Online Appendix for "How to Run Surveys: A guide to creating your own identifying variation and revealing the invisible"

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A-1 Sample

A-1.1 Types of sampling methods

There are two main kinds of sampling methods: probability sampling and non-probability sampling.
Probability sampling means that elements from a population are randomly selected. Each of these elements has a non-zero, known probability of being selected. It includes four broad categories of sampling:

1. *Simple Random Sampling*: when every element in a population has an equal chance of being selected.
2. *Systematic Sampling*: when every n^{th} element is selected from a population.
3. *Stratified Sampling*: when researchers divide a population according to certain parameters (for example, whether a person has children or not in a study of inheritance taxation) and sample at random within each stratum.
4. *Cluster Sampling*: when researchers draw a sample with elements in groups ("clusters") such as zip codes instead of individually.

Non-probability sampling is not random, and the probability of each element being selected may be unknown. Types of non-probability sampling include:

1. *Convenience Sampling*: when researchers create their sample from a population that is easily accessible. A common convenience sample is undergraduate students at a university.
2. *Quota Sampling*: when researchers determine the percentage (quotas) for different respondent characteristics and sample until the quotas are filled. This procedure entails screening out (not allowing them to complete the survey) respondents whose quotas are already full. Quotas can be set in line with population distributions or to meet other goals, e.g., oversampling minorities.
3. *Purposive Sampling*: when researchers choose specific respondents based on their knowledge.
4. *Snowball Sampling*: when a respondent refers other potential study participants. This kind of method can be particularly helpful for sampling populations that are hard to reach (e.g., undocumented immigrants).

A-1.2 Recruiting respondents

Channels of recruitment and rewards. Survey companies tend to employ various recruitment channels. Each channel has its own rewards system and captures different kinds of respondents. The respondents are then "blended" from the different channels in order to create panels with a diverse set of characteristics.

i *Loyalty Panels:* Recruitment through loyalty programs in travel, entertainment, media, and retail. They reward participants in points or miles relevant to the program source. These panels tend to recruit more affluent, pre-validated individuals with known characteristics.

ii *Open*: Recruitment across the web and beyond via mobile app panels, social media influencers, billboards, online and in-app advertising, paid search, and more. This group generally mirrors the general population well and includes different income and education levels. It provides strong population coverage across most countries globally. Some of these sites can be characterized as the 'Rewards community' (within Get-Paid-To (or GPT) sites), which are databases or panels where people can take surveys, watch ads, etc. in exchange for a reward. Rewards take the form of points to redeem for cash, prizes, and gift cards. Some of the platforms tend to "gamify" the survey experience.

iii *Integrated*: People come from partnerships with publishers, social networks, and additional websites (schools and various communities' websites). Members logging into communities can be invited to participate in surveys. Rewards typically are in the form of points that can be redeemed for cash, prizes, and gift cards. This channel can help engage people who might not otherwise take surveys, appeal to younger audiences, and can add coverage of minorities. Other types of rewards across all channels can take the form of charitable donations, cash, and vouchers. Sometimes, survey companies can survey hard-to-reach groups with specialized recruitment campaigns.

Process for survey companies. Potential survey respondents enter the company's survey "router" (which matches them to specific surveys) in one of two ways: by receiving a general email inviting them to take part in an unspecified survey or by visiting their panel portal. Figure A-1, Panel (A) and Figure A-2 provide some screenshots of sample invitation emails from commercial survey companies. Once they are in their portal, the system verifies that they are eligible for the survey based on the information already available about the person (e.g., their age group) and seeks to match them to surveys for which they are eligible. Respondents are then offered one specific survey. If they choose to take this survey and pass further qualifying criteria, they can complete the survey. If they

do not pass these additional "screener" questions, the respondent is either offered another survey or the session is ended.

Figure A-1 demonstrates what a typical flow for a survey conducted through a survey company might look like. Panel (A) shows the invitation email, Panel (B) shows the respondent dashboard. Once the respondent has selected a survey to qualify for from the dashboard, they answer qualifying questions in the router (Panel (C)). If they qualify, the respondent is offered a survey to take (Panel (D)). Because of the company's router, the survey may be matched to existing characteristics. In this case, the respondent had indicated that they lived in the Boston area when they signed up to take surveys, so they are shown a survey that is specific to Boston (Panel (E)). If a respondent does not qualify to take a survey – either because they fail the initial screener questions (as in Panel (C)) or because they fail the survey's own screener questions– they are redirected to either take another survey or return to the dashboard.

There may be some biases that can stem from prioritization in the order in which surveys are presented to participants and how participants are matched to one of the various surveys for which they appear to qualify. However, it is unclear whether these biases would be systematic, given the large pool of respondents and the algorithmic approach. Importantly, the selection is minimized by the small amount of information that the respondent actually sees about the survey, which boils down to the time it takes and the reward for completion.

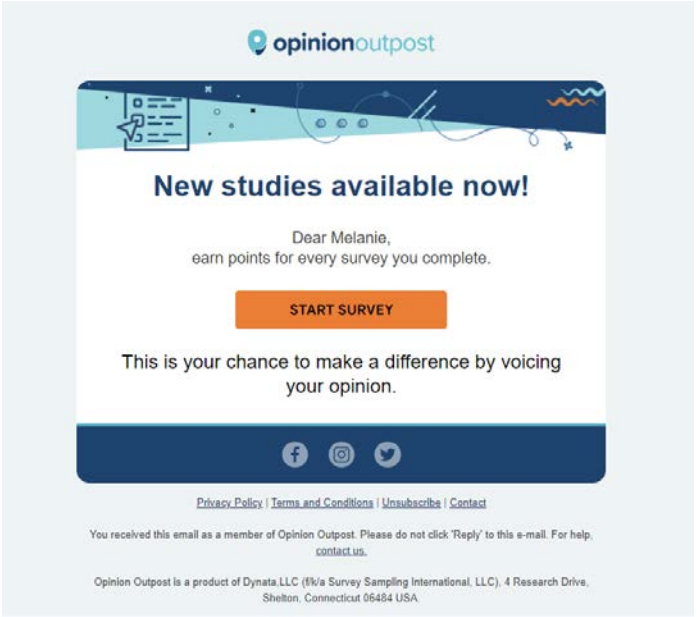
Firms perform some level of quality assurance, for example, checking for IP anomalies, digital fingerprinting, using geolocation clues, and employing screeners before and within the survey. The identity of respondents tends to be verified by the underlying partner (which differs for the three recruitment channels described above).

It is difficult to obtain information on the "universe" of respondents available across various countries, given the many platforms and channels through which these respondents are sourced. Nevertheless, Table A-1 shows how the pools of respondents for two large survey companies compare roughly to the population in some select countries. Overall, the pool of respondents in high-income countries may be roughly representative along key dimensions such as age, income, gender, and education to a broad "middle" range of the population. For middle- or low-income countries, the pools are, almost by construction, roughly representative only of the online population.

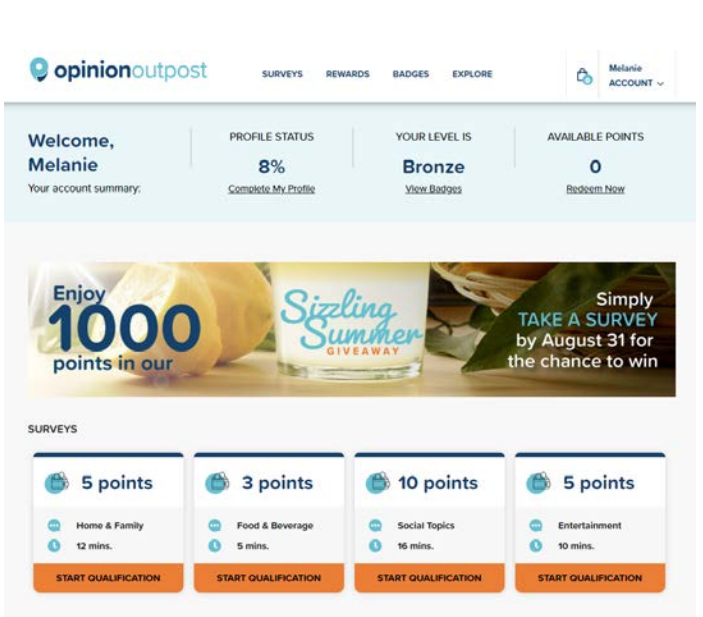
Process for survey marketplaces. Survey companies offer a range of recruiting and quality assurance services. Another option for researchers is to use "marketplaces" of potential survey respondents, which pool together various panels and partner companies. An example is *Lucid*. In this case, much more is done "in-house" (in the lab/on the researcher's side) and managed internally by the research team rather than the survey company. Similar to survey companies, respondents can sign up on a "Get-Paid-To" site or through other channels. When they sign up, they are asked a number of questions about their gender, age, job, and income. Once they have filled out this information and verified their email, they can start taking surveys. These surveys are presented on a dashboard where limited information. Figure A-3 shows examples of dashboards for partner companies that can pool respondents in such a marketplace. Respondents can click on one of these surveys and are directed to a series of qualifying questions. If they pass these qualifying questions, they are automatically directed to a survey. If not, they are taken back to the dashboard (they may receive a small number of credits for having attempted to take the survey). If respondents reach the survey, they typically have to answer additional "screener" questions, and if they do not pass them, they are taken back to the dashboard as well.

It is important to be aware of what exactly respondents see on the platform you choose. In Panel (B) of Figure A-1, the dashboard provides information on the topic area of the survey (e.g., "Home and Family" or "Food and Beverage"), presumably increasing the probability of selection based on the topic. Figure A-3 shows dashboards that only provide information on the duration and rewards for each survey.

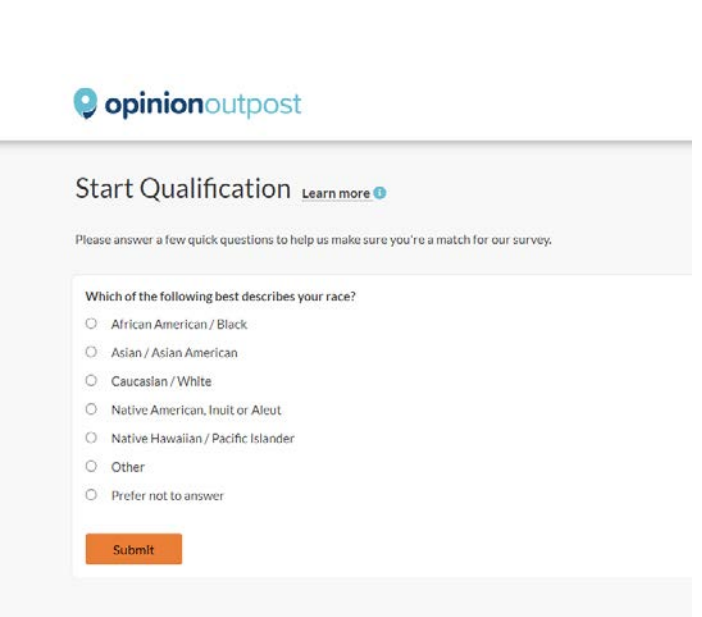
FIGURE A-1: EXAMPLE RESPONDENT EXPERIENCE FOR SURVEY COMPANIES



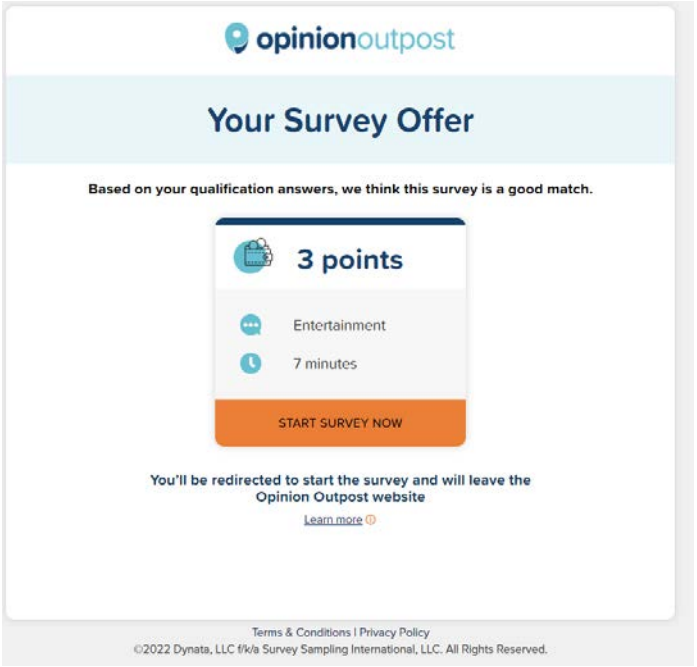
(A)



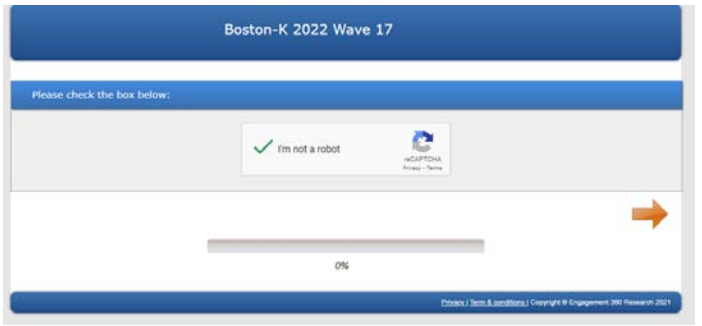
(B)



