

Swinging Foundational Views: An Experiment on the Persuasive Effects of Moral Frames

W241 Experiments and Causality

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Abstract

Through this experiment we tested the treatment effect of various presentations of the moral foundations (“the frame”) on a person’s feelings towards a particular topic.

1 Introduction

We make hundreds of decisions each day. We may spend minutes, even hours, considering information to arrive at a decision. But sometimes it’s just seconds. A gut response. That response, the baseline opinion anchoring the choices we make, is different for everyone and can be extremely difficult to change.

In the early 2000s, psychologists Jonathan Haidt, Craig Joseph and Jesse Graham proposed a framework to explain why our opinions are different, but also similar. Their “moral foundations theory” built upon an earlier proposal stating that morality stems from matters of harm, rights and justice. Haidt and his colleagues, however, describe five doctrines or foundations that ultimately influence human decision and behavior: harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect and purity/sanctity.

Moral foundations theory has often been applied to studies of political science, the differences between cultures and intuitive ethics. They offer a concrete understanding of the morals that unite and divide us all. In his book, *The Righteous Mind* (2012), Haidt explored how the five foundations are used by both conservatives and liberals to support moral questions in the political realm. Those leaning more to the political left are guided predominantly by harm/care and fairness/reciprocity, while those leaning right rely on all five foundations. It follows then that conservatives weigh the first two foundations less when making decisions or judgments; harm/care and fairness/reciprocity comprise one-fifth of the equation, respectively, instead of one-half.

Perhaps in a perfect world, every voter would decide on issues and candidates based on thorough research of policy and practice, but we know this is not the case. Hillary Clinton’s 2016 presidential campaign fought to make her more “likeable” to voters. The Russian government purchased ads in an attempt to sway political opinions of Facebook users. Haidt would likely agree that these are examples of political organizations attempting to trigger certain moral foundations to “get your vote, your money, or your time.” But is this possible?

2 Hypothesis & Motivation

Can tapping into one or more moral foundations modify how an individual feels about a topic, particularly those which are politically-relevant? Assume that an opinion can be represented as a point on a line, capable of moving to the left or the right (or up or down, if we want to avoid confusion with the colloquial political spectrum). With this assumption we can test the following hypothesis: framing a politically divisive topic with a targeted moral foundation can move a subject’s opinion away from its original point on the line, in either direction.

Online marketing campaigns and social media has increased the specificity with which political campaigns—or anyone—can target individuals with persuasion (or manipulation?) tactics. A study in 2014 by Martin Day, Susan Fiske, Emily Downing and Thomas Trail examined the effects of Haidt’s moral foundations on the opinions of liberals and conservatives, for what the researchers described as “pro-attitudinal and counter-attitudinal” positions on issues.

Day et al executed two experiments to test the effects of moral foundation-based “frames”. A frame can take several forms—stories, pictures, newspaper articles, to name a few. In Day’s studies, the participants were shown a number of morally framed stances. For example, a “morally framed conservative stance” on immigration which targets the fairness foundation reads, “It is only fair to preserve the rights of long-term citizens ahead of recent immigrants.”

Both studies supported the hypothesis that an individual’s political attitude is bolstered by relevant moral foundation-based frames, however only one study supported that the same frames may persuade a subject to shift his or her opinion away from one side of the political spectrum.

Another study that played a key role in defining this experiment was a paper by Lene Aaroe, Michael Bang Petersen and Kevin Arceneaux on ‘Why and How Individual Differences in Disgust Sensitivity Underlie Opposition to Immigration’. The subjects are tested on their support for immigration after their disgust response is triggered. This study finds some causal factors that influence political attitudes outside of one’s conscious awareness and confirms that leveraging framing as a treatment lever does produce an observable effect on subjects.

To build on the conclusions of Day et al’s work, we designed a study to measure the effect of moral foundation-based frame on opinions on Universal Basic Income (UBI). UBI is a topic for which political conservatives and liberals are generally accepted to have opposing views. To maximize resources available, we decided to only test two of the moral foundations: purity/sanctity and fairness/reciprocity.

