Information Preferences and the Short and Long Run Effects of Information

Pre-Analysis Plan – Updated Version (14.01.2020)

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Note on the update: *To achieve our desired sample size, we also conduct our experiment at the BonnEconLab (Laboratory for Experimental Economics at the University of Bonn). This updated version includes two additional sections (2.2 and 2.4) that explain how we implement the experimental sessions in Bonn.*

1. Introduction

The development of information technologies, particularly the internet, has fundamentally lowered the cost of information acquisition for consumers, promising large-scale improvements in decision making and welfare. Yet, recent research has highlighted that consumers do not attend to readily-available information and actively avoid it in various circumstances, even when it is highly relevant for decision-making (Hertwig and Engel, 2016; Golman et al. 2017, Handel and Schwartzstein 2018). For example, there is evidence that individuals avoid information on their health condition (Oster et al., 2013; Ganguly & Tasoff, 2017) or the negative externalities their actions impose on others (e.g. Dana et al., 2007; Larson & Capra, 2009; Kajackaite, 2015; Spiekermann & Weiss, 2016; Grossman & van der Weele, 2017).

As a result, the effect of information provision hinges not only on the effect of information but also on information preferences and how the impact of information varies with these preferences. Put differently, are individuals with weak preferences for information more or less responsive to information if they actually receive it? What are the consequences of information avoidance in the short and the long run?

In this project, we investigate how the effect of information interacts with information preferences in the context of meat consumption and industrial livestock farming. This context is particularly well-suited for our study as it gives rise to a moral dilemma between utility from consumption and animal suffering, where information avoidance is likely to be relevant (Hestermann

et al. 2018; Serra-Garcia & Szech, 2019). First, we quantify consumers' willingness-to-pay for information on industrial livestock farming. Second, we estimate how information on industrial livestock farming affects meat consumption in the short and long run. Third, we test whether the impact of information varies with respect to the relative strength of preferences for information. Fourth, we test whether individuals actively avoid information and shed light on the consequences of information avoidance by quantifying the information effect for information avoiders.

2. Research design

Our research design builds on three central elements: (i) the elicitation of the willingness-to-pay (WTP) for information on industrial livestock farming, (ii) variation in the treatment of receiving this information, and (iii) the observation of subjects' meal choices (in particular their meat consumption) in the short and long run. We investigate short run effects based on a laboratory experiment (sections 2.1 and 2.2). In addition, we can analyze long run effects due to supplementary field data (sections 2.3 and 2.4).

2.1 Laboratory experiment – Mannheim

We plan to conduct a laboratory experiment, in which participants have the opportunity to receive information in the form of a 360° video on living conditions of pigs in industrial livestock farming. The video shows segments from the video "Durch die Augen eines Schweins" (Through the Eyes of a Pig), which was produced by the animal rights organization *Animal Equality* and has received the German web video award (*Deutscher Webvideopreis*) in 2016.[1] The key steps of the experimental procedure are as follows:

1. Subjects from the subject pool of the mLab (Mannheim Laboratory for Experimental Economics) are invited via email to participate in an experimental session. The email includes a link to a consent form, which must be signed prior to the experiment.
2. At the beginning of an experimental session, subjects are randomly allocated to a seat. At each seat, headphones and VR glasses are provided for watching the 360° videos. Subjects adjust the headphones and test whether the virtual reality (VR) glasses fit well based on a short instruction. After all subjects are satisfied with the fit of their headphones and VR glasses, they watch a 360° video from the German Federal Ministry for Economic Cooperation and Development about the tropical rainforest

[1] The complete video is available online: https://www.youtube.com/watch?v=_pC0_mqmp6w (accessed 08.11.2019)

for 5 minutes.[2] This video serves two purposes. First, subjects get familiar with the VR glasses and can test whether everything works well. Second, the video offers subjects some first experience that can satisfy their general curiosity about VR. After the video, the VR glasses are collected to prepare the next video.