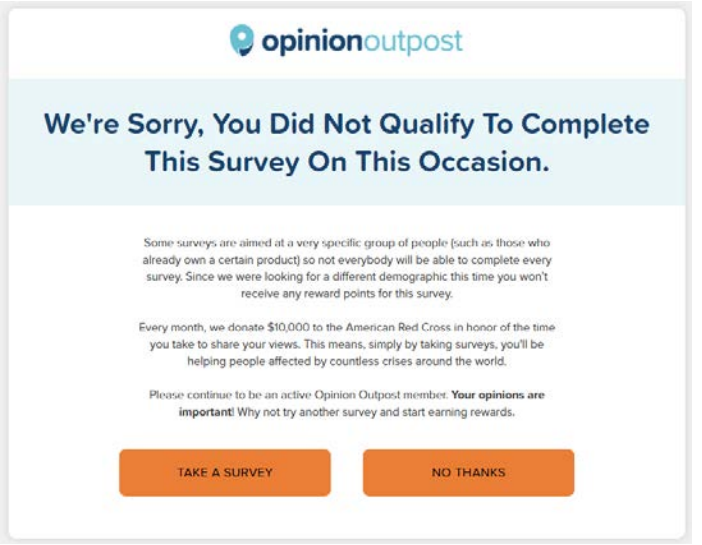
(C)



(D)

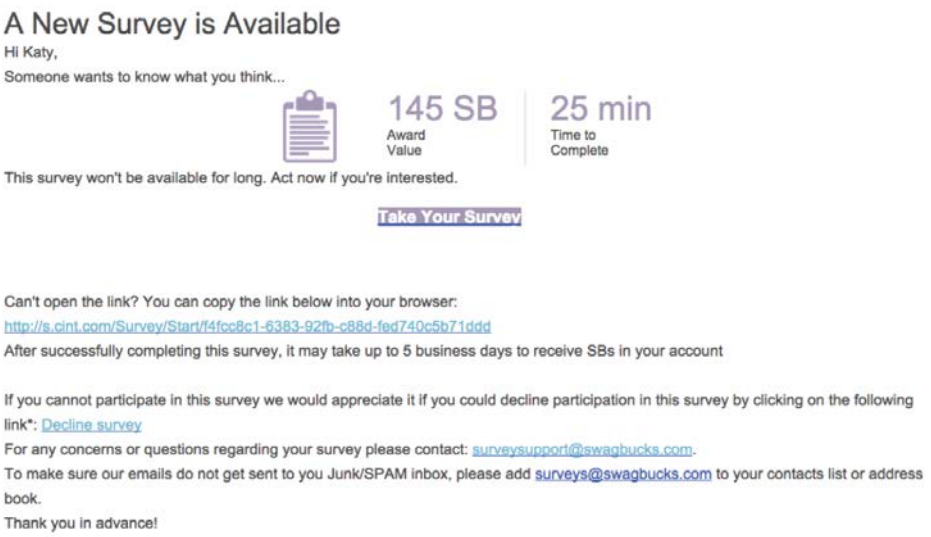


(E)



(F)

FIGURE A-2: RECRUITMENT EMAIL FROM SURVEY COMPANY 2



A New Survey is Available

Hi Katy,

Someone wants to know what you think...

145 SB
Award Value

25 min
Time to Complete

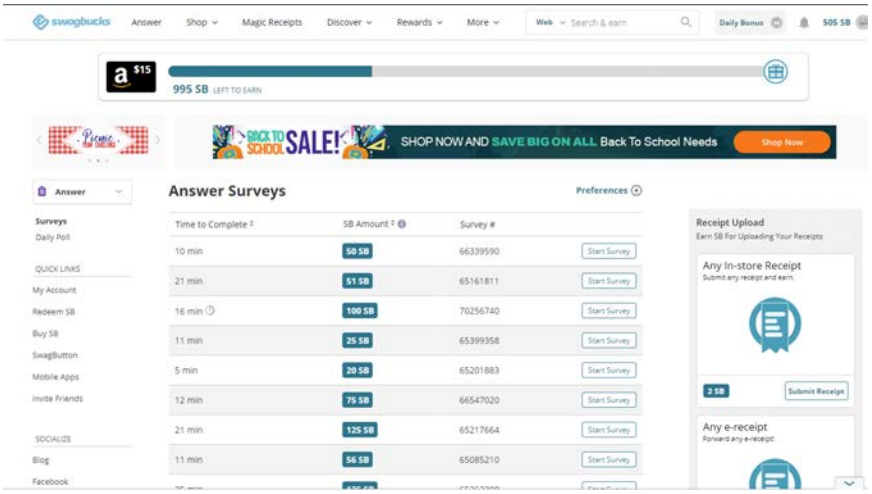
This survey won't be available for long. Act now if you're interested.

Take Your Survey

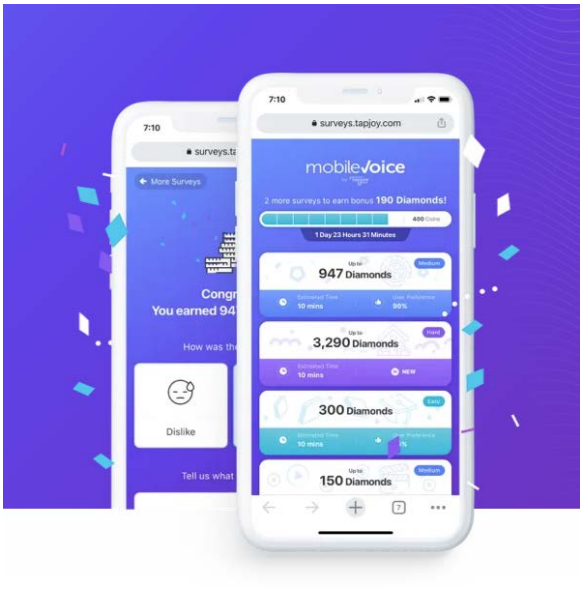
Can't open the link? You can copy the link below into your browser:
http://s.cint.com/Survey/Start/f4fcc8c1-6383-92fb-c88d-fed740c5b71ddd
After successfully completing this survey, it may take up to 5 business days to receive SBs in your account

If you cannot participate in this survey we would appreciate it if you could decline participation in this survey by clicking on the following link*: Decline survey
For any concerns or questions regarding your survey please contact: surveysupport@swagbucks.com.
To make sure our emails do not get sent to you Junk/SPAM inbox, please add surveys@swagbucks.com to your contacts list or address book.
Thank you in advance!

FIGURE A-3: EXAMPLE DASHBOARDS FOR RESPONDENT PANELS



(A)



(B)

A-1.3 Selection into Surveys

Table A-1: Population vs. Panel Samples

	Demark			France			Germany		
	Population	Qualtrics	Dynata	Population	Qualtrics	Dynata	Population	Qualtrics	Dynata
Number	5.831mil	640,412	N/A	67.39mil	4.93mil	N/A	83.24 mil	4.68 mil	N/A
Female	.50	.46	.46	.04	.07	N/A	.51	.45	.50
under 18 years old	.05	.07	N/A	.04	.07	N/A	.16	.07	N/A
18-24 years old	.09	.35	.13	.08	.37	.19	.08	.35	.13
25-34 years old	.13	.22	.16	.12	.24	.19	.13	.27	.18
35-44 years old	.12	.12	.13	.12	.15	.19	.12	.14	.18
45-54 years old	.14	.10	.16	.13	.10	.18	.14	.08	.17
55-64 years old	.13	.07	.18	.13	.05	.14	.15	.05	.19
65 years and over	.20	.06	.26	.20	.02	.10	.22	.02	.15
Income Bracket 1	.87	.55	.58	.80	.66	.67	.74	.49	.50
Income Bracket 2	.10	.21	.30	.17	.15	.29	.23	.27	.40
Income Bracket 3	.02	.04	.09	.029	.01	.03	.02	.03	.06
Income Bracket 4	.01	.01	.04	.001	N/A	.004	.01	.03	.03
Prefer not to answer	N/A	.11	N/A	N/A	.18	N/A	N/A	.17	N/A
Secondary Education or below	.25	.45	.55	.28	.54	.42	.18	.41	.32
Cert., Vocational Training	.40	.19	.12	.47	.16	.26	.51	.36	.44
Bachelor's Degree	.20	.12	.15	.11	.17	.16	.17	.17	.24
Postgraduate Degree or above	.15	.12	.18	.14	.14	.16	.14	N/A	N/A
Prefer not to answer	N/A	.11	N/A	N/A	.07	N/A	N/A	.08	N/A
Urban	.53	.66	N/A	.60	.54	N/A	.80	.72	N/A

Note: This table displays summary statistics of the sample of survey companies alongside national statistics. For the education statistics, the population statistics are for the ages of 25-64. The *Under 18 years old* variable includes ages 13-17 for Denmark and 15-17 for France and Germany. For Denmark, the income brackets are as follows: Bracket 1: <400k DKK; Bracket 2: 440-880k DKK; Bracket 3: 880k-1.5mil DKK; and Bracke 4: >1.5mil DKK. For France, they are: Bracket 1: <40k EUR; Bracket 2: 40-100k EUR; Bracket 3: 100-500k EUR; Bracket 4 >500k EUR. For Germany: Bracket 1: < 40k EUR; Bracket 2: 40-120k EUR; Bracket 3: 120-200k EUR; Bracket 4: >200k EUR

Population vs. Panel Samples

	Italy			Mexico			Poland		
	Population	Qualtrics	Dynata	Population	Qualtrics	Dynata	Population	Qualtrics	Dynata
Number	59.55mil	2.85mil	N/A	128.9mil	2.86mil	N/A	37.95mil	1.55mil	X
Female	.52	.48	.49	.52	.38	.56	.52	.55	.59
under 18 years old	.03	.04	N/A	.08	.08	N/A	.03	.02	N/A
18-24 years old	.07	.27	.10	.12	.43	.24	.07	.32	.17
25-34 years old	.11	.25	.18	.16	.31	.34	.14	.28	.29
35-44 years old	.13	.20	.23	.14	.12	.24	.16	.21	.23
45-54 years old	.16	.14	.24	.12	.05	.12	.13	.11	.15
55-64 years old	.14	.07	.15	.09	.02	.04	.13	.04	.10
65 years and over	.22	.03	.09	.08	.01	.01	.18	.01	.06
Income Bracket 1	.94	.70	.84	.20	.39	.28	.44	.52	.53
Income Bracket 2	.04	.11	.11	.36	.24	.30	.17	.12	.18
Income Bracket 3	.01	.03	.04	.29	.18	.30	.13	.09	.15
Income Bracket 4	.01	.02	.02	.15	.06	.11	.26	.10	.14
Prefer not to answer	N/A	.17	N/A	N/A	.12	N/A	N/A	.16	N/A
Secondary Education or below	.47	.51	.51	.77	.23	.14	.15	.45	.46
Cert., Vocational Training	.33	.17	.16	.04	.30	.40	.52	.09	.12
Bachelor's Degree	.05	.12	.11	.17	.32	.45	.07	.23	.15
Postgraduate Degree or above	.15	.15	.21	.02	.09	.11	.25	.17	.28
Prefer not to answer	N/A	.05	N/A	N/A	.06	N/A	N/A	.07	N/A
Urban	.83	.61	N/A	.64	.91	N/A	.66	.70	N/A

Note: The *Under 18 years old* variable includes ages 13-17 for Mexico and 15-17 for Italy and Poland. See the notes to Table A-1 for further details. For Italy, the income brackets are as follows: Bracket 1: $<$ 60k EUR; Bracket 2: 60-100k EUR; Bracket 3: 100-300k EUR; Bracket 4: $>$ 300k EUR. For Mexico, they are: Bracket 1: $<$ 50k MXN; Bracket 2: 50-150k MXN; Bracket 3: 150-500k MXN; Bracket 4: $>$ 500k MXN. For Poland, they are: Bracket 1: $<$ 60k PLN; Bracket 2: 60-80k PLN; Bracket 3: 80-100k PLN; Bracket 4: $>$ 100k PLN

Population vs. Panel Samples

	South Korea			Turkey			US		
	Population	Qualtrics	Dynata	Population	Qualtrics	Dynata	Population	Qualtrics	Dynata
Number	51.78	1.30mil	N/A	84.24mil	1.97mil	N/A	331.89mil	56.40mil	N/A
Female	.50	.51	.50	.51	.28	.44	.52	.62	.57
under 18 years old	.04	.10	N/A	.07	.10	N/A	.07	.06	N/A
18-24 years old	.09	.32	.08	.11	.44	.28	.09	.30	.11
25-34 years old	.13	.28	.29	.16	.26	.32	.14	.26	.20
35-44 years old	.15	.17	.32	.15	.11	.22	.13	.16	.23
45-54 years old	.17	.09	.21	.13	.04	.11	.12	.10	.14
55-64 years old	.16	.03	.08	.10	.02	.05	.13	.07	.14
65 years and over	.32	.01	.02	.08	.02	.01	.17	.04	.19
Income Bracket 1	.79	.43	.35	.56	.48	.50	.71	.30	.41
Income Bracket 2	.10	.26	.37	.25	.10	.19	.24	.26	.46
Income Bracket 3	.03	.12	.21	.09	.15	.20	.04	.05	.11
Income Bracket 4	.08	.06	.08	.10	.06	.11	.01	N/A	.02
Prefer not to answer	N/A	.14	N/A	N/A	.20	N/A	N/A	.14	N/A
Secondary Education or below	.49*	.30	.17	.69	.41	.33	.37	.40	.08
Cert., Vocational Training	i4*	.13	.07	.15	.16	.16	.25	.34	.12
Bachelor's Degree	.32	.42	.64	.13	.25	.36	.24	.16	.74
Postgraduate Degree or above	.04	.08	.12	.02	.12	.15	.14	.09	.06
Prefer not to answer	N/A	.08	N/A	N/A	.06	N/A	N/A	.03	N/A
Urban	.92	.93	N/A	.64	.92	N/A	.73	.74	N/A

Note: The *Under 18 years old* variable includes ages 13-17 for South Korea, Turkey, and the US. For the US, population education statistics are for ages ages 25 and older. The income brackets for South Korea are as follows: Bracket 1: < 40mil KRW; Bracket 2: 40-70mil KRW; Bracket 3: 70-100mil KRW; Bracket 4: > 100mil KRW. For Turkey, they are: Bracket 1: < 50k TRY; Bracket 2: 50-100k TRY; Bracket 3: 100-200k TRY; Bracket 4: > 200k TRY. For the US, they are: Bracket 1: < 50k USD; Bracket 2: 50-150k USD; Bracket 3: 150-500k USD; Bracket 4: > 500k USD.

