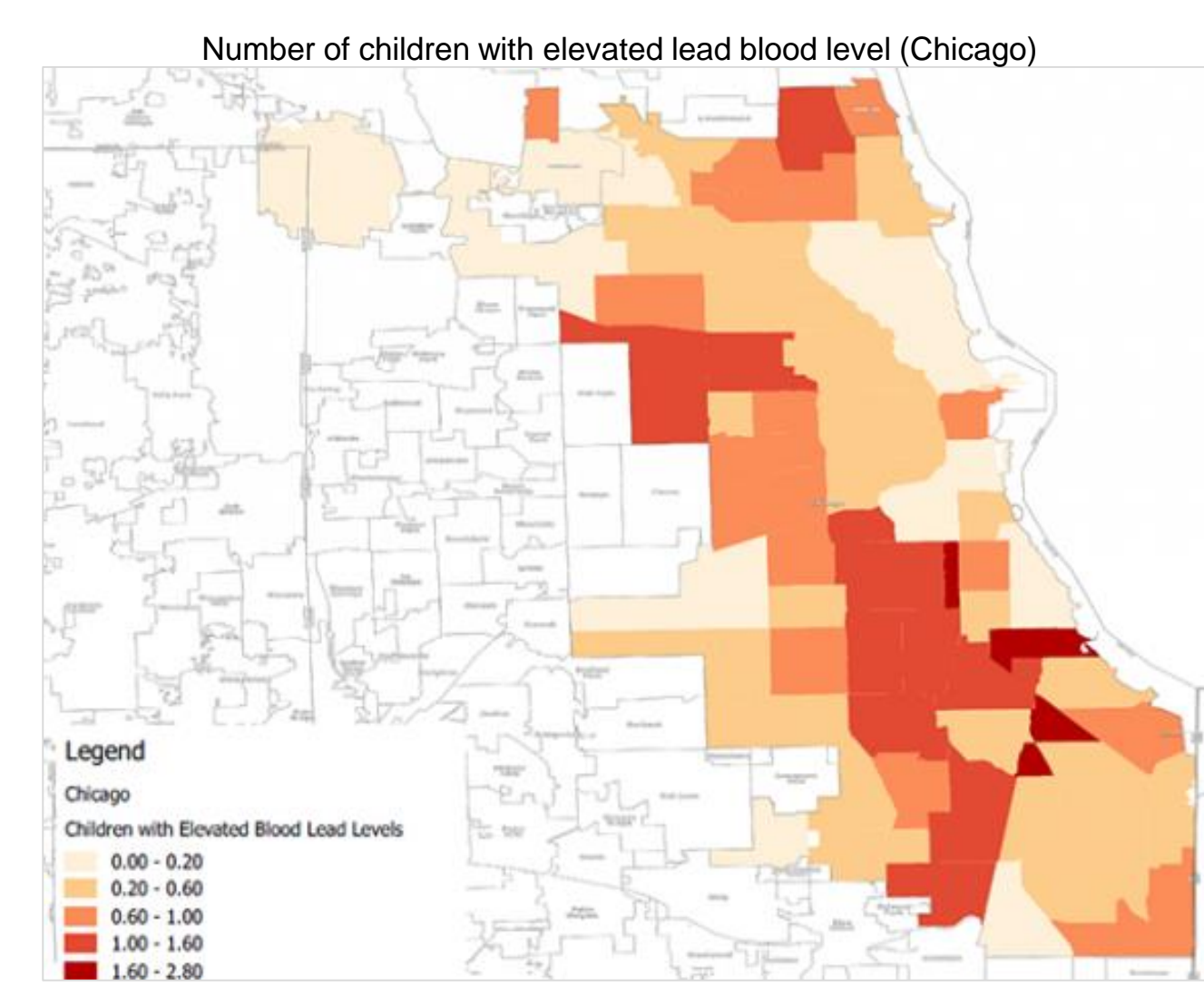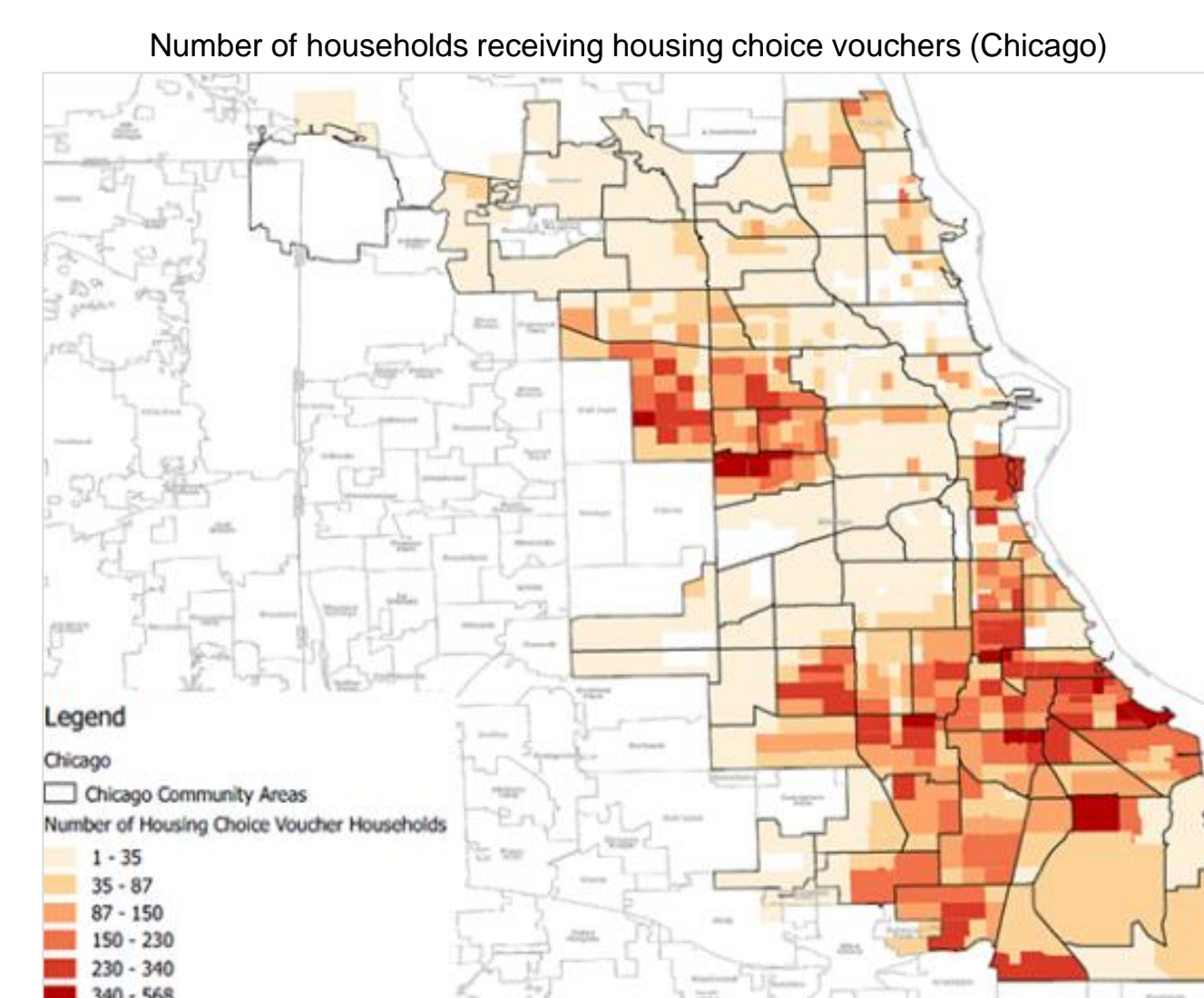
In addition to naturally occurring differences, environmental inequalities may be moderated through two different channels: allocations of...