3. Subjects continue the experiment at the computer, read some general instructions and answer questions, e.g. whether they have any prior experience with VR or how sensitive they are to movie scenes with extreme violence. They are also asked to provide their ecUM (electronic card Universität Mannheim) number on a sheet of paper, which contains the participant ID (a combination of session and seat number). The ecUM is the student card at the University of Mannheim. The combination of ecUM number and participant ID allows us to link the laboratory and field data (see section 3.2).
4. Subjects are informed that the next video they are going to watch shows segments form a VR tour through the office building of the "Deutsche Bundesbank" (German Central Bank).[3] Prior to watching the video subjects answer some questions regarding the "Deutsche Bundesbank".
5. Subjects are provided with VR glasses, watch the 360° video about the "Deutsche Bundesbank", and subsequently receive questions about the experience they have made. The VR glasses are collected to prepare the next video.
6. Subjects are informed that during the course of the experiment they have the opportunity to watch a 360° video, which shows recordings from pig factory farms, and answer questions in the context of industrial livestock farming and meat consumption.
7. Subjects decide whether they would like to watch the video about the "Deutsche Bundesbank" again or the 360° video about living conditions of pigs in industrial livestock farming. Subjects receive a short description of the two options denoted as "Option A" and "Option B", and are informed that both videos have the same length. We randomize which video is denoted as "Option A". Prior to the decision, subjects receive a detailed explanation of the choice task and must answer a control question. They can only proceed to the decision screen once they have answered the control question correctly. Subjects face eleven choice tasks of which one is randomly implemented and which differ in the relative

[2] The video is available online: https://www.youtube.com/watch?v=5S9nArmo_x4 (accessed 08.11.2019)

[3] The complete video is available online: https://www.youtube.com/watch?v=EeDZLnRCR4w (accessed 08.11.2019)

price of information (i.e. the relative price for watching the video about industrial livestock farming). The decisions look as follows (translated to English):

Decision number	**Option A**: You watch the 360° video about industrial livestock farming	**Option B**: You watch the 360° video about the German Central Bank
E1	Choose **Option A** and earn **0,00 €** additionally ○	Choose **Option B** and earn **8,00 €** additionally ○
E2	Choose **Option A** and earn **0,00 €** additionally ○	Choose **Option B** and earn **5,00 €** additionally ○
E3	Choose **Option A** and earn **0,00 €** additionally ○	Choose **Option B** and earn **3,00 €** additionally ○
E4	Choose **Option A** and earn **0,00 €** additionally ○	Choose **Option B** and earn **1,00 €** additionally ○
E5	Choose **Option A** and earn **0,00 €** additionally ○	Choose **Option B** and earn **0,50 €** additionally ○
E6	Choose **Option A** and earn **0,00 €** additionally ○	Choose **Option B** and earn **0,00 €** additionally ○
E7	Choose **Option A** and earn **0,50 €** additionally ○	Choose **Option B** and earn **0,00 €** additionally ○
E8	Choose **Option A** and earn **1,00 €** additionally ○	Choose **Option B** and earn **0,00 €** additionally ○
E9	Choose **Option A** and earn **3,00 €** additionally ○	Choose **Option B** and earn **0,00 €** additionally ○
E10	Choose **Option A** and earn **5,00 €** additionally ○	Choose **Option B** and earn **0,00 €** additionally ○
E11	Choose **Option A** and earn **8,00 €** additionally ○	Choose **Option B** and earn **0,00 €** additionally ○

To minimize the cognitive burden, we order the decisions according to the implicit price of "Option A". Our elicitation of the WTP for information

has four important features. First, we carefully select the outside option to be able to identify active information avoidance. Both video options have the exact same length and watching the video about the "Deutsche Bundesbank" again should neither be entertaining nor informative (something we can check with the experimental data). Second, when subjects make their WTP decisions, they have already watched two very different 360° videos with the VR glasses. This is meant to decrease the probability that subjects choose the video about industrial farming purely out of curiosity for a new VR experience. Third, we vary the relative prices for watching the video on industrial livestock farming from -8 to +8 EUR. With this wide range we try to achieve that subjects do not prefer one video option over the other for all relative prices. As a result, every subject has a positive probability of (not) watching the video on industrial livestock farming. This allows us to estimate the average treatment effect of information via propensity score weighting methods such as inverse probability weighting (Imbens and Wooldridge 2009). In our pretest all 22 participants switched at some relative price. Finally, to avoid that subjects with a very high or low WTP for information are extremely likely or unlikely to receive information, each endpoint of the WTP elicitation (i.e. receiving additional 8 EUR for watching one particular video) is implemented with a probability of 27.5 percent, while all other decisions are implemented with a probability of 5 percent.

8. Subjects are provided with the VR glasses and watch the video about industrial livestock farming or the "Deutsche Bundesbank", depending on the decision that was randomly selected by the computer. After watching the video, they receive a set of questions about the experience they have made.

