Willful Ignorance and Moral Behavior*

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Abstract

Consumers' willful ignorance about the consequences of their actions may impede moral behavior. We test this concern in a real-world context based on a laboratory experiment and field data. We find that willful ignorance about farming practices increases consumption of meat from intensive farming, both in the laboratory and at university canteens. Individuals who prefer to avoid information are particularly responsive to it, yet their behavioral response vanishes after two weeks. Both findings demonstrate the difficulty of addressing willful ignorance through information interventions.

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1 Introduction

A growing body of literature has shown that individuals willfully ignore even costless information (Golman et al., 2017; Handel and Schwartzstein, 2018). In the domain of moral behavior, studies suggest that many individuals prefer to remain ignorant about the adverse consequences of their actions in order to maintain a positive self-image when acting selfishly (e.g., Dana et al., 2007; Grossman and van der Weele, 2017). A preference for ignorance may explain why individuals oppose policy efforts to reduce carbon emissions, despite growing evidence of potentially catastrophic climate change. It may also undermine efforts to prevent the spread of disease (Golman et al., 2017), induce political polarization (Engel and Hertwig, 2021), and promote agricultural practices associated with animal suffering (Hestermann et al., 2020). As a remedy, policy makers and non-governmental organizations (NGOs) have implemented a variety of information interventions, such as sending information letters, conducting awareness campaigns, and mandating the display of product labels.

A key question for policy makers and NGOs is whether willful ignorance is consequential for decision-making. Put differently, would individuals who prefer to avoid information change their behavior if they received it? This question determines whether willful ignorance warrants policy intervention. Evidence from laboratory studies suggests that the opportunity to avoid information promotes immoral behaviors (for a meta-analysis, see Vu et al., 2023). However, it has remained unclear whether these findings equally hold true for everyday behavior in the field. Another key question is how individuals' information preferences are related to their responsiveness to information. If information-seeking individuals are more responsive to information than individuals who prefer to avoid it, it may be sufficient to reduce information cost to zero, e.g., through information letters. Otherwise, policy makers and activists may find it optimal to encourage information acquisition even further, by offering gifts for taking part in information campaigns or mandating information disclosure.

In this paper, we provide evidence from the laboratory and the field to answer these questions. The context of our study is the everyday activity of food consumption, which accounts for about 8 percent of U.S. GDP and has significant impacts on land use (Poore and Nemecek, 2018), greenhouse gas emissions (Gerber et al., 2013), and animal well-being (Lusk and Norwood, 2011).[1] Many consumers morally disapprove of food from intensive farming because it compromises animal well-being (Lin-Schilstra and Fischer, 2020). Nevertheless, they are tempted to purchase such food because it is cheap. Consumers may resolve such a moral conflict by avoiding information on intensive farming practices and

[1] In 2019, food expenditures in the United States amounted to 1.77 trillion dollars (Zeballos and Sinclair, 2023) with a US GDP of 21.38 trillion dollars (https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?end=2019&locations=US&most_recent_year_desc=false&start=1960, accessed March 1, 2024).

forming self-serving beliefs (e.g., Hestermann et al., 2020).[2] In this context, we evaluate an information intervention produced by an NGO to raise consumer awareness about the implications of intensive farming practices for animal well-being. It consists of a 360° video about the living conditions of pigs in intensive farming, which consumers watch through a virtual reality (VR) headset.

Our research design is tailored to identify the implications of willful ignorance for consumption choices in a field setting. A major empirical challenge is that forced-information treatments, the approach typically used in laboratory studies, are not feasible in field settings, where individuals must give informed consent to be exposed to real-world information. We overcome this challenge by eliciting individuals' willingness-to-pay (WTP) for the video on intensive farming through an incentivized multiple price list that varies the relative price of watching the video widely, from EUR −8 to EUR 8. Since almost all subjects have a WTP within this range, randomly drawing one of the relative prices and implementing the respective choice creates random variation in watching the video while respecting individuals' preferences. We exploit this variation using inverse probability weighting (Imbens and Wooldridge, 2009). The weights directly follow from our research design as the probability to watch the video is only determined by participants' WTP, which we elicit. Our approach allows us to estimate the average treatment effect of information on the consumption of meat from intensive farming in our study population. It also enables us to recover heterogeneity in the treatment effect between information seekers and avoiders. Based on this research design, we make two main contributions.

First, we test whether willful ignorance is consequential for moral behavior in a field setting. Evidence from stylized laboratory games suggests that information avoidance promotes immoral actions. However, experimental evidence from the field is scarce. Several factors may explain why behavior in the laboratory differs from behavior in the field, including unfamiliarity with the task, stylized choice sets, and contextual cues (Levitt and List, 2007). For example, everyday decisions outside the laboratory may be much more strongly guided by ingrained habits and beliefs, which could reduce the scope for behavioral change. Furthermore, the focus on short-term responses in many laboratory contexts may miss the dynamics that arise when individuals suppress or forget bad news (e.g., Zimmermann, 2020; Graeber et al., 2022). We address these issues by combining a laboratory experiment with field data from university canteens in Germany. We expose both information seekers and avoiders to an information intervention about real-world intensive farming practices and estimate its short- and long-term effects on the consumption of intensively farmed meat. In the field, we measure meat consumption via purchase data from university canteens, which typically serve meat from intensive farming. In the laboratory, we allow individuals to choose a voucher for a meal with or without meat at the university canteens.

[2] See also Onwezen and van der Weele (2016), Bell et al. (2017), and Espinosa and Stoop (2021) for empirical evidence. The literature on the so-called "meat paradox" also discusses alternative coping strategies (see, e.g., Loughnan et al., 2010; Kunst and Hohle, 2016; Bastian and Loughnan, 2017; and Gradidge et al., 2021, for a review).

Our results show that willful ignorance is consequential for decision-making, but only in the short term. We find that about 30 percent of participants avoid information on intensive farming when it is costless. To test whether information avoidance is consequential, we estimate the treatment effect of watching the video on intensive farming for information avoiders. We show that the propensity of avoiders to choose a voucher for a meal with meat decreases by 34 percentage points. This effect size almost perfectly replicates in the field. At university canteens, information avoiders reduce their meat consumption by around 30 percentage points in the first days after the experiment. Since vouchers from the laboratory experiment are excluded from the field data, their redemption cannot explain the similarity in effect sizes. We also exploit our field data to explore the dynamics of the treatment effects and show that behavioral responses fade within two weeks.

Second, we explore whether individuals who avoid costless information respond more or less strongly to information than individuals who seek it. While such heterogeneity is crucial for the optimal design of information interventions, it is difficult to predict based on the theoretical literature on willful ignorance (see Appendix Section B for a discussion). Furthermore, previous empirical studies have explored how information demand is related to information costs, but have left unanswered how it relates to the responsiveness to information (Cain and Dana, 2012; Grossman and van der Weele, 2017; Momsen and Ohndorf, 2020; Serra-Garcia and Szech, 2022).

Our findings demonstrate that individuals who prefer to avoid information are particularly responsive to it. Whereas information avoiders respond to information by reducing their propensity to choose a voucher for a meal with meat in in the laboratory by 34 percentage points, information seekers show a significantly smaller reduction of 8 percentage points. We provide complementary exploratory evidence that the same heterogeneity pattern holds for participants with a WTP close to zero. In particular, the conditional average treatment effect (CATE) is substantially less pronounced for marginal information seekers (with a WTP weakly above zero) than for marginal information avoiders (with a WTP just below zero). This result suggests that participants' sorting behavior creates a discontinuity in the responsiveness to information for information acquisition costs around zero. It explains why information interventions that reduce information costs to zero, yet are easy to avoid, typically have small effect sizes (Nisa et al., 2019). To increase the effectiveness of information interventions, our results suggest that they should target information avoiders.

Taken together, our evidence supports the notion that ignorance is strategic. The findings that information avoiders exist and that they change their behavior in response to acquiring information are difficult to reconcile with a neoclassical view on information acquisition. According to this view, individuals do not avoid costless information that could induce behavioral change. Instead, our results are consistent with models of willful ignorance that allow for the existence of information avoiders who change their behavior in response to information acquisition. Two prominent motives for willful ignorance in these models are to selfishly manipulate beliefs (e.g., Grossman and van der Weele, 2017)

and to reduce the attention devoted to unpleasant beliefs (Golman et al., 2022).

Exploratory analyses suggest that willful ignorance in our real-world context serves to reduce negative affect by paying less attention to unpleasant beliefs. The video on intensive farming induces both information avoiders and seekers to update their beliefs about animal living conditions and thus conveys information in the sense of Arrow (1996). However, avoiders update their beliefs to a similar extent as seekers and hold similar baseline beliefs, i.e., that the living conditions of animals in intensive farming are poor. Hence, differences in baseline beliefs or in belief updating do not explain why some individuals engage in willful ignorance while others seek information. They also do not explain the heterogeneity in treatment effects between information avoiders and seekers that we find. Instead, we show that avoiders experience more negative affect (e.g., feelings of guilt) than seekers after watching the video. Avoiders are also more likely to anticipate negative affect, as indicated by their higher stated sensitivity to the depiction of violence. These results suggest that willful ignorance is unable to prevent the formation of adverse beliefs, but allows subjects to regulate negative affect by not attending to them.

Our paper contributes to the literature on willful ignorance, i.e., the avoidance of information about the adverse consequences of self-interested decisions.[3] Evidence from several laboratory and online experiments shows that many subjects prefer to remain uninformed about the consequences of their actions in such a context (Dana et al., 2007; Larson and Capra, 2009; Matthey and Regner, 2011; Feiler, 2014; Grossman, 2014; Kajackaite, 2015; Grossman and van der Weele, 2017; Exley and Kessler, 2023).[4] In a recent meta-analysis, Vu et al. (2023) estimate a 15.6 percentage point reduction in altruistic decisions due to information avoidance, based on 22 laboratory studies that implemented a binary choice dictator game. We contribute to the literature by providing evidence on the existence of willful ignorance and its consequentiality for decision-making in a real-world context. The use of data from university canteens allows us to go beyond previous experimental studies that have analyzed the behavior of subjects in the laboratory and to assess the implication of willful ignorance for field behavior in the short and in the long term.

We also add to a growing literature on the optimal design of information interventions in the presence of willful ignorance. Previous studies have found that small changes in information costs affect information uptake (Cain and Dana, 2012; Grossman and van der Weele, 2017; Momsen and Ohndorf, 2020; Serra-Garcia and Szech, 2022). Espinosa and Stoop (2021) develop a measure of individuals' resistance to information and show that it correlates with the ability of interventions to change beliefs. We go beyond these studies by

[3]This definition follows Grossman and van der Weele (2017). Alternative terms used to describe similar phenomena include "moral wiggle room" (Dana et al., 2007) and "moral ignorance" (Serra-Garcia and Szech, 2022).

[4]Previous evidence suggests that the existence of willful ignorance is not an artifact of experimental games. For example, Serra-Garcia and Szech (2022) show that preferences for moral information in a laboratory game are predictive of the acquisition of information on the living conditions of cows in the dairy industry. Furthermore, d'Adda et al. (2018) find that many subjects in an online survey prefer not to receive information about the environmental impacts of air conditioning usage and Freddi (2021) estimates that residents of regions with high refugee inflow access fewer newspaper articles about refugees.

estimating how heterogeneity in the responsiveness to information relates to individuals' information preferences. In this respect, our approach shares similarities with studies that explore how the selection into government programs determines their effectiveness (see, e.g., Heckman and Vytlacil, 2001, for a review and Carneiro et al., 2011; Maestas et al., 2013; Cornelissen et al., 2018, for applications).

More broadly, our study relates to a literature that explores how statistics, stories, and narratives shape individuals' beliefs and actions (Shiller, 2017; Bursztyn et al., 2022; Kendall and Charles, 2022). Information in real-life situations is often not only quantitative, i.e., based on statistics, but also qualitative, i.e., based on narratives and stories that reproduce specific experiences (Shiller 2017, Graeber et al. 2022). We provide causal evidence on the effectiveness of a real-world information intervention designed by an NGO to overcome willful ignorance. The intervention uses VR technology to convey comprehensive, qualitative information on the implications of common intensive farming practices on animal well-being. Our finding that treatment effects decay has important implications for real-world information interventions in moral contexts. It implies that one-shot information interventions on the morality or immorality of actions may be effective in promoting prosocial behaviors in the short term, such as donations in response to catastrophic events, but are rather ineffective in changing repeated behaviors and habits.[5]

The remainder of the paper is structured as follows. In the next section, we present the experiment. In Section 3, we describe the data and explain our empirical strategy. We present our results in Section 4 and discuss their implications for the optimal design of information interventions in Section 5. Section 6 concludes.

2 Experiment

In the following, we describe the information intervention in our experiment (Section 2.1), the experimental design (Section 2.2), and the experimental procedure (Section 2.3). We pre-registered our experiment on the AEA RCT Registry (Epperson and Gerster, 2020).

2.1 Intervention

The information intervention consists of a 360° video about the living conditions of pigs in intensive farming. It provides a depiction of widespread intensive farming practices, based on recordings from Germany, Great Britain, Italy, Mexico, and Spain. The original video is 7:27 minutes long and was published by the animal rights organization Animal Equality.[6] To keep the video within a 5-minute time frame, we presented a selection of scenes, which cover the life of a pig in intensive farming from birth until slaughter.