3 Experimental Design

3.1 Participants

We recruited a sample of N adults living in the United States using Prolific, an online platform that connects researchers with participants around the world. The only control that was leveraged for the characteristics of those participants was to select adults living in the United States who did not identify as politically moderate. This was done through Prolific, an online platform that connects researchers with participants around the world. Of the N participants who began the study, all but three were from the conservative block and one from the liberal block completed all of the required tasks. Those who did not complete the survey were automatically replaced by Prolific. Those participants received \$0.70 as compensation for participating in the study. Our study specifically targeted subjects who identified as either politically liberal or conservative. Political moderates were assumed to not have strong beliefs on either side of the spectrum, and thus would not have strong groundings in the moral foundations framework. The subject pool comprised of XX (x%) .. Figure 1 shows further detail on the political identifications of the participants. XX (x%) identified as female, XX (x%) identified as male. Collection of participants took place over several days. We had limited funds available with which to execute the experiment, so we agreed to gather 100 conservative and 100 liberal participants in the first wave, conduct initial covariate balance checks, and proceed with additional participants as deemed necessary. Overall, we had X waves. Table 1 provides additional information on each wave. Overall, we gathered an effective sample size for analysis of X participants: xx. stats. We have a high level of confidence in the randomization of our effective participant population due to the use of Prolific to gather subjects. Qualtrics was leveraged to randomly assign subjects to control or one of the 4 other treatment conditions so there would be an even distribution across all 5 survey arms. We noted that the temporal nature of the waves may affect responses, so this was noted as a covariate to be included during our analysis.

3.2 Procedure

We developed two treatment options for both moral foundations included in our experiment, executed via a written story with accompanying photographs (for further detail, see Materials section).

All subjects assigned to treatment would read a “base” story designed to trigger either the purity/sanctity or fairness/reciprocity foundations. Some subjects within the treatment group were selected, via random assignment, to read an extension to the base story which offered a positive resolution to moral conflict from the base. The intended effect of the extension was to specifically trigger the participant’s “pro-attitudinal..

We implemented a timer on the treatment pages of the survey requiring participants to stay on the page for at least 15-20 seconds, depending on the length of the frame. This was done to prevent subjects from clicking through the pages without adequate time to read and digest the frame.

Figure X offers a detailed description of the four treatment arms and control arm for the experiment. Participants were randomly assigned to one of the five arms using five-way random sampling without replacement executed within the Qualtrics survey platform.

After navigating through treatment or control, the subjects were asked to share their degree of support for the concept of UBI on an eleven point likert scale from zero to ten.

All participants answered the following demographic questions before concluding the survey: age, gender, urbanicity and political orientation. The political orientation demographic was requested to confirm successful blocking executed via Prolific. Subjects who self-identified as moderates in the survey were dropped from the analysis.

Participants in the pilot study and select waves were also asked about their reactions to the frames to assess whether they triggered the intended moral foundation. The pilot was executed with a small group of X participants to test the strength of the stories with regards to hitting on the intended moral foundations and find whether the study was receiving a balanced mix of participants while examining different covariates.

See *Figure 4* for detailed flowchart of study design.

3.3 Materials

Please refer to the Appendix of this report to view the moral foundations-frames employed in our experiment.

3.4 Modifications

After collecting data from the first wave of participants, we analyzed gender, political orientation and reactions to the frames. We noted that there was an imbalance of gender in the conservative block, and the liberal block had generally high support of the concept of UBI. In response to the former, we used Prolific to recruit additional female conservatives, however we consequently excluded this wave from analysis due to lack of randomized collection (i.e. participants were targeted rather than randomly recruited).

The latter observation eventually led us to remove the treatment arm targeting fairness/reciprocity and recruit additional participants in the conservative block in an effort to increase the statistical power of our results. Given the high support amongst liberals for UBI, it would be unlikely that we would see a measured change in attitude, particularly given our limited sample size.

In a world with limitless funds, we would have been able to collect enough participants to supply sufficient power to each arm of the study, however this was not the case. Thus, we dedicated our remaining resources to the treatment arm showing promise of a statistically significant effect.