9. In the last part of the experiment, subjects answer some additional questions (e.g. on demographics) and have the chance to win a voucher for the main canteen at the University of Mannheim (with 50 percent probability). They can choose which of two vouchers they would like to receive if they win (the order is randomized): a voucher for menu 1, which usually contains meat (or fish), or a voucher for the vegetarian menu. This decision is used to measure the short run effect of information. To give subjects a better idea of the options, we provide the exact meals that correspond to the vouchers for a sample week (21.10.19–25.10.19). Each voucher has a value of €3. Whether a subject wins or not is determined by a random draw (by the computer) and is independent from the lottery outcome of other subjects.

10. At the end of the experiment, subjects are informed about the lottery outcome and their overall reward. The monetary reward from the experiment is not paid in cash but transferred onto the ecUM (electronic card Universität Mannheim). The ecUM serves as student card at the University of Mannheim and can be used to purchase products in the canteens or other products like the six-month student transit pass. Subjects need to activate the credit on their ecUM by visiting the information counter of the "Studierendenwerk Mannheim", which is in the same building as the main canteen. The credit is available from Tuesday in the week after the experimental session onwards. Before leaving the laboratory, subjects receive an envelope that contains information on their credit and the corresponding voucher if they have won.

2.2 Laboratory experiment – Bonn [added on 14.01.2020]

Due to a limited subject pool at the mLab we also conduct experimental sessions at the BonnEconLab (Laboratory for Experimental Economics at the University of Bonn). The content of the experiment is identical to the experiment in Mannheim. We merely adjust its implementation in the following ways:

1. Subjects are recruited form the subject pool of the BonnEconLab.
2. The two vouchers subjects can choose from are not for a whole menu but for a main dish. In particular, subjects can choose from (i) a voucher for a vegetarian main dish ("Vegetarische/Vegane Hauptkomponente") and (ii) a voucher for a non-vegetarian main dish ("Fleisch/Fisch Hauptkomponente"). The voucher can be used at two different canteens of the "Studierendenwerk Bonn". To give subjects a better idea of the options, we provide the exact meals that correspond to the vouchers for a sample week at one of the canteens. The value of a voucher depends on the particular main dish it is used for. For students, the prices of the main dishes usually vary from €1.35 to €2.05.
3. The monetary reward from the experiment is transferred onto the Mensa-Card which is used to make noncash payments at the university canteens. Only students with a Mensa-Card are able to participate in the experiment. Subjects need to activate the credit on their Mensa-Card in one of two canteens. The credit is available from Monday in the second week after the experimental session onwards.

2.3 Field data on meal purchases – Mannheim

The experimental data from Mannheim is supplemented by data on subjects' meal purchases made in the period 01.08.2019–31.05.2020 at the canteens of the "Studierendenwerk Mannheim". The data will be provided by the "Studierendenwerk Mannheim". The purchases are made with the ecUM and therefore can be assigned to a particular subject based on the ecUM number the subjects have provided during the experimental sessions. Although it is possible to pay in cash at the canteens, the student discount is conditional on paying with the ecUM and few transactions are actually made in cash. For a sample period from 01.10.2019 till 31.10.2019 less than two percent of the transactions in the main canteen were made in cash. We obtain informed consent of subjects to access their data prior to the experimental sessions. The data on meal purchases outside the laboratory is used to measure the long run effect of information.

2.4 Field data on meal purchases – Bonn [added on 14.01.2020]

The experimental data from Bonn is supplemented by data on subjects' meal purchases made in the period 01.10.2019–19.07.2020 at the canteens of the "Studierendenwerk Bonn". The data will be provided by the "Studierendenwerk Bonn". The purchases are made with the Mensa-Card and therefore can be assigned to a particular subject based on the number of the Mensa-Card the subjects have provided during the experimental sessions. We obtain informed consent of subjects to access their data prior to the experimental sessions. The data on meal purchases outside the laboratory is used to measure the long run effect of information.

2.5 Hypotheses

Our first hypothesis is that receiving information on industrial livestock farming affects the likelihood of choosing the non-vegetarian voucher at the end of the experiment, as well as the likelihood of eating meat when purchasing a meal in one of the canteens during the observed time period after the laboratory experiment. To determine the average treatment effect of information, we employ propensity score weighting methods (see Section 3.4).

Hypothesis 1a: Information effect in the laboratory (short run)
Receiving information on industrial livestock farming affects the propensity to choose the non-vegetarian voucher in the laboratory experiment.

Hypothesis 1b: Information effect in the field (long run)
Receiving information on industrial livestock farming affects the propensity to eat meat when purchasing a meal in one of the canteens during the observed time period after the experiment.