[5]The ability of one- time information interventions to cause persistent behavioral change likely depends on their exact design. For example, Jalil et al. (2020) find a persistent reduction in meat consumption for several months as a response to a 50-minute educational lecture about the impact of meat consumption on climate change and health.

[6]It was awarded with the German Web Video award for the best 360° video in 2016 and is available online: https://www.youtube.com/watch?v=_pC0_mqmp6w (accessed March 1, 2024).

According to Animal Equality, the scenes show everyday practices that largely comply with German animal welfare regulations at the time of the experiment. In Appendix D, we provide a description of the scenes (Appendix Table A.2), an overview of relevant German animal welfare regulations (Appendix Table A.3), and the original statement by Animal Equality (Appendix Table A.4).

The video informs participants about the impact of intensive farming practices on animal well-being. Subjects watched the video via a virtual reality (VR) headset, which creates the impression of standing on a pig farm and seeing the scenes with one's own eyes. This feature builds on the ability of headsets to create a realistic three-dimensional picture and thereby improve subjects' perception of spatial dimensions (Paes et al., 2017; Horvat et al., 2019). In our application, a realistic depiction of spatial dimensions allows subjects to understand the implications of intensive farming practices. The video is accompanied by a narrator who describes the conditions shown in the respective scenes from the "perspective of a pig" (see Appendix Table A.2 for the translated transcript). The use of narratives is widespread in real-world information contexts (Shiller, 2017) and, in our setting, aims to reinforce the ability of VR technology to provide subjects with a change of perspectives.

We utilize the video as an information intervention for three main reasons. First, it is used by an animal protection organization to overcome willful ignorance, which allows us to assess a real-world intervention. Second, the video was novel to the vast majority of subjects (96 percent), owing at least partly to the fact that virtual reality headsets are not yet commonly used by many individuals. Third, VR technology is considered to shape information acquisition in the future through its ability to convey comprehensive information in different contexts, including educational training (Slater and Sanchez-Vives, 2016; Mol, 2019). By using it, our study aims to provide a proof of concept for the ability of information interventions to foster moral behaviors in the presence of willful ignorance.

2.2 Design

Our experimental design consists of three core elements. First, we elicited subjects' willingness-to-pay (WTP) for watching the video on the living conditions of pigs in intensive farming (also referred to as "information" in the following). Second, we introduced random variation in whether subjects receive that information or not. Third, we elicited subjects' meat consumption in the laboratory and in the university canteens.

To quantify subjects' WTP for information on intensive farming, we followed a multiple price list approach and asked each subject to chose whether to acquire information at several different prices. One of these prices was randomly drawn and the corresponding choice was implemented. This approach allowed us to elicit individual-level demand curves for information. Since each choice was implemented with a positive probability, answering truthfully was incentive-compatible.

To detect willful ignorance, i.e., the active avoidance of costless information, our experimental design ensures that acquiring information did not involve effort, time, or un-

intended financial costs. In particular, subjects chose between watching the video about the living conditions of pigs in intensive farming and an (uninformative) outside option. The outside option was to watch another 360° video that subjects had already watched at an earlier stage of the experiment. This video gives a tour of the German central bank building.[7] We employ this outside option for the following reasons. First, it eliminates the impact of opportunity costs of time that could otherwise prevent subjects from watching the video on intensive farming. Because both videos have the same duration, subjects cannot finish the experiment earlier by selecting the outside option. Second, by using a video that subjects have watched only minutes earlier, we ensure that the outside option is uninformative. In fact, most subjects stated that watching the video again was neither informative nor entertaining.[8] Third, because subjects used the VR headset for the same time irrespective of their choice, a general desire to experiment with VR technology cannot confound our measure of WTP.

We let subjects choose between both options at 11 different relative prices of information about intensive farming, $p \in \{\text{EUR } -8,-5,-3,-1,-0.5,0,0.5,1,3,5,8\}$. These prices were implemented by offering subjects varying payments from EUR 0 to EUR 8 for watching one of the two videos (see Appendix C for the detailed instructions and a screenshot of the decision screen). The labels "Option A" and "Option B" were randomly assigned to either video, and Option B was always presented to the right of Option A. To limit the cognitive burden for subjects, the prices for Option A decreased monotonically from the top to the bottom of the multiple price list (Andersen et al., 2006). We tested our price range in two pilot sessions with 22 participants and found that their WTP was always within that range.

Prior to the WTP elicitation task, subjects obtained detailed instructions and read a short description of the video about intensive farming and the video about the German central bank. To check whether they understood the WTP elicitation task, they answered a comprehension question and were only forwarded to the decision screen once they had answered the comprehension question correctly. We did not enforce consistency across decisions in the multiple price list. Subjects with inconsistent choices received a hint and could revise their choices once. When subjects preferred one option over the other at all prices, we asked them to state their hypothetical WTP using an open-ended elicitation format on a subsequent screen.

For each subject, we randomly selected one of the 11 prices from the multiple price list and implemented the subject's choice at this price. The random selection of one price introduced exogenous variation in watching the video about intensive farming. For example, a subject with a WTP of EUR 6 watched this video if and only if the randomly selected price did not exceed EUR 6. We exploit this variation for identifying the treatment effect of obtaining information (see Section 3.2). The probability of drawing the largest

[7] The original video was published by the German central bank and is available online: https://www.youtube.com/watch?v=EeDZLnRCR4w (accessed March 1, 2024). We used the first 5 minutes of this video.

[8] If watching the video about the German national bank again even creates disutility (e.g., through boredom), our WTP measure explained below provides an upper bound for the WTP for information.

price (EUR 8) and the probability of drawing the smallest price (EUR −8) was 27.5 percent. Each of the other prices was drawn with a probability of 5 percent. This design achieves a more balanced treatment assignment and hence improves the statistical power to identify treatment effects compared to drawing each price with the same probability. The implementation probabilities were communicated to subjects.

As outcome variables, we obtained revealed-preference measures of meat consumption in the laboratory and the field. In the laboratory, subjects had a 50 percent chance of winning a voucher for the university canteens. At the end of the experiment, each subject decided whether the voucher should be issued for a meal with or without meat. Both categories were offered daily at the university canteens and we used the standard terminology from the canteens when describing both options.[9] We also provided subjects with a description of all meals offered under the two categories in a pre-defined sample week. To mitigate concerns that peer pressure could affect voucher decisions, we informed subjects that the vouchers would be handed out in an envelope.

In the field, we observed subjects' food purchases at the university canteens before and after the experiment. These purchases were made with electronic payment cards, which are routinely used by students to purchase a variety of university-related services, including food at the university canteens.[10] We were able to track subjects' purchases because subjects provided the number of their electronic payment card during the experiment and agreed to the scientific use of the related data. We describe the detailed procedure in the next subsection. Details about the field data as well as the construction of our outcome variable(s) for the field are presented in Section 3.1.

2.3 Procedure

The experiment took place at the University of Bonn (BonnEconLab) and the University of Mannheim (Mannheim Laboratory for Experimental Economics). Subjects were invited via email to sign up for an experimental session. The emails included a link to a consent form which informed subjects about the use of VR glasses, data protection rules, and further participation requirements. In particular, we required subjects to be in good physical and psychological health. We collected the signed consent forms before the start of the experiment. Subjects received a show-up fee of EUR 5. They had a 50 percent chance of winning a voucher for the university canteen and were able to earn up to EUR 8 extra, conditional on the outcome of the WTP elicitation task. The voucher was handed out after the experiment and the payment was transferred to subjects' electronic payment card account. We informed subjects about the payment mode and the requirement to

[9] In Mannheim, both the vegetarian and the non-vegetarian meal cost EUR 3 and typically included a side dish, a soup, and a salad in addition to the main dish. The voucher was valid in the main canteen. In Bonn, the voucher paid for the main (vegetarian or non-vegetarian) dish and was valid in two different canteens. The price usually varied between EUR 1.35 and EUR 2.05 and tends to be slightly lower for the vegetarian meal. All vouchers were valid for at least two weeks after the experimental session.

[10] At the University of Mannheim, every enrolled student receives an ecUM (electronic card Universität Mannheim) which also serves as a student ID. The MensaCard at the University of Bonn is optional.

possess a valid electronic card in our invitation email.

At the beginning of the experiment, the experimenter instructed subjects in the use of the VR headsets. We used the "standalone" VR headset *Oculus Go*, which does not require a connection to a computer. In addition, every subject obtained headphones which were connected to the VR headset. After the instructions, subjects watched a 360° test video for five minutes.[11] The purpose of this video was to provide subjects with a first VR experience and to identify any problems that they may have when using the VR headset. Throughout the experiment, the experimenter ensured that subjects started and finished videos at the same time, by giving instructions on when to put on the headsets. VR headsets were handed out to subjects before they watched a video and collected as soon as the video was over. When subjects put on the VR headset, the video started automatically. Subjects were not able to continue with the experiment until their VR headset was collected.

The main experiment started after the VR instructions and consisted of three parts, which are illustrated in Figure 1. The first part was computer-based. Subjects read instructions and answered some questions about their familiarity with VR headsets. They were also prompted to enter the number of their electronic payment card on a separate sheet of paper with their participant label, which allowed us to pay out subjects and to link the laboratory and field data. Subsequently, subjects were informed that they were going to watch a 360° video about a virtual tour of the German central bank building and answered questions on that institution. As soon as all subjects had answered the questionnaire, they watched the video and, afterwards, answered questions about the video on the computer.

In the second part of the experiment, we informed subjects about the opportunity to watch a video about intensive farming of pigs and asked questions about this topic. For example, we asked how well-informed subjects feel about the living conditions of pigs in intensive farming, how they assess these living conditions, and how the capacity of pigs to feel pain compares to that of humans. The structure of questions was similar to those about the German central bank, thereby not allowing for direct inferences about our research question from the questionnaire (Zizzo, 2010). In a subsequent step, we elicited subjects' WTP for watching the video about intensive farming of pigs based on our multiple price list approach. Once all subjects completed the WTP elicitation task, the computer randomly selected one price from the multiple price list for each of them. Afterwards, subjects watched the video they had chosen at this price and answered questions about the video on the computer.

The third part of the experiment consisted of questions on demographics and the VR headset as well as the voucher lottery. After all subjects chose among the vegetarian and the non-vegetarian voucher, the lottery outcome was randomly drawn and presented to

[11]The video was a documentary about the tropical rain forest, published by the Federal Ministry for Economic Cooperation and Development, and is available online: https://www.youtube.com/watch?v=5S9nArmo_x4 (accessed March 1, 2024).

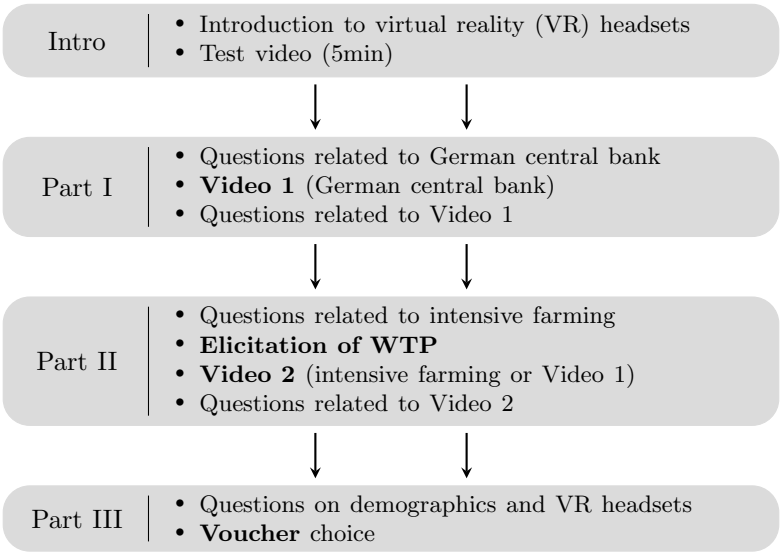

Figure 1: Illustration of Laboratory Procedure

Note: The figure illustrates the different parts of the laboratory experiment.

each subject on a final computer screen. This screen asked students to come to the desk of the experimenter when their seat number was called. At the desk, the experimenter handed over an envelope with information about the subject's payment and a voucher, if applicable. To activate their payment, subjects had to put their card on an electronic card reader at the main university canteen.

The experimental sessions were conducted between November 2019 and March 2020.[12] Each experimental session took about one hour and average payouts including the voucher were worth EUR 11.3. We used oTree (Chen et al., 2016) to program the experiment. Our final sample consists of 330 subjects: 126 students from the University of Bonn recruited via hroot (Bock et al., 2014) and 204 students from the University of Mannheim recruited via ORSEE (Greiner, 2015). Since subjects' WTP is central to our empirical approach, our final sample excludes 8 subjects who made inconsistent choices in the WTP elicitation task.[13] Due to the unexpected outbreak of the coronavirus pandemic, we were no longer able to conduct experimental sessions, which leaves us with fewer than the 500 participants that we pre-registered as our minimum sample size (see Appendix A and our pre-analysis plan on the AEA RCT registry).

[12]Days with sessions in Bonn: January 15–18, 2020. Days with sessions in Mannheim: November 11–15, 2019; November 18–19, 2019; November 21–22, 2019; November 25, 2019; November 27, 2019; December 5–6, 2019; December 10, 2019; February 24–27, 2020; March 3, 2020.