* The *Secondary Education or below* variable for South Korea also includes vocational training

Papers comparing different types of online samples

- Berinsky et al. (2012) show that MTurk samples are more representative than typical convenience samples, but less representative than the samples from other panel providers or national probability samples. The authors also replicate experimental studies previously conducted using convenience and nationally representative samples and find that the estimates of average treatment effects are similar in the MTurk and convenience and nationally representative samples. They conclude that potential limitations to using MTurk to recruit subjects and conduct research (e.g., concerns about heterogeneous treatment effects, subject attentiveness, and the prevalence of habitual survey takers) are not large in practice.

- Heen et al. (2020) compare different online samples (from Survey Monkey, Qualtrics, and MTurk) to US census characteristics. The differences highlighted in Section 2 between online panels and nationally representative samples hold for these various platforms. In addition, on platforms such as MTurk, the sample skews significantly younger and male. Overall, MTurk tends to be less representative.

- Coppock (2019) replicates experimental results from samples representative of the target population (which is not always national) on MTurk, and finds broad consistency in the results. Since the heterogeneity of treatment effects within the same experiment is very low, the author concludes that the replicability of results is most likely due to homogeneous treatment effects.

- Coppock and McClellan (2019) conclude that the Lucid Platform can replicate a range of experimental results from nationally representative samples (and performs better than the platform MTurk)

- Fisman et al. (2020) document a "quality crisis" of MTurk in the summer of 2018, when one-quarter of the responses to open-ended questions of their replication survey were unintelligible. They suspect that this was the result of algorithms answering by using the questions' keywords. To deal with this issue, the authors increase the minimum requirement to enroll in the survey on MTurk (minimum approval rate of 98% and at least 1,000 past tasks completed). They do not drop suspected bots from the MTurk sample to avoid hand-selecting which observations to include.

Online vs. offline samples and mixed-mode surveys

- Grewenig et al. (2018) aim to identify the differences between adults in Germany who take online surveys and those who do not. The target population is stratified into three groups: onliners (people who use the internet) in an online survey mode, offliners (people who do not use the internet) in a face-to-face survey mode, and onliners in a face-to-face mode. Compared to onliners, offliners tend to be older, less educated, more likely to be female, less likely to be full-time employed, have lower income, and are more likely to live alone and in smaller cities. Once these differences are controlled for, the authors find that response differences disappear, implying that survey mode rather than unobserved characteristics cause these differences.

Examples of related survey modes

- Cappelen et al. (2022) introduce the *Global Universalism Survey (GUS)* to study how people make distributive decisions between in-group members and strangers. The GUS, embedded in the Gallup World Poll 2020, was administered by local professional enumerators via telephone, and the sampling procedure is conducted using random digit techniques. In India and Pakistan, the survey was conducted through face-to-face interviews. The survey was administered in 60 countries over the world, and it aims at being representative at the country level as well as at the global level.

- Karadja et al. (2017) send respondents a survey over postal mail in cooperation with Statistics Sweden. They document misperceptions about respondents' position in the income scale, and whether correcting them changes preferences for redistribution. The sample is representative in terms of age, gender, and marital status, but respondents are in general more educated, earn a higher taxable income, have fewer children, and are less likely to live in urban areas.

A-2 Managing Respondents' Attention

A-2.1 Ex post data quality checks

The following example is adapted from Niessen et al. (2016) to illustrate the even-odd consistency index procedure in practice. Suppose you have a survey with 20 questions, divided into 4 sections of 5 questions each. Each section is about a specific topic and the questions are all on similar scales. The procedure to build the consistency index is the following:

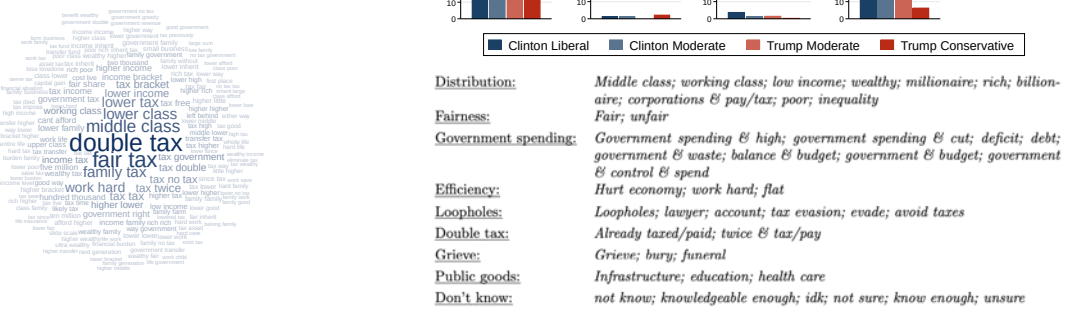
1. Split each section into two blocks, an "even" block and an "odd" block, based on the order of appearance in the survey.
2. For each block, compute the average of the response.
3. Compute the correlation of the average response in the even and odd blocks for all sections.
4. Adjust the correlation coefficient using the Spearman-Brown prophecy formula for the length of the survey.

Then, the measure obtained is a within-respondent measure of consistency. If questions in the same section are supposed to measure the same construct, their responses should be highly correlated.

A-3 Writing Survey Questions

A-3.1 Open-ended questions

FIGURE A-4: ANALYSIS OF OPEN-ENDED QUESTIONS FROM FERRARIO AND STANTCHEVA (2022)



(A) (B)

Note: This figure shows two ways to visualize responses to open-ended questions: word clouds (Panel (A)) and through topic analysis (Panel (B)). In this case, respondents were asked about their main considerations on whether the US should have a higher or lower federal estate tax. In word clouds, when a certain kind of word group (called "n-grams," which are groups of n words) appears more frequently, the size of the font in the word cloud is larger. For example, in Panel (A), "double tax," "fair tax," and "middle class" appeared the most frequently in answers. Panel (B) shows a visualization of answers to open-ended questions in which the bars represent the frequency of a topic being mentioned, categorized by respondents' political affiliation. These topic groupings are constructed using "keywords" (displayed below the bar graphs) that respondents used in their answers.

A-3.2 Measurement issues

Probabilistic beliefs

- Manski (2004) argues that probabilistic beliefs (i.e., asking directly the respondent to attach a probability to a certain event) can be used to reliably measure beliefs, as opposed to revealed preferences analysis (i.e., inferring decision processes from data on observed choices). The author provides an overview of the literature on probabilistic belief measurement and describes areas where it can be applied. Additionally, the paper reports several methods that can be used to assess the accuracy of subjective beliefs, such as comparing individual or mean expectations with events that are predicted or that have already happened.

- Manski (2018) provides an overview of the history leading to probabilistic beliefs measurement and describes i) areas of research where it has been applied that could be relevant for macroeconomics (equity returns, inflation expectations, and professional macroeconomic forecasters) and ii) possible problems with survey measurements (rounding, ambiguity, confounding beliefs and preferences).

- Enke and Graeber (2019) use online surveys and experiments to measure cognitive uncertainty related to how people think about probabilities i.e., " people's subjective uncertainty over which decision maximizes their expected utility." The authors have several treatments and experiments. For example, they are asked whether they would prefer receiving \$15 with a 1% probability, \$16 with a 5% probability, 17% with a 10% probability, and so on. Respondents are also asked about how certain they are about their preferences. They find that, when facing complex questions, people tend to regress to an intermediate option. This insight is relevant for probabilistic beliefs measurement as it documents the existence of cognitive overload and measures its extent.

- Attanasio et al. (2020) elicit probabilistic beliefs of parents in the UK on the returns to different types of parental investments (time, money, school quality) in terms of future earnings of their children. Respondents are presented with different hypothetical scenarios about parental investments and then are asked to predict the children's likely future earnings. See Appendix A-4.3 for a discussion of the findings.

- Boneva and Rauh (2019) elicit probabilistic beliefs of secondary school students on the pecuniary and non-pecuniary benefits of university. This is done by presenting students with different hypothetical scenarios related to life after university and asking them to allocate probabilities to different events (e.g., "*if you go start working how likely do you think it is that you will enjoy the social life and activities you engage in?*"). See Appendix A-4.3 for a discussion of the findings.

- Boneva et al. (2022) elicit probabilistic beliefs of university students on the pecuniary and non-pecuniary benefits of postgraduate education. This is done by presenting them with different hypothetical scenarios similar to those in Boneva and Rauh (2019).

- Wiswall and Zafar (2018) elicit probabilistic beliefs on expected attributes of jobs/workplace to study how these beliefs affect pre-labor market human capital decisions. Respondents, who are NYU students, are presented with three different hiring offers and asked to state the probability of accepting each of them. See Appendix A-4.3 for a discussion of the findings.

- Wiswall and Zafar (2021) elicit probabilistic beliefs of high-ability college students at NYU on future returns (future earnings, employment, marriage prospects, fertility) of their college major by asking them to allocate a probability to each specific event (such as marrying, future earnings, and fertility) at different points in time in the future (i.e., at 23 years of age, at 30 years of age and at 45). See Appendix A-4.3 for a discussion of the findings.

A-3.3 Using monetary incentives and real stakes questions

A-3.3.1 Monetary incentives

- Grewenig et al. (2020) study the effect of monetary incentives on accuracy of responses. In a first survey experiment, they find that monetarily incentivized individuals (who can receive approximately €0.33 if their estimate of average earnings by degree and public school spending are above the median of others' responses in terms of accuracy) provide more accurate answers as a result of increased online search,

rather than increased recall effort. This evidence is then validated in a second survey experiment, in which respondents are simply encouraged to look for the answers online. Hence, there is a tradeoff between incentivizing memory recalls and incentivizing online searches.

- Allcott et al. (2020) study the partisan gap in beliefs and behaviors during the pandemic between January and July 2020. The authors incentivize half of the survey respondents to predict future Covid-19 cases. They were informed that 10 randomly drawn respondents would receive $100 minus the percentage point difference (in dollars) between their prediction and reality. The authors find that incentives do not reduce the partisan gap in terms of the number of cases predicted, self-reported social distancing, or beliefs about the efficacy of social distancing, which suggests that the gap is due to true beliefs rather than partisan cheerleading.

- Alesina et al. (2022) study the relationship between misperceptions about immigration and preferences for redistribution. They provide a random subsample of respondents with monetary incentives, designed as a tournament, where the 5 most accurate responses for each question about immigrants will receive an additional reward, randomized between $5, $10, $20, and $30. They find that incentives do not affect respondents' answers about immigrants, suggesting that respondents are either already truthful or hold their views strongly.

- Andre et al. (2022) study the existence and differences between the subjective models of the economy held by laypeople and experts. A random subset of respondents is incentivized to make accurate predictions about unemployment and inflation: they can earn $0.5 if one of their randomly selected answers is within 0.2 percentage points of the average expert answer. Incentives do not make predictions of inflation and unemployment more consistent with the benchmark of the average expert answer.

- Roth and Wohlfart (2020) study how individual macroeconomic expectations affect consumption plans, stock purchases, and beliefs about the economy. In a robustness experiment, the authors elicit beliefs about the likelihood of a recession from a sample in which treated individuals are incentivized according to a quadratic scoring rule (and can earn up to $1 for accurate responses). They find that incentives do not increase the accuracy of responses.

- Stantcheva (2021) studies how US respondents perceive and understand income and estate taxation. The author finds that providing monetary incentives to a random subsample of respondents to encourage accurate responses does not significantly change answers regarding the tax system. This suggests that people were already answering questions to the best of their knowledge.