As next step, we hypothesize that the effect of information varies with the strength of the preference for information. We use the data from the WTP elicitation to estimate the demand curve for information and divide our sample into individuals with weak and strong preferences for information. Anyone with a WTP below the median WTP is denoted as having a weak preference for information while anyone with a WTP above the median WTP is denoted as having a strong preference for information. The individuals at the median are assigned such that maximum balance is achieved. To explore information effect heterogeneity by relative preference type, we again use propensity score weighting methods.

Hypothesis 2a: Information effect heterogeneity by information preferences in the laboratory (short run)
The impact of information on the propensity to choose the non-vegetarian voucher in the laboratory experiment varies with the strength of the preference for information (weak vs. strong).

Hypothesis 2b: Information effect heterogeneity by information preferences in the field (long run)
The impact of information on the propensity to eat meat when purchasing a meal in the one of the canteens during the observed time period after the experiment varies with the strength of the preference for information (weak vs. strong).

In addition to considering the relative strength of preferences for information – i.e. by comparing strong vs. weak preferences – we formulate hypotheses with respect to active information avoidance, which implies that individuals choose to be informed when information is costless (Golman et al., 2017). We hypothesize that a positive number of individuals actively avoids information.

Hypothesis 3: Information avoidance
When information on industrial livestock farming is costless, a positive fraction of subjects decides not to receive information.

Finally, we hypothesize that information avoiders are affected by information. We estimate the impact of information on information avoiders by

restricting our sample to subjects with a negative WTP and applying propensity score weighting. Afterwards we use our estimates to shed light on the short and long run consequences of information avoidance.

Hypothesis 4a: Information effect on information avoiders in the laboratory (short run)
Receiving information on industrial livestock farming affects the propensity of information avoiders to choose the non-vegetarian voucher in the laboratory experiment.

Hypothesis 4b: Information effect on information avoiders in the field (long run)
Receiving information on industrial livestock farming affects the propensity of information avoiders to eat meat when purchasing a meal in one of the canteens during the observed time period after the experiment.

2.6 Empirical analysis

To answer Hypotheses 1a/b, 2a/b as well as 4a/b and to quantify the effect of information, we need to take into account that the likelihood of receiving information varies with the WTP for information. We employ propensity score weighting to account for the different probabilities and obtain unbiased estimates of the effect of information in the short and long run as well as the heterogeneous effects. As weights, we simply use the empirical propensity scores, i.e. the observed propensity to have the observed information status, given the interval in which the WTP for information lies. If for any interval this propensity is zero or one, we pool the interval with the interval below or above, depending on which interval contains fewer observations.

Our short run outcome variable is whether a participant chooses the voucher for the non-vegetarian menu that typically contains meat. Our long run outcome variable is whether a participant eats meat when purchasing a meal in one of the canteens. We code a meal as containing meat based on the weekly food plans. In cases where our data is insufficient to determine exactly whether a meal contained meat (e.g. the salad bar), we code it as containing meat if meals in that category typically do.

In our robustness checks, we consider an alternative long run outcome variable, which is whether a participants eats a non-vegetarian meal (i.e. containing meat or fish) when purchasing a meal in one of the canteens. We will also check whether the information effect differs by meat type (e.g. whether it is limited to pig meat) and whether the information on industrial livestock farming has an effect on the propensity to eat in the canteens.

2.7 Power calculations

We calculate the power of our statistical tests for hypotheses 1a/b, 2a/b and 4a/b (the respective hypothesis is always used as alternative hypothesis). As we use propensity score weighting to estimate the information effects, we employ Monte Carlo techniques to assess power (2,000 Monte Carlo replications). We assume that a subject who does not receive information on industrial livestock farming chooses the non-vegetarian voucher (e.g. the voucher for menu 1) with a probability of 73 percent. This assumption is based on data from the main canteen at the University of Mannheim, where about 27 percent of the purchased food items in the period from April 2018 to March 2019 are classified as vegetarian. We apply the same baseline probability to our long run outcome variable of eating meat since for a more accurate measure we would need to know the food plan of each day in the data period and recode all observed purchases accordingly. The data on the purchases in the main canteen is only available on an aggregate level, which means we are unable to determine the extent of within and between subjects variation in choosing a non-vegetarian meal.

To assess power, we also need to make an assumption about the WTP distribution. We use the empirical distribution from our pretest (22 participants) which is shown in the following table.