[13]These subjects either had multiple switching points in the multiple price list (MPL) or their open-ended WTP response (after always choosing the same video in the MPL) was inconsistent with their responses in the MPL. In addition, 2 individuals participated without having student status at the respective university, which was a formal requirement for participation. They were compensated for taking part, but excluded from our analysis. In our main analysis, we additionally exclude 4 senior students at age 61 or above and impute one stated age of 223 years to 23 years. None of these changes affect our results.

3 Data and Empirical Strategy

3.1 Data

As shown in Panel A of Table 1, the average age of subjects in our experimental sample is 22 years, 46 percent are female, and 29 percent have obtained at least a Bachelor's degree. Furthermore, 62 percent of subjects took part in our experiment in Mannheim, while the remaining 38 percent took part in Bonn. About half of our subjects (51 percent) state to eat meat several times per week or daily, which we classify as an omnivorous diet. About one-third (36 percent) of subjects follow a flexitarian diet, i.e., state to eat meat only occasionally (several times per month or several times per year). The remaining 13 percent follow a vegetarian diet, i.e., state to never eat meat. Although vegetarians might be less likely to adjust their meat consumption in response to receiving information, we deliberately include them in our main analysis for two reasons. First, watching the video might encourage a vegetarian to maintain his or her eating habit in the future. Second, vegetarians' selection into information acquisition (or avoidance) might influence whether information avoiders are more or less responsive to information than information seekers.

We complement our laboratory experiment with data on subjects' food purchases at the university canteens. We observe purchases from August 1, 2019, until March 16, 2020, in Mannheim and from October 1, 2019, until March 19, 2020, in Bonn. The start of the periods coincide with the start of the fall semester at each university, and their end was determined by the shutdown of the university canteens to fight the spread of the coronavirus.[14] The shutdown of the canteens and the semester breaks (e.g., around Christmas and between semesters) restrict the observability of subjects on days that are far away from the experimental sessions. Therefore, we define our main observation period as the two weeks before and three weeks after an experimental session. This approach ensures that the observation period covers a time span in which students typically eat at university canteens, irrespective of the timing of their experimental session (see Appendix Figure A.14). Estimated treatment effects for the entire post-experimental period are consistent with our main results presented in Section 4.3 (see Appendix Table A.14).

The data includes any food item that was purchased by a subject with his or her electronic payment card at a university canteen. These cards are routinely used by students to make such purchases.[15] For the purpose of our study, we are interested in food items that typically constitute a meal, such as a main and side dish, as well as bakery products like

[14] We planned to include two lecture periods at each university (August 1, 2019, until May 31, 2020, in Mannheim and October 1, 2019, until July 19, 2020, in Bonn). At the University of Mannheim, all canteens were closed as of March 17, 2020. At the University of Bonn, all canteens were closed as of March 20, 2020. Both university canteens established a takeaway service, but only 10 of our laboratory subjects made use of this service. We do not consider any purchases made after canteens were closed (0.6 percent of all purchased food items in the data set). We also disregard purchases at a price of zero (19 purchases), which may reflect the redemption of vouchers.

[15] At the main canteen of the University of Mannheim, 97 percent of all transactions during the observation period were paid with an electronic card and paying with such a card was a prerequisite for receiving a student discount. At the two main canteens of the University of Bonn, 100 and 54 percent of all transactions during the observation period were paid with an electronic card.

Table 1: Descriptive Statistics

Variable	Mean	S.d.	*N*
Panel A. Laboratory			
Age	21.99	3.27	330
Female	0.46	0.50	330
Bachelor's degree or higher	0.29	0.45	330
Location: Mannheim	0.62	0.49	330
Meat-eating habit (stated)			
Omnivorous	0.51	0.50	330
Flexitarian	0.36	0.48	330
Vegetarian	0.13	0.33	330
Panel B. University canteens (2 weeks prior to experiment)			
Share of meals with meat	0.46	0.38	232
Share of meals without meat	0.40	0.37	232
Number of purchases	3.06	3.13	330
At least one purchase	0.70	0.46	330

Notes: The meat-eating habits "Omnivorous," "Flexitarian," and "Vegetarian," are defined as eating meat daily or several times per week, eating meat several times per month or several times per year, and never eating meat, respectively. "Share of meals with (without) meat" represents the share of meals that can unambiguously be classified as containing meat (or not).

sandwiches. We thus exclude desserts, candy, and small snacks like crisps or fruits. University canteens typically purchase their food products from wholesalers. Since the meat products offered in Bonn and Mannheim have not been certified for being produced under superior husbandry conditions, they almost certainly originate from intensive farming.

We define a meal as the combination of all food items that are purchased by the same subject within a 20-minute time frame. We use the menus of the canteens to determine whether a meal includes at least one food item with meat from terrestrial or aquatic animals. This procedure serves to align our outcome variable in the field with our measure of meat consumption in the lab, where subjects chose between a vegetarian and a non-vegetarian meal. In some cases, we are unable to determine with certainty whether a food item contains meat. This occurs, for example, when a food item exists in two varieties that are labeled identically in the data set. We construct two measures of meat consumption for each subject: (i) the share of "meals with meat" that consist of at least one food item that contains meat for sure and (ii) the share of "meals without meat" that do not include any food item that may contain meat. The residual category then captures the share of meals that we cannot unambiguously classify as containing meat or not. On average, this category accounts for only 14 percent of the meals a subject purchased prior to our experiment. Meals with and without meat account for 46 and 40 percent, respectively.

In the two weeks prior to our experimental sessions, subjects purchased about 3 meals on average and 70 percent of subjects made at least one purchase (Panel B of Table 1). Both numbers reflect that many students use university canteens on a regular, but not daily, basis. As an alternative, some students bring their own food, eat at home, or purchase meals in nearby restaurants. We do not find evidence that the experiment or the intervention reduced subjects' propensity to purchase meals at the university canteens

(see Appendix Figure A.14 and Appendix Figure A.15, respectively). The average price of a meal purchased by subjects during the main observation period amounts to EUR 3.1, which corresponds to the typical price of a meal at the university canteens (see Appendix Figure A.8 for the full price distribution).

We elicit supplementary data on subjects' preferences and beliefs regarding intensive farming and meat consumption, as well as their exposure to VR technology (see Appendix Figure A.5, Appendix Figure A.6, and Appendix Figure A.7). The corresponding questions were completed in the laboratory prior to the information intervention. While about half of the subjects had used a VR headset at least once before, three percent stated to own one. Almost all subjects perceived pigs' living conditions in intensive farming as bad or even very bad. Yet, only about half of them felt well informed about this topic. About two-thirds of subjects rated pigs' living conditions as personally relevant and virtually all subjects attribute pigs with a substantial capacity to feel pain. On average, subjects stated to like the taste of meat and tended to disagree with the view that meat is important for health.

Our supplementary data also includes measures of individuals' affective response to watching the 360° video on intensive farming practices. The literature on willful ignorance provides several rationales why the regulation of affect may motivate individuals to avoid information. For example, information may increase the attention to an unpleasant belief (Golman et al., 2022) and worsen one's self-image (Grossman and van der Weele, 2017). To explore these relationships, we elicited items from the Positive and Negative Affect Schedule (PANAS, Watson et al. 1988; Breyer and Bluemke 2016) directly after each video in the experiment. To keep the questionnaire short, we measure negative affect by focusing on whether individuals felt guilty, scared, or distressed, and positive affect by focusing on whether they felt interested, enthusiastic, or attentive. In addition, we elicited individuals' stated sensitivity to the depiction of violence at the beginning of the experiment. Given that the perceived immorality of meat consumption from intensive farming partly derives from animal suffering (Hestermann et al., 2020), individuals with a high stated sensitivity are likely to anticipate strong negative affect from watching the video.

3.2 Empirical Strategy

To introduce our empirical strategy, we use the potential outcomes framework by Rubin (1974). Let Y_i^1 and Y_i^0 denote the potential outcome of individual i if she receives treatment ($D_i = 1$) or not ($D_i = 0$), respectively. In our case, the treatment corresponds to watching the video about intensive farming of animals and the outcome is given by our measure of meat consumption. We are interested in the average treatment effect, defined as $ATE = E(Y_i^1 - Y_i^0)$, and in the conditional average treatment effect, defined as $CATE(X_i) = E(Y_i^1 - Y_i^0|X_i)$, where $X_i \in \{S, A\}$ denotes the subgroup of subjects with a positive WTP ("seekers") or negative WTP ("avoiders"), respectively. Following the program evaluation literature, we can identify these estimands if two main assumptions

are fulfilled: *unconfoundedness* and *overlap* (Imbens and Wooldridge, 2009).

In our application, both assumptions hold as a consequence of our experimental design. Unconfoundedness requires that the potential outcomes Y_i^1 and Y_i^0 are as good as random, i.e., independent of treatment status D_i, conditional on some covariates X_i: $(Y_i^1, Y_i^0) \perp D_i|X_i$. In our experiment, a subject receives the treatment only if her willingness to pay for information exceeds the randomly drawn price from the multiple price list. Hence, treatment is random after conditioning on willingness-to-pay: $(Y_i^1, Y_i^0) \perp D_i|WTP_i$. Furthermore, overlap requires that, conditional on WTP_i, the treatment probabilities for individuals in the treatment and control group are larger than zero and smaller than one, which holds for all subjects whose WTP is bounded by the prices in our multiple price list. The vast majority of subjects (312 out of 330) have a WTP bounded by these prices and these subjects constitute our estimation sample.

Our empirical analysis relies on an inverse probability weighting (IPW) estimator. The IPW estimator is a generalization of the mean comparison between the treatment and control group. It collapses to that case when all subjects have the same propensity of being treated. In our experiment, the treatment propensity increases from 27.5 percent for subjects in the lowest WTP bin to 72.5 percent for individuals in the highest WTP bin. Without weighting, subjects with a low WTP would be underrepresented in the treatment and overrepresented in the control group since they have a low probability of being treated. To correct for that, the IPW estimator weights observations based on the inverse probability of (not) being treated (Imbens and Wooldridge, 2009):

$$\hat{\tau}_{IPW} = \frac{1}{N}\sum_{i=1}^{N}\frac{D_i Y_i}{\hat{p}(WTP_i)} - \frac{1}{N}\sum_{i=1}^{N}\frac{(1-D_i)Y_i}{1-\hat{p}(WTP_i)}, \tag{1}$$

where WTP_i is the WTP of individual i and $\hat{p}(.)$ is the estimated propensity of being treated, which only depends on the WTP in our experiment. In our lab data, Y_i equals one if an individual chooses a voucher for a meal with meat and zero otherwise. In our field data, Y_i captures the percentage of meals with meat that an individual chooses at university canteens during the post-experimental observation period.

We estimate the average treatment effect and the conditional average treatment effects by applying the IPW estimator to the entire estimation sample and the subsamples of information seekers and avoiders, respectively. To improve statistical efficiency, we estimate the propensity of being treated by calculating the empirical treatment probability for each WTP bin instead of using the theoretical propensities from our experimental design (Hirano et al., 2003). We show that our results are robust to using estimators based on the theoretical propensity scores instead (see Appendix E). Asymptotic standard errors are derived based on M-estimation methods (Stefanski and Boos, 2002) and account for the estimation of the propensity scores.

In total, our treatment group comprises 161 of the 312 subjects with a bounded WTP. Without inverse probability weighting, the WTP for information is larger in the treatment

than in the control group (for details, see Appendix Table A.6 and Appendix Figure A.9). Hence, a simple comparison of the average outcomes in the treatment and control group may yield a biased treatment effect estimate. Weighting ensures that the distribution of WTP is balanced between the two groups (see Appendix Table A.6). Because treatment probabilities merely depend on subjects' WTP in our experiment, weighting also allows us to rule out the impact of any other confounding factor. In fact, after weighting, we detect no statistically significant difference between the treatment and control group for the vast majority of covariates, including subjects' likelihood of eating meat in the two weeks before the experiment (see Appendix Table A.6). We detect slight differences in subjects' likelihood of holding a degree ($p = 0.02$) and for their stated habit of following a vegetarian diet ($p = 0.05$).

By design of the experiment, such small differences may only arise as a consequence of sampling variation.[16] As a robustness check, we combine IPW weighting with regression techniques and estimate treatment effects using weighted least squares (Imbens and Wooldridge, 2009), which allows us to control for the direct impact of covariates. We find that our main results are robust to using that estimator (Appendix Table A.11 and Appendix Figure A.10), only the the conditional average treatment effects of avoiders and seekers become similar (Appendix Figure A.11).

4 Results

To present our results, we follow the structure laid out in our pre-analysis plan. We pre-specified to test for the existence of information avoidance and to estimate in the lab and the field: (i) the average treatment effect in the study population, (ii) the conditional average treatment effect for information avoiders, and (iii) the difference in the conditional average treatment effect between individuals with a high and low preference for information (information seekers and avoiders). A detailed mapping between our pre-analysis plan and the analyses in this paper can be found in Appendix A.

4.1 Demand for Information

Figure 2 presents the demand for information in our experiment. The share of subjects who choose to obtain information on intensive farming decreases from about 98 percent at a price of EUR -8 to about 4 percent at a price of EUR 8. Moreover, we detect substantial information avoidance. When information is costless, about 30 percent of subjects decide not to receive it.

