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A note on motivated cognition and discriminatory beliefs

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**A Note on Motivated Cognition and
Discriminatory Beliefs**

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Florian Zimmermann

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A Note on Motivated Cognition and Discriminatory Beliefs

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October 7, 2022

Abstract

In this note, we provide evidence that motivated reasoning can be a source of discriminatory beliefs. We employ a representative survey experiment where we exogenously manipulate the presence of a need for justification of anti-social behavior towards an out-group. We provide causal evidence that survey participants devalue members of an out-group to justify taking away money from the group. Our results speak to a long-standing debate on the causes of racism and discrimination and suggest an important role of motivated cognition.

Keywords: discrimination, stereotypes, racism, motivated reasoning, beliefs

1 Introduction

*“The source of racist ideas was not ignorance and hate, but
self-interest.”*

– Dr. Ibram X. Kendi, How to Be an Antiracist

What is the source of racist and discriminatory beliefs? A prominent explanation is that economic, political or cultural self-interest plays a central role in the formation of such beliefs. According to this idea, people’s beliefs about a minority group are shaped by the need to

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justify selfish behavior at the expense of that minority. Intuitively, actions that harm an out-group are easier to live with when one can discredit the group. Take the example of slavery. Slave owners made enormous profits by treating other human beings as their property, so they promoted notions of racial inferiority to protect their economic interests (see Kendi (2019)). Antisemitism is another example: Although it already had a centuries-old history in Germany, the spread of anti-Semitic ideas rose sharply toward the end of the 19th century. It has been argued that one reason for this rise was the threat that democratic ideas and movements posed to the traditional monarchy. Since most Jewish politicians agreed with the call for a new and democratic order, this fueled the production and circulation of anti-Semitic beliefs that were meant to discredit the demands of the democratic movement (see, e.g. Glaeser (2005); Weiss (1997)). In this note, we document results from a survey study that provides causal evidence on the role of self-interest for the formation of pejorative beliefs about out-groups.

We conducted a tailored survey experiment with a representative sample of the adult German population. In total, 1,200 individuals participated in our experiment. All participants were randomly allocated to one of two experimental conditions. The key idea of the experimental design was to exogenously manipulate whether survey respondents had the opportunity to benefit financially at the expense of an out-group, refugees, and then measure beliefs about this out-group. Both treatments had an identical structure. In treatment *Main*, participants were able to take away money from a 50 EUR donation to a large and widely known pro-immigration organization. For every 1 EUR taken away from the donation, 50 cents were given to the participant. Afterwards, we elicited participants' beliefs about refugees' views on women's rights in an incentive-compatible way. We hypothesized that participants, when taking money away from the donation, need to justify their behavior and hence *want to believe* that refugees have backwards views about the role of women in society. In the control treatment, we remove the motive to justify selfish behavior. Participants were asked to allocate 50 EUR between two pro-immigration organizations, making it impossible to take away money for themselves. Comparing participants' beliefs about refugees between the two treatments provides causal evidence about whether individuals devalue out-groups to justify selfish behavior at the out-groups expense.

Our results suggest that self-interest indeed motivates participants to state beliefs that discredit refugees. The average belief about refugees is substantially and significantly more

negative in treatment *Main* compared to the control condition. Delving deeper, we find that the effect is largely driven by lower-income participants. While we observe a sizeable and significant treatment effect for participants with a below-median net household income, beliefs of high-income households are largely unaffected by the treatment. Together our results paint a coherent picture: participants' self-interest leads them to take money away from a donation to a pro-immigrant organization. To justify this selfish act, they devalue and discredit immigrants. In other words, self-interest can indeed be a source of discriminatory and pejorative ideas.

Our research relates to the literature on the utilization of stories and stereotypes in light of immoral or socially unacceptable behavior. Bénabou et al. (2018) show theoretically how the production and spread of exculpatory narratives promotes immoral behavior. In their model, narratives consist of downplaying externalities, magnifying costs associated with the moral behavior or the diffusion of being pivotal. In our paper, participants devalue the recipients of a prosocial act to rationalize selfish behavior. In two experiments, Bursztyn et al. (2022) illustrate how rationales can serve as an "excuse" for immoral behavior. They show how rationalizing stories can lower the social cost of anti-minority expressions and therefore promote anti-minority behavior. While Bursztyn et al. (2022) study the effect of exogenously provided rationales on behavior, we study the cognitive production of such rationales. Our research also relates to recent work on stereotypes. Bordalo et al. (2016) formalize how stereotypes arise naturally from the representativeness heuristic. According to this account, stereotypes exaggerate true existing differences between groups. Glaeser (2005) develops a model in which politicians create hateful stereotypical stories about out-groups, for example, poor minorities, to promote their self-interest. Combining the literature on stereotypes and motivated cognition, Kundra and Sinclair (1999) present evidence on how motivated reasoning and stereotypes are intertwined using predominantly observational studies that show how motives lead to both activation and application of stereotypes. Our findings are, to the best of our knowledge, the first to present causal evidence that individuals self-servingly activate stereotypical beliefs to justify their selfish behavior.

Our findings also relate to the literature on motivated cognition, most closely to research that studies how individuals rationalize selfish actions.¹ Individuals have been shown to distort beliefs about how other people behave towards them (see, e.g. Di Tella et al. (2015); Falk et al.

¹For an overview of this literature see Gino et al. (2016).

(2020)), about a product’s quality (see, e.g. Gneezy et al. (2020); Chen and Gesche (2017)), as well as to self-servingly adjust their risk preferences (see, e.g. Exley (2016)), preferences over fairness (see, e.g. Konow (2000); Dana et al. (2007)), ambiguity preferences (see, e.g. Haisley and Weber (2010)) to justify the selfish actions and uphold a positive self-image. Saccardo and Serra-Garcia (2022) show that people actively select into environments that allow them to self-servingly bias their beliefs.² In contrast to existing studies, our paper tests if individuals devalue members of an out-group to justify selfish behavior towards that out-group.

The remainder of the paper is structured as follows. We first discuss some relevant background information and introduce the experimental design and procedure. Section 3 presents our empirical strategy and results. Section 4 concludes.