Table 1: Empirical WTP distribution

WTP for information	Number of subjects
$[-8, -5)$	0
$[-5,-3)$	1
$[-3, -1)$	1
$[-1, -0.5)$	0
$[-0.5,0)$	1
$[0,0.5)$	10
$[0.5,1)$	1
$[1,3)$	6
$[3,5)$	1
$[5,8)$	1

Since we assume that the probability to choose the non-vegetarian meal and to eat meat is homogenous for all subjects, we neglect baseline observations in our power analysis and regress the indicator of whether a non-

vegetarian voucher was chosen (hypothesis 1a) or the share of vegetarian meals chosen during/after the experiment (hypothesis 1b) on information status. For hypotheses 2a and 2b, we use the same outcome variables, but interact information status with the group dummy that indicates a participant's relative information preference (based on our pretest data, we classify all individuals with a WTP of 0.5 or above as having strong information preferences). For hypotheses 4a and 4b, we use the same specification as for hypotheses 1a and 1b, but only consider information avoiders. For simplicity, we use the theoretical probabilities of receiving the information as weights in all of our power calculations.

Our power calculations are based on a significance level of 5 percent. For hypotheses 1a and 1b we assume homogenous information effects of 20 or 10 percentage points. For hypotheses 2a and 2b we assume that individuals with strong information preferences are not affected by information whereas the information effect for individuals with weak information preferences amounts to 20 or 30 percentage points. For hypotheses 4a and 4b we assume that the information effect on information avoiders amounts to 20 or 30 percentage points. As the total number of observed choices for hypotheses 1b, 2b and 4b – i.e., the meals that our study participants will purchase in one of the canteens during the observation period after the experiment – is unknown, we determine the power for different scenarios, varying the number of purchases per subject from 1 to 50. The scenario with one observed choice also represents the power for the short run effect(s) (hypotheses 1a, 2a and 4a).

Figure 1 shows the statistical power for testing hypotheses 1a and 1b, when the true information effect amounts to 20 percentage points. 80 percent power can easily be reached with about 200 participants in total, even with only one observed choice (k=1). An information effect of 10 percentage points is more demanding (figure 2), but with about 1,000 observations (e.g. either 200 participants with 5 observed choices each, or 500 participants with 2 observed choices each) we achieve a power of about 90%. Note that we expect at least the short run effect to be large, which is supported by our pretest data.[4]

If we strive for a power of at least 80 percent for testing hypotheses 2a and 2b with a difference in the information effect of about 20 percentage points

[4] The group that received the information was about 54 percent less likely to choose the non-vegetarian voucher. If we take into account the different probabilities to receive the information by weighting observations according to the inverse of the theoretical propensity scores, the difference increases in absolute terms to 58 percent. Even if we divide subjects into two groups based on whether their preference for information is weak ($WTP < 0.5$) or strong ($WTP >= 0.5$) and apply the empirical propensity scores for each group, the difference remains above 50 percent. These are of course very imprecise measures since they are based on a very small sample, but they support our expectations.

(figure 3), we would need a sample size of 700 participants. However, if we have 2 observed choices per participant, 500 participants would be sufficient to achieve a power of about 90 percent for testing hypothesis 2b. Figure 4 shows power calculations for the case when the difference amounts to 30 percentage points.

Sample size requirements for testing hypotheses 4a and 4b are most demanding since we are restricting our attention to a subsample (figures 5 and 6). To detect a long run effect of information on information avoiders of 20 percentage points with 90 percent power, we would need a sample of 1,000 participants with two observed choices each. Yet, observing 5 choices would bring down the required sample size strongly. With 1,000 participants we have a little more than 60 (90) percent power to detect an information effect of 20 (30) percentage points in the short run.

In light of these simulation results, we aim for a total sample size of 1,000 participants, which provides decent power for almost all our hypotheses. Only hypothesis 4a is underpowered in case that the short run effect of information on information avoiders is only 20 percentage points.

The need of such a large sample size is primarily driven by hypotheses 4a and 4b. To use our research budget carefully, we conduct the experiment in two waves. In the first wave we aim for up to 500 participants, which provides sufficient power to test hypothesis 1a, 1b, 3 and with at least two observed choices per individual 2b. The data of this first wave will also provide evidence on the other hypotheses (2a, 4a, 4b) and – depending on the information effects as well as the number of observed choices – might be sufficient to detect significant effects/differences. If based on that first wave it is promising to increase the sample size to up to 1,000 participants to test hypotheses 2a, 4a and 4b, we will conduct a second wave using the same experimental design. If necessary, we will update this document with details on the second wave before running the second wave.