- **Environmental harms** (e.g., industrial facilities that increase pollution)
- **Environmental benefits** (e.g., air or water treatment facilities).

Thus, environmental inequality can be expanded or remedied via the distribution of both harms and benefits.

Differences in environmental conditions may lead to differences in financial prosperity, health outcomes and mortality.

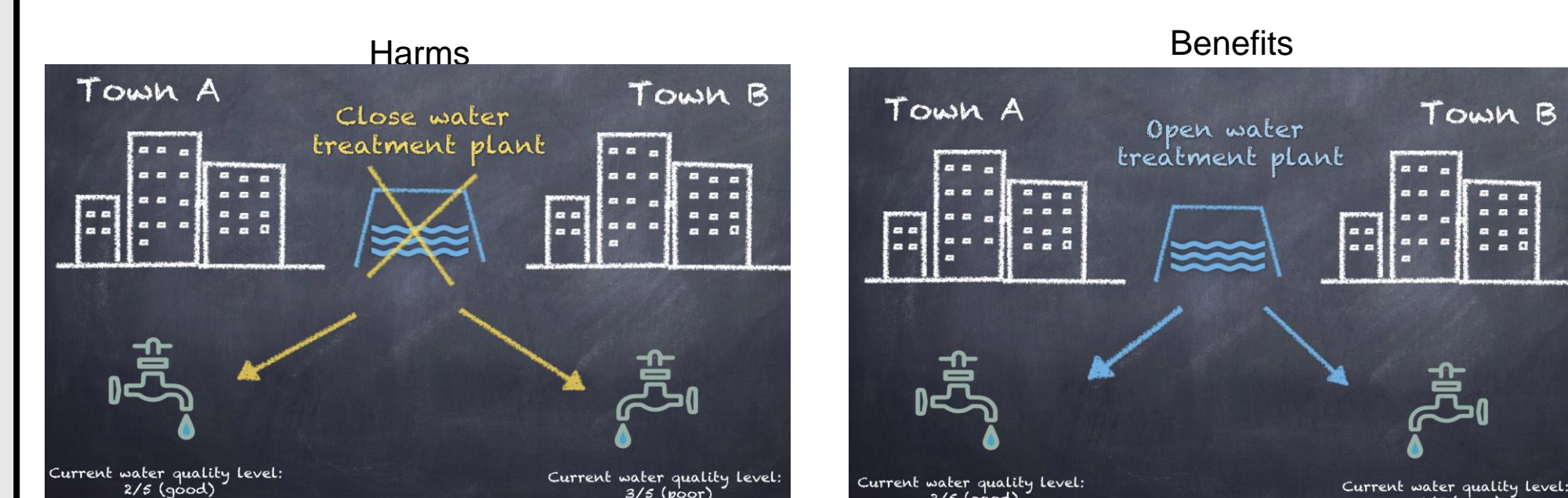Strong correlation between environmental inequality and income inequality

Number of households receiving housing choice vouchers (Chicago)

Number of children with elevated lead blood level (Chicago)

Source: Shriver center, 2017

Study 1 – Harms vs. benefits

Study 1.a –Online participants (N=315) were presented with two towns, and asked to choose in which of two the state should close (vs. *open*) a water treatment plant that improves drinking water quality. The towns were similar in all aspects but current water quality.

Hypothesis- Preference for equal outcomes will be lower in allocations involving environmental harms (vs. benefits).

Studies 1.b-c Replicate this design using scenarios for air pollutions and solid waste.

Study 3 – Reflected in policy support?

Hypothesis- Incompatibility between harms and equality on 'fairness' lead to lower preference for equality in harms.
- Air quality scenario,
- Policy makers already decided on allocation
- P's asked to indicate support and assess fairness of the allocation decision.

Design- 2X2 allocation type (harms vs. benefits) and allocation outcome (more equality vs. less equality).

Study 2- Do people avoid allocating harms?