At prices around zero, the demand for information responds to price changes considerably more than at high or low prices. When the price of information decreases from EUR 0.5 to EUR 0, the share of subjects who choose to obtain information increases from 35 to 70 percent. At a price of EUR -0.5, i.e., a subsidy for information acquisition, the

[16] We also find that most beliefs and and preferences on intensive farming and meat consumption are well balanced after weighting, with only some minor differences (see Appendix Table A.7).

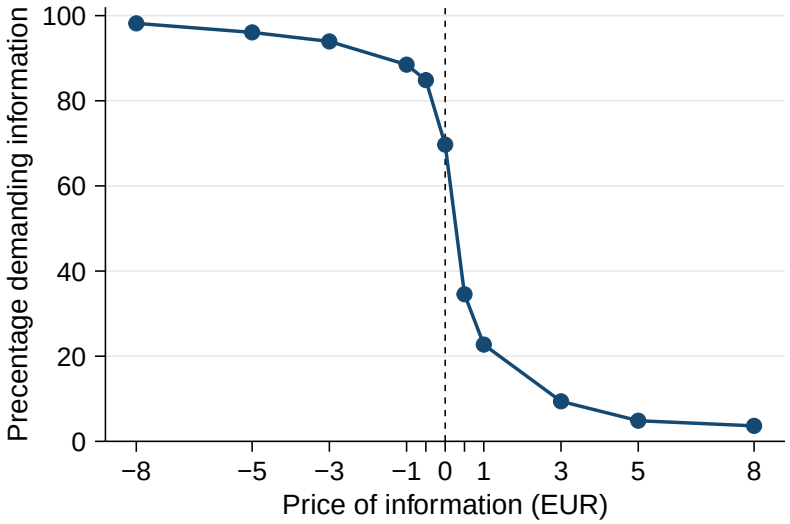

Figure 2: Demand for Information

Note: The figure shows the percentage of subjects choosing to watch the 360° video on intensive farming practices at a given price of information from the multiple price list.

share of subjects acquiring information increases by another 15 percentage points, relative to providing information for free. As discussed in previous studies, the relatively high price elasticity around zero suggests that even modest reductions in information acquisition costs have the potential to boost the dissemination of information (Cain and Dana, 2012; Momsen and Ohndorf, 2020; Serra-Garcia and Szech, 2022). Whether changes in information costs also cause behavioral change has remained largely unexplored, however. We continue by comparing the characteristics of information avoiders and seekers, who are defined as individuals with a WTP smaller and weakly above zero, respectively.

We find that information avoiders and seekers are similar in terms of many sociodemographics, beliefs, and preferences (see Appendix Table A.8 and Appendix Table A.9). In particular, we find that baseline meat-eating habits, educational achievements, and age are statistically indistinguishable at the five percent level. In contrast to the view that willful ignorance allows avoiders to retain overly optimistic beliefs, both information avoiders and seekers believe that pigs' living conditions in intensive farming are bad (averages of 4.69 vs. 4.59 on a 5-point Likert skale from 1:very good to 5:very bad, $p = 0.21$). Furthermore, avoiders and seekers state to have similar preferences regarding their meat consumption and similar attitudes towards intensive farming practices. Yet, we detect a higher share of females in the group of avoiders (63 vs. 38 percent, $p < 0.01$). Furthermore, avoiders state to have a higher sensitivity to violence in videos than seekers (averages of 3.3 vs. 2.5 on a 5-point Likert scale from 1:very low to 5:very high, $p < 0.01$), which suggests that subjects' predisposition to negative affect influences their demand for information. Both variables remain statistically significant when we conduct a multivariate regression of information avoidance on observable characteristics (see Appendix Table A.10).

Table 2: Effect of Information in the Lab

	All	Avoiders ($WTP_i < 0$)	Seekers ($WTP_i \geq 0$)
ATE	-0.156***		
	(0.055)		
CATE		-0.341***	-0.077
		(0.100)	(0.065)
Comparison p-value		0.03	
Mean w/o info	0.450	0.581	0.394
Mean with info	0.294	0.240	0.317
Observations	312	94	218

Notes: Estimation results based on inverse probability weighting with empirical propensity scores. Each column refers to a separate estimation. The dependent variable is whether an individual chose a voucher for a meal with meat. Standard errors are in parentheses. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

4.2 Effect of Information in the Lab

We start by estimating the average treatment effect (ATE) of receiving information on the propensity to choose a voucher for a meal with meat, using the IPW estimator from Equation (1). The ATE represents the effect of an intervention that disseminates information among both avoiders and seekers (e.g., through a mandate). As shown in column 1 of Table 2, we estimate that watching the video on intensive farming reduces the propensity to choose a voucher for a meal with meat by 16 percentage points (35 percent of the baseline propensity to eat meat). Hence, information acquisition leads to behavioral change.

To understand whether information avoidance is consequential for decision making, we estimate the conditional average treatment effect (CATE) for information avoiders. As reported in column 2 of Table 2, we find that information avoiders reduce their propensity to choose meat by 34 percentage points (59 percent). Hence, avoidance behavior does not merely reflect a desire to circumvent unpleasant information that is irrelevant for decision-making. Instead, information avoiders alter their consumption choices upon acquiring it. This finding shows that information avoidance is consequential for decision-making in our field context, and thus corroborates findings from the literature on moral wiggle room in the context of dictator games (e.g., Dana et al., 2007; Larson and Capra, 2009; Feiler, 2014; Exley and Kessler, 2023; for a meta-analysis, see Vu et al., 2023).

The large difference between the CATE for avoiders and the ATE suggests pronounced treatment effect heterogeneity between information avoiders and seekers. Indeed, we estimate a CATE of -8 percentage points for information seekers (see column 3 of Table Table 2), which is not significantly different from zero at the five percent level. We reject the null hypothesis that both groups have the same CATE of receiving information (p=0.03).[17]

Mechanisms – We now discuss exploratory analyses on mechanisms that could explain the treatment effects we observe, in particular the effect heterogeneity between information

[17]This comparison slightly deviates from our pre-registration but offers a more straightforward interpretation (see Appendix Table A.1 for details).

avoiders and seekers. We apply inverse probability weighting if not explicitly specified otherwise.

First, the response heterogeneity between seekers and avoiders could reflect that the video conveys "bad news" regarding the implications of intensive farming for information avoiders, but less so for information seekers who might possess superior baseline information. Indeed, we find that subjects interpret the video as "bad news": The average belief regarding intensive farming deteriorates from 4.69 to 4.88 ($p < 0.01$, measured on a five-point Likert scale from 1:very good to 5:very bad). However, we do not find that belief updating in response to information differs significantly between information avoiders and seekers (average belief updating: 0.15 vs. 0.20 points, $p = 0.55$). Hence, differences in belief updating are unlikely to explain the treatment effect heterogeneity between information avoiders and seekers in our experiment.

Second, subjects may decide to acquire information in order to confirm pre-existing meat-eating habits. If information seekers were predominantly following a vegetarian diet, our finding that they respond less strongly to information could merely reflect that they have no scope to reduce meat consumption further. We do not find evidence that this is the case. While it is true that flexitarians and vegetarians show little change in behavior (see Appendix Figure A.12), the decision to avoid information is largely unrelated to meat-eating habits (see Appendix Table A.8). Most importantly, the treatment effect heterogeneity between avoiders and seekers persists when we restrict our estimation sample to individuals who follow an omnivorous diet ($p = 0.02$, for details see Appendix Figure A.12).

Third, information avoiders could respond more strongly to information than seekers if their perceived costs of reducing meat consumption were lower. Such differences may result from weaker preferences for meat, less pronounced beliefs that meat is important for a healthy diet, and less social pressure to conform to an omnivorous diet (or more social pressure to live on a vegetarian diet). Yet, we find no evidence that avoiders and seekers differ in these respects (see Appendix Table A.9).

Fourth, the heterogeneity in CATEs may be explained by systematic differences in the affective response to information. We find that the information treatment triggered substantial negative affect, including feelings of guilt, being scared, and distressed (see Appendix Table A.13). Information avoiders show a larger increase in negative affect than seekers (average increase of 3.0 vs. 2.5 on a five-point Likert scale, $p < 0.01$), which suggests that a stronger negative affective response to information explains their larger behavioral response.[18] Analogously, we find that watching the video triggered less positive affect for avoiders than for seekers.

Taken together, our evidence shows that willful ignorance in the real-world context of our study is unable to prevent the formation of beliefs that the living conditions of pigs

[18]Note that our experimental design does not allow us to test for the causality of these relationships. Espinosa et al. (2024) design an experiment to investigate whether affect mediates the behavioral response of individuals to an undercover video about animal welfare. While they find that an undercover video triggers donations as well as affect, they do not find a significant mediation effect.

in intensive farming are poor. Instead, it appears to mitigate the impact of such beliefs on affect and behavior, for example, by reducing the attention devoted to them (Golman et al., 2022). This interpretation is corroborated by our finding that individuals who state to be sensitive to the depiction of violence – and thus likely anticipate negative affect from being exposed to the video – are overrepresented among information avoiders (see Appendix Table A.9). When watching the video, these individuals indeed experience more negative affect than others (3.0 vs. 2.3 points, $p < 0.01$) and show a stronger reduction in meat consumption (26 vs. 4 percentage points, $p = 0.03$, see Appendix Figure A.13).

4.3 Effect of Information in the Field

We use our field data to assess the external validity of our lab findings along two dimensions. First, we investigate whether our treatment effect estimates from the laboratory translate to behavioral changes in a real-world environment, i.e., at university canteens. Second, we explore how treatment effects evolve over time.

To estimate treatment effects in the field, we apply our IPW estimator to a seven-day moving time window, using the two weeks before and three weeks after an experimental session as our observation period.[19] The outcome variable is the share of meals with meat from terrestrial or aquatic animals in a given time window. This estimation approach deviates from our pre-specified main analysis of estimating the average change in consumption of meat from terrestrial animals for the entire post-experimental period, for three main reasons. First, using a seven-day time window allows us to explore time dynamics while taking into account that individuals do not eat at the university canteen every day. Second, restricting the observation period to three weeks after (and two weeks before) the experiment allows us to limit changes in our estimation sample that arise as a consequence of the semester breaks and the unexpected closure of university canteens because of the coronavirus. Third, using the share of purchases that certainly include meat from terrestrial or aquatic animals ensures a direct comparability to our lab results, where individuals choose between a vegetarian and non-vegetarian voucher. The results from the pre-specified main specification are consistent with those presented in this section (see Panel C and Panel D of Appendix Table A.14).

We present the estimates in Figure 3, where the midpoint of the respective time interval is displayed on the x-axis. A first key result is that the estimated ATE in the days immediately after the experiment is almost indistinguishable from our estimated ATE in the lab. We estimate an average treatment effect of 14 to 18 percentage points, which almost perfectly replicates the estimated ATE of 16 percentage points in the lab. Since the redemption of vouchers does not show up in our field data, the equivalence of effect sizes in the lab and the field is not mechanical, but reflects additional choices made by

[19] If a WTP group only consists of treated or untreated subjects during a specific time window, we merge it with a neighboring WTP group when applying the IPW estimator to that time window. This occurs for groups of subjects with a very high or very low WTP, which only account for a small percentage of all subjects.

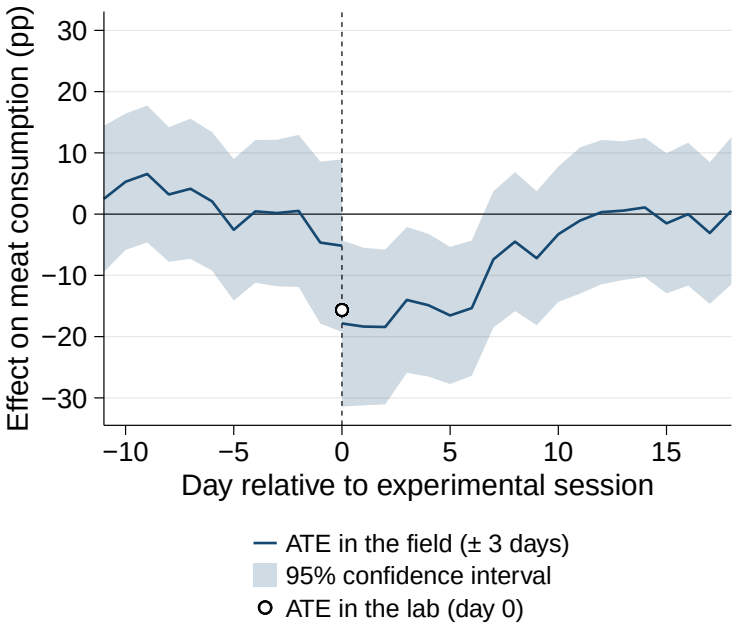

Figure 3: Effect of Information over Time

Notes: The figure shows the average effect of receiving information on the propensity to eat a meal with meat over time. Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly contain meat.

subjects. Hence, our lab evidence is externally valid for behaviors in the field immediately after the experiment. A second key finding from Figure 3 is that the average treatment effect is substantial in the short-term, but subsides within about two weeks. Our point estimates of the ATE are virtually indistinguishable from zero for all time windows with a midpoint of day 12 and above.