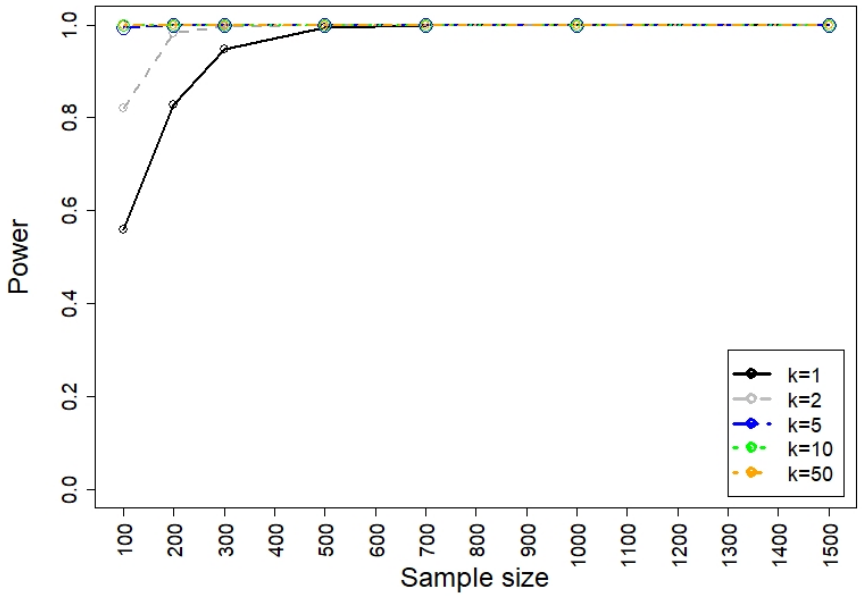

Figure 2: Power and sample size for test of hypotheses 1a/b, effect size of 20 percentage points, k denotes the number of observed choices.

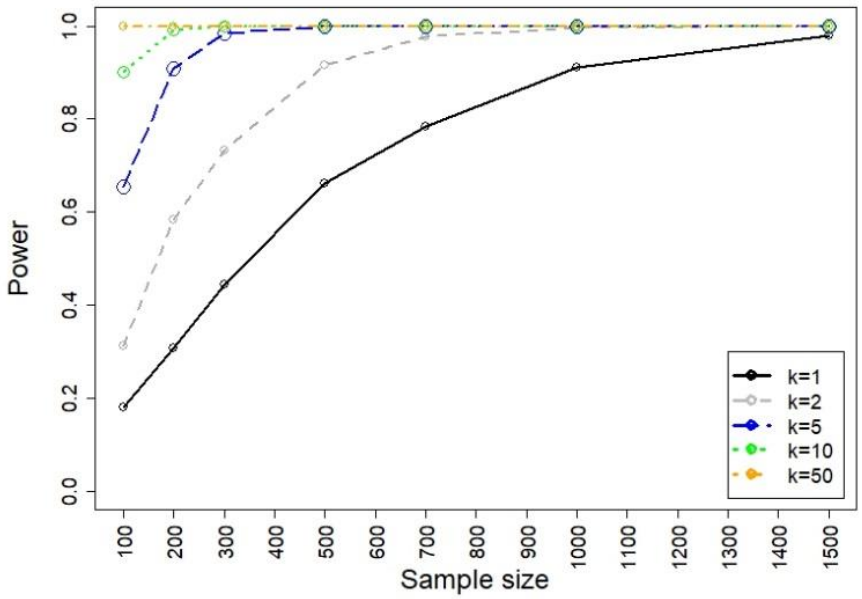

Figure 2: Power and sample size for test of hypotheses 1a/b, effect size of 10 percentage points, k denotes the number of observed choices.