Hypothesis- Lower preference for equal outcomes in harms related to harm aversion rather than efficiency.
- Air pollution scenario (see study 3)
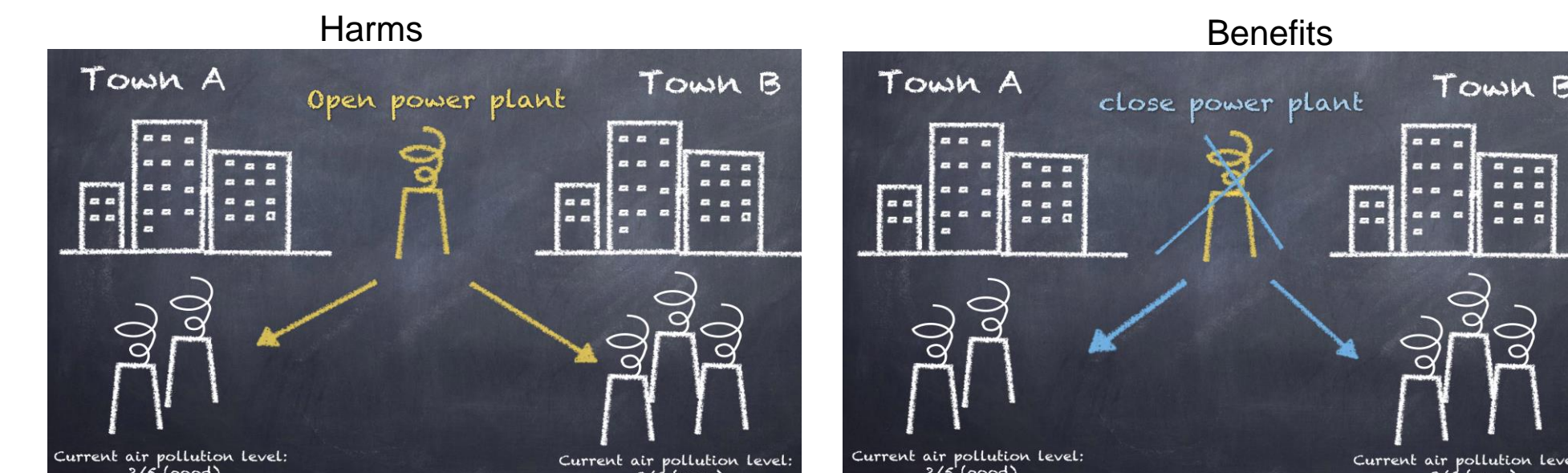- In addition to binary choice set, a "No choice" option (i.e. opt-out) was introduced

Design- 2X2 with allocation type (harms vs. benefits) and choice set (binary vs. No-choice).

Study 4- Is mere framing sufficient?

Hypothesis- Increase support for equal outcome allocations in decisions involving distribution of harms.
- Oil spill scenario
- Clean up plan remains constant across conditions, but framed differently:

Benefit -40mi of coastline would be saved
Harms- 20mi miles of coastline will be devastated

Key Takeaways

People are less likely to use harms (vs. benefits) to fix environmental inequalities

Potential causes of this preference

- Equality is a 'fairness' allocation rule
- Harms are generally considered 'unfair'
- The incompatibility between equality and harms on fairness → lower pref. for equality in allocations of environ. harms

Framing a distribution of harms as a benefit increases preferences for equality

Discussion

- The lower preference for equality in harms could aid the formation and endurance of environmental inequalities.
- Policy makers interested in promoting support for environmental equality may consider reframing allocations as benefits (not harms)

Results

S1- Lower pref. for equal outcomes in harms

Share of P's choosing equal outcome allocations

	Study 1.a (water quality)	Study 1.b (air quality)	Study 1.c (solid waste)
Benefits	91%	99%	88%
Harms	73%	84%	80%
	N=315	N=258	N=374
	X^2 (1, N = 315) = 16.81, p<.001	X^2 (1, N = 258) = 16.71, p<.001	X^2 (1, N = 374) = 4.09, p= .043

S2- Most choose to opt-out of decision in harms, but not benefits → **Lower equality pref. driven by harm aversion not efficiency concerns**

Share of P's choosing equal outcome allocations

	Binary choice set Equal outcome	Opt-out choice set Equal outcome	[prefer not to allocate]
Benefits	95%	85%	[5%]
Harms	67%	28%	[60%]
	N=293	N=294	
	X^2 (1, N = 293) = 37.89, p<.001	X^2 (2, N = 294) = 111.39, p<.001	

S3-Lower support for equality through harms (vs. benefits)