- Berinsky (2018) provides a different type of incentives, namely time incentives. The author studies the relevance of expressive responses (i.e., responses designed to express opposition towards politicians and policies rather than true beliefs) in the context of political rumors. In a survey, respondents are randomly assigned to either a control condition or incentivized conditions. In the latter, they receive a time incentive if they reject the political rumor described (i.e., they would receive fewer questions and finish the survey earlier if they reject the political rumor described in the question). The author finds no effect of this incentive on the share of expressive answers and interprets this as evidence that, although present, the share of expressive responses is small in magnitude

A-3.3.2 Real stakes questions

Immigration

- Adida et al. (2018) use a representative sample of the US to investigate whether perspective-taking increases inclusionary attitudes and behaviors towards refugees. To induce perspective taking, the authors ask respondents to imagine themselves as refugees fleeing from war. To obtain a real-stakes measure of inclusionary attitudes, they ask respondents whether they are willing to write a letter to the US President to express support for refugees. See Figure A-5 for examples of answers to this question.

FIGURE A-5: EXAMPLE OF A REAL-STAKE QUESTION ANSWERS FROM ADIDA ET AL. (2018)

Table S2. Examples of anonymous letters to President 45

Supportive messages	Unsupportive messages
"Give me your tired, your poor, Your huddled masses yearning to breathe free, The wretched refuse of your teeming shore. Send these, the homeless, tempest-tost to me, I lift my lamp beside the golden door!"	"I absolutely do not support accepting refugees into the US. We have people here who are suffering. Help Americans before you help everyone else."
"After being very well vetted, I see no reason why the United States should not admit a Syrian refugee to our country. This is a humanitarian crisis and the United States should do its part in helping to alleviate the displacement and immense suffering the Syrian people. The people we admit will ultimately contribute to our society and can be an asset. Please make a careful, thoughtful consideration of this important matter. Thank you."	"Don't do it. We are over crowded and can't even take care of our own. We have homeless veterans on our street's and can't help them. How do we have money to help immigrant's who will potentially blow us up in the end? It's a waste of our resources! Even pssing a background check you can't measure their true intention! I would much rather see the US help US citizens instead of refugees. I'm scared to leave my home. There are refugees every where and they are rude and treat me like i'm invading their space!Their invading mine! I held the door open for one at a department store and was called a female dog! Please save our country!"
"Dear POTUS, I express my support of refugees coming to the United States. Especially the women and children, they need food and healthcare. Thanks so much."	"Sorry have no support for them. They should be banned as all Muslims should."

- Alesina et al. (2022) use survey experiments in six countries (Germany, France, Italy, Sweden, the UK, and the US) to investigate misperceptions about immigrants and the link between these misperceptions and preferences for redistribution. The authors include a real-stakes question to capture preferences for redistribution. They ask respondents whether they want to donate part of their potential lottery winnings to a charity that helps poor people. The question reads:
  - "*By taking this survey, you are automatically enrolled in a lottery to win $1000. In a few days you will know whether you won the $1000. The payment will be made to you in the same way as your regular survey pay, so no further action is required on your part. In case you won, would you be willing to donate part or all of your $1000 gain for a good cause? Below you will find 2 charities that help people in the US deal with the hurdles of everyday life. You can enter how many dollars out of your $1000 gain you would like to donate to each of them. If you are one of the lottery winners, you will be paid, in addition to your regular survey pay, $1000 minus the amount you donated to charity. We will directly pay your desired donation amount to the charity or charities of your choosing. Enter how much of your $1000 gain you'd like to donate to each charity:*
    - ☐*Feeding America*
    - ☐*The Salvation Army*
- Grigorieff et al. (2020) conduct a survey experiment in the US by randomly providing participants with official statistics on immigrants (total share, illegal share, unemployment rate, incarceration rate, and share that does not speak English). To obtain a real-stakes measure of preferences on immigration policy, the authors ask respondents whether they would be willing to sign a real petition that would be sent to the White House. Respondents are further asked whether they would be willing to donate to a nonprofit working in the immigration sector. The questions read:
  - "*You will now have the possibility of signing a petition regarding immigration policy. Consider the following petition, and decide whether you would like to sign it or not.*"
    - *"Facilitate legal immigration into the US! Immigration is beneficial to the US economy, and it is therefore important to increase the number of green cards available for immigrants. Indeed, not only do immigrants strengthen the US economy, but they are also hard-working and law-abiding. Moreover, most of them adapt to our way of life, and they enrich our culture tremendously. This is why we believe that more green cards should be issued to immigrants so, that more of them can take part in the American Dream."*
      - ☐ *I want to sign this petition*
      - ☐ *I do not want to sign this petition*

– "*Every tenth participant taking part in this survey will receive an extra $10. They will have to choose how much money they want to keep for themselves, and how much money they want to donate to the American Immigration Council. Here is a short presentation of the American Immigration Council: "The American Immigration Council is a non-profit, non-partisan, organization [which] exists to promote the prosperity and cultural richness of our diverse nation by:*
  * *Standing up for sensible and humane immigration policies that reflect American values.*
  * *Insisting that our immigration laws be enacted and implemented in a way that honors fundamental constitutional and human rights.*
  * *Working tirelessly to achieve justice and fairness for immigrants under the law.*"

  "*To learn more about the American Immigration Council, please click on the following link: https://www.americanimmigrationcouncil.org/about/our-mission If you do receive an extra $10, how much money would you donate to the American Immigration Council?*

  [slider from 0 to 10]

- Haaland and Roth (2020) conduct a survey on a nationally representative US sample investigating the relationship between labor market concerns and support for immigration. In the experiment, respondents in the treatment group are presented with research demonstrating that immigration does not have adverse effects on labor market outcomes. To obtain a real-stakes measure of support for immigration, the authors ask respondents whether they are willing to sign a petition aimed at increasing the number of low-skilled workers in the US. If respondents indicate that they wish to sign one of the petitions (detailed below), they are linked to a real petition on the White House website. Treatment and control groups receive different links to these identical petitions so that differences in signing can be determined. The White House requires email confirmation, which adds an additional cost that the respondents face. The petition reads:
  – "*H-2B visas are work permits that allow US companies to temporarily hire low-skilled workers from abroad for seasonal, non-agricultural jobs, typically for work in restaurants, tourism, or construction. The annual cap on H-2B visas is currently 66,000. Congress is debating whether to change the annual cap. Some argue that the quota should be increased because private companies say that there are not enough low-skilled American workers for hire. Others argue that the quota should be decreased because access to more foreign workers makes it easier for private companies to cut the wages of low-skilled American workers. You will now have the possibility of signing a real petition related to this debate. If enough people sign the petition, the White House will consider it and post an official response. Consider the following two petitions and decide whether you would like to sign one of them:*

  This petition suggests an increase in the annual cap on H-2B visas from 66,000 to 99,000.
  ☐ *I want to sign this petition*
  ☐ *I do not want to sign this petition*

  This petition suggests a decrease in the annual cap on H-2B visas from 66,000 to 33,000.
  ☐ *I want to sign this petition*
  ☐ *I do not want to sign this petition*

Climate change

- Dechezleprêtre et al. (2022) conduct online surveys in 20 countries to understand the drivers of support for climate policies. To obtain real-stakes measures of support for climate action, the authors ask respondents whether they are willing to support a petition for climate action and donate to a non-profit organization that fights deforestation. The authors also inform users that they will communicate the share of respondents who signed the petition to the government of their country. The wording on the petition and donation questions are as follows:
  – "*Finally, are you willing to sign a petition to "stand up for real climate action?" As soon as the survey is complete, we will send the results to the [head of state's] office, informing them what share of people who took this survey were willing to support the following petition. "I agree*

that immediate action on climate change is critical. Now is the time to dedicate ourselves to a low-carbon future and prevent lasting damage to all living things. Science shows us we cannot afford to wait to cut harmful carbon emissions. I'm adding my voice to the call to world leaders in [country] and beyond – to act so we do not lose ground in combating climate change." Do you support this petition (you will NOT be asked to sign, only your answer here is required and remains anonymous)?

☐ *Yes*
☐ *No*

– "*By taking this survey, you are automatically entered into a lottery to win [$100]. In a few days, you will know whether you have been selected in the lottery. The payment will be made to you in the same way as your compensation for this survey, so no further action is required on your part. You can also donate a part of this additional compensation (should you be selected in the lottery) to a reforestation project through the charity The Gold Standard. This charity has already proven effective in reducing 151 million tons of CO2 to fight climate change and has been carefully selected by our team. The Gold Standard is highly transparent and ensures that its projects feature the highest levels of environmental integrity and contribute to sustainable development. Should you win the lottery, please enter your donation amount using the slider below:*

[Slider from 0 to 100]

- Kuziemko et al. (2015) conduct a survey experiment in the US to study the drivers of preferences for redistribution. To obtain a real-stakes measure of redistribution preferences, the authors ask respondents whether they are willing to sign a letter to their state senator asking for higher estate tax for the rich. Respondents are provided with the senators' emails and a sample messages they could send. The wording of the question is as follows:

  – "*Writing to the Senators of your state gives you an opportunity to influence taxation policy. Few citizens email their elected officials, therefore Senators and their staff take such emails from their constituents very seriously. If you would like to write to your Senator, go to the official US Senate list and click on your Senator's contact webpage. Two sample letters are provided below, one asking for higher estate taxes on the rich, one asking not to increase estate taxes on the rich. Feel free to cut-and-paste and edit the text before sending it to your Senator. Most Senators' websites ask for your name and address to avoid spam. We are not able to record what you write on the external (Senator's) website, so your letter and private information are kept fully confidential. For the purpose of our survey, we would just like to know from you:*

  ☐ *I sent or will send an email to my Senator asking for higher estate taxes on the rich*
  ☐ *I sent or will send an email to my Senator asking to not increase estate taxes on the rich*
  ☐ *I do not want to email my Senator*

- Roth et al. (2022a) use an online survey in the US in which a random half of the respondents are provided the debt-to-GDP ratio. To obtain a real-stakes measure of support for reduced government spending, the authors ask respondents whether they are willing to donate to the Cato Institute (which is described to respondents as an NGO advocating for the downsizing of the government). Specifically, respondents are informed that one in twenty respondents will receive an additional $5 after completing the experiment, and are asked how much they would be willing to donate if they win. Furthermore, they asked whether they would sign a petition for a balanced budget rule. Those who agree to sign the petition receive a link to the White House petition website. Since the petition is posted on this governmental website, it will receive a response from the White House if its content is appropriate and it reaches 100,000 signatures within 30 days. The description of the Cato Institute and the wording of the petition presented to the respondent are as follows:

  – "*The Cato Institute seeks to help policymakers and the public understand where federal spending goes and how to reform each government department. It describes the failings of agencies and identifies specific programs to cut. We believe that cutting the federal budget would enhance personal freedom, increase prosperity, and leave a positive fiscal legacy to the next generation*"

– "*We propose the introduction of a balanced budget amendment. A balanced budget amendment is a constitutional rule requiring that the government cannot spend more than its income. It requires a balance between the projected receipts and expenditures of the government. A balanced budget rule is designed to prevent the government from accumulating debt.*"

Altruism

- Fong and Luttmer (2009) study the determinants of altruism by looking at which features (race, income, perceived worthiness) drive donations to victims of Hurricane Katrina. The authors investigate how these features affect respondents' choices when they are asked to split $100 between themselves and the victims. Respondents are informed that there is a 10% chance that their proposed allocation will be implemented; this type of real stakes question is used to obtain a behavioral measure of altruism. On average, victims' race and worthiness do not change generosity, but people tend to donate more to others in disadvantaged economic areas. Moreover, race becomes important when respondents have a high or low degree of in-group loyalty: those who feel closer to their race tend to donate more to victims of the same race, while the opposite holds for those who feel less close. The wording is as follows:

  – "*We will give $100 to one out of every 10 participants in this study. We ask you to decide in advance how much of this $100, if any, you would like to give to the local chapter of Habitat for Humanity in [CITY]. You can give any amount you wish, including nothing. If you are selected, this $100 is yours, and you are free to keep or to give away any amount you wish, including nothing. While many people give some away, we expect that most people will keep at least some of this amount for themselves. If you are randomly selected to receive $100, we will send the amount that you want to donate, if any, to the local Habitat for Humanity chapter in [CITY]. The amount that you decide to keep for yourself will be credited to your Knowledge Networks account (you get 1000 bonus points for each dollar you decide to keep). If you decide to donate money, Habitat for Humanity in [CITY] will mail you a note to confirm that we sent them exactly the amount you specified.*"

Health insecurity

- Alsan et al. (2020) use large online surveys in 15 countries to investigate how citizens evaluate the tradeoff between individual civil liberties and societal well-being in the context of the Covid-19 pandemic. To see how stated preferences relate to revealed preferences, the authors employ three kinds of real-stakes questions: whether respondents would be interested in downloading a contact tracing app, whether the respondent would want to donate to not-for-profit organizations using the researchers' funds, and whether the respondent would want the researchers to disseminate petitions related to Covid-19. Each of these real stakes examples is further detailed below.