2 Experimental Design

2.1 Background

Before turning to our design, we first want to briefly discuss the social and political environment in which this study was conducted. In 2015 and 2016, over 2.5 million individuals applied for asylum in the EU. Germany alone received approximately 745,000 asylum applications in 2016. The unprecedented number of individuals seeking refuge gave rise to anti-immigration sentiments in Germany and all over Europe. The most blatant example of these anti-immigration or anti-refugee sentiments is the surge of violent crimes committed against refugees³ and the rise of right-wing parties in elections throughout Europe (see, e.g. Halla et al. (2017); Dustmann et al. (2019); Barone et al. (2016)). In the 2017 German federal election, the right-wing populist party *Alternative für Deutschland (AfD)* ran on an anti-immigration platform and became the third strongest party with 12.6 % of the vote. The emergence of anti-immigration parties and sentiments was accompanied by stereotypical thinking about refugees. Alesina et al. (2018, 2021) show that a large share of European citizens has profoundly wrong beliefs about asylum seekers. Respondents to their large-scale, Europe-wide survey dramatically overestimated the number of individuals seeking asylum and the economic, cultural, and religious distance

²The desire for a positive image is a cornerstone of many signaling models and helps to explain a variety of phenomena and behavior like norm-based behavior, prosociality or will-power (see, e.g. Bénabou and Tirole (2006, 2011); Bénabou et al. (2018)).

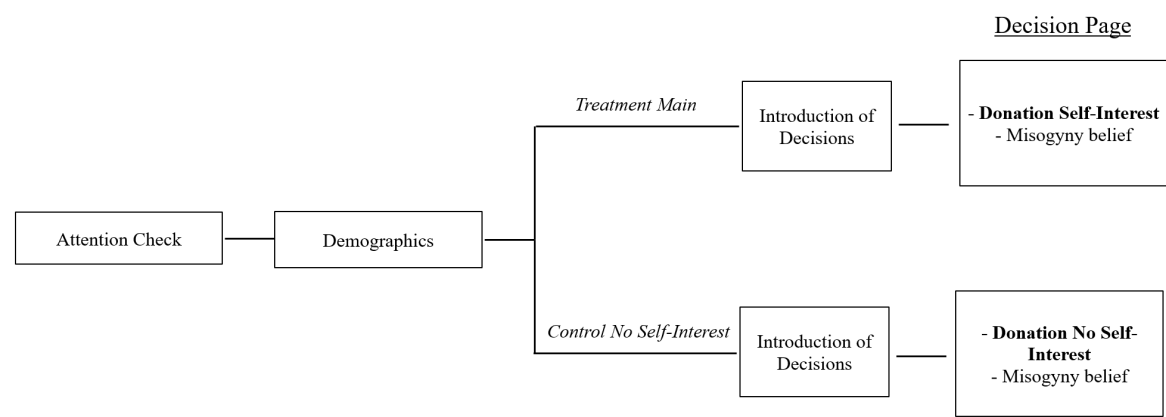
³The “Amadeu Antonio Stiftung”, a German non-profit organization, recorded over 3,000 incidents between 2015 and early 2017. Over 700 of these incidents were cases of arson or outright assault.

between them and the refugees. Against this background, we study motivated reasoning as a potential determinant of stereotypical beliefs, focusing on refugees’ views about women’s rights. We focus on this belief, as the anti-immigration sentiments were closely interwoven with Anti-Muslim prejudice, particularly the fear that Islam is incompatible with Western values like equal rights for women, and the portrayal of migrant men as sexual predators.

2.2 Survey Experiment

The key idea underlying our experimental design is to create a condition in which individuals might be motivated to distort their beliefs about a certain out-group and a control condition in which the motives to distort beliefs are exogenously shut down. Figure 1 illustrates both treatment conditions as well as experimental procedures.

Figure 1: Experimental Design



Note: The figure illustartes our experimental design. After passing an attention check and answering a short questionnaire, participants were randomly assigned to one of two treatment conditions. All experimental conditions have an identical structure where the only difference was the donation decision.

After successfully passing the attention and demographics screens, each participant was randomly allocated to one of two experimental conditions: *Main* or *Control No Self-interest*. Both conditions followed the same structure: participants received general information about

the study, the payment structure, and the two decisions they had to make on the decision page.⁴ The decision screen itself consisted of two decisions which we now discuss in detail.

Donation Decision: The difference between the treatment and control condition lies in the extent to which participants were able to enrich themselves at the expense of refugees.

In treatment *Main*, participants had the opportunity to take money away from a donation to a pro-immigration advocacy group PRO ASYL. Specifically, participants were told that we donate 50 EUR to PRO ASYL and that they have the opportunity to take money away from the donation and keep it for themselves. For every 1 EUR they take away, participants could receive 50 cents. Before their decision, participants received information about PRO ASYL and their general cause.⁵ In other words, participants in treatment *Main* can enrich themselves at the expense of refugees, hence creating a motive to devalue refugees.

In treatment *Control No Self-interest* instead, participants were asked to shift money between two pro-immigration advocacies. Thus, participants were unable to take away money for themselves. By ruling out the possibility to enrich themselves, we remove the motive to devalue refugees. Subjects were informed that we would donate 50 EUR to PRO ASYL but that they have the chance to shift some from the donation to a different pro-immigration organization called BumF (Bundesfachverband unbegleitete minderjährige Flüchtlinge). Additionally, participants received information about the two organizations.⁶ For every 1 EUR participants took away from the donation to PRO ASYL, 1 EUR was given to BumF.

Main Outcome: *belief about refugees* We elicit participants' beliefs about refugees' attitude towards equal rights for women. In both conditions, the exact wording of the question was:

⁴The payment was structured as follows. In addition to the fixed payment, one out of 10 participants was randomly chosen for additional payments. If a participant was chosen, one of her two decisions was implemented. At the end of the survey, we informed participants if and how much they or others earned.

⁵We showed participants the following quote from the PRO ASYL website: "PRO ASYL advocates for the rights of refugees in Germany and Europe. We help them to apply for asylum. We investigate human rights violations. And we campaign for an open society in which refugees receive protection." see Pro Asyl (2022).