More equal / Less equal
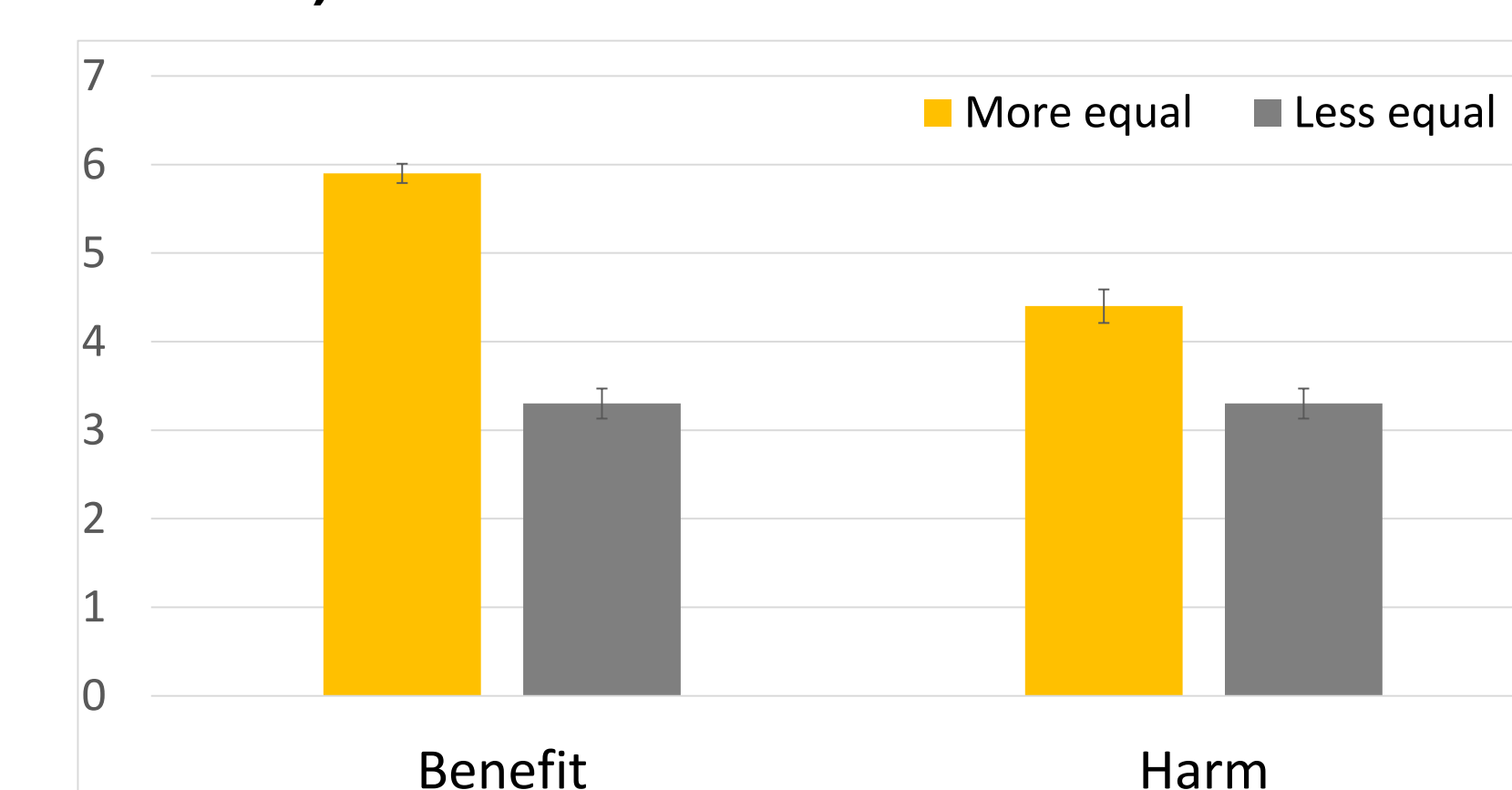
N= 514
Significant interaction between allocation type (harms vs. benefits) and outcome (more equality vs. less equality) on policy support, F(1, 413)=20.3, p<.001.

No significant impact for other predictors (age, income, home pollution, attitude towards income inequality, gender)

S3- Support for policies reducing inequality is mediated by fairness perceptions (lower in harms)