  In the survey, the question about the contact tracing app was worded as follows:

  – *"Recently, several apps have been developed that help track who has been infected with COVID-19, and that help contact those who have been in close contact with infected individuals. The Massachusetts Institute of Technology (MIT) has developed such an app. Are you interested in finding out more about it?"*

  The survey further asks about donations to three not-for-profit organizations related to civil liberties such as on privacy, media freedom, and democratic procedures. The example below illustrates the questions for one of these:

  – *The first organization is Privacy International, a not-for-profit organization that, among other activities, runs campaigns to protect the right to* ***privacy*** *during the COVID-19 pandemic. Would you like the research team to donate $1,000 to* ***Privacy International*** *or would you rather the funds remained in the research team's account?* ***IMPORTANT:*** *if you and this questions are indeed randomly selected, we will implement the decision you make below.* (Bolding and hyperlink in original)

☐ *Donate $1,000 to Privacy International*
☐ *Keep the funds in the research team's account*

Next, the survey asks respondents to rank five not-for-profits – three related to civil liberties and two not. The ranking determines the probability that a given not-for-profit would receive $1,000.

- *Next, we will ask you to rank 5 not-for-profit organizations, from the one that you would* ***most*** *like to receive a $1,000 donation to the one that you would* ***least*** *like to receive a $1,000 donation. At the end of the data collection process, one respondent's answer will be selected at random. It could be yours! If your answer to this question is selected, we will randomly choose a not-for-profit organization with a* ***probability that depends on your ranking*** *(see below for additional details) and we will donate $1,000 to that not-for-profit organization.* (Bolding in original)

The survey details information on each of these organizations and then provides the details for ranking the organizations:

- ***Please drag the organizations in order from most preferred (top) to least preferred (bottom).***
  ___ *Privacy International (to protect privacy)*
  ___ *Reporters Without Borders (to protect media freedom)*
  ___ *Freedom House (to protect democratic procedures)*
  ___ *National Mill Dog Rescue (to protect discarded breeding dogs)*
  ___ *Plastic Oceans Foundation (to protect the ocean from plastic pollution)*

After asking about donations, the survey goes on to ask about petitions, first about whether the research team should circulate each of three petitions about civil liberties and then about the ranking of five petitions with a chance that one of them might be circulated.

- *Next, we would like to ask you some questions about various* ***petitions****. Specifically, we will show you four petitions currently active on change.org. We will ask you, for each petition, whether you would like the research team to disseminate that petition to 10 people via advertisements on social media. At the end of the data collection process, one respondent to this survey and one of the questions will be selected at random, and the respondent's decision will be implemented.* ***It could be you!*** *For each petition below, please make your decision. You can read more about the petition by clicking on the link.* (Bolding in original)

  The first petition demands that the government NOT force people to get vaccinated. Would you like the research team to disseminate this petition on social media? (Hyperlink in original).
  ☐ *Yes, I want the research team to disseminate this petition on social media*
  ☐ *No, I do not want the research team to disseminate this petition on social media*
- *Next, we will ask you to rank 5 petitions currently active on change.org, from the one you would* ***most*** *like see succeed to the one that you would* ***least*** *like to see succeed. At the end of the data collection process, one respondent's answer will be selected at random. It could be yours! If your answer to this question is selected, we will randomly choose a petition with a* ***probability that depends on your ranking*** *(see below for additional details) and we will disseminate that petition to 10 people via advertisements on social media. Notice: if you choose not to answer this question, we will not disseminate any petition on social media. Details of procedure to determine the probability of selecting a particular petition: you can think of ranking the petitions as assigning them lottery tickets. The petition at the top of the ranking receives 6 lottery ticket; the petition that is second in the ranking receives 5 lottery tickets, and so on until the last petition in the ranking, which receives only 1 lottery ticket. If you and this question are randomly selected, we will extract a lottery ticket at random and we will disseminate the petition that corresponds to that lottery ticket to 10 people via advertisements on social media.*
- ***Please drag the petitions in order from most preferred (top) to least preferred (bottom).***

___ *Petition against mandatory vaccinations (link)*
___ *Petition against curfews (link)*
___ *Petition against lockdowns (link)*
___ *Petition against research that relies on experiments on dogs (link)*
___ *Petition against farm animal cruelty (link)*

A-3.3.3 Spectator setting

- Almås et al. (2020) run an online experiment to ascertain the drivers of differences between redistributive preferences and inequality acceptance between the US and Scandinavia. The spectator setting in this paper is as follows:
  - *Participants*: In the main experiment, there are two kinds of participants: *Workers* and *spectators*. Workers were recruited through MTurk and had to complete three tasks. They received $2 at baseline and were also told that a third party would be informed about the tasks and allocate additional money between them and another worker. The third party is the spectator.
  - *Treatments*: The spectators were recruited through Norstat in Norway and Research Now in the US. Each spectator was assigned into one of three treatments: luck, merit, and efficiency. In each of the experiments, at baseline, $6 were assigned to one worker and $0 to another. The reason for this allocation varied by treatment. In the luck treatment, spectators were told that the allocation was by lottery. In the merit treatment, it was the worker's productivity, and in the efficiency treatment, the allocation was by lottery but there is a cost to redistribution whereby the "lucky" worker's earnings would be reduced by $2 for every $1 redistributed.
- Fisman et al. (2021) conduct several experiments on MTurk to estimate respondents' distributional preferences. Respondents are presented with two hypothetical societies that differ in income inequality. Each society is made up of 7 individuals (including the respondent) with different incomes. In the main experiment, the respondent's income within the hypothetical distribution is fixed. That is, respondents are presented with 7 bars on a bar graph to illustrate each individual's income in the society, and "their" income in each is the same. The respondents are then asked to choose their preferred society. One variant of the experiment includes a spectator setting as follows:
  - In this variant, the respondent's position within the income distribution *varies* between the two choices. For example, in one distribution, the respondent's "own" income might be $150,000 and in the other one, it might be $140,000. The respondent chooses between the two options and is informed that, with a 10% probability, "their" income, scaled down by a factor of 10,000, would be allocated to a randomly selected MTurk worker. For instance, if the respondent chooses a distribution where he or she has an income of $140,000, then there is a 10% probability that a random MTurk worker receives $14.
- Cohn et al. (2021) use an online survey experiment to determine whether and why the top 5% of individuals in the US in terms of income hold less distributive views than the rest 95%.
  - To disentangle redistributive preferences from self-interest, the authors employ a spectator experiment similar to the one used by Almås et al. (2020), where a spectator watches two MTurk workers complete their task. The distribution of additional earnings of $6 among them can be random (luck treatment), can depend on the quality of the work done (the one who performed better got all the money, merit treatment), or a mixture of the two, which combines luck and merit to mimic the dynamics of inequality in the real world. Then, the spectator can decide to reallocate the money.
- Müller and Renes (2021) leverage data from the German Internet Panel to elicit different distributional fairness ideas.
  - To elicit distributional principles, the authors follow a spectator design where respondents are asked to choose one of four different options, which allocates specified amounts of money to other two randomly selected participants. The different options are designed in such a way that each one of them closely mirrors a distributional principle. This setting, in which the spectator is

impartial with respect to the outcome, prevents choices from being influenced by self-interest considerations.

- Cappelen et al. (2022) leverage a representative sample from Norway to understand whether the principle of personal responsibility (i.e., the idea that a person should not be held accountable for her choices if there is no ex ante causal responsibility and if she could have avoided the choice only at an unreasonable cost) applies to inequality acceptance.
  - To measure this principle, a spectator design is implemented where spectators have to split the earnings of two MTurk workers. In the baseline treatment, the initial division of earnings is determined by randomly drawing a colored ball, while in subsequent treatments (choice treatments) the choice of the color of the winning ball is done by MTurk workers (but they do not know the color of the ball that is then drawn). The evidence shows that spectators were more likely to implement a more unequal distribution in the choice treatments rather than in the baseline, reflecting the belief that choices, even when uninformed, still create the perception of agency and social responsibility.
- Freyer and Günther (2022) use an online representative sample of the US to assess whether people have different distributional preferences if an individual's wealth comes from luck or effort and if an individual's wealth comes from work or inheritance.
  - To understand the impact of different sources of wealth on distributive preferences, the authors use a spectator design which allows them to separate preferences from self-interest. Spectators are presented with a pair of workers and an allocation of earnings between them, which can be caused by a combination of luck (earnings are randomly distributed) and inheritance (additional money could be given to one of the workers by her friend). Then, with information about the determinants of the earnings distribution, they must decide how to reallocate earnings.

A-4 Survey Experiments

A-4.1 Priming Treatments

Methodological issues

- Lenz (2009) argues that the effects of media campaigns that are generally attributed to priming can instead be explained by information provision and alignment with the preferred party's view. This highlights the thin line that separates subconsciously increasing the salience of an issue (priming) and explicitly informing the respondent. The author highlights other additional concerns about the robustness of results from priming experiments, which include the fact that respondents may be primed before the experiment and that priming one concept may activate other mental representations of another as well.

- Shanks et al. (2013) try to replicate results from psychology studies claiming that accuracy in general knowledge questions can be improved through *intelligence priming*, i.e., priming intelligence-related concepts. In the nine experiments the authors conduct, the effect is null, suggesting that the influence of priming is small and short-lived.

- Rivers and Sherman (2018) argue that failures to replicate the results of Bargh et al. (1996) are due to the different statistical power required by the research design: between-subjects designs (in which subjects experience only one of the experimental conditions) require a larger sample size than within-subject designs (which sample from the same participant under different experimental conditions).

- Alempaki et al. (2019) test replicability of priming on risk preferences through a series of experiments on MTurk. The authors seek to investigate the impact that emotions (and in particular, fear) have on risk preferences. For example, they ask respondents to recall a negative (or positive) experience when gambling. The authors fail to replicate the results of Cohn et al. (2015).

- In an email, Kahneman (2012) warns his colleagues about a "*train wreck looming*" due to doubts about the robustness and replicability of priming studies. The author also proposes an experimental protocol to ensure replicability.

- Meta-analyses of priming studies have shown that existing results may be subject to p-hacking, publication bias, and small study effects (see Gomes and McCullough (2015), Shanks et al. (2015) and Vadillo et al. (2016))

Examples of priming treatments

On globalization

- Di Tella and Rodrik (2020) study the relationship between labor market shocks and the demand for trade protection. They present respondents with six different scenarios for why a manufacturing plant has closed and jobs were destroyed: technological change, a demand shift, bad management, outsourcing to a developing country, outsourcing to a developed country, and outsourcing to a developing country with weak labor standards. The authors find that the primes have heterogeneous effects on demand for trade protection based on respondents' political affiliation. For instance, priming respondents to think about outsourcing to a country with weak labor standards as the cause of job losses increases demand for trade protection among Clinton supporters but not among Trump supporters.

- Margalit (2012) investigates the reasons for opposition to globalization. The author finds that priming cultural threats (by asking the respondents about the perceived changes in traditional life in the US and whether the national anthem could be sung in languages other than English) reduces support for globalization only among people without a college degree.

- Naoi and Kume (2011) studies the determinants of attitudes toward trade in a developed-country context. The authors prime respondents in Japan to think about trade either from a worker or consumer perspective. Respondents in the worker priming treatment are shown photographs representing major sectors of the economy (an office, a factory, and a rice field to represent the service, agricultural, and manufacturing sectors respectively). Respondents in the consumer priming treatment were shown photographs representing major areas of consumer goods (a supermarket, an electronics store, and a clothing store). Consumer priming does not change attitudes toward food imports, while worker priming reduces support for them, especially among those who are worried about their own job.

- Stantcheva (2022) studies people's understanding of trade in the US. She primes respondents to think about the effect of trade on prices and their job by asking questions that make either their identity as a consumer or as a worker salient. Priming individuals about their benefits from trade as consumers does not increase their support for free trade while priming them about the possible negative impact of trade on their job significantly reduces support for free trade.

On risk preferences

- Cohn et al. (2015) investigate counter-cyclical risk aversion. They prime financial professionals by showing them an unspecified "boom" or a "bust" chart and find that professionals who are shown the bust scenario make significantly less risky investment decisions in the subsequent questions.

On social norms

- Cohn et al. (2014) study dishonesty and business culture in the banking industry. They prime bank employees with their professional identity by asking them questions about their work. When their identity as a banker is made salient, respondents are more likely to cheat in a subsequent unsupervised coin toss game with a payoff of $20.

- Berlinski et al. (2021) conduct an online survey experiment to understand the effect of claims of voter fraud on confidence in elections. To do so, treated individuals are presented with images of different tweets (for instance, tweets from Donald Trump) regarding the 2018 midterm election: i) four tweets

alleging voter fraud, ii) eight tweets alleging voter fraud iii) four tweets alleging voter fraud along with four fact-check tweets. They show that alleging voter fraud significantly undermines confidence in elections but not in the concept of democracy. The effect is concentrated among Republicans and Trump supporters, for whom fact-checks do not restore the damage to the credibility of elections done by these claims.

On preferences

- Kuziemko et al. (2015) investigate people's preferences on redistributive policies. In a follow-up survey to the main experiment, they develop primes about government trust by asking respondents about aspects of the government they disliked, for example regarding the "Wall Street bailout" in 2008 or the influence of money in political campaigns. This priming allows the author to isolate the effect of trust in government without affecting respondents' concern about inequality or poverty. The priming treatment reduces support for all poverty-alleviation policies except the minimum wage.