In Figure 4, we show that the same pattern holds for avoiders (Panel A) and seekers (Panel B) separately. Again, the CATEs we estimate shortly after our intervention are very similar to our lab results. Avoiders reduce their meat consumption at university canteens by around 20 to 30 percentage points, which confirms that willful ignorance is consequential for behaviors in the field. The reduction for seekers is lower (about 12 to 16 percentage points) and statistically insignificant at conventional levels. Furthermore, all treatment effects decrease to zero within two weeks after the experiment. Our estimates from the field capture the same effect heterogeneity between avoiders and seekers found in the laboratory. The CATE for seekers is smaller in absolute terms compared to the CATE for avoiders until day 13 (i.e., the time window with day 13 as its midpoint), where both estimates are virtually zero.[20]

Overall, these findings confirm the external validity of the lab result and highlight that treatment effect dynamics are crucial for evaluating the effectiveness of an information intervention in moral contexts. For policy makers and NGOs, it is thus challenging to

[20]While the point estimates replicate the heterogeneity pattern from the laboratory, the differences in CATEs between avoiders and seekers in the field are not significant at the five-percent level.

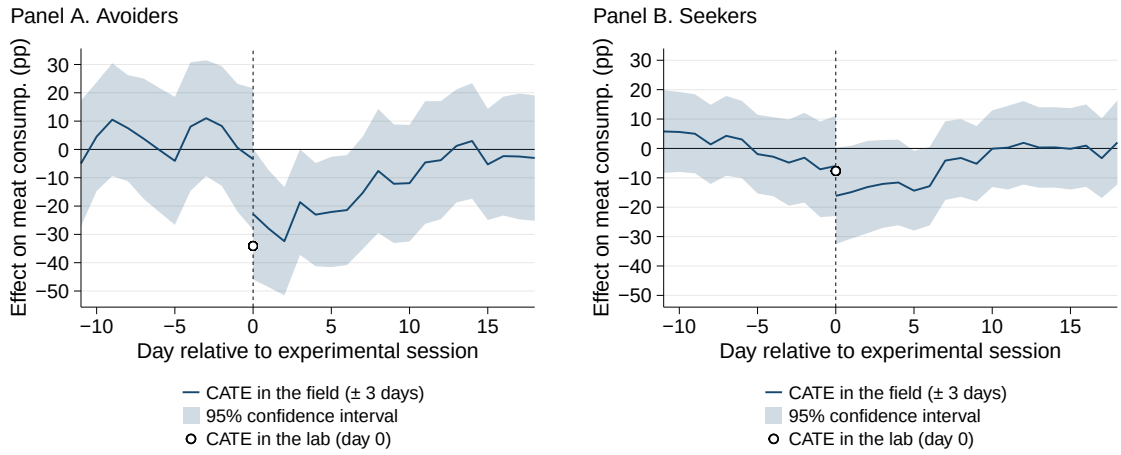

Figure 4: Effect of Information over Time by Type

Notes: The figure shows the conditional average effect of receiving information on the propensity to eat a meal with meat over time for avoiders (Panel A) and seekers (Panel B). Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly contain meat.

design information interventions that reach the most responsive individuals and induce persistent behavioral change. Our findings also suggest that extrapolating long-term from short-term responses would greatly overestimate the impact of an information intervention on behavior.

We conduct several robustness checks that confirm our main findings. As a placebo test, we estimate the ATE and CATEs in the time windows before the experiment. The absence of a treatment effect in those time periods confirms the validity of our empirical approach (Figure 3 and Figure 4). Furthermore, our results remain qualitatively unchanged when using the share of purchased meals which certainly do *not* contain meat as outcome variable (see Appendix Figure A.16 and Appendix Figure A.17). We also show that the intervention did not affect the overall propensity to purchase a meal at the university canteens (see Appendix Figure A.15). The absence of extensive margin responses demonstrates that subjects do not start eating more meals elsewhere, which limits concerns that our intervention might lead subjects to substitute their meat consumption in university canteens with consumption in other restaurants.

5 Optimal Design of Information Interventions

In this section, we use our empirical evidence to discuss how a policy maker or program manager of an NGO ("she" in the following) should design an information intervention to maximize its impact when some individuals prefer to remain willfully ignorant. We assume that she obtains an informative signal about the state-of-the world, e.g., by commissioning a report from the Intergovernmental Panel on Climate Change (IPCC) on the damages from global warming or by receiving video material on farming conditions in

intensive farming. She then decides at which cost to make such information available to individuals. Let $\bar{c}$ denote individuals' cost of acquiring the information without any intervention, while c denotes the cost with the intervention. In practice, policy makers and activists reduce information acquisition costs in different ways. They make information available on websites, which still implies some search cost ($c > 0$); send out information letters, thereby reducing search costs to about zero ($c \approx 0$); and even provide additional incentives for information acquisition or, alternatively, present information in a way that is difficult to avoid ($c < 0$).

Her objective is to design the information intervention such that it maximizes the uptake of a normatively desirable target behavior for a given budget B. For simplicity, we assume that the intervention can be implemented at an infinite number of identical sites (e.g., cities). The problem is then to choose the level of information cost c that maximizes the cost-effectiveness of the intervention at a given site and roll it out to additional sites until the budget is exhausted. In particular, she will determine the optimal information cost c by solving the following maximization problem:

$$\max_{c} \quad \underbrace{CATE(c)}_{\substack{\text{CATE for} \\ \text{policy compliers}}} \Big/ \underbrace{\left(\frac{K(c)}{[I(c) - I(\bar{c})]\, N} \right)}_{\substack{\text{Program cost} \\ \text{per policy complier}}}, \tag{2}$$

where $CATE(c)$ denotes the conditional average treatment effect of the intervention on the target behavior for policy compliers, who choose to acquire information when exposed to the intervention, but not otherwise (i.e., $c \leq WTP_i < \bar{c}$). $I(c)$ denotes the information demand at information acquisition cost c, N represents the size of the population at a given site, and $K(c)$ is the program cost of an intervention that reduces the information acquisition cost for individuals to c.

We now determine the level of information cost that maximizes the cost-effectiveness of an intervention in the context of our study. The underlying optimization problem depends on three components: (i) the number of policy compliers, $[I(c) - I(\bar{c})]\, N$, (ii) the program cost, $K(c)$, and (iii) the conditional average treatment effect for policy compliers, $CATE(c)$. Our experimental setup allows us to identify each of them as follows. First, we obtain the number of policy compliers at information cost c directly from the demand curve presented in Figure 2. For simplicity, we assume that costs are prohibitively high in the absence of an intervention ($\bar{c} = \infty$), which is consistent with the fact that less than four percent of subjects have seen the video before, none of them with a VR headset. Second, we proxy program costs as the sum of the rental fee for the Virtual Reality headsets (about EUR 6 per person) and the compensation needed to reduce information acquisition cost to c for those attending to information at that cost. In particular, $K(c) = (\text{EUR } 6 - c\,[I(c) - I(\bar{c})])\, N$.[21] Third, we estimate the conditional average treat-

[21] Appendix Figure A.18 shows the results for hypothetical alternative cost functions, which imply that the compensation is to be paid also to non-compliers (Panel A) or that the rental fees arise only for subjects who decide to acquire information (Panel B).

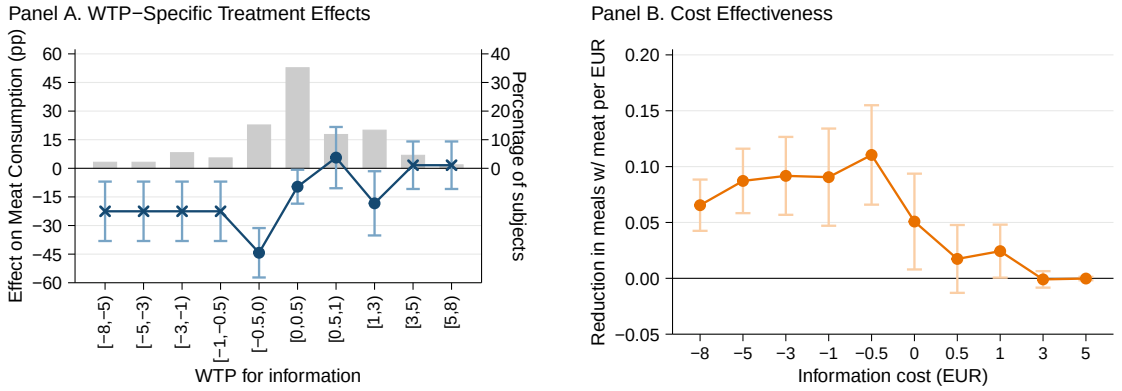

Figure 5: WTP-Specific Treatment Effects & Cost Effectiveness

Notes: In Panel A, dots depict the treatment effect estimate in a given willingness-to-pay (WTP) category, based on a mean comparison between treatment and control group. Crosses depict estimates based on the inverse probability weighting estimator, where we pool participants with a WTP below EUR 0 (or weakly above EUR 3). Grey bars show the percentage of subjects with a specific WTP. Error bars indicate standard errors.
In Panel B, dots depict the cost-effectiveness estimate of an intervention that makes information available at a given information cost. Cost-effectiveness is calculated as $[CATE(c)/K(c)] \cdot [I(c) - I(\bar{c})]\, N$ and treats the program cost per policy complier as deterministic. Error bars indicate standard errors.

ment effects for policy compliers $CATE(c)$ by applying our IPW estimator to all subjects with a WTP weakly smaller than c. Conceptually, $CATE(c)$ represents the average of the WTP-specific treatment effects for all WTP categories weakly below c, weighted by their relative size. As a result, the WTP-specific treatment effects play a major role in the cost effectiveness of information interventions. We discuss them in detail below, followed by a presentation of the cost-effectiveness results.

Panel A of Figure 5 presents the WTP-specific treatment effects and the share of subjects in each WTP category.[22] In line with our results from Section 4.2, we find that the WTP-specific treatment effects for information avoiders are more pronounced than those for information seekers. Beyond that, we detect a sharp decline in the WTP-specific treatment effects for participants just below and (weakly) above zero. While weak avoiders with a WTP in the interval $[-0.5, 0)$ have the strongest response to information, weak information seekers with a WTP in the interval $[0, 0.5)$ respond significantly less (difference of WTP-specific treatment effects: 35 percentage points, $p = 0.03$). Hence, reducing information acquisition cost from EUR 0 to EUR -0.5 induces a group of highly responsive individuals to acquire information. A reduction in information costs from a small positive amount to zero, on the other hand, attracts a large group of individuals who react particularly little to information.

The result that individuals with a low non-negative WTP are unresponsive to information accords with a premise of information avoidance models that assume some percentage

[22] Since treatment propensities are constant across observations with the same WTP, we estimate treatment effects conditional on WTP based on mean comparisons between treated and control observations (with asymptotic standard errors). Because we observe few participants with a WTP above EUR 3 and below EUR -1, we estimate treatment effects jointly for the neighboring WTP categories within each of these two intervals based on the IPW estimator. In addition, we extrapolate the response that we estimate for the highest WTP bin to individuals with an WTP of more than EUR 8, for which we lack a counterfactual because they always receive information in our experiment ($< 4\%$ of our sample).

of the population to behave as "homo economicus," i.e., to acquire only costless moral information and to not change behavior upon receiving it (e.g., Grossman and van der Weele, 2017). It also broadens the perspective on conclusions from a recent meta-analysis of moral wiggle room experiments, which found that changes in information acquisition costs between \$0 and \$0.13 do not affect the level of target behaviors (Vu et al., 2023). We confirm that subjects with a weakly positive WTP for information are indeed largely unresponsive to information. Yet, by estimating CATEs for a substantially wider range, we find that this unresponsiveness does not hold for information avoiders with a WTP slightly below zero.

Panel B of Figure 5 presents the cost effectiveness of interventions with information acquisition costs between EUR -8 and EUR 5. We express the cost effectiveness as the reduction in meals with meat per EUR spent and apply a linear decay rate to the conditional average treatment effect estimates from the laboratory to reflect our field evidence that treatment effects decrease to zero within about 12 days. We find that the cost effectiveness increases as information cost decreases from EUR 5 to EUR -0.5, where it reaches its maximum. Very high information costs are cost-ineffective because only few individuals attend to information at these costs and these individuals are mostly unresponsive to it (Panel A of Figure 5). While reducing the information cost to EUR 0 induces a large share of individuals to acquire information, these individuals hardly adjust their target behavior in response. However, lowering information cost further from EUR 0 to EUR -0.5 increases the cost-effectiveness considerably, which reflects that marginal information avoiders are particularly responsive to information. Hence, design features that introduce small cost for information avoidance by, for instance, communicating social norms of acquiring information or actively reaching out to passengers in pedestrian areas, are effective tools to target the most responsive individuals. A further reduction of the information acquisition cost does not increase cost-effectiveness, as the cost of the program rises while only few additional individuals acquire information.

Taken together, our cost-effectiveness calculations demonstrate that evidence on the sorting behavior of responsive individuals is crucial for designing cost-effective information interventions. Overall, the low cost-effectiveness that barely exceeds 0.1 meals with meat per EUR spent illustrates how difficult it is to change consumption habits through information interventions in a context of willful ignorance.

6 Conclusion

Based on a laboratory experiment and field data from university canteens, we show that individuals' willful ignorance about the adverse impacts of their actions is consequential in a real-world setting. When information avoiders are exposed to information about the living conditions of pigs in intensive farming, they reduce their meat consumption. Information avoiders are not only responsive to information, they react much more strongly to it than information seekers, which underlines the strategic nature of willful ignorance.

Our experimental design allows us to confirm that these results generalize from the laboratory to the field. Incorporating field data also reveals that the behavioral effects of receiving information are short-lived and decline to zero during the first two weeks, both for information avoiders and information seekers.