⁶As in *Main Treatment* we showed participants the quote from the PRO ASYL website. For BumF we showed participants the following quote "Since 1998 the Association for Unaccompanied Refugee Minors (Bundesfachverband unbegleitete minderjährige Flüchtlinge: BumF) advocates for the rights of displaced children, adolescents and young adults in Germany. [...] It is our aim, that young refugees grow up without fear, marginalization, or discrimination and enjoy the same rights as any other young person." see Bundesfachverband unbegleitete minderjährige Flüchtlinge (2022)

"Out of 100 refugees, how many stated that women should in no case have the same rights as men in a democracy?"

We can quantify and incentivize this belief using the answers to the IAB-BAMF-SOEP Survey of Refugees in Germany, which was representative of refugees arriving in Germany between 2013 and 2016 (see, (Kühne et al., 2019)). Refugees were asked to state, on a scale from 0 (in no case) to 10 (absolutely), how much they think equal rights for women are part of a democratic system. 1.6 % of the refugees in the IAB-BAMF-SOEP Survey stated that in *no case* women should have equal rights. Before stating a belief, participants received background information about the origin of the data, the question they had to answer and the incentivization. Participants could earn up to \$4 and incentive compatibility was ensured via a quadratic scoring rule.⁷

2.3 Procedures and Logistics

We implemented our survey experiment using a sample of 1,200 adults from Germany. We collected the data in collaboration with the survey company Pureprofile. The experiment was computerized using the Qualtrics online survey tool. The sample is broadly representative of the adult German population with respect to age, gender, region of residence, income, and education.⁸ On average, the participants spent approximately 10 minutes answering the survey. We collected the data between November 2020 and January 2021.

We pre-registered our survey experiment in the AEA RCT registry. The pre-registration includes the design of all treatments reported in this paper, as well as predictions and sample sizes.

We employ several methods to ensure the highest possible quality of answers. All participants had to pass an attention check wherein they were asked to give prespecified answers to a trivial question. If a subject failed to pass the attention check, they were redirected to the company website and did not participate in the experiment. Furthermore, belief elicitation and the donation decision were presented on the same page. To encourage participants to

⁷The exact formula was

$$payment = 4 - 4\left(\frac{guess}{100} - \text{true value}\right)^2$$

where the true value is 0.016 - meaning 1.6 % of the people in the IAB-BAMF-SOEP Survey of Refugees in Germany said that women should in no case have equal rights.

⁸Both age and income were divided into intervals. Region of residence in our context means whether participants come from East or West Germany. Education captures the percentage of individuals that hold a degree from an institution of higher education.

answer the questions carefully, participants had to spend at least 60 seconds on the decision page. We also keep track of the time spent by the respondents on the survey as a whole, which permits flagging respondents who rushed through the survey. In our benchmark sample, we drop respondents in the bottom 5 % of the survey time distribution. While we did not pre-register this, we believe it is warranted by our data. The fastest 5 % answered the survey in less than 2 minutes and 40 seconds. Keeping in mind that they had to spend 60 seconds alone on the decision page, it seems obvious that these subjects did not pay sufficient attention throughout our experiment. In Table 4, we verify that our main result is largely unaffected when we include these outliers or when we employ different thresholds.

3 Results

Empirical Strategy We estimate the average treatment effect using the following regression:

$$Y_i = \alpha + \beta * treat_i + \gamma * X_i + \epsilon_i \quad (1)$$

where Y_i is the outcome of interest: participant’s *belief about refugees*. The dummy variable $treat_i$ indicates which experimental condition a participant was randomly allocated to. X_i are individual level controls, namely dummies for age intervals, gender, income groups, education levels, migration background, religiousness, and political self-identification. We cluster robust standard errors at the level of the participant. As pre-registered, we run this specification with and without controls.

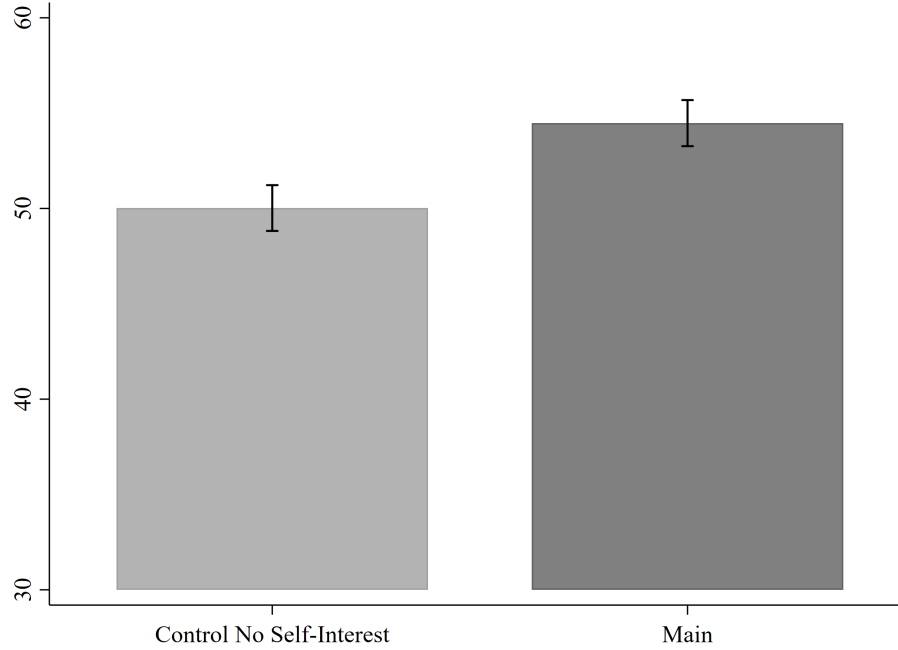
Preliminaries Table 5 compares the characteristics of our sample with the German population. By construction, our sample is representative of the German Population along the dimensions age, gender, region of residence, income, and graduate population. Table 5 further reveals that our sample is slightly more centered politically and contains fewer people with an migration background than the German population. Overall, our sample resembles the German population on a broad set of characteristics. Table 5 further shows that our randomization was successful.