4 Analysis of Results

4.1 Comparison of Potential Outcomes

[TBD]

4.2 Data

4.3 Models

4.3.1 Preliminary results with partial data informed our focus on Con + Pure (see ??)

Table 1: Preliminary Model - Factorial Design, by Arm (Waves 1-2 only)

	Four Study Arms			
	UBI Ranking			Con + Pure
	Lib + Fair	Lib + Pure	Con + Fair	
	(1)	(2)	(3)	(4)
Base Treatment	−0.143 (0.773) p = 0.854	0.531 (0.595) p = 0.373	−0.056 (1.075) p = 0.959	0.608 (1.157) p = 0.600
Extension Treatment	−0.890 (0.691) p = 0.198	0.095 (0.662) p = 0.886	1.167 (1.164) p = 0.317	0.722 (0.995) p = 0.468
Constant	8.048*** (0.497) p = 0.000	8.048*** (0.497) p = 0.000	3.444*** (0.669) p = 0.00000	3.444*** (0.669) p = 0.00000
Observations	61	61	63	64
R ²	0.028	0.015	0.023	0.009
Adjusted R ²	−0.006	−0.019	−0.009	−0.023
Residual Std. Error	2.324 (df = 58)	1.904 (df = 58)	3.581 (df = 60)	3.502 (df = 61)
F Statistic	0.831 (df = 2; 58)	0.436 (df = 2; 58)	0.710 (df = 2; 60)	0.285 (df = 2; 61)

Note:

*p<0.1; **p<0.05; ***p<0.01
HC Robust Standard Errors

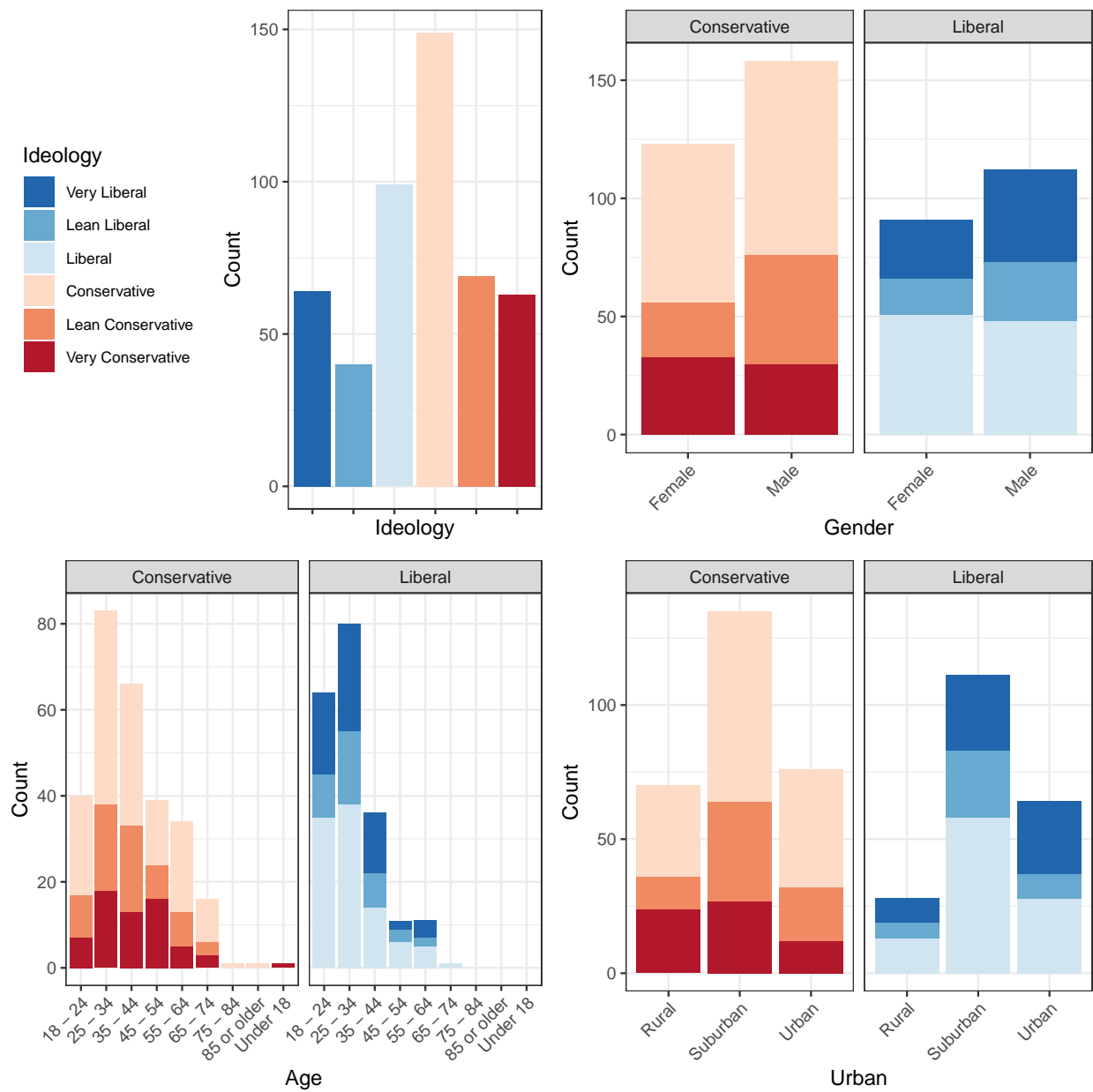


Figure 1: Demographics

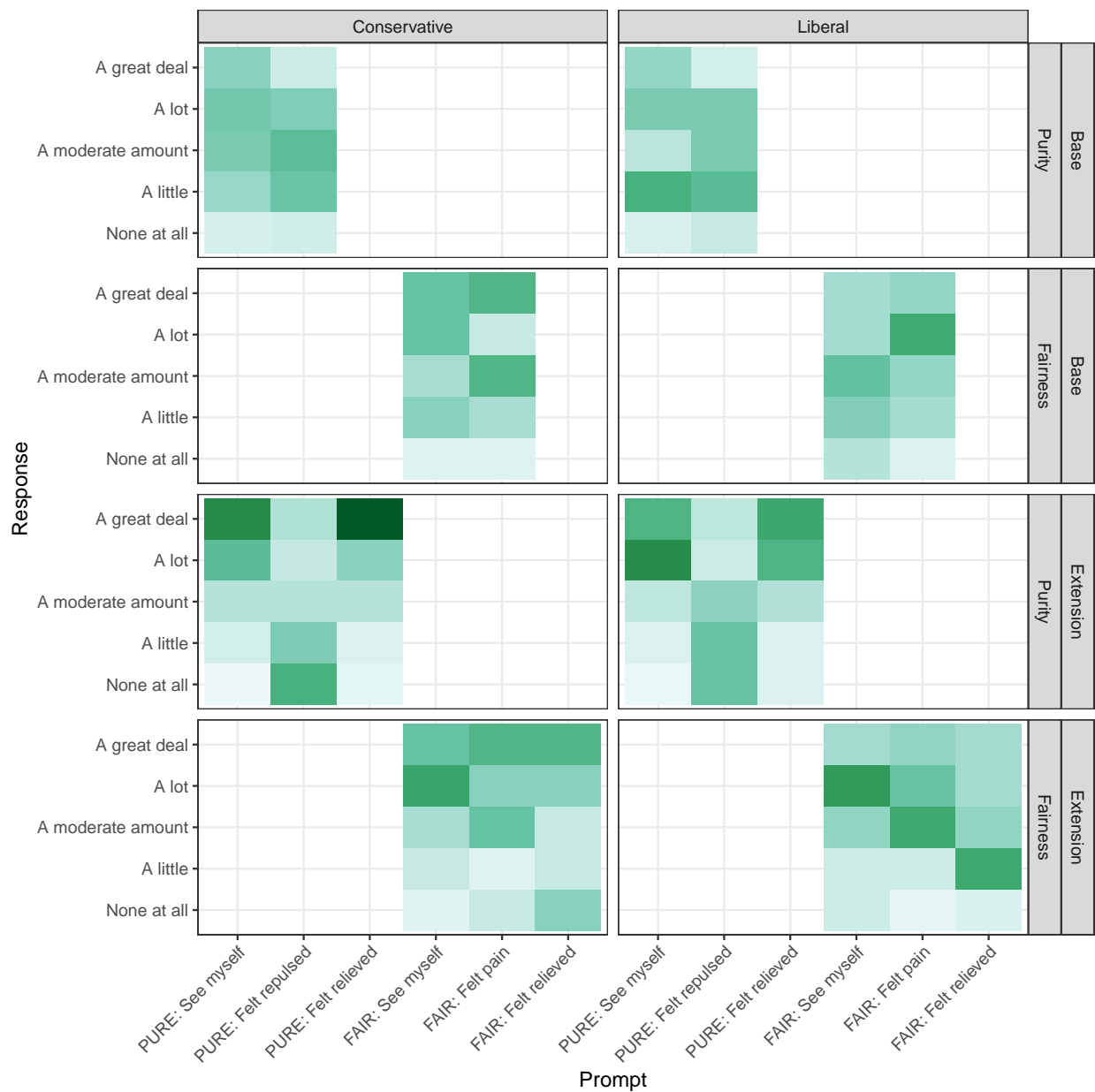


Figure 2: Reactions

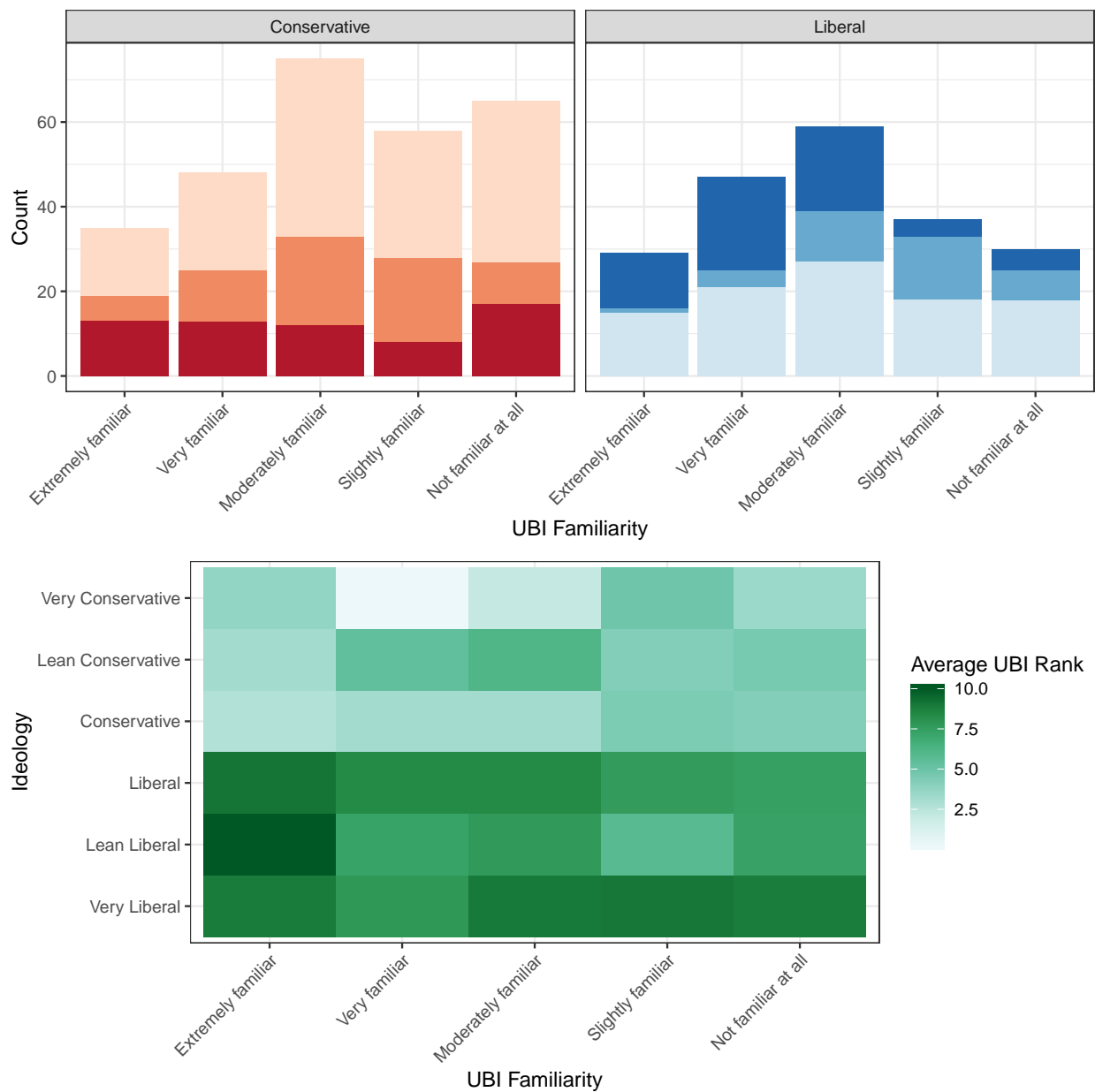


Figure 3: Outcomes

Table 2: Factorial Design, by Arm and Recruitment Day

	Four Study Arms + Control			
	Control Only	Lib + Fair	UBI Ranking Lib + Pure	Con + Fair
	(1)	(2)	(3)	(4)
Liberal	5.084*** (0.664) p = 0.000			
Base Treatment		−0.212	−0.161 (0.452) p = 0.722	−0.333 (1.208) p = 0.783
Extension Treatment		−0.748	−0.037 (0.499) p = 0.942	0.889 (1.289) p = 0.491
Wave 2	−0.425 (1.318) p = 0.748			−0.833 (1.420) p = 0.558