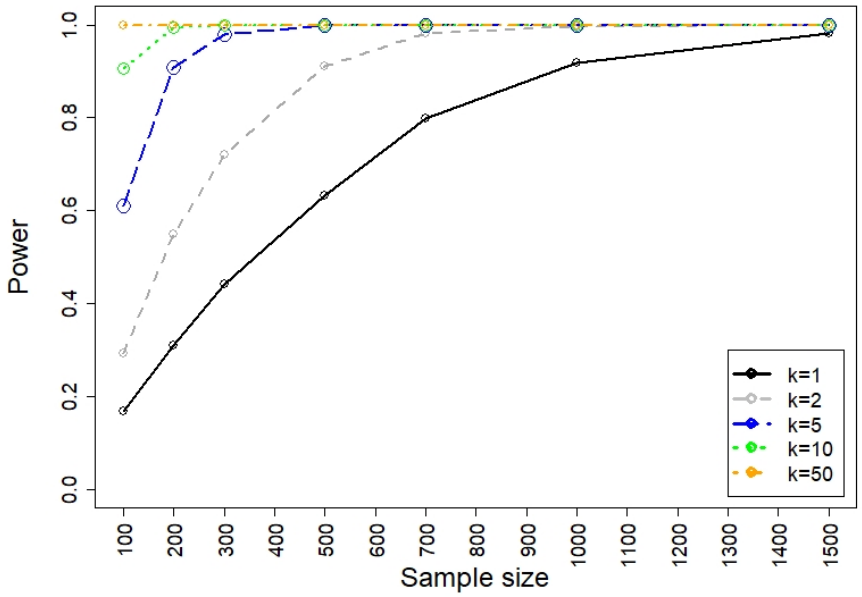

Figure 3: Power and sample size for test of hypotheses 2a/b, effect size of 20 percentage points, k denotes the number of observed choices.

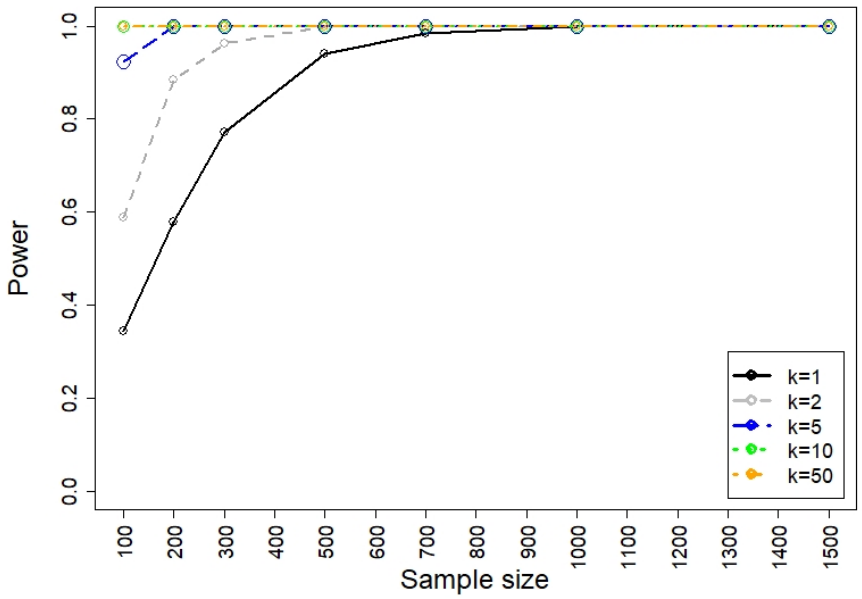

Figure 4: Power and sample size for test of hypotheses 2a/b, effect size of 30 percentage points, k denotes the number of observed choices.

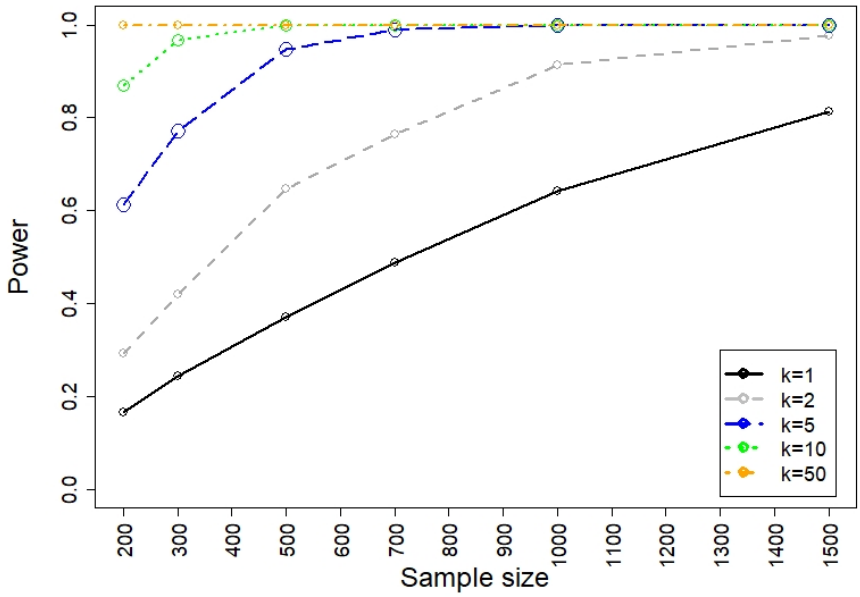

Figure 5: Power and sample size for test of hypotheses 4a/b, effect size of 20 percentage points, k denotes the number of observed choices.