A prerequisite for our hypothesis is that participants in treatment *Main* actually act in a

self-interested manner and take money away from the donation. Indeed, 70.47 % of participants take some money away from our 50 Euro donation to PRO ASYL. The average donation is 29.01 Euro, corresponding to 10.5 Euro for the participants. Around 16 % of participants in the treatment group take away all the money from the donation. Figure 3 plots the distribution of donations. As one would expect, the donation amount is also significantly negatively correlated with participants' *beliefs about refugees* ($-.0521737$ (p-value: 0.06)).

Average Treatment Effects Figure 2 displays the average *belief about refugees* in the two treatment conditions. In line with our hypothesis, participants in treatment *Main* significantly distort their beliefs about refugees, compared to *Control No Self-Interest*. In our specification without control variables, the average treatment effect is 4.453 percentage points ($p < 0.01$). This corresponds to an 8.9 % increase in pejorative beliefs about refugees. Table 1 summarizes the estimates for the specification without and with control variables, illustrating the robustness of our results.

Figure 2: Average Treatment Effect: *belief about refugees*



Notes: The figure plots the mean *belief about refugees* for both experimental condition, treatment *Main* and *Control No Self-Interest*. *belief about refugees* is the participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. The error bars indicate ± 1 standard error.

Result 1 *Self-interest leads people to devalue refugees. The average belief about refugees' attitude towards equal rights for women (belief about refugees) is significantly larger in Main than in Control No Self-Interest.*

Discussion Next, we study possible treatment heterogeneities. We first report results from a pre-registered quantile regression. Up to the 20th percentile of *beliefs about refugees*, the coefficient of our treatment dummy equals zero. Indicating that self-interest does not motivate those with already relatively low stereotypical beliefs. For larger percentiles, we find large and significant treatment effects. For instance, the median in *Main Treatment* is 10 points larger than in the control condition. Table 6 reports our findings.

Table 3 reports heterogeneities based on migration background. The migration background does not significantly affect the stated beliefs. The absence of an interaction effect in our pre-registered analysis might be due to the low number of people with migration backgrounds who

do not identify as Christians (N=68).

We find substantial heterogeneity between low and high-income participants in our treatment effects. While participants in the lower half of the household income distribution significantly distort their beliefs by 7.43 ($p < 0.01$) points, we do not observe significant effects for participants with a net household income above the median. Table 2 reports the heterogeneous treatment effects. While we did not pre-register this analysis, these results seem intuitive in that lower-income households are probably more tempted by the opportunity to take money away from the out-group and hence have a higher demand for a possible justification of this behavior. Supporting this argument, the average donation by participants from lower-income households is 2.32 ($p = 0.147$) dollars lower.

A possible concern regarding our identification might be that in *Control No Self-Interest* participants were introduced to two pro-immigration organizations (PRO ASYL and BumF) while our treatment group only received information about PRO ASYL. The additional information might in principle emphasize the group's need for help more strongly, thereby influencing *beliefs about refugees*. To rule out this concern, we ran an additional online experiment in the Bonn EconLab. The key difference to the main experiment was that instead of the donation decision, participants answered a factual question about the introduced organizations. In one condition, we introduced only PRO ASYL. In another, we introduced both PRO ASYL and BumF. The information we provided about these organizations was identical to our main experiment. After answering the factual questions about the organizations, we elicited participants' *belief about refugees* in the same way as in our main experiment. The additional introduction to another pro-immigration organization did not significantly affect the beliefs. Table 7 summarizes results.

Finally, notice that we pre-registered an additional control condition. The idea underlying this condition was to have subjects decide to take away money from an *unrelated* charitable organization and then state beliefs about refugees' attitudes towards equal rights for women. Specifically, participants decided whether they wanted to take money away from a donation to a German environmental organization called BUND (Bund für Umwelt und Naturschutz Deutschland) in order to enrich themselves. A key assumption for the validity of this treatment is that support for BUND and beliefs about refugees are fully independent. To our surprise, however, we found a strong relationship between the stated belief (*belief about refugees*) and

the donation decision. The beliefs are strongly and significantly correlated with the donation decision (-0.062 , $p\text{-value} = 0.015$). This indicates that environmental issues and attitudes towards immigrants are closer linked than we originally thought. Delving deeper, we found that this relation is also reflected in the platforms of German political parties as well as the attitudes of the German population. Using Data from the Manifesto Project, we can show that pro-immigration platforms go hand-in-hand with stronger climate action (see Figure 4).⁹ The link between right-wing populism and climate skepticism in party platforms has also been discussed by others (see, e.g. Lockwood (2018); Jeffries (2017); Cantoni et al. (2017)). Furthermore, representative panels of the German population such as the German General Social Survey (Allbus) reveal a strong connection between these two topics. Using data from Allbus, we observe a significant correlation between pro-immigrant attitudes and pro-environmental attitudes (see Table 9).¹⁰ The tight association between environmental attitudes and attitudes towards immigration renders this control condition invalid for our purposes. In Appendix C, we summarize results from this condition for completeness.

4 Conclusion

In this note, we present evidence from a survey experiment that suggests that motivated cognition can be an important determinant of racist and discriminatory beliefs. A relatively small-stakes opportunity to enrich oneself at the expense of an out-group leads people to devalue that out-group.

Our results suggest several avenues for future research. First, one could ask about the consequences of distorted beliefs. In Bénabou et al. (2018), people who observe the immoral actions of a previous person can pass on the narrative, instigating social contagion. One could adopt the proposed design to study if beliefs about the out-group, produced after an initial selfish act, are passed on and enable others to act selfishly as well. Second, in this short note we focus on the effect of the presence of an opportunity to act selfishly on discriminatory beliefs. To do so, belief elicitation and the donation decision are introduced and presented simultane-

⁹The Manifesto project derives parties' platforms from a content analysis of their electoral manifestos (see Volkens et al. (2021)).

¹⁰In line with this finding, recent studies document a left-right ideological divide on climate change views and support for action to mitigate it in the USA and the European Union (see, e.g. McCright et al. (2016); McCright and Dunlap (2011)).

ously in our design. Additional work could try to tease apart underlying mechanisms (ex-post rationalization vs. anticipation) by systematically manipulating the order of the questions. Third, one could explore what type of beliefs are feasible to rationalize selfish and harmful behavior and what are the limits of stereotypical self-deception.