On prosociality

- Fanghella et al. (2021) investigate the impact of differently projected information on prosocial behavior and expectations about economic and environmental outcomes. They prime respondents in the UK about the positive and negative consequences of the Covid-19 pandemic when the first lockdown was introduced by making them read a paragraph about it. Primes affect the expectations of respondents about economic and environmental outcomes, but do not affect their prosociality in a dictator game.

On immigration and race

- Brader et al. (2008) investigate the reasons for opposition to immigration. Using a sample of white males from the US, the authors prime the racial identity of immigrants by presenting respondents with a mock NYT article about an immigrant who can either be Latino or European, with either a positive or negative framing. Opposition to immigration increases more in the case of negative framing with a picture of a Latino immigrant than negative framing with a picture of a European one; in the case of positive framing, support for immigration increases more in the European case.

- D'Acunto et al. (2021) study whether changing the salience of diversity of the FOMC affects how people process information coming from the Fed. Their experiment has six treatment arms, including treatments such as priming perceptions on diversity by showing pictures in which members' race and gender are clear. They find that underrepresented groups such as women and Black people tend to form unemployment expectations more in line with the FOMC when primed about the FOMC's diversity, while white males are not affected.

- McCabe et al. (2021) run a nationally representative survey to investigate how priming the legal status of Latino immigrants affects perceptions of this group. One group of respondents is first shown questions about Latino immigrants with the legal modifiers "(un)documented" and "(il)legal" before being asked questions about Latino immigrants generally. In this way, they are primed about the legal status of immigrants. The other group of respondents is first asked questions about Latino immigrants without the legal modifiers and then with the modifiers. The authors find that priming with legal modifiers worsens perceptions about Latino immigrants as a whole.

- Merolla et al. (2013) use a representative US sample to explore the role of priming different definitions of undocumented migrants (illegal, unauthorized, undocumented) and framing of immigration policies (legalization, DREAM Act, citizenship rights for children of undocumented immigrants) on the support for these policies. Treatment and control groups are shown different questions where the definition of undocumented migrants changes. Overall, the effect of priming different dimensions of documentation status is not significant.

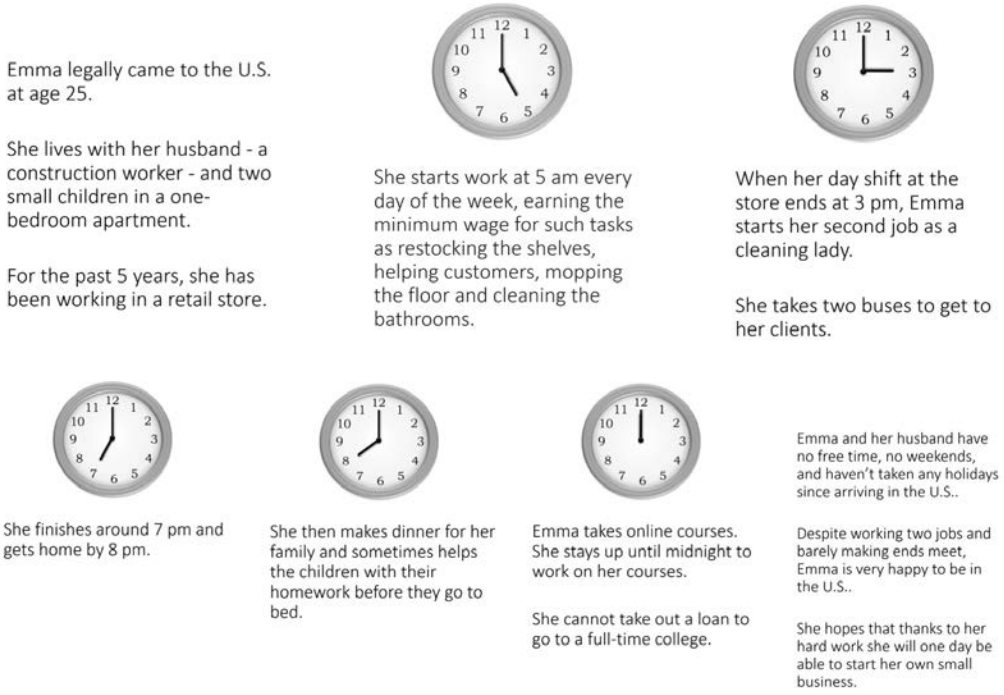
A-4.2 Information and pedagogical treatments

Examples of information and pedagogical treatments

On immigration

- Alesina et al. (2022) use survey experiments in six countries (Germany, France, Italy, Sweden, the UK, and the US) to investigate misperceptions about immigrants and their relationship with preferences for redistribution. Respondents are first asked about their perceptions of the origins and shares of immigration. In two treatment arms, the authors provide information on the actual shares and origins of immigrants using animations. In a third treatment arm, they use a narrative treatment, showing a day in the life of a hard-working immigrant. While information about the true share of immigrants and their origin does not change support for redistribution, an anecdote about a hard-working immigrant has stronger effects. This treatment is presented in Figure A-6.

FIGURE A-6: DESCRIPTION OF A DAY IN THE LIFE OF A HARD-WORKING IMMIGRANT FROM ALESINA ET AL. (2022)



- Grigorieff et al. (2020) investigate whether information changes attitudes toward immigrants. The authors conduct a survey experiment in the US in which they randomly provide participants with official statistics on immigrants (total share, undocumented share, unemployment rate, incarceration rate, and share that does not speak English). They find that information provision improves beliefs and attitudes of participants toward immigrants but does not significantly affect policy preferences.

On inflation

- Armantier et al. (2016) conduct a survey experiment in the US in which they randomly provide information about past or future inflation. The authors find that respondents update their beliefs about inflation consistently with Bayesian updating (i.e., the distribution of expected inflation converges towards its center), with some heterogeneity by gender.

- Cavallo et al. (2016) investigate how individuals learn when information may be biased. Critical to the analysis is that during the period of investigation, the Argentinian government was systematically underreporting official inflation statistics. In their survey, the authors randomly vary the level of inflation and the source (either official or unofficial) when they provide information on inflation to respondents. These treatments highlight the role not just of information itself, but also of its source.

The authors find that information provision affects inflation expectations and perceptions, but also that individuals are able to de-bias official statistics.

- Cavallo et al. (2017) investigate information frictions in household inflation expectations by conducting a survey experiment using representative samples in the US and Argentina. Respondents are provided with information about inflation either through official statistics or through supermarket prices. The authors find that the mode through which information is provided matters: individuals are more influenced by information that is less costly to acquire (i.e., supermarket prices). Individuals in the US, which is considered a low inflation country, display higher learning rates, consistently with rational inattention models.

- Coibion et al. (2021) use a survey of firms in New Zealand and provide information about others' first-level and higher-level beliefs about inflation. Firms adjust their inflation expectations when provided with information, and the effect is stronger when they receive information about other firms' high-level beliefs.

- Coibion et al. (2020) leverage an information provision experiment embedded in a firms' survey administered by the Bank of Italy in which a random set of firms is informed about inflation in recent periods. The authors then use inflation expectations expressed after the treatment as an instrumental variable for subsequent economic behavior. Treated firms with higher inflation expectations increase their prices and demand for credit and reduce capital and employment. When policy rates are at the lower bound demand effects are stronger and, while still increasing prices, firms with higher inflation expectations no longer decrease employment.

- Coibion et al. (2022) conduct a survey experiment in the US in which respondents are provided different types of information about inflation to understand their different impacts on inflation expectations. The information includes quantitative information (for instance the actual CPI inflation rate, the inflation target of the Fed) and qualitative information (for instance, the most recent FOMC statement and its coverage in USA Today). They find that reading the FOMC statement has the same effect on inflation expectations as being told the inflation target, while simply reading news about the FOMC meeting yields a revision that is half of the size.

- Roth and Wohlfart (2020) conduct a survey experiment in the US in which respondents are randomly provided professional forecasts about the likelihood of a recession to see if information provision affects individual expectations. Respondents are provided with forecasts from different sources (one that places the risk of entering a recession at 35% and another one that places it at 5%) and are then shown a figure contrasting their prior estimation with the information they have received. The authors find that individuals extrapolate information and adjust their expectations to their personal economic situation.

On health

- Alsan and Eichmeyer (2021) investigate the effectiveness of encouragement to vaccinate against the flu within a sample of men aged 25-51 in the US without a college degree. Respondents are randomly shown videos from both experts and laypeople. The authors find that non-expert senders are more effective, especially among those least willing to vaccinate.

- Carey et al. (2022) conduct a repeated online experiment in the US, Great Britain, and Canada to investigate the impact of fact-checking Covid-19 information on misperceptions about the pandemic. Treated individuals are shown fact-checks on specific issues such as the origin of the coronavirus (to debunk the view that it was created by the Chinese government as a bioweapon) or the ineffectiveness of hydroxychloroquine in curing infections. The evidence shows that these fact-checks reduce the targeted misperceptions, but do not persist over time even after repeated exposures.

On housing

- Armona et al. (2019) conduct a survey on home price expectations to investigate the formation and behavioral impact of expectations. First, respondents are asked about their perceptions about housing prices in the past one and five years, as well as their expectations for future housing prices in one or five years. Then, respondents are randomly allocated into one of two information treatments or the control group. The treatment groups receive information about the actual housing price change over the prior year or prior five years, while the control group receives no information. They find that treatment leads to directional extrapolation (i.e., over/underestimation in the first step leads to an upward/downward extrapolation in the second), that respondents do not expect reversion towards the mean (that is, that housing prices will eventually return to their average level) of housing price growth (which is instead empirically documented) and finally that these expectations impact subsequent decisions made in a portfolio choice task within the survey.

- Coibion et al. (2020) provide 25,000 US individuals information about past, current, and/or future interest rates for housing to investigate whether information provision affects expectations. They find that information about current and future policy rates and interest rates moves both the interest rate and inflation expectations by about the same amount. Information about the mortgage rates has the greatest impact on real interest rate expectations.

- Fuster et al. (2022) conduct a survey experiment within the Survey of Consumer Expectations to understand differences in preferred sources of information. Respondents are incentivized to give correct forecasts about house prices and can also decide to buy information in the form of either official statistics or experts' forecasts, which allows the authors to estimate willingness to pay for information. The authors document that individuals disagree on which information to buy, but consistently incorporate the acquired information in their predictions.

On labor

- Arntz et al. (2022) use a sample from an online survey in Germany and US to understand employment concerns related to automation. Treated individuals receive information about the effect of automation in two different framings: either respondents are informed that automation has a net zero effect on employment, or they are informed that the impact of automation on employment depends on employees' educational background. Information reduces automation angst, but effects vary on the basis of prior beliefs about the future of work. Moreover, the effect is not the same for all dimensions of automation (e.g., different across economy-wide implications, individual implications, and policy preferences).

- Bottan and Perez-Truglia (2022) conduct a survey experiment with 1100 medical students participating in the National Residency Match Program (US) to investigate the importance of relative income position and consumption in making life decisions. They provide statistics on the cost of living and earnings ranking of the cities which then students are asked to rank. By randomizing the value of the relative income position given for each city choice, the authors estimate the importance of relative (to others) consumption in program choice. A 1 percentage point increase in relative consumption increases the probability that the city (and the program) is chosen by 0.185 percentage points.

- Bursztyn et al. (2020) use an experimental sample in Riyadh and a national sample in all of Saudi Arabia to study the effect of beliefs about others' support of female labor force participation (FLFP) on respondents' own support of FLFP. The authors show that, when respondents are made aware that other men support women working outside the home more than they previously thought, they increase their support in helping their wives find jobs. This support is lasting, as shown in a follow-up survey, in which partners of treated individuals are more likely to have entered the job market.

- Cullen and Perez-Truglia (2022) survey a sample of 2,060 employees at a large firm in Southeast Asia to evaluate the extent to which employees are aware of pay differences between themselves and their bosses. Respondents are first asked an incentivized question about how much they think their managers and peers earn and then asked a real-stakes question that elicits their willingness to pay for this information. Next, respondents are randomly assigned to receiving salary information about a sample of five of their managers or peers. Regardless of treatment status, respondents are then able

to revise their beliefs. The authors use this experiment to see whether employees share information with each other about salary and whether exogenous shocks to salary perceptions affect motivation or effort. They document large misperceptions about the salaries of both managers and peers. When workers find out that managers earn more than they expected, they increase their effort. On the other hand, workers decrease their effort if they find out that their peers make more than they expected.

- Korlyakova (2021) studies whether receiving information about ethnic discrimination in the Czech labor market from different sources (laypeople, HR managers, researchers) leads to different belief updating. She finds that individuals update their beliefs more when receiving information from experts, and tend to prefer these sources to the other ones.

- Roth et al. (2022b) conduct a survey experiment in the US in which participants are randomly shown a bar chart that compares their risk of unemployment during a recession with individuals similar to themselves. This information generally increases the concern about becoming unemployed in the next recession and increases the demand for expert forecasts on the likelihood of a recession.