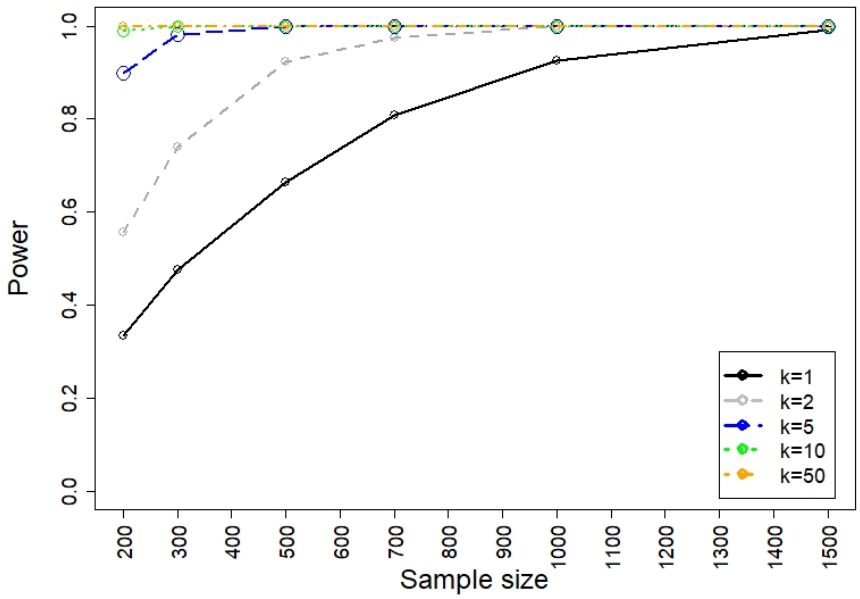

Figure 6: Power and sample size for test of hypotheses 4a/b, effect size of 30 percentage points, k denotes the number of observed choices.

References

Dana, J., Weber, R. A., & Kuang, J. X. (2007). Exploiting moral wiggle room: Experiments demonstrating an illusory preference for fairness. *Economic Theory*, 33(1), 67-80.

Ganguly, A., & Tasoff, J. (2016). Fantasy and dread: The demand for information and the consumption utility of the future. *Management Science*, 63(12), 4037-4060.

Golman, R., Hagmann, D., & Loewenstein, G. (2017). Information avoidance. *Journal of Economic Literature*, 55(1), 96-135.

Grossman, Z., & van der Weele, J. J. (2017). Self-image and willful ignorance in social decisions. *Journal of the European Economic Association*, 15(1), 173-217.

Handel, B., & Schwartzstein, J. (2018). Frictions or Mental Gaps: What's Behind the Information We (Don't) Use and When Do We Care?" Journal of Economic Perspectives, 32(1): 155-78.

Hertwig, R., & Engel, C. (2016). Homo ignorans: Deliberately choosing not to know. *Perspectives on Psychological Science*, 11(3), 359-372.

Hestermann, N., Le Yaouanq, Y., & Treich, N. (2018). An economic model of the meat paradox. Mimeo.

Imbens, G. W., Wooldridge, J. M. (2009). Recent Developments in the Econometrics of Program Evaluation. *Journal of Economic Literature*, 47 (1): 5-86.

Kajackaite, A. (2015). If I close my eyes, nobody will get hurt: The effect of ignorance on performance in a real-effort experiment. *Journal of Economic Behavior & Organization*, 116, 518-524.

Larson, T., & Capra, C. M. (2009). Exploiting moral wiggle room: Illusory preference for fairness? A comment. *Judgment and Decision Making*, 4(6), 467-474.

Oster, E., Shoulson, I., & Dorsey, E. (2013). Optimal expectations and limited medical testing: Evidence from Huntington disease. *American Economic Review*, 103(2), 804-830.

Serra-Garcia, M., & Szech, N. (2019). The (in)elasticity of moral ignorance. Mimeo.

Spiekermann, K., & Weiss, A. (2016). Objective and subjective compliance: A norm-based explanation of 'moral wiggle room'. *Games and Economic Behavior*, 96, 170-183.