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A Tables

Table 1: Average Treatment Effects

Dependent variable: <i>belief about refugees</i>		
	(1)	(2)
Treat	4.453*** (1.703)	3.808** (1.688)
Constant	50.02*** (1.200)	48.33*** (5.667)
Controls	No	Yes
R ²	0.00598	0.0674
N	1139	1139

Regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *treat* is a dummy variable indicating whether participants were randomly allocated to treatment *Main* or *Control No Self-Interest*. The dummy variable takes the value of 1 if the participant was in treatment *Main* and 0 if the participant was randomly assigned to a control condition. Controls include dummies for age intervals, gender, income, region of residence, migration background, political self-classification, religion, urban area, and educational attainment.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2: Hetergenous Treatment Effects - Income

	Dependent variable: <i>belief about refugees</i>						
				Below Median Income		Above Median Income	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Treat	4.453*** (1.703)	1.383 (2.501)	0.846 (2.463)	7.433*** (2.298)	6.885*** (2.312)	1.383 (2.502)	0.844 (2.510)
Below Median		2.710 (2.408)	1.310 (2.442)				
Treat \times Below Median		6.050* (3.397)	5.709* (3.358)				
Constant	50.02*** (1.200)	48.58*** (1.769)	45.90*** (5.604)	51.29*** (1.633)	50.85*** (7.218)	48.58*** (1.770)	39.37*** (8.199)
Controls	No	No	Yes	No	Yes	No	Yes
R ²	0.00598	0.0186	0.0697	0.0173	0.0622	0.000565	0.0740
N	1139	1139	1139	596	596	543	543

Regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *treat* is a dummy variable indicating whether participants were randomly allocated to treatment *Main* or *Control No Self-Interest*. The dummy variable takes the value of 1 if the participant was in treatment *Main* and 0 if the participant was randomly assigned to a control condition. Below Median is a dummy indicating whether the monthly household income was below the median household income in Germany. Controls include dummies for age intervals, gender, region of residence, migration background, political self-classification, religion, urban area, and educational attainment.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Online Appendix

B Additional Figures and Tables

Table 3: Heterogenous Treatment Effects - Migration background

	Dependent variable: <i>belief about refugees</i>		
	(1)	(2)	(3)
Treat	4.712*** (1.733)	4.449** (1.831)	3.745** (1.815)
Migration background		-1.117 (4.238)	1.400 (4.237)
Treat \times Migration background		2.512 (5.738)	3.251 (5.514)
Constant	49.90*** (1.225)	50.01*** (1.286)	48.16*** (5.756)
Controls	No	No	Yes
R ²	0.00671	0.00689	0.0697
N	1096	1096	1096

Regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *treat* is a dummy variable indicating whether participants were randomly allocated to treatment *Main* or *Control No Self-Interest*. The dummy variable takes the value of 1 if the participant was in treatment *Main* and 0 if the participant was randomly assigned to a control condition. Migration Background is a dummy indicating equal to 1 if a participant has a migration background, i.e. if either he or one of his parents were not born in Germany. Controls include dummies for age intervals, gender, region of residence, income, political self-classification, religion, urban area, and educational attainment. We exclude participants that did not respond to our migration background question (N=58).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Average Treatment Effects - Different Cutoffs

Dependent variable: <i>belief about refugees</i>								
	Exclude fastest 5 % (Benchmark Sample)		All participants		Exlude fastest 10 %		Exclude fastest and slowest 5 %	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat	4.453*** (1.703)	3.808** (1.688)	3.353** (1.664)	2.920* (1.644)	5.151*** (1.737)	4.520*** (1.728)	3.862** (1.751)	3.049* (1.739)
Constant	50.02*** (1.200)	48.33*** (5.667)	50.30*** (1.169)	47.30*** (5.349)	49.80*** (1.229)	48.58*** (5.751)	50.42*** (1.225)	50.01*** (5.858)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
R ²	0.00598	0.0674	0.00338	0.0670	0.00811	0.0693	0.00450	0.0664
N	1139	1139	1200	1200	1077	1077	1079	1079

Regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *treat* is a dummy variable indicating whether participants were randomly allocated to treatment *Main* or *Control No Self-Interest*. The dummy variable takes the value of 1 if the participant was in treatment *Main* and 0 if the participant was randomly assigned to a control condition. Controls include dummies for age intervals, gender, income, region of residence, migration background, political self-classification, religion, urban area, and educational attainment.

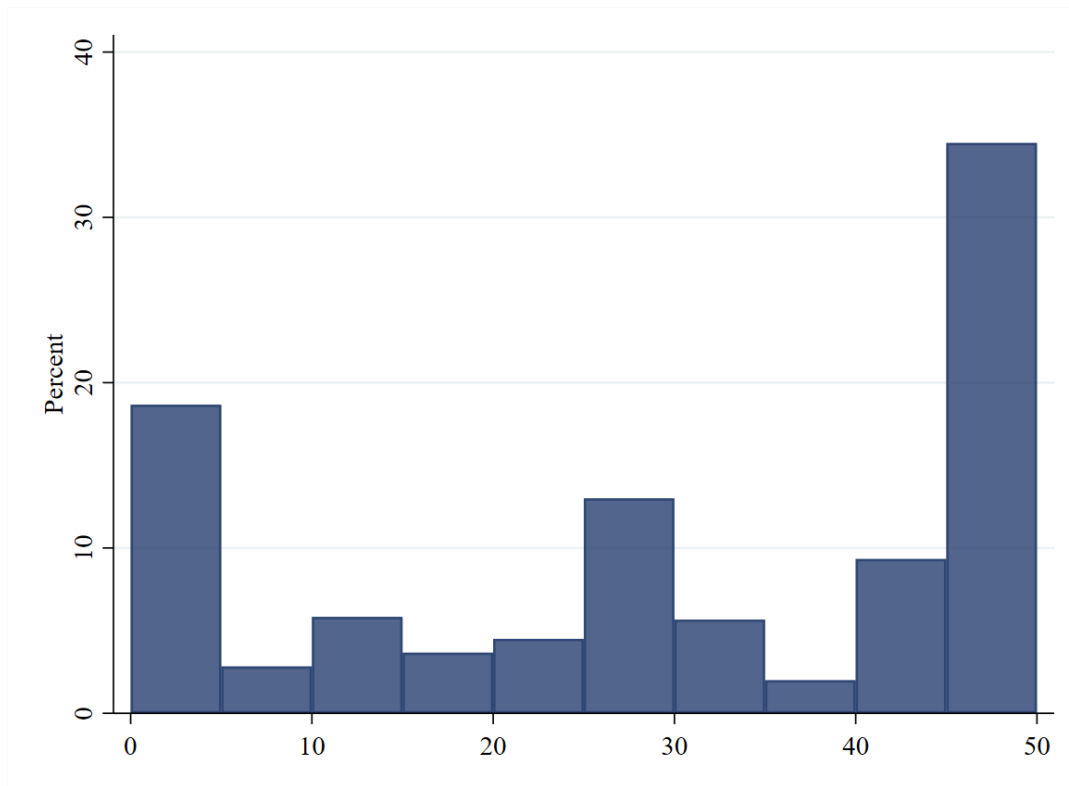
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Summary Statistics and Balance Check