On political participation, political economy, and voting

- Bursztyn et al. (2020) run an online survey experiment in which they randomly inform respondents that Donald Trump was 100% likely to win in the 2016 presidential election in Alabama, Arkansas, Idaho, Nebraska, Oklahoma, Mississippi, West Virginia, and Wyoming. Without the information about the odds, individuals are less likely to make an indirect donation to an anti-immigration organization when their responses are not anonymous. Treated individuals do not display this wedge between private and public behavior.

- Bursztyn et al. (2020) use an online survey of Republicans and Independents in the US to study the use of excuses to justify socially stigmatized behavior. A random sample of the respondents is shown the results of a study that finds higher crime rates of immigrants compared to Arizonians. Respondents are then informed whether or not others can see if they received this information. Subjects who thought they were being observed increased donations to an anti-immigration organization. Moreover, in a second experiment, respondents are informed that a previous user who has read the study has made such a donation; respondents tend to find the previous user less intolerant and more persuadable.

- Hermle and Roth (2019) leverage a survey sent to party members before the general election in a western European country to assess whether knowing about others' intentions of canvassing increases or decreases the respondent's own intention. Treated respondents are informed about others' intentions of canvassing. The authors find that individuals who are informed about a high level of participation are less likely to participate, consistent with the interpretation of effort choices made by the individual and made by others as strategic substitutes (i.e., that when some put in more effort into a public good, others reduce their own effort – they freeride).

- Hager et al. (2021) use the same setting as Hermle and Roth (2019), but focus on the role of party-competition as a mediating factor. The authors find that receiving information about others' intentions of canvassing reduces beliefs of self-efficacy when party competition is higher, which leads to non-participation.

- Nyhan et al. (2022) conduct an online survey experiment to understand the extent to which exposure to information changes beliefs about climate change and support for government action. Treated individuals are shown either scientific coverage on the climate crisis or opinion coverage that is skeptical about the scientific consensus. The authors find that exposure to information increases accuracy about climate change beliefs and support for government action, but that these effects diminish over time and are eroded by exposure to a skeptical opinion.

- Hvidberg et al. (2021) use survey data matched to administrative data to document people's misperceptions about their position in the income distribution and how study updating these misperceptions affects attitudes towards inequality. The authors explain what percentiles of the income distribution

are and then ask them in which percentile they think they are with respect to different reference groups. The authors consider both large reference groups (cohort, gender, municipality, education level, and sector of work) and small reference groups (schoolmates, co-workers, and neighbors) that could influence a respondent's perception of fairness. In the treatment, respondents are first asked about their perception of their position within the given reference group and then provided with information about their actual position (see Figure 5). Next, they are asked questions about the perceived unfairness of income inequality for each of these reference groups. The treatment increases the perception of unfairness across all reference groups and the effect is larger for those who initially overestimated their percentile.

On taxation

- Doerrenberg and Peichl (2022) conduct a randomized survey experiment on tax morale (i.e., intrinsic and non-pecuniary motives driving tax compliance) to understand how information can affect it. They have two treatments: a social norm treatment and a reciprocity treatment. In the social norm treatment, respondents are informed about the tax compliance gap – that about 10% of taxes worldwide are being evaded. In the reciprocity treatment, respondents are informed about how much education expenditures could increase with the missing tax revenue. Relative to the control group, which just receives a short opener saying that tax evasion is often discussed in the media, respondents have lower and higher tax morale in the social norm and reciprocity treatments, respectively.

- Kuziemko et al. (2015) conduct a survey experiment in the US in which they randomly provide participants with official statistics on income inequality in the US, the link between top income tax rate and economic growth, and the estate tax. The authors find that information provision changes views and concerns about inequality but does not affect policy preferences much, with the exception of the estate tax.

  In one of the treatment variations, respondents are provided information on the number of Americans living in poverty, including the number of American children and number of disabled Americans in poverty. This information is accompanied by pictures of low-income families (see Figure A-7). Then, respondents are asked to estimate the monthly budget of a low-income family. This budget is then compared with the estimated poverty line, and respondents are informed whether the budget is above or below the line. This type of treatment, which combines tailored information with a perspective-taking exercise, has a strong and significant positive effect on support for an estate tax.

  In a different treatment variation, respondents are provided information about the estate tax. In this case, both the treatment group and the control group receive information about the estate tax. However, the treatment group also receives a picture of a mansion that emotionally primes them about the lifestyles of the rich, as discussed in Section 6.2 (see Panels (A) and (B) of Figure A-8 for the information provided to the control group and the treatment group, respectively). The authors do not find that the emotional prime has an effect on inequality views.

FIGURE A-7: CUSTOMIZED POVERTY INFORMATION FROM KUZIEMKO ET AL. (2015)

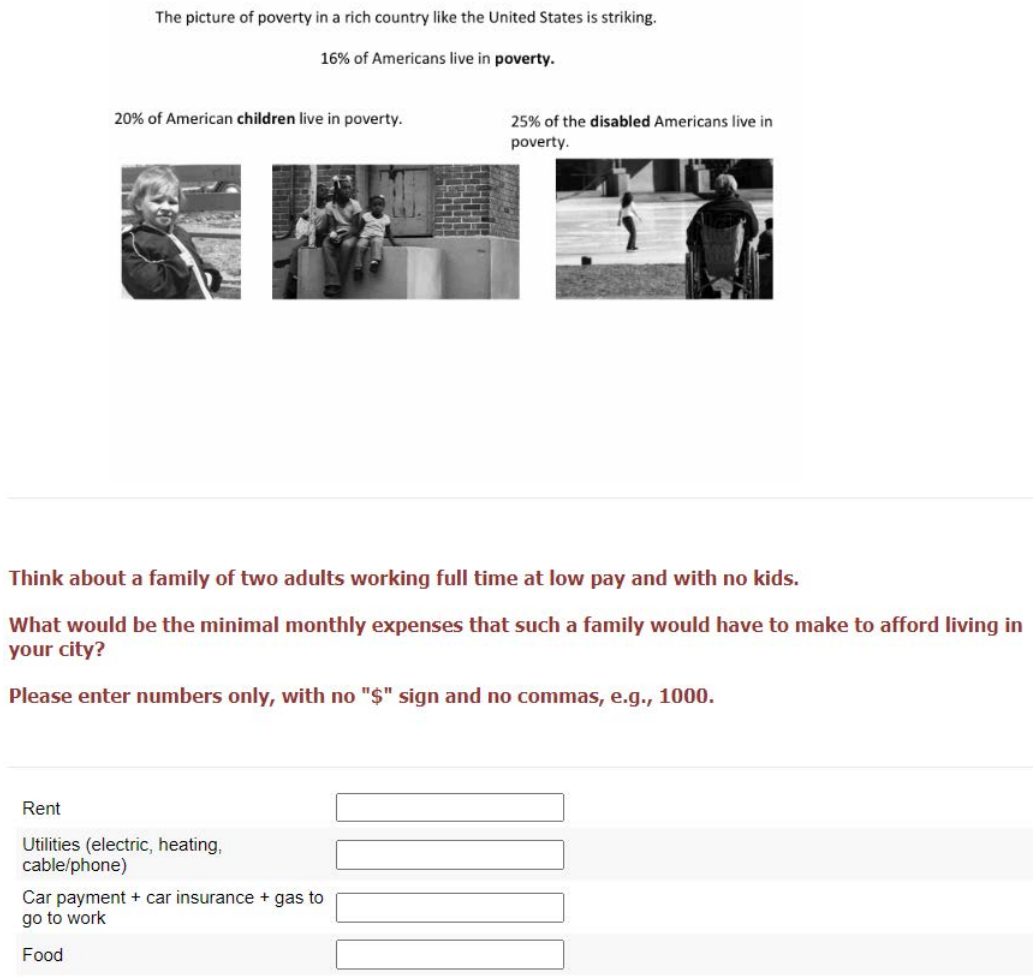
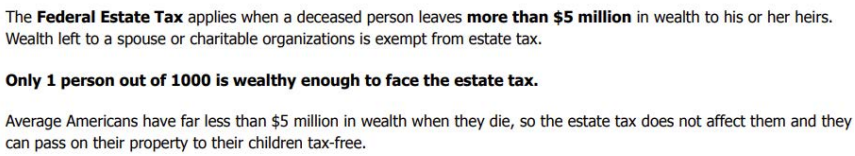


FIGURE A-8: INFORMATION PROVISION WITH AND WITHOUT EMOTIONAL PRIMING FROM KUZIEMKO ET AL. (2015)

(A) INFORMATION PROVISION WITH PRIMING



(B) NEUTRAL INFORMATION PROVISION

A-4.3 Factorial experiments: vignette and conjoint designs

Methodological papers

- Sauer et al. (2020) conduct experiments in which they investigate the effects of presentation style, answering scales, and order of vignettes on experimental results. They find no difference in results when vignettes were presented as texts or tables. Furthermore, they find that compared to rating scales open scales lead to more measurement problems and that variation of vignette order does not substantially affect results. Rating scales are scales with a discrete, ordered number of options, for example from -5 to 5. Open scales, on the other hand, allow respondents to assign a number to how they perceive a certain aspect. They are often used in multi-part questions. For example, in this case, respondents are presented a vignette on earnings first asked whether they think the earnings are just or unjust, then whether the earnings are too high or too low, and lastly are asked to assign a number to the amount of injustice they perceive.

- Jasso (2006) provides guidance on how to conduct factorial survey analysis. Specifically, the author proposes a framework that differentiates between individuals' normative and positive beliefs and presents guidelines on how to generate and collect vignette data.

- Sauer et al. (2014) study respondents' comments about a vignette question bout the fairness of earnings asked in the 2008 German Socio-Economic Panel (SOEP). Overall, older and less-educated respondents found the question difficult to comprehend and many respondents thought that some profiles were unrealistic.

On econometric analysis of conjoint experiments

- Hainmueller et al. (2014) formalize conjoint analysis within the potential outcomes framework. Assuming i) stability across choice tasks, ii) that randomization in one task does not affect respondents' choice in the others, iii) randomization of the order of vignettes presented, and iv) no order effects, one can unbiasedly estimate the Average Marginal Component Effect (AMCE). This measure represents the direct causal effect of a single attribute on the outcome of interest while averaging the distribution of the other features.

- Bansak et al. (2022) highlight the central importance of the ACME in conjoint analysis through its formal and conceptual underpinnings. The authors particularly focus on voting behavior and show that the AMCE represents an aggregation of individual-level preferences that combines their direction and intensity and that this holds true for other common estimands such as the Average Treatment Effect (ATE).

- de la Cuesta et al. (2022) study how the choice of profile distribution affects the conclusions of conjoint analysis. Simply assuming a uniform distribution, which is likely to be different from what happens in the real world, hinders external validity. To correct for this, they introduce the concept of population AMCE (pAMCE), which accounts for the relative frequency of each profile in the target population. The latter can be chosen on the basis of real-world data or it can be a theoretically derived counterfactual.

- Leeper et al. (2020) focus on the practice of computing differences in AMCE to perform subgroup analysis, that is, looking at AMCE for the same feature across groups and using that difference as an estimate of the between-group difference in preference for that feature. The authors show that since AMCE is conditional on a reference category, this difference can yield misleading results when the reference category is different across groups. Hence, they suggest using the difference in conditional marginal means to report the analysis descriptively and include interaction terms between subgroup covariates and all features level to formally test for subgroup differences.

Examples of factorial experiments

On labor market and discrimination

- Folke and Rickne (2022) investigate the impact of sexual harassment in the labor market. They run a survey experiment in which respondents choose from hypothetical job offers that vary in wages and work conditions. In this design, the authors incorporate a forced-choice paired vignette design that presents respondents with one of four different kinds of vignettes: one where most people are content in the job, one without any particular information, one with some employees having a conflict with the manager, and one with a sexual harassment scenario. Vignettes are a particularly useful instrument here because unlike information on pay that would be included in a contract, information on harassment would likely be transmitted via rumors or anecdotes. Furthermore, through the vignette design, the authors can include different types of sexual harassment and the authors are able to avoid using the term "sexual harassment," instead leaving the interpretation of scenarios to the respondent. They find that when respondents see a vignette in which someone of their sex experiences sexual harassment, they are willing to accept a 17% pay decrease to avoid this job, but when the vignette shows someone of the opposite sex experiencing such harassment, this willingness to pay is only 6%.

- Teele et al. (2018) investigate the forms of bias that could limit women's representation in politics. They run surveys on three samples in the US (one nationally representative, two of public officials) and conduct paired-conjoint analysis in which respondents compare two candidates that vary in gender, political experience, occupation, number of children, and age. Rather than outright hostility or double standards, the evidence suggests a double bind: characteristics that usually impede a career in politics, such as having a large family, are seen as more important for women than for men.

On taxation

- Gross et al. (2017) exploit a vignette design to determine the drivers of attitudes toward inheritance taxes using a German sample. In the survey, the authors present respondents with situations in which the gender of the heir, the type of inheritance, the relationship of the heir with the testator, and the income of the heir can vary. Then, respondents are asked their preferred wealth tax rate. They find that desired tax rates are higher when the bequest is large and when the income level of the heir is high. On the other hand, the desired tax rate decreases when the heir had a close relationship with the testator.