Wave 3	−0.162 (0.946) p = 0.864		0.769 (1.242) p = 0.536	−0.571 (1.084) p = 0.599
Wave 4	0.570 (1.081) p = 0.598	−1.027	−2.243 (1.872) p = 0.231	0.278 (1.261) p = 0.826
Wave 5	−0.370 (0.603) p = 0.539	0.390	−0.091 (0.398) p = 0.820	−1.556 (1.216) p = 0.201
Constant	3.314*** (0.688) p = 0.00001	8.027	8.309*** (0.386) p = 0.000	3.722*** (0.868) p = 0.00002
Observations	136	111	139	125
R ²	0.384	0.035	0.024	0.036
Adjusted R ²	0.360	−0.002	−0.013	−0.013
Residual Std. Error	3.071 (df = 130)	2.115 (df = 106)	2.297 (df = 133)	3.564 (df = 118)
F Statistic	16.188*** (df = 5; 130)	0.953 (df = 4; 106)	0.652 (df = 5; 133)	0.738 (df = 6; 118)

Note:

*p<0.1; **p<
HC Robust S

Table 3: Factorial Design, by Arm

	Four Study Arms			
	UBI Ranking			
	Lib + Fair (1)	Lib + Pure (2)	Con + Fair (3)	Con + Pure (4)
Base Treatment	−0.241 (0.488) p = 0.621	−0.146 (0.451) p = 0.746	0.119 (0.919) p = 0.897	0.354 (0.518) p = 0.495
Extension Treatment	−0.799 (0.493) p = 0.105	0.000 (0.479) p = 1.000	1.341 (1.022) p = 0.190	1.072** (0.533) p = 0.045
Constant	8.213*** (0.288) p = 0.000	8.213*** (0.288) p = 0.000	3.270*** (0.370) p = 0.000	3.270*** (0.370) p = 0.000
Observations	111	139	125	245
R ²	0.023	0.001	0.017	0.018
Adjusted R ²	0.005	−0.014	0.001	0.010
Residual Std. Error	2.108 (df = 108)	2.299 (df = 136)	3.539 (df = 122)	3.347 (df = 242)
F Statistic	1.299 (df = 2; 108)	0.061 (df = 2; 136)	1.082 (df = 2; 122)	2.200 (df = 2; 242)