Regarding the optimal design of interventions in a moral context, our findings suggest that it is crucial to target individuals who choose to remain uninformed when information is costless. Hence, the mere deployment of information technologies that reduce information acquisition costs to about zero – such as the Internet – is not a panacea for fostering prosocial behaviors. We also find that reducing information acquisition costs slightly below zero triggers a strong behavioral response by inducing a large share of responsive information avoiders to acquire information. Our results thus rationalize the prevalence and design of programs in the field that offer small encouragements for information acquisition. For example, health insurance companies reward their customers for taking up pre-emptive medical screening and non-governmental organizations hand out small gifts when conducting public outreach campaigns. Similarly, our results explain why a government or an NGO may find it optimal to make information avoidance more difficult, e.g., by displaying information prominently on product packages or by actively approaching passengers in pedestrian areas or even at home.

We see three promising avenues for future research. First, it is a prior unclear whether our findings translate to domains other than moral behavior, such as personal health or risk. Second, it would be interesting to quantify the welfare consequences associated with information interventions in a context of willful ignorance. While targeting information avoiders may be effective, they may also suffer the most from utility losses if beliefs and the attention devoted to them have direct utility consequences. Third, our finding of decaying treatment effects of a one-shot information intervention raises the question of whether alternative interventions might be able to achieve persistent behavioral change in the presence of willful ignorance.

Generally, our findings underline the importance of understanding how responsive or unresponsive individuals select into government programs and interventions. Do individuals who decide to participate in a program benefit more or less from it than non-participants? The answer to such a question is crucial for program design and has been explored in a growing strand of the program evaluation literature (e.g., Maestas et al., 2013; Cornelissen et al., 2018; Kamhöfer et al., 2018). With the a high popularity of low cost information interventions and the advancement of communication technologies, it has become similarly important to understand how individuals' responsiveness to information relates to their information preferences. That responsive individuals select out of information acquisition may undermine the effectiveness of a wide range of policies that inform about the adverse consequences of behaviors, including interventions to fight climate change, poverty, or a pandemic.

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Appendices

A Mapping of Paper and Pre-analysis Plan

We conducted the experiment as described in our pre-analysis plan. Because the corona pandemic prevented us from running further experimental sessions, our sample size of 330 subjects is smaller than the sample size we pre-registered. In particular, we planned to collect data from 500 subjects and potentially conduct a second wave of data collection with another 500 subjects (see pre-analysis plan on the AEA RCT registry for details). Table A.1 maps the hypotheses in our pre-analysis plan to the analyses in the paper.

Table A.1: Mapping of Paper and Pre-analysis Plan

Description	Pre-analysis plan	Paper
Info avoidance	Hypothesis 3	Results are presented in Section 4.1 of the paper.
ATE in the lab	Hypothesis 1a	Results are presented in Section 4.2 of the paper.
ATE in the field	Hypothesis 1b	Our pre-registered main specification was to test this hypothesis with the propensity to eat meat from terrestrial animals (refereed to as meat in the pre-analysis plan) during the entire post-experimental period as our outcome variable. The corresponding results are presented in Appendix Table A.14. In the main part of the paper, we present ATE estimates for 7-day moving time windows in the first three weeks after experimental sessions and consider the propensity to eat meat from terrestrial and aquatic animals. See Section 4.3 for the results and a detailed discussion of the advantages of this approach. In cases with insufficient data to determine whether a meal contains meat for sure, we planned to code it as containing meat if it usually does. This turned out to be difficult, however, as ambiguous food items were regularly offered with and without meat. Therefore, we analyze the share of meals that certainly contain meat as well as the share of meals that certainly do not contain meat.
CATE for avoiders in the lab	Hypothesis 4a	Results are presented in Section 4.2 of the paper.
CATE for avoiders in the field	Hypothesis 4b	Remarks for Hypothesis 1b apply.
Heterogeneous CATEs by info demand in the lab	Hypothesis 2a	We pre-registered to test the heterogeneity by splitting subjects into two groups based on the median of the WTP distribution. The median WTP interval is EUR $[0, 0.5)$. We planned to allocate subjects with the median WTP such that the number of subjects in both groups would be as equal as possible. This implies a split of subjects into those with WTP < 0.5 (67 percent) and those with WTP ≥ 0.5 (33 percent). Alternatively, allocating subjects with the median WTP to the group with a larger WTP leads to a split into information avoiders (WTP < 0, 30 percent) and seekers (WTP ≥ 0, 70 percent). Since both splits achieve almost the same balance in terms of group size, but the latter split has a straightforward interpretation (avoiders vs. seekers), we use it in our main analysis (see Section 4.2). Results for the other split are presented in Appendix Table A.12.
Heterogeneous CATEs by info demand in the field	Hypothesis 2b	Remarks for Hypothesis 1b and Hypothesis 2a apply. Results based on the preferred approach of estimating treatment effects in the field and the preferred split are discussed in Section 4.3. Results for the exact pre-registered main specification are shown in Appendix Table A.15.

B Theoretical Predictions on Treatment Effect Heterogeneity

This section discusses the predictions about treatment effect heterogeneity by information preferences based on the self-signaling model of Grossman and van der Weele (2017).[23]

Assume a government or NGO obtains a perfectly informative signal that acting morally is beneficial for others and makes it available to individuals at a cost of zero. Individuals decide whether to obtain the costless signal before making a decision on whether to act morally ($a = 1$) or not ($a = 0$). Acting morally is costly but may benefit others. The benefit of acting morally depends on the state-of-the-world, which is initially uncertain to individuals. A percentage ϵ of all consumers behave as "homo economicus." They do not care about their self-image, never take the moral action, and acquire information if and only if costs are weakly negative. The remaining consumers care about their self-image and are heterogeneous in their degree of altruism θ, which is distributed with a continuous density function on the interval $(0, 1]$.

We now conceptualize how the responsiveness to information varies among individuals with different information preferences. For simplicity, we compare individuals' behavior under a scenario where everyone receives information ("full information," denoted by the superscript I) and a scenario where no one receives information and hence must act under uncertainty ("no information," denoted by the superscript N). We identify consumers' information preferences from their information demand in a scenario where they have the choice to acquire costless information ("choice", denoted by superscript C).

Based on the semi-separating equilibrium identified by Grossman and van der Weele (2017), altruistic consumers acquire costless information if and only if their type θ exceeds a threshold value θ^C ($\theta^*(0)$ in Grossman and van der Weele, 2017). Hence, altruistic individuals with $\theta_i \leq \theta^C$ are information avoiders and those with $\theta_i > \theta^C$, as well as homo economicus, are information seekers. Under full information, altruistic individuals act morally ($a^I = 1$) if and only if their type exceeds a threshold value θ^I ($\hat{\theta}$ in Grossman and van der Weele, 2017). Under no information, they act morally ($a^N = 1$) if and only if their type exceeds a threshold value of θ^N, with $\theta^N > \theta^I$.[24]

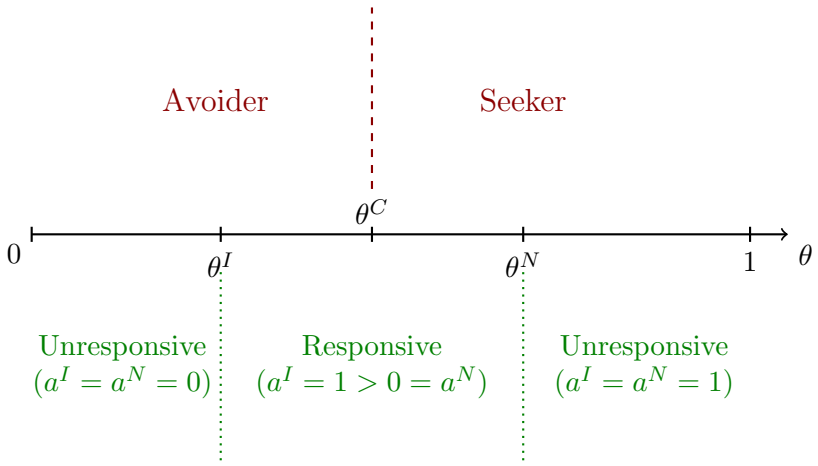
This generic conceptualization allows us to classify altruistic individuals into two main groups, as shown by Figure A.1. The first group consists of individuals with a level of altruism either below θ^I or above θ^N. They are unresponsive to information since their action is the same under full information and no information. In particular, individuals with $\theta_i < \theta^I$ ($\theta_i \geq \theta^N$) choose the immoral (moral) action under both scenarios. The second group consists of responsive individuals with $\theta^I \leq \theta_i < \theta^N$, who choose the moral action when confronted with information, but not otherwise.

To discuss the heterogeneity in the responses between information avoiders and seekers,

[23] The ambiguity of the derived prediction about treatment effect heterogeneity between information avoiders and seekers also holds for other models, including Feiler (2014), Hestermann et al. (2020), and Serra-Garcia and Szech (2022).

[24] The threshold under no information follows immediately from the results in Grossman and van der Weele (2017), given that the expected benefit of a moral action under uncertainty is lower than the benefit under full information.

Figure A.1: Classification of Altruistic Types by the Treatment Effect of Information



we now consider the case that $\theta^I < \theta^C$, as depicted in Figure A.1. This assumption reflects the typical finding from studies on willful ignorance that the percentage of individuals who choose to remain ignorant in a choice scenario exceeds the percentage of individuals that act selfishly under full information (see Grossman and van der Weele, 2017, for a discussion). Whether avoiders or seekers respond more strongly to information hinges on the relative share of responsive types in either group, which is based on two determinants. The first determinant is the position of the cutoff value θ^C relative to θ^I and θ^N. The second determinant is the distribution of θ. These determinants can lead to a larger share of responsive types in the group of information seekers or information avoiders. Hence, is unclear which of both groups will on average respond more strongly to the provision of information.

While the question whether information seekers or information avoiders are more responsive is ultimately an empirical question, we derive a prediction regarding the heterogeneity in treatment effects for individuals with a willingness-to-pay around zero. Because homo economicus agents acquire information if and only if it is costless, the composition of individuals changes discontinuously at an information cost of zero. Such sorting explains the steepness of information demand at cost of zero, already noticed in previous work (Serra-Garcia and Szech, 2022). It also has direct implications for the magnitude of the conditional average treatment effect (CATE) for individuals with a WTP around zero. Since $\theta^C > \theta^I$, all individuals with a WTP marginally below zero are responsive types (i.e., these are individuals with $\theta_i \in \left[\theta^C - \epsilon, \theta^C\right]$ and, for ϵ small enough, with $\theta_i > \theta^I$). However, the group of individuals with a WTP of zero and marginally above consists of similarly responsive altruists and unresponsive homo economicus types.[25] The selection pattern of homo economicus implies that this second group is on average less responsive than individuals with a WTP marginally below zero.

[25]For $\theta^C = \theta^N$, the altruists in that group will be unresponsive, which reinforces the differences of CATEs between marginal avoiders and seekers.

Numerical example – As a numerical illustration that the treatment effect heterogeneity between information avoiders and seekers is unclear a priori, we conduct simulations based on Grossman and van der Weele (2017). As described above, we identify the average treatment effect for information seekers and avoiders by comparing the behavior of each type if no one receives information (no information) and if everyone receives (full information). As a starting point, we use the parameter values introduced in Section 5.3 of Grossman and van der Weele (2017). Under these assumptions, receiving information increases moral behavior by 46 percentage points for information avoiders and 82 percentage points for information seekers. If we instead slightly increase the share of homo oeconomicus from 10 to 20 percent, receiving information increases moral behavior by 88 percentage points for information avoiders and only 61 percentage points for information seekers.

C Instructions for WTP Elicitation

In the following, we present the translated instructions for the WTP elicitation task. The only difference across locations was that in Mannheim, the electronic payment card is called "ecUM" while in Bonn, it is called "MensaCard". Whether the video about the living conditions of pigs in intensive farming was presented as Option A or Option B was randomized, and the comprehension question was adjusted accordingly. Figure A.2 shows a screenshot of the decision screen.

Start of the instructions

In a few minutes you will watch another 360° video. There are two different options available to you.

On the next few pages, we present the two options and explain how to choose one of the options. Only then will you make your decision(s).

Page break

You have the following options to choose from:

Option A: You watch a 360° video about intensive farming of pigs.

If you choose this option, you'll see excerpts from a video by the organization Animal Equality. This video shows the life of pigs in intensive farming, from birth until slaughter. The scenes were recorded between December 2014 and January 2016 in Germany, Italy, Mexico and Spain. According to Animal Equality, all the scenes correspond to standard practice in Europe.

Please note: *This video contains scenes in which blood can be seen and which may be shocking.*

Option B: You watch the 360° video about the Deutsche Bundesbank again.

If you choose this option, you will again see the excerpts from the video of the Deutsche Bundesbank. This video shows the virtual tour through the Bundesbank building and corresponds exactly to the video that you saw earlier. The scenes were recorded in 2019. Most of the rooms shown are part of the official tour of the Bundesbank building.

The two videos are of the same length (approx. 5 minutes).

Page break

You can choose between the two options as follows:

You make a total of 11 decisions, at each of which you choose one of the two options. The only difference between the 11 decisions is for which option you receive a bonus payment

and how high this bonus payment is.