- Fisman et al. (2020) use a vignette design in which profiles differ on their income, wealth, and source of wealth to jointly estimate the preferred tax rates for income and wealth in the US. They find that respondents prefer a roughly linear tax on income (around 13-15%), while the preferred tax rate on wealth differs depending on its source: if it comes from savings, then the desired level is 0.8% whereas for wealth coming from inheritance this figure increases to 3%.

- Saez and Stantcheva (2016) complement their theoretical findings for optimal tax theory with an online survey of US respondents that tests people's utilitarian and libertarian preferences. In the survey, respondents are asked to allocate a tax break between two different families that differ in their pre-tax and post-tax income, among other kinds of questions. They show that both pre-tax and post-tax are important predictors of the allocation of the tax break.

On macro-finance

- Andre et al. (2022) use a representative sample of the US and a sample of experts to investigate different subjective models of the economy. The authors use vignettes that describe hypothetical future shocks to oil supply, government spending, monetary policy, and income taxes. These shocks can either be increases or decreases in these variables. The authors find that households and experts focus on different channels when making predictions about unemployment and inflation: experts focus on standard textbook channels whereas households tend to recall channels they were exposed to in the past.

- Christelis et al. (2019) use a representative sample of Dutch households to study the consumption response to income shocks (i.e., the marginal propensity to consume (MPC). By presenting respondents with shocks of different sizes and directions, they find that households' MPCs are larger for negative shocks, for poorer households, and that it increases with age.
- Fuster and Zafar (2021) estimate the sensitivity of willingness to pay for a house to changes in financing conditions using an online survey. In particular, they present respondents with different mortgage rates, downpayment sizes, and an exogenous shock to non-housing wealth. They find that sensitivity to downpayment size and non-housing wealth is high, especially for credit-constrained households, while changing the mortgage rate has a more moderate effect on the willingness to pay.
- Fuster et al. (2020) study features of marginal propensities to consume in order to better inform consumption theories. They use a survey to create hypothetical scenarios of income shocks. These shocks can vary in size ($500 to $2,500 to $5,000), direction (loss vs. gain), and whether there was news about the shock. The authors also include one treatment condition on an unexpected, interest-free loan opportunity. They find evidence of loss aversion, that households' responses to gains are very heterogeneous, and that responses to losses are greater than responses to gains. Moreover, news about gains do not have behavioral responses, households do not respond to the one-year interest-free loan, and news about future income losses leads people to reduce their spending.

On returns to education

- Wiswall and Zafar (2021) study how students perceive returns to human capital. They elicit beliefs of high-ability college students on future returns (future earnings, employment, marriage prospects, fertility) of their degree major choice by asking them to allocate a probability to each specific event (such as marrying, future earnings, and fertility) at different points in time in the future (i.e., at 23 years of age, at 30 years of age and at 45). They find that students sort into majors on the basis of these perceived returns and that students see their choice of major as related not only to future earnings but also to marriage and the number of children.
- Boneva and Rauh (2019) study why students from low socio-economic backgrounds are less likely to go to university by eliciting pecuniary and non-pecuniary motives that may drive students' enrollment decisions. They present scenarios with differing grades and future labor market outcomes and find that students with low socio-economic backgrounds perceive both the pecuniary and non-pecuniary returns to education to be significantly lower.
- Kiessling (2021) uses different hypothetical scenarios with varying parenting styles and neighborhood qualities to understand how parents perceive the interaction between the environment and their parenting. The author finds that parents perceive large returns to parental warmth and neighborhood quality.
- Attanasio et al. (2020) elicit beliefs of parents in the UK on the returns to different types of investments in school children by presenting them with different hypothetical scenarios that vary in time investment, cost, and school quality. They find that parents perceive the returns of higher investments in time or money to be more important than school quality.
- Wiswall and Zafar (2018) elicit beliefs on expected attributes of jobs/workplace by presenting different hypothetical scenarios that vary in flexibility, probability of dismissal, and future earnings to study how these attributes affect pre-labor-market human capital decisions, They find that women prefer flexibility and stability and men prefer higher earnings growth.

On policy support

- Bansak et al. (2021) use a sample of respondents from five European countries to understand the drivers of support for austerity. The authors use a paired conjoint design in Italy and Spain in which respondents compare two different austerity packages that differ in terms of tax hikes and spending cuts. They find that support heavily depends on the identity of political backers of the package and on the precise composition of spending cuts and tax hikes.

- Bechtel and Scheve (2013) use nationally representative samples from France, Germany, the UK, and the US to understand what drives support for climate agreements. They use a forced-choice paired conjoint analysis that asks respondents to choose between two climate agreements that vary in costs and distribution, participation, and enforcement. The authors find that people prefer climate agreements that cost less, have a fair cost distribution, involve more countries, and include small sanctions for non-compliant countries.

- Christensen and Rapeli (2021) leverage a sample of voting-age Finnish citizens to document the drivers of differences in preferences on how long a given public policy takes to produce tangible results. Using a paired conjoint design, they present respondents with policies that can differ on time horizon, policy topic, level of decision-making, costs, benefits, certainty, and support from politicians and experts. They find that people do have a preference for more immediate policies, but not a strong one. They further find that willingness to wait for results is driven by education levels (more educated people are more willing to wait for policies' impact) rather than political trust.

- Hanksinson (2018) uses a national sample in the US to see what features of new buildings drive support for the Not In My Backyard (NIMBY) movement. They further investigate differences in NIMBY attitudes between homeowners and renters. By using a forced-choice paired conjoint design in which respondents are asked to evaluate two buildings that differ in size, purpose, distance from residence, and share available as affordable housing, they find that renters in high-rent cities display NIMBYism to the same degree as homeowners when new buildings are available at market rate because they fear upward pressure on rents.

- Gallego and Marx (2017) use a nationally representative sample from Spain to understand which dimensions (for example, how much a program costs) affect support for labor market policies. The authors use a forced-choice paired conjoint analysis that compares two labor market policies differing in cost, purpose, source of funding, training, and target population. They find that respondents prefer policies that support the poor and policies that are funded at the expense of unpopular policies.

On immigration

- Bansak et al. (2016) leverage a representative sample for 15 European countries and use a paired conjoint design to understand which features of refugees drive differences in attitudes towards asylum seekers. Respondents tend to favor Christian refugees, those who have fled from physical distress rather than economic hardship, and those who are more likely to contribute to the economy.

- Wright et al. (2016) leverage two national surveys in the US to investigate what drives the differences in attitudes toward legal and illegal immigrants. Using a forced-choice paired conjoint design, the authors present respondents with two profiles differing in their legal status, education, family structure, employment history, origin, religion, language level, and work. The authors find that the key driver is the illegal status rather than personal attributes such as age, education, or marital status.

On health and ethics

- Ambuehl et al. (2015) use an online sample from MTurk to investigate perspectives on transactions such as paid kidney donations and prostitution from an economic and ethical point of view. Ethicists may think that such monetary incentivization damages the judgment of a person whereas economists may think that it is best for people to have as many choices as possible and to compensate such transactions highly. To separate respondents into these two categories, the authors present them with hypothetical clinical trials that differ only in the compensation offered to participants. They find that "economists" would rate a payment of $10,000 as more ethical than a payment of $1,000 whereas the opposite holds true for the "ethicists."

- Ambuehl and Ockenfels (2017) use a vignette design to understand why individuals may find monetary incentives to participate in complex transactions (such as human egg donations) unethical. They present respondents with profiles of participants in these transactions that can differ in cognitive

ability, level of education, and financial situation. They find that respondents are more opposed to increasing the incentive for such transactions (i.e., paying more for an egg) when the donor is low ability than when the donor is in financial distress.

On social norms

- Fong and Luttmer (2011) use a factorial design to understand which features drive donations to charities supporting the poor in the US. By changing the racial composition and perceived worthiness of the recipients through different photos and audio presentations, the authors find that donations increase when recipients are presented as worthy. Moreover, presenting recipients as worthy and showing a picture of Black individuals leads to higher donations from Black individuals than from non-Black ones.

- Fong and Luttmer (2009) use a factorial design in which respondents are presented with different profiles of victims of Hurricane Katrina. By changing race, income, and worthiness in an audio presentation of victims, the respondents are asked to split $100 between themselves and the victims, as described in A-3.3. On average, race and worthiness do not change generosity, but people do tend to donate more in disadvantaged economic areas. Moreover, race becomes important when respondents have a high or low degree of in-group loyalty: those that feel closer to their race tend to donate more to victims of the same race, while those who feel less close to their race donate less to victims of the same race.

On politics

- Carey et al. (2021) conduct an online survey experiment to understand whether electoral inversion (i.e., when a candidate or party wins an election despite losing the popular vote) decreases the perceived legitimacy of the winner. To do so, they run two experiments with different scenarios for the 2020 US Presidential election. In the first experiment, they employ a factorial design in which the Electoral College vote remains constant but the margin of victory and the winning party vary. In the second experiment, they also vary the margin of victory and randomly reminded half of the respondents that the 2016 election was an electoral inversion. The results suggest that electoral inversion decreases the legitimacy of the candidate regardless of the popular vote margin and that this effect is mostly driven by Democrats.

- Hainmueller et al. (2015) use an online sample of Swiss citizens representative of the Swiss population of voting age to see how well conjoint analysis can predict subsequent political choices. The authors use different designs, reported below in Appendix Figure A-9 to present respondents with profiles of foreign residents that differ in age, gender, education, origin, language skills, and integration status. Respondents are then asked to decide whether or not to give each profile the right of citizenship. Results from this experiment are then compared to results of a natural experiment, in which Swiss municipalities decided to use referendums to decide on citizenship applications. The authors find that all designs match the real-world data and that the paired conjoint design, described in Section 6.4, is the best performing one.

Figure A-9: Vignette and Conjoint Designs from Hainmueller et al. (2015)

(A) Single Vignette

Please take a thorough look at the applicant's profile and then make your decision.

Applicant 1 from Turkey is 30 years old and has lived in Switzerland since birth. He has completed an apprenticeship. The applicant speaks good German with an accent and is assimilated in Switzerland.

Do you want Applicant 1 to be granted Swiss citizenship?

☐Yes ☐ No

(B) Paired Vignette

Please take a thorough look at the profiles of the two applicants and then make your decision.

Applicant 1 from the former Yugoslavia is 30 years old and has lived in Switzerland for 29 years. He graduated from university. The applicant speaks Swiss German without an accent and can hardly be distinguished from a Swiss.

Applicant 2 from Austria is 30 years old and has lived in Switzerland for 29 years. He has completed an apprenticeship. The applicant speaks Swiss German without an accent and can hardly be distinguished from a Swiss.

Do you want the applicants to be granted Swiss citizenship?

	Yes	No
Applicant 1	☐	☐
Applicant 2	☐	☐

(C) Single Conjoint

Please take a thorough look at the applicant's profile and then make your decision.

	Applicant 1
Sex	Female
Country of Origin	Italy
Age	55 years
In Switzerland since	Birth
Educational Status	Mandatory schooling
Language Proficiency	Speaks Swiss accent-free
Integration Status	Hardly different from a Swiss

Do you want Applicant 1 to be granted Swiss citizenship?

☐Yes ☐ No

(D) Paired Conjoint

Please take a thorough look at the two applicant profiles and then make your decision.

	Applicant 1	Applicant 2
Sex	Female	Male
Country of Origin	the Netherlands	Bosnia and Herzegovina
Age	55 years	55 years
In Switzerland since	Birth	14 years
Educational Status	Mandatory schooling	Mandatory schooling
Language Proficiency	Speaks German fluently without accent	Speaks accent-free Swiss German
Integration Status	Hardly different from a Swiss	Is integrated into Switzerland

Do you want the applicants to be granted Swiss citizenship?

	Yes	No
Applicant 1	☐	☐
Applicant 2	☐	☐

(E) Paired Conjoint with Forced Choice

Please take a thorough look and then make your decision.

Which of the two applicants do you prefer for the granting of Swiss citizenship?

	Applicant 1	Applicant 2
Sex	Male	Male
Country of Origin	the Netherlands	Italy
Age	30 years	41 years
In Switzerland since	20 years	Birth
Educational Status	Mandatory schooling	Mandatory schooling
Language Proficiency	Speaks good German with an accent	Can communicate well in German
Integration Status	Highly familiar with Swiss traditions	Highly familiar with Swiss traditions
	☐	☐

Note: This figure shows translated vignette and conjoint designs from Hainmueller et al. (2015), in which respondents are asked to choose applicants for obtaining Swiss citizenship in several different formats. Attribute order is fixed in all examples. In the single vignette (Panel (A)) and single conjoint (Panel (C)), respondents have to select "yes" or "no" for the applicant. The same applies to the paired variation (Panels (B) and (D) for vignette and conjoint, respectively), but have to select "yes" or "no" for each of the two applicants. In Panel (E), respondents have to choose between one of the two applicants.

A-5 Libraries of Questions

- The General Social Survey: http://www.gss.norc.org/
- The World Value Survey: https://www.worldvaluessurvey.org/wvs.jsp
- The National Election Survey: https://electionstudies.org
- Gallup Analytics: https://www.gallup.com/analytics/213617/gallup-analytics.aspx
- Roper Center for Public Opinion Research: https://ropercenter.cornell.edu
- Pew Research Center: https://www.pewresearch.org/question-search/
- The Inter-University Consortium for Political and Social Research (ICPSR) is a great resource

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