	German Population (%)	Sample (%)			Balance Checks
		All	Main	Control	No Self-Interest
Age					
18 - 34	24	24.33	23.83		24.83
35 - 54	32	32.92	32.5		33.34
55 or older	43	42.75	43.67		41.83
Gender					
Female	50.66	51.58	52		51.17
Region of Residence					
East-Germany	19.43	21	20.5		21.5
Income (monthly; EUR)					
0-1300	19	18.5	17.83		19.17
1300-2600	33	33.92	33.5		34.33
2600 or more	48	47.58	48.67		46.5
Graduate Population					
University degree	17.6	17.92	17.17		18.67
Political spectrum left-right					
Far-left	3	5.17	5.33		5
Left	18	10.17	9.5		10.83
Centre-left	30	19.83	17		22.67
Centre	28	45.08	48		42.17
Centre-right	16	11.5	12.33		10.67
Right	3	3.08	2.67		3.5
Far right	1	2.42	2.33		2.5
Migration background					
Yes	23	9.92	10.17		9.67
Christian Denomination					
Yes	64.2	51.08	49.67		52.5
Urban - city over 100,000					
Yes	30	32.67	32.17		33.17
Observations		1,200	600		600

The table presents characteristics of the German adult population, our sample, treatment *Main* and *Control No Self-Interest* subsamples. Measures for the German population are taken from the German Microcensus (age, gender, marital status), German Allbus 2018 (education, migration background, income), the 2018 Eurobarometer (religious confession) the CSES 2017 (left-right), and an election poll by Forsa. The table also reports the coefficients and standard errors of the balance checks.

Figure 3: *Main*: Distribution of Donations



Notes: The figure plots the distribution of donations to the pro-immigrant organization PRO ASYL. For every 1 EUR taken away from the donation, 50 cents were given to the participant. The y-axis of the graph denotes the frequency in %.

Table 6: Quantile Regression

Dependent variable: <i>belief about refugees</i>										
	0.2		0.25		0.5		0.75		0.8	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Treat	0 (2.165)	2.750 (2.062)	5 (3.149)	4.063** (2.019)	10*** (2.871)	4.725** (2.209)	5*** (1.574)	4.875*** (1.492)	0 (1.082)	3.833*** (1.382)
Constant	20*** (1.530)	15.00*** (5.220)	25*** (1.407)	19.31*** (6.517)	50*** (2.139)	39.75*** (8.134)	75*** (1.407)	68.12*** (8.979)	80*** (0.765)	77.58*** (5.862)
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
N	1139	1139	1139	1139	1139	1139	1139	1139	1139	1139

Quantile regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *treat* is a dummy variable indicating whether participants were randomly allocated to treatment *Main* or *Control No Self-Interest*. The dummy variable takes the value of 1 if the participant was in treatment *Main* and 0 if the participant was randomly assigned to a control condition. Controls include dummies for age intervals, gender, income, region of residence, migration background, political self-classification, religion, urban area, and educational attainment.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Alternative Mechanism: Differences in the received information

	Dependent variable: <i>belief about refugees</i>	
	(1)	(2)
Treat_info	3.144 (4.462)	4.633 (4.514)
Constant	32.92*** (2.959)	28.41 (26.32)
Controls	No	Yes
R ²	0.00401	0.0707
N	125	125

Regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *Treat_info* is a dummy variable indicating what pieces of information participants received prior the *belief about refugees* question. The dummy variable takes the value of 1 if the participant only received information about one pro-immigrant organisation and 0 if the participant received information about both pro-immigrant organisation. Controls include dummies for age intervals, gender, income, region of residence, migration background, political self-classification, religion, urban area, educational attainment. Note: This is a different experiment, participants did not answer the donation decision.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

C *Control No Link*

The pre-registration describes a second control condition *Control No Link*. In *Control No Link*, participants were able to take away money from a donation to an environmental organization. Again, for every 1 EUR taken, the participant only received 50 cents. Thus, instead of cutting participants' self-interest completely off, we varied the link between the two decisions. Following the same empirical strategy as in the paper, Table 8 summarizes the results using *Control No Link*. The coefficients of our treatment dummies are negative but insignificant. For our research question, these results are largely uninformative, as it turned out that environmental issues and attitudes towards immigrants are more closely linked than we originally thought. See 3 for a detailed analysis. Figure 4, and Table 9 illustrate the strong relationship between the two topics.