One of your 11 decisions is then randomly selected and implemented. This means that you watch the video selected in this decision and receive the corresponding bonus payment **in addition to your guaranteed participation fee** of €5.00. You will also receive the bonus payment in the form of a credit to your ecUM.

Since each of your decisions can be selected, you should carefully consider each decision.

We will now show you an example to illustrate this procedure. **You only make your decisions after the example.**

Page break

For a better understanding, we will now show you an example. The table in which you will enter your decisions will look like the one below.

You only make your decisions on the next page. You cannot select any options in this table.

[multiple price list without active radio buttons]

Each line of the table contains a decision to be made, which is identified by a decision number. In every decision you make, you either choose Option A or Option B by ticking the corresponding option.

Afterwards, one of the decision numbers is randomly selected by the computer and the corresponding decision is implemented. This means that you watch the video selected in this decision and receive the corresponding bonus payment **in addition to your guaranteed participation fee** of €5.00.

Since any decision number can be selected, **you should carefully consider all decisions.** (The decision numbers E1 and E11 are each selected with a probability of 27.5%, each of other numbers is selected with a probability of 5%).

We would now like you to answer a comprehension question. You cannot proceed until you have correctly answered this question. If something is still unclear to you, please raise your hand and wait for someone to come to your seat.

1. What happens if you choose Option B in decision E8 and decision E8 is randomly selected as the decision to be implemented?

- ◯ In addition to your guaranteed participation fee of **€5.00**, you will receive a bonus payment of **€1.00** and watch the **360° video about the Deutsche Bundesbank**.
- ◯ In addition to your guaranteed participation fee of **€0.00**, you will receive a bonus payment of **€0.00** and watch the **360° video about the Deutsche Bundesbank**.
- ◯ In addition to your guaranteed participation fee of **€5.00**, you will receive a bonus payment of **€0.00** and watch the **360° video about the Deutsche Bundesbank**.
- ◯ In addition to your guaranteed participation fee of **€5.00**, you will receive a bonus payment of **€1.00** and watch the **360° video about intensive farming**.

Page break

You answered the comprehension question correctly.

Please make your decisions now by selecting your preferred option in each row of the table.

Decision number	**Option A:** You watch the 360° video about intensive farming	**Option B:** You watch the 360° video about the Deutsche Bundesbank
E1	Choose **Option A** and obtain **€0.00** additionally. ◯	Choose **Option B** and obtain **€8.00** additionally. ◯
E2	Choose **Option A** and obtain **€0.00** additionally. ◯	Choose **Option B** and obtain **€5.00** additionally. ◯
E3	Choose **Option A** and obtain **€0.00** additionally. ◯	Choose **Option B** and obtain **€3.00** additionally. ◯
E4	Choose **Option A** and obtain **€0.00** additionally. ◯	Choose **Option B** and obtain **€1.00** additionally. ◯
E5	Choose **Option A** and obtain **€0.00** additionally. ◯	Choose **Option B** and obtain **€0.50** additionally. ◯
E6	Choose **Option A** and obtain **€0.00** additionally. ◯	Choose **Option B** and obtain **€0.00** additionally. ◯
E7	Choose **Option A** and obtain **€0.50** additionally. ◯	Choose **Option B** and obtain **€0.00** additionally. ◯
E8	Choose **Option A** and obtain **€1.00** additionally. ◯	Choose **Option B** and obtain **€0.00** additionally. ◯
E9	Choose **Option A** and obtain **€3.00** additionally. ◯	Choose **Option B** and obtain **€0.00** additionally. ◯
E10	Choose **Option A** and obtain **€5.00** additionally. ◯	Choose **Option B** and obtain **€0.00** additionally. ◯
E11	Choose **Option A** and obtain **€8.00** additionally. ◯	Choose **Option B** and obtain **€0.00** additionally. ◯

End of instructions

Sie haben die Verständnisfrage richtig beantwortet.

Bitte treffen Sie nun Ihre Entscheidungen, indem Sie in jeder Zeile der Tabelle Ihre bevorzugte Option markieren.

Entscheidungs-nummer	**Option A:** Sie schauen das 360°-Video über die Massentierhaltung	**Option B:** Sie schauen das 360°-Video über die Deutsche Bundesbank
E1	Option A wählen und **0,00 €** zusätzlich erhalten. ○	Option B wählen und **8,00 €** zusätzlich erhalten. ○
E2	Option A wählen und **0,00 €** zusätzlich erhalten. ○	Option B wählen und **5,00 €** zusätzlich erhalten. ○
E3	Option A wählen und **0,00 €** zusätzlich erhalten. ○	Option B wählen und **3,00 €** zusätzlich erhalten. ○
E4	Option A wählen und **0,00 €** zusätzlich erhalten. ○	Option B wählen und **1,00 €** zusätzlich erhalten. ○
E5	Option A wählen und **0,00 €** zusätzlich erhalten. ○	Option B wählen und **0,50 €** zusätzlich erhalten. ○
E6	Option A wählen und **0,00 €** zusätzlich erhalten. ○	Option B wählen und **0,00 €** zusätzlich erhalten. ○
E7	Option A wählen und **0,50 €** zusätzlich erhalten. ○	Option B wählen und **0,00 €** zusätzlich erhalten. ○
E8	Option A wählen und **1,00 €** zusätzlich erhalten. ○	Option B wählen und **0,00 €** zusätzlich erhalten. ○
E9	Option A wählen und **3,00 €** zusätzlich erhalten. ○	Option B wählen und **0,00 €** zusätzlich erhalten. ○
E10	Option A wählen und **5,00 €** zusätzlich erhalten. ○	Option B wählen und **0,00 €** zusätzlich erhalten. ○
E11	Option A wählen und **8,00 €** zusätzlich erhalten. ○	Option B wählen und **0,00 €** zusätzlich erhalten. ○

Weiter

Figure A.2: Screenshot Multiple Price List

Note: The figure shows a screenshot of the decision screen that was used to elicit subjects' willingness-to-pay for information on the living conditions of pigs in intensive farming.

D Video Content

Table A.2: Video Content

Minute	Original Video	Description	Narrator (translated)
0:00–0:29	0:32–1:01	Fully-grown pigs kept individually; Housing facilities are separated by bars; Slatted floor (approx. 70%) and a connected area in front of the feeding trough	You don't know what you're in for but you're behind bars. Looking around, you see countless others like you. Your neighbor on the left tries to seek comfort from you. It has been this way as long as you can remember.
0:29 - 0:48	1:30 - 1:49	Sow with piglets in farrowing pen; Slatted floor; Stillbirths/dead piglets on the ground; Small lying area without litter available	Many of your siblings won't even survive a week in that breeding ground for disease.
0:49–1:08	1:50–2:09	Castration of piglet that is conscious	If you do survive that first week, you're enforced to endure a tooth clipping, tail docking, and castration. All without any pain relief.
1:09–1:29	2:10–2:30	Piglets are returned to the cage; Crate stall; Slatted floor;	
1:30 - 2:10	2:31 - 3:11	Crate stall; Slatted floor; Lying area; Area with litter	Without proper medical care, you return to the cage where you were born. A cell that's anything but sanitary. Here, you'll never once take a single breath of fresh air, never taste fresh water, never even see the sun. This punishment is worse than that faced by even the most heinous offenders in prison. Yet, you're guilty of being born and even that was never a choice.
2:11–2:35	3:12–3:36	Sows in individual housing; Bar biting	If you happen to be born a girl, you'll likely be cycled back through the gauntlet of cages. Artificially inseminated and then robbed of your children over and over and over again for as long as you remain fertile. The same fate awaits most daughters you will ever have.
2:36–3:06	3:37–4:07	Pigs that are unsuitable for breeding or male kept in groups (fattening); More than 20 animals; Slatted floor; Car tire to stay busy; Injured animals	And if you're deemed unfit for breeding or if you happen to have been born a boy, you're taken to a fattening farm. Here, you live in cramped quarters for the next five months, again, without any stimulation, no fresh air, or water. The boredom and frustration may drive you mad, and if not you, your siblings. Inevitably, some act out biting and hurting each other.
3:07–3:58	4:33–5:24	Slaughterhouse: Electrical stunning of the pigs with stunning forceps; Pigs are hung up by one leg after being anesthetized; Bleeding the pigs by piercing the center of the neck once; Paddling movement of pigs after anesthesia (typical behavior after anesthesia)	Even if you survive the fattening farm, you'll soon learn that those first six months of your life will be your last. Your next and final stop is the slaughterhouse. Here, huddled together with all the other pigs, you see the bodies of those that came here moments before, now strung up and bleeding. You watch helplessly as the others are picked off one by one, stunned with an electrical current just enough to be chained and hoisted up by one leg, until finally, it's your turn.
3:59 - 4:49	5:40 - 6:30	Bleeding the pigs by piercing the center of the neck once; Pig with severe cramps falls from the holding device	

Notes: In total, the video is 5 minutes long as it additionally shows a black screen for about 11 seconds at the beginning. The black screen was shown for the same duration in the video about the German central bank.

Table A.3: Legal Situation

Minute	Legal situation at the time of the experiment (translated and condensed)
0:00–0:29	*§ 22 Allgemeine Anforderungen an Haltungseinrichtungen für Schweine (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* Housing facilities need to guarantee that individually held pigs can see the other pigs and all pigs are able to lay down, stand up, and adopt a natural position. *§ 24 Besondere Anforderungen an Haltungseinrichtungen für Jungsauen und Sauen (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* The lying area of individually hold gilts and sows should at most be partially perforated. Crate stalls need to prevent that pigs hurt themselves and guarantee that all pigs can stand up, lay down and, stretch out.
0:29–0:48	*§ 23 Besondere Anforderungen an Haltungseinrichtungen für Saugferkel (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* The living area of the piglets need to have safety devices so no piglet gets squashed. Additionally it need to be guaranteed that all can suck and relax at the same time. The lying area either needs to be thermally insulated and heatable or covered by litter. Perforated floor in the lying area must be covered. *§ 24 Besondere Anforderungen an Haltungseinrichtungen für Jungsauen und Sauen (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* Crate stalls need to prevent that pigs hurt themselves and guarantee that all pigs can stand up, lay down and, stretch out.
0:49–1:08	*Richtlinie 2008/120/EG des Rates vom 18. Dezember 2008 über Mindestanforderungen für den Schutz von Schweinen (kodifizierte Fassung) (ABl. L 47 vom 18.2.2009, S. 5-13)* Veterinarians are allowed to shrink the canines of piglets, crop the tail, castrate male pigs, and attach nose rings. Cropping the tail or shrinking the canines is only allowed if it is shown that the sow's teats or the ears of other pigs have been injured. However, before doing such painful interventions other measures need to be taken to prevent behavioral disorders, such as adapting unsuitable accommodations.
1:09–1:29	See row for minutes 0:29–0.48.
1:30–2:10	See row for minutes 0:29–0.48.
2:11 - 2:35	*§ 30 Besondere Anforderungen an das Halten von Jungsauen und Sauen (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* Gilts and sows are supposed to be hold in a group until one week before giving birth. The living area here should offer at least 1.85sqm per gilt and 2.50sqm per sow. Gilts or sows that are hold individually need to be able to turn around unimpededly during that time. Gilts and sows are only allowed to be hold in crate stalls when it is not obvious that this husbandry condition leads to negative arousal.
2:36–3:06	*§ 26 Allgemeine Anforderungen an das Halten von Schweinen (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* Every pig should have access to enough toys that are harmless for health to maintain their exploratory behavior. *§ 29 Besondere Anforderungen an das Halten von Zuchtläufern und Mastschweinen (TierSchNutztV, Abschnitt 5 Anforderungen an das Halten von Schweinen)* Breeding runners and fattening pigs should be hold in groups without frequent changes in the composition. *Richtlinie 2008/120/EG des Rates vom 18. Dezember 2008 über Mindestanforderungen für den Schutz von Schweinen (kodifizierte Fassung) (ABl. L 47 vom 18.2.2009, S. 5-13)* Aggressive as well as injured animals need to be separated from the rest of the group. Sick or injured pigs are held individually.
3:07–3:58	*§ 12 Betäuben, Schlachten und Töten (Tierschutz-Schlachtverordnung – TierSchlV, Abschnitt 4 Vorschriften über das Ruhigstellen, Betäuben, Schlachten und Töten von Tieren)* When slaughtering an animal, the bleeding needs to be started within 20 seconds after the anaesthesia, while the animal still cannot feel anything. Additionally, the owner of the slaughterhouse needs to guarantee that if it is necessary the animal is bled by hand. *Verordnung (EG) Nr. 1099/2009 des Rates vom 24. September 2009 über den Schutz von Tieren zum Zeitpunkt der Tötung* Animals are only getting killed after being stunned. This state of numbness and unconsciousness needs to hold on until the animal is dead. It is not allowed to immobilize an animal by hanging it up before it got stunned. Using head-only electronic stunning for pigs demands a minimum amperage from 1.3A. The whole procedure of stunning, hanging and bleeding an animal needs to be finished before starting with the next one. Further steps are allowed after checking whether the animal really is dead.
3:59–4:49	See previous row.

Table A.4: Assessment by Animal Equality

Panel A. Original statement by Animal Equality Germany e.V.