Fairness perception
-1.02**
0.79**
Allocation type (harm/benefit)
-0.71** (-1.5**)
Policy support
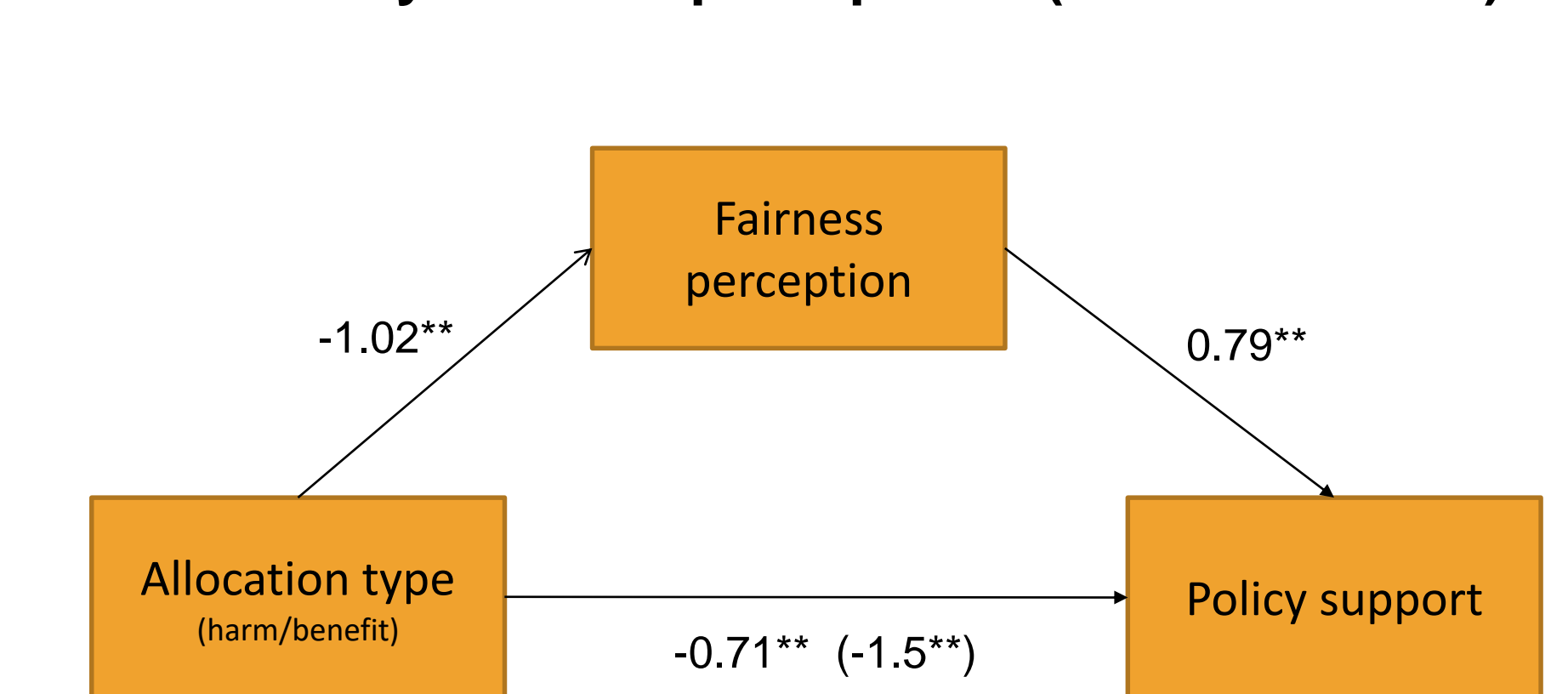
S4- Framing as a benefit increases preference for equal outcome policies in allocations of harms

N=308
75% - Chose equal outcome in benefit framing
62% - Chose equal outcome in harms framing
[X^2 (1, N = 270) = 5.73, p <.017]

References: Bouvier, Rachel (2014), "Distribution of Income and Toxic Emissions in Maine, United States: Inequality in Two Dimensions," *Ecological Economics*, 102, 39-47; DeVoe, Sanford E., and Sheena S. Iyengar, (2010), "Medium of Exchange Matters: What's Fair for Goods Is Unfair for Money," *Psychological Science*, 21 (2), 159-62; Gamliel, Eyal and Eyal Peer (2010), (2010), "Attribute Framing Affects the Perceived Fairness of Health Care Allocation Principles," *Judgment and Decision Making*, 5 (1), 11; Shaw, Alex and Shoham Choshen-Hillel (2017); "It's Not Fair: Folk Intuitions About Disadvantageous and Advantageous Inequity Aversion," *Judgment and Decision Making*, 12 (3), 208.; Törnblom, Kjell and Elva Ahlin (1998), "Mode of Accomplishing Positive and Negative Outcomes: Its Effect on Fairness Evaluations," *Social Justice Research*, 11 (4), 423-42; Starmans, Christina, Mark Sheskin, and Paul Bloom (2017), "Why People Prefer Unequal Societies," *Nature Human Behaviour*, 1, 0082.:

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