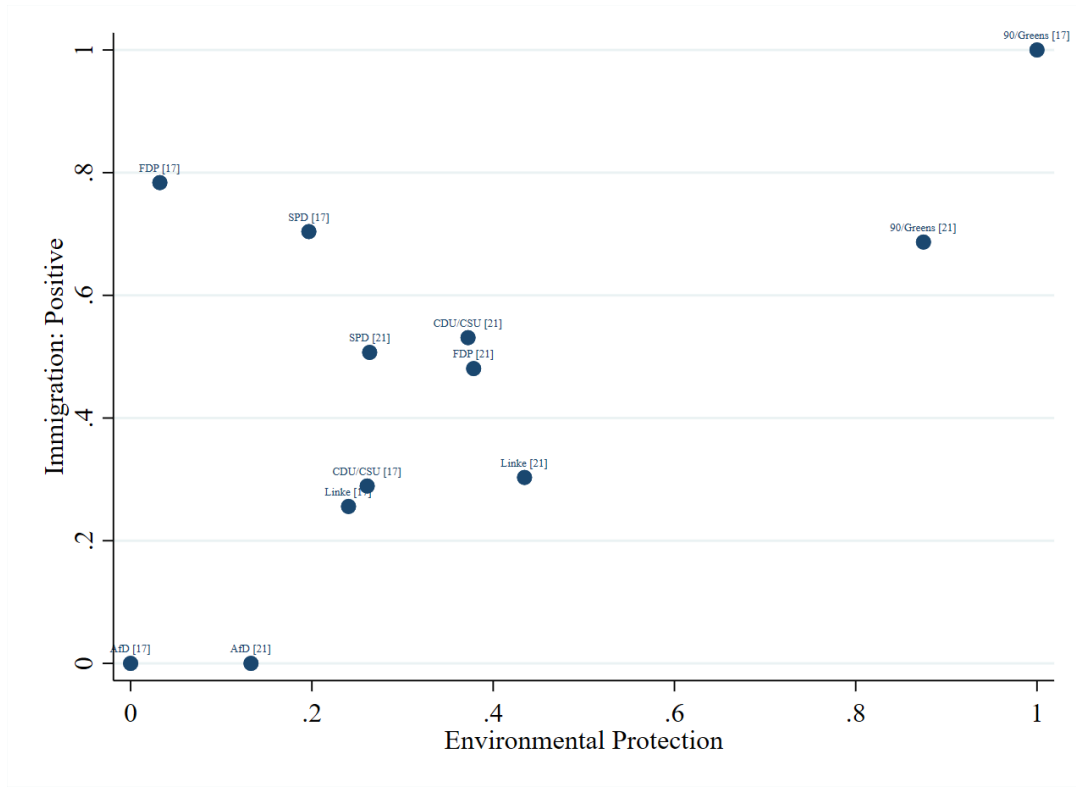
Table 8: Average Treatment Effects - Alternative Control Condition

	Dependent variable: <i>belief about refugees</i>	
	(1)	(2)
Treat_no_link	-0.557 (1.710)	-1.088 (1.681)
Constant	54.80*** (1.216)	54.41*** (5.457)
Controls	No	Yes
R ²	0.0000931	0.0660
N	1140	1140

Regression estimates, robust standard errors in parentheses. The dependent variable is the *belief about refugees*, participants' incentivized guess of what percentage of refugees that arrived in Germany between 2013 and 2016 stated that women should in no case have equal rights in a democracy. *Treat_no_link* is a dummy variable indicating whether participants were randomly allocated to treatment *Main* or *Control No Link*. The dummy variable takes the value of 1 if the participant was in treatment *Main* and 0 if the participant was randomly assigned to a control condition. Controls include dummies for age intervals, gender, income, region of residence, migration background, political self-classification, religion, urban area, educational attainment.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 4: Parties' Policy Positions: Environment and Immigration



Notes: The figure plots the positions of the parties represented in the Bundestag along two dimensions. The data comes from the Manifesto project which derives parties' platforms from a content analysis of their electoral manifestos (see Volkens et al. (2021)). The first dimension, Environmental Protection, captures "general policies in favor of protecting the environment, fighting climate change, and other "green" policies." (Volkens et al., 2021). Immigration: Positive measures "statements favouring new immigrants; against restriction and quotas; rejection of the 'boat is full argument'" (Volkens et al., 2021). The platforms along these two dimensions are positively related. In the election circle 2021 the correlation coefficient was 0.73 (p-value: 0.1)

Table 9: Correlation pro-immigrant attitude and pro-environmental attitude

	Dependent variable: <i>pro_environment</i>	
	(1)	(2)
pro_immigration_1	0.0566*** (0.0152)	
pro_immigration_2		0.117*** (0.0163)
Constant	4.154*** (0.0348)	1.424*** (0.0441)
R ²	0.00380	0.0186
N	3364	3364

Regression estimates, robust standard errors in parentheses. The data is from the German General Social Survey (Allbus) 2018. The dependent variable is the *pro_environment*. Participants were asked to state how much they agree (5 point Likert-Scale from "Completely agree" to "Do not agree at all") to the following statement: "Stronger measures should be taken to protect the environment.". *pro_immigration_1* is our first measure for attitudes towards immigrants. Participants were asked to state how much they agree (5 point Likert-Scale from "Completely agree" to "Do not agree at all") to the following statement: "Immigrants should be required to adapt to German customs and traditions.". For our analysis, we reverse the scale. *pro_immigration_2* is our second measure for attitudes towards immigrants. Participants were asked to state how much they agree (5 point Likert-Scale from "Completely agree" to "Do not agree at all") to the following statement: "Immigrants are good for Germany's economy.".

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

D Instructions online survey experiment

Note: Translated into English.

Page: Welcome

All your answers will be anonymised. This means, there exists no possibility for us to lead back your answers to you.

Page: Attention Check

This question concerns the following problem: Often participants click through surveys like this one without reading the instructions carefully. As a consequence, many of the participants' answers are of no use to us. To show us that you are reading the questions carefully, please give the following answers to the question below: "**Very interested**" and "**I've never heard of it**".

How interested are you in Game of Thrones?

- a. Very interested
- b. A bit interested
- c. Not interested at all
- d. I've never heard of it

Page: Demographics

Please answer the following questions:

- Year of birth?
- What is your state of residence?
- Sex?
 - Male
 - Female

- As of yet, what is your highest educational attainment?
 - Without degree
 - Apprenticeship
 - Degree from professional academy or vocational academy
 - Degree form a university of applied science
 - University degree
 - PhD
- What is your monthly household net income?
 - Below 1300 EUR
 - 1300 to 2600 EUR
 - 2600 to 3600 EUR
 - 3600 to 5000 EUR
 - More than 5000 EUR
- Which of the following categories describes your area of residence best?
 - City (more than 100.000 people)
 - Suburbs
 - Smaller City (more than 5.000 people)
 - Village
 - Farm
 - No response
- Many people use the words 'left' and 'right' to describe political convictions. Below you will find a scale that goes from 'left' to 'right'. When you think about your own political attitudes, where would you place yourself on the scale below?
 - Left O O O O O O O Right
- Were you and both of your parents born in Germany?