*Note:**p<0.1; **p<0.05; ***p<0.01
HC Robust Standard Errors

Table 4: Conservative + Purity Treatment Arm Interaction Specifications

	Con + Pure Arm Only				
	No Covariates	Gender	UBI Ranking UBI Familiarity	Reaction (Base)	Reaction (Pure)
	(1)	(2)	(3)	(4)	(5)
Base Treatment	0.354 (0.518) p = 0.495	0.476 (0.518) p = 0.358	0.371 (0.519) p = 0.475		
Extension Treatment	1.072** (0.533) p = 0.045	1.207** (0.537) p = 0.025	1.074** (0.534) p = 0.045		
Male		1.009** (0.426) p = 0.018			
Familiar w/ UBI			−0.330 (0.520) p = 0.526		
Repulsed				0.104 (0.532) p = 0.846	
Relieved					
Constant	3.270*** (0.370) p = 0.000	2.623*** (0.445) p = 0.000	3.518*** (0.552) p = 0.000	3.933*** (0.394) p = 0.000	
Observations	245	245	245	156	
R ²	0.018	0.040	0.020	0.0003	
Adjusted R ²	0.010	0.028	0.007	−0.006	
Residual Std. Error	3.347 (df = 242)	3.316 (df = 241)	3.351 (df = 241)	3.293 (df = 154)	3.267 (df = 154)
F Statistic	2.200 (df = 2; 242)	3.330** (df = 3; 241)	1.603 (df = 3; 241)	0.039 (df = 1; 154)	3.267 (df = 1; 154)

Note:

*p<0.1; **p<0.05; ***p<0.01
HC Robust SE

- 4.3.2 *Given that we collected in waves, wanted to ensure the wave/day blocking did not introduce an effect on our results (see ??)*
- 4.3.3 *We still collected more data for all arms to confirm that of factorial design, Con + Pure was most impactful (see ??)*
- 4.3.4 *We tested hypotheses about covariates that might affect outcomes with our arm of interest: Con + Pure (see ??)*

5 Conclusion

Our experiment leveraging the concept of Universal Basic Income demonstrates that political attitudes can shift (TBC) through exposure to moral foundations.

5.1 Discussion

[[TBD]]

5.2 Limitations

[[TBD]]

6 Appendix

6.1 Declaration of Conflicting Interests

To the best of their knowledge, the authors have no potential conflicts of interest with respect to the research, distribution of survey, and authorship of this paper.

6.2 Funding

The authors received \$500 in financial support from the University of California, Berkeley which was leveraged to pay survey-takers through the Prolific platform and satisfy the statistical power requirements.

In addition, the authors put in \$25 out of their own personal income to increase the statistical power of the results and balance the number of subjects between liberals and conservatives.

6.3 Study Flowchart

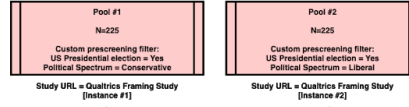
6.4 Data Dictionary

Variable Name	Variable	Values	Notes
prolific_pid	User ID	10-digit numeric	
panel			
arm			
node			
arm_level			

Variable Name	Variable	Values	Notes
ideology			
ideology_bin			
age			
gender			
urban			
employment_status			
student_status			
purity_q1_self			
purity_q2_repulsed			
purity_q3_injustice			
purity_q4_relieved			
fairness_q1_self			
fairness_q2_pain			
fairness_q3_injustice			
fairness_q4_relieved			
open_text_reaction			
ubi_number	UBI Number	Integer 0-10	
ubi_group			
ubi_familiarity			
ubi_familiarity_bin			

Prolific Recruitment Platform

Two Studies are configured in Prolific
One pool of subjects will contain filter for Conservative Ideology, the other pool will be filtered for Liberal Ideology.
Both screens are based on the subject's self-identification
The additional screen 'US Presidential Election allows us to control for US population to avoid UK participation.



Qualtrics Survey Platform

Two copies of the study are created in Qualtrics
All subjects will visit the introductory section first.
Then, in the subsequent section a randomization method configured as an "Advanced Randomization" and "random subset" randomly inserts 1 of 5 test areas and evenly presents these elements to achieve counterbalancing.
The sections that follow the initial display are controlled using Display Logic. They appear on the provision that a prior block was already displayed.