- Yes
- No
- What is your denomination?
 - Christianity
 - Islam
 - Buddhist
 - Jewish
 - Hindu
 - Different denomination
 - Without denomination
 - No response

1. Experimental Condition: Main Treatment

Page: Information about Study I

You will receive the amount promised by PureProfile. Additionally, you will have to make two decisions that might have financial consequences for you and others during this study. After you make the decisions, a computer will randomly choose one out of ten participants. If a participant is chosen, one of his or her decisions will be implemented. At the end of the study, we will inform you whether you were chosen or not.

In a nutshell: You will make two decisions. **If the computer chooses you, one of your two decisions will be implemented and disbursed.** You will receive the money from Pureprofile.

For your information: We are a group of scientists who are interested in your decisions and attitudes. We are not allowed to lie to you. This means that whenever we say that a decision has financial consequences for your or another person it is true. We will implement all payments as described in the instructions. We, along with Pureprofile, guarantee this.

Page: Information about Study II

We ask you to make the following two decisions:

Decision a)

We will donate 50 EUR to PRO ASYL. You have to decide whether you want to take some money away from the donation and keep it for yourself. For every EUR you take away from the donation, you will receive 50 cents. On their website PRO ASYL describes themselves as follows:

"PRO ASYL advocates for the rights of refugees in Germany and in Europe. We help them to apply for asylum. We investigate human rights violations. And we campaign for an open society in which refugees receive protection."

Your first decision summarized: You have to decide whether you want to take money away from a 50 EUR donation to PRO ASYL. For every EUR you take away, you receive 50 cents. We guarantee that your decision will be implemented as described.

Page: Information about Study III

Decision b)

Furthermore we ask you to make an estimate. The famous research institute DIW Berlin conducted a survey with a representative sample of refugees who arrived in Germany between 2013 and 2016. **Your estimate concerns the refugees' image of women.** We want to know out of 100 refugees, how many said that women should in no case have the same rights as men in a democracy.

If your decision is correct, you will receive 4 EUR. The further your estimate is from the true value, the less money you will earn. You can click *here* to see the exact formula. Even if the formula looks complicated, the principle is relatively simple: The closer your estimate is to the true value, the more money you earn.

Page: Decision Page

Please make the previously described two decisions. Before you answer the questions, you will have time to read them. Only after **60 seconds** will you be able to make your decisions. For your decisions you may take as much time as you need.

- *"Out of 100 refugees, how many stated that women should in no case have the same rights as men in a democracy? (Please state a number between 0 and 100)"*

– XXX Refugees

Please decide now whether you want to take away money from the 50 EUR donation to PRO ASYL.

By moving the slider, you can decide how much money should go to PRO ASYL and how much money should go to you. For every EUR you take away, you receive 50 cents.

- Donation —————X— 50

– Donation to PRO ASYL: X

– You receive: $(50 - X)/2$

2. Experimental Condition: Control Self-interest

Page: Information about Study I

You will receive the amount promised by PureProfile. Additionally, you will have to make two decisions that might have financial consequences for you and others during this study. After you make the decisions, a computer will randomly choose one out of ten participants. If a participant is chosen, one of his or her decisions will be implemented. At the end of the study, we will inform you whether you were chosen or not.

In a nutshell: You will make two decisions. **If the computer chooses you, one of your two decisions will be implemented and disbursed.** You will receive the money from Pureprofile.

For your information: We are a group of scientists who are interested in your decisions and attitudes. We are not allowed to lie to you. This means that whenever we say that a decision has financial consequences for your or another person it is true. We will implement all payments as described in the instructions. We, along with Pureprofile, guarantee this.

Page: Information about Study II

We ask you to make the following two decisions:

Decision a)

We will donate 50 EUR to PRO ASYL. You have to decide whether you want to take some money away from the donation and donate it to BumF (Bundesfachverband unbegleitete minderjährige Flüchtling). For every EUR you are taking away from the donation to PRO ASYL, BumF will receive one EUR. On their website PRO ASYL describes themselves as follows:

"PRO ASYL advocates for the rights of refugees in Germany and in Europe. We help them to apply for asylum. We investigate human rights violations. And we campaign for an open society in which refugees receive protection."

On their website BumF describes themselves as follows:

"Since 1998 the Association for Unaccompanied Refugee Minors (Bundesfachverband unbegleitete minderjährige Flüchtlinge: BumF) advocates for the rights of displaced children, adolescents and young adults in Germany. [...] It is our aim, that young refugees grow up without fear, marginalization or discrimination and enjoy the same rights as any other young person."

Your first decision summarized: You have to decide whether you want to take money away from a 50 EUR donation to PRO ASYL. For every EUR you take away, BumF receives 1 EUR. We guarantee that your decision will be implemented as described.

Page: Information about Study III

Decision b)

Furthermore we ask you to make an estimate. The famous research institute DIW Berlin conducted a survey with a representative sample of refugees that arrived in Germany between 2013 and 2016. **Your estimate concerns the refugees' image of women.** We want to know from you, how many out of 100 refugees said that women in a democracy should in no case have the same rights as men.

When your decision is correct you receive 4 EUR. The further your estimate is away from the true value the less money you will earn. You can click *here* to see the exact formula. Even if the formula looks complicated, the principle is relatively simple: The closer your estimate is to the true value the more money you are going to earn.

Page: Decision Page

Please make the previously described two decisions. Before you answer the questions, you will have time to read them. Only after **60 seconds** will you be able to make your decisions. For your decisions you may take as much time as you need.

- *"Out of 100 refugees, how many stated that women should in no case have the same rights as men in a democracy? (Please state a number between 0 and 100)"*

– XXX Refugees

Please decide now whether you want to take away money from the 50 EUR donation to PRO ASYL.

By moving the slider, you can decide how much money should go to PRO ASYL and how much money should go to BumF. For every EUR you take away, BumF receives 1 EUR.

- Donation ————— X – 50

– Donation to PRO ASYL: X

– Donation to BumF: 50 - X