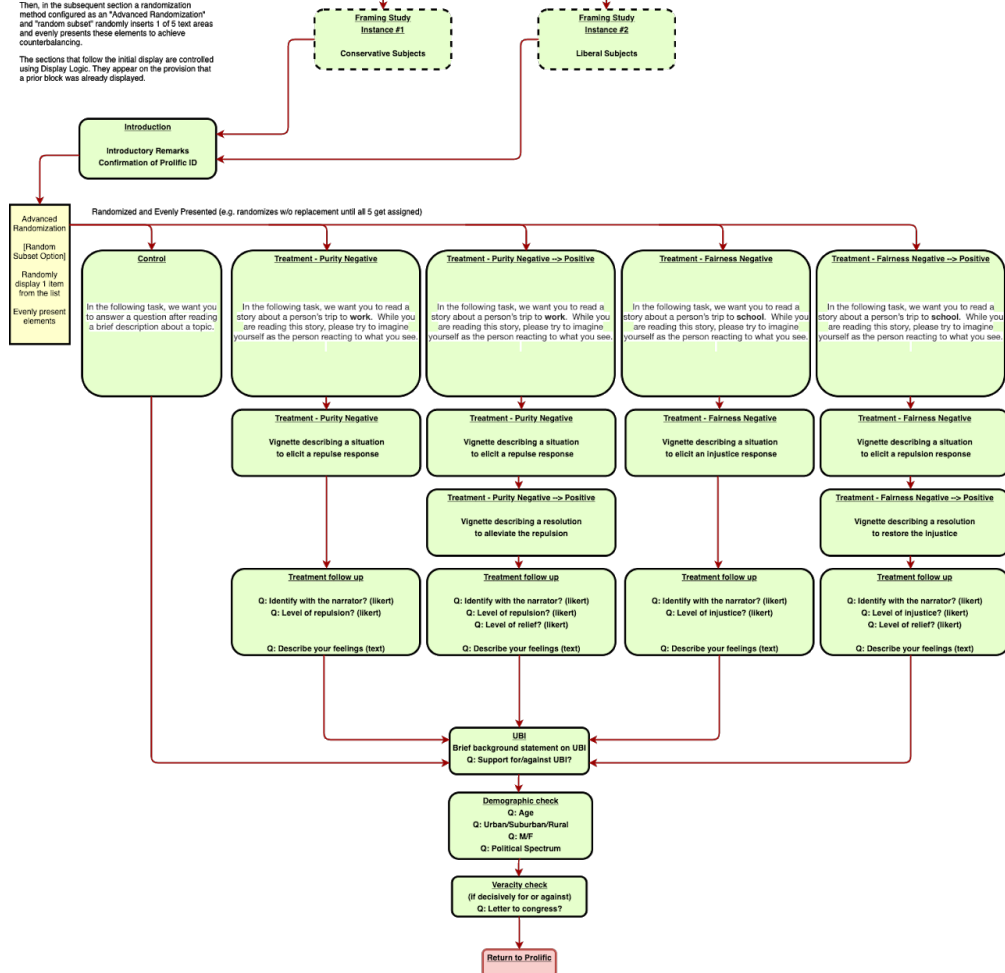


Figure 4: Study Flowchart

6.5 Additional Exploratory Data Analysis

Additional steps taken not included in the body of the report

[[TBD]]

6.6 Legacy Code

```
## Warning in svydesign.default(id = ~1, strata = ~recruitment_wave, data =
## results_armconpure): No weights or probabilities supplied, assuming equal
## probability
```

Table 6: Model 2 - Example Specification Stratified by Recruitment Day

	<i>Dependent variable:</i>
	ubi_number Con + Pure
Base	0.354 (0.516) p = 0.495
Extension	1.072** (0.531) p = 0.045
Constant	3.270*** (0.369) p = 0.000
Observations	245
Log Likelihood	-643.124
Akaike Inf. Crit.	1,292.249
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01 HC Robust Standard Errors