Das Video zeigt ausschließlich Zustände und Abläufe, die zum Zeitpunkt der Studiendurchführung Alltag für landwirtschaftlich genutzte Tiere in Deutschland waren und mit Ausnahme der Kastration, die seit 2021 nur noch mit Betäubung durchgeführt werden darf, auch heute noch sind. Die Szenen aus dem Schlachthof zeigen Beispiele von typischen Fehlbetäubungen, die unzählige Tiere tagtäglich in den letzten Augenblicken ihres Lebens über sich ergehen lassen müssen. Schlachthofmitarbeiter*innen, die die Wirksamkeit von Betäubungsversuchen nicht überprüfen bzw. bei Fehlbetäubungen nicht umgehend und wirksam nachbetäuben, wie im Video zu sehen, handeln in Deutschland gesetzeswidrig. Unserer Erfahrung nach sind solche Situationen jedoch weit verbreitet. Die darüber hinaus im Video dargestellten Haltungsbedingungen für Tiere sind sogar vollkommen legal.

Panel B. Translated statement from Animal Equality Germany e.V.

The video exclusively shows conditions and practices that were common for farmed animals in Germany at the time the study was conducted and, with the exception of castration, which since 2021 may only be carried out with anesthesia, still are today. The scenes from the slaughterhouse show examples of typical incorrect stunning that countless animals have to endure every day in the last moments of their lives. Slaughterhouse employees who do not check the effectiveness of stunning attempts or do not immediately and effectively re-stun animals that have been stunned incorrectly, as can be seen in the video, are acting against the law in Germany. In our experience, however, such situations are widespread. The other animal husbandry conditions shown in the video are even perfectly legal.

Notes: That statement was made on April 30, 2024.

E IPW Estimation Based on Theoretical Propensity Scores

The IPW estimator based on the theoretical propensity scores can be expressed as

$$\hat{\tau}_{IPW} = \Big(\sum_{i=1}^{N} \frac{D_i}{p(WTP_i)}\Big)^{-1} \sum_{i=1}^{N} \frac{D_i Y_i}{p(WTP_i)} - \Big(\sum_{i=1}^{N} \frac{1-D_i}{1-p(WTP_i)}\Big)^{-1} \sum_{i=1}^{N} \frac{(1-D_i)Y_i}{1-p(WTP_i)}$$

where $p(.)$ is the true propensity of being treated that follows directly from the experimental design. In contrast to the estimator presented in Equation 1, the factor $\frac{1}{N}$ is replaced by the terms $\Big(\sum_{i=1}^{N} \frac{T_i}{p(WTP_i)}\Big)^{-1}$ and $\Big(\sum_{i=1}^{N} \frac{1-T_i}{1-p(WTP_i)}\Big)^{-1}$, which normalize the weights and ensure that they add up to one. When using our empirical propensity score estimates, this normalization is redundant.

Table A.5, Figure A.3, and Figure A.4 present the estimates analogously to the tables and figures in sections 4.2 and 4.3.

Table A.5: Effect of Information in the Lab – Theoretical Propensity Scores

	All	Avoiders ($WTP_i < 0$)	Seekers ($WTP_i \geq 0$)
ATE	-0.168***		
	(0.055)		
CATE		-0.309***	-0.095
		(0.097)	(0.066)
Comparison p-value		0.07	
Mean w/o info	0.461	0.530	0.403
Mean with info	0.293	0.221	0.309
Observations	312	94	218

Notes: Estimation results based on inverse probability weighting with theoretical propensity scores. Each column refers to a separate estimation. The dependent variable is whether an individual chose a voucher for a meal with meat. Standard errors are in parentheses. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

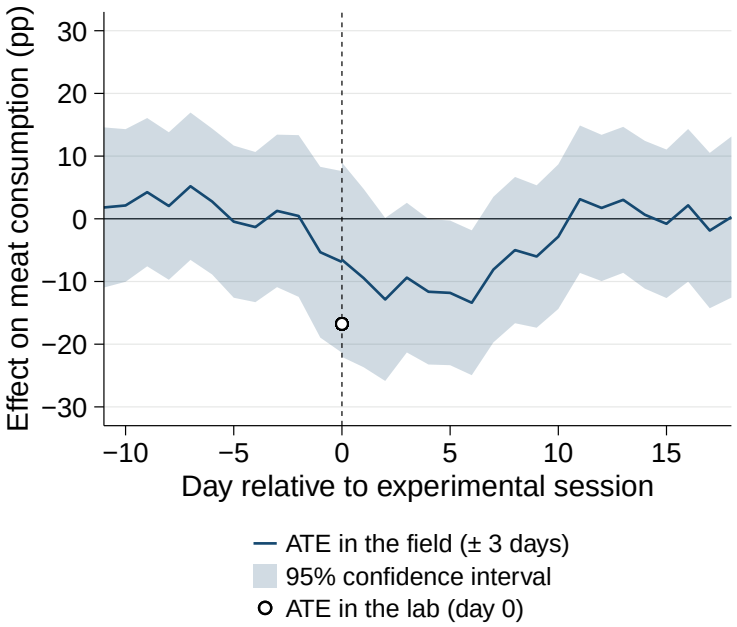


Figure A.3: Effect of Information over Time – Theoretical Propensity Scores

Notes: The figure shows the average effect of receiving information on the propensity to eat a meal with meat over time. Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting with theoretical propensity scores and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly contain meat.

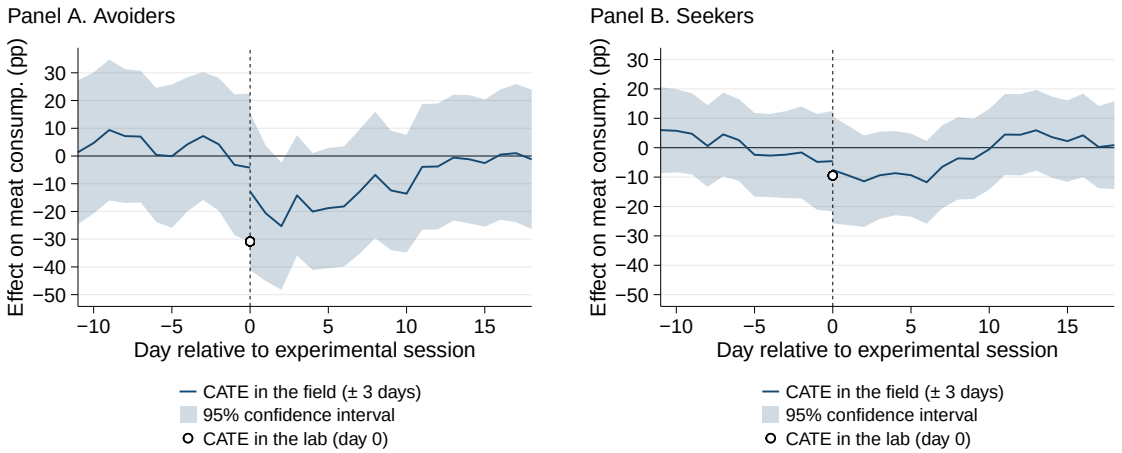


Figure A.4: Effect of Information over Time by Type – Theoretical Propensity Scores

Notes: The figure shows the conditional average effect of receiving information on the propensity to eat a meal with meat over time for avoiders (Panel A) and seekers (Panel B). Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting with theoretical propensity scores and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly contain meat.

F Additional Tables

Table A.6: Comparison of Treatment and Control Group

	Before weighting		After weighting		Comparison
Variable	No info	Info	No info	Info	p-value
Panel A. Willingness to Pay					
[-8,-5)	0.03	0.01	0.02	0.02	1.00[a]
	(0.01)	(0.01)	(0.01)	(0.01)	
[-5,-3)	0.03	0.02	0.02	0.02	1.00[a]
	(0.01)	(0.01)	(0.01)	(0.01)	
[-3,-1)	0.07	0.04	0.06	0.06	1.00[a]
	(0.02)	(0.02)	(0.01)	(0.01)	
[-1,-0.5)	0.07	0.01	0.04	0.04	1.00[a]
	(0.02)	(0.01)	(0.01)	(0.01)	
[-0.5,0)	0.18	0.14	0.16	0.16	1.00[a]
	(0.03)	(0.03)	(0.02)	(0.02)	
[0,0.5)	0.40	0.35	0.37	0.37	1.00[a]
	(0.04)	(0.04)	(0.03)	(0.03)	
[0.5,1)	0.11	0.14	0.12	0.12	1.00[a]
	(0.03)	(0.03)	(0.02)	(0.02)	
[1,3)	0.09	0.19	0.14	0.14	1.00[a]
	(0.02)	(0.03)	(0.02)	(0.02)	
[3,5)	0.01	0.08	0.05	0.05	1.00[a]
	(0.01)	(0.02)	(0.01)	(0.01)	
[5,8)	0.01	0.01	0.01	0.01	1.00[a]
	(0.01)	(0.01)	(0.01)	(0.01)	
Panel B. Laboratory					
Age	22.06	21.92	22.18	21.82	0.33
	(0.27)	(0.26)	(0.29)	(0.25)	
Female	0.45	0.45	0.42	0.47	0.34
	(0.04)	(0.04)	(0.04)	(0.04)	
Bachelor's degree or higher	0.33	0.25	0.35	0.24	0.02
	(0.04)	(0.03)	(0.04)	(0.03)	
Location: Mannheim	0.64	0.63	0.63	0.62	0.91
	(0.04)	(0.04)	(0.04)	(0.04)	
Meat-eating habit (stated)					
Omnivorous	0.52	0.49	0.55	0.47	0.14
	(0.04)	(0.04)	(0.04)	(0.04)	
Flexitarian	0.37	0.36	0.36	0.37	0.86
	(0.04)	(0.04)	(0.04)	(0.04)	
Vegetarian	0.11	0.15	0.09	0.16	0.05
	(0.03)	(0.03)	(0.02)	(0.03)	
Panel C. University canteens (2 weeks prior to experiment)					
Share of meals with meat[b]	0.47	0.47	0.46	0.47	0.87
	(0.04)	(0.04)	(0.03)	(0.04)	
Share of meals without meat[b]	0.37	0.40	0.36	0.39	0.51
	(0.03)	(0.04)	(0.03)	(0.03)	
Number of purchases	3.34	2.94	3.23	2.90	0.35
	(0.26)	(0.24)	(0.25)	(0.24)	
At least one purchase	0.72	0.69	0.72	0.69	0.67
	(0.04)	(0.04)	(0.04)	(0.04)	
Observations	151	161	151	161	

Notes: Standard errors are in parentheses. Comparisons between treatment and control group are based on the IPW estimator applied to the corresponding variable of interest.
[a]The inverse probability weighting based on the WTP guarantees perfect balance by construction.
[b]These values are only available for subjects who purchased a meal during the considered time period (109 and 111, respectively).

Table A.7: Comparison of Treatment and Control Group for Additional Variables

	Before weighting		After weighting		Comparison
Variable	No info	Info	No info	Info	p-value
Panel A. Video and Virtual Reality					
Own VR headset	0.04	0.02	0.04	0.02	0.27
	(0.02)	(0.01)	(0.01)	(0.01)	
Used VR headset to watch a 360° video	0.45	0.48	0.43	0.46	0.69
	(0.04)	(0.04)	(0.04)	(0.04)	
Sensitivity to violence in videos	2.87	2.61	2.78	2.66	0.33
(1:very low, 5:very high)	(0.10)	(0.09)	(0.09)	(0.09)	
Panel B. Beliefs & preferences: intensive farming					
Evaluation of pigs' living conditions	4.57	4.69	4.59	4.69	0.13
(1:very good, 5:very bad)	(0.06)	(0.05)	(0.06)	(0.05)	
Evaluation of chickens' living conditions	4.57	4.77	4.57	4.78	0.00
(1:very good, 5:very bad)	(0.06)	(0.04)	(0.06)	(0.04)	
Interest in pigs' living conditions	2.58	2.63	2.61	2.61	0.95
(1:very much, 5:not at all)	(0.08)	(0.08)	(0.08)	(0.08)	
Relevance of pigs' living conditions	2.44	2.29	2.43	2.30	0.30
(1:very relevant, 5:not at all)	(0.08)	(0.09)	(0.09)	(0.08)	
Informed about pigs' living conditions	2.09	1.98	2.07	1.96	0.34
(1:very well, 5:not at all)	(0.08)	(0.08)	(0.08)	(0.08)	
Seen pigs' living conditions somewhere	0.85	0.89	0.86	0.90	0.29
	(0.03)	(0.02)	(0.03)	(0.02)	
Pigs' capacity to feel pain	8.58	8.53	8.59	8.55	0.86
(0:no capacity, 10:like humans)	(0.16)	(0.15)	(0.15)	(0.16)	
Panel C. Beliefs and preferences: meat consumption					
Dishes with meat taste good	1.75	1.69	1.69	1.70	0.90
(1:totally agree, 5:totally disagree)	(0.09)	(0.09)	(0.08)	(0.09)	
Dishes w/o meat taste good	1.52	1.30	1.57	1.28	0.01
(1:totally agree, 5:totally disagree)	(0.08)	(0.05)	(0.10)	(0.05)	
Meat is important for health	3.92	3.73	3.93	3.67	0.07
(1:totally agree, 5:totally disagree)	(0.10)	(0.11)	(0.10)	(0.11)	
Eating meat is normal	2.47	2.26	2.48	2.23	0.07
(1:totally agree, 5:totally disagree)	(0.10)	(0.10)	(0.10)	(0.10)	
Friends would understand not eating meat	1.54	1.55	1.53	1.55	0.87
(1:totally agree, 5:totally disagree)	(0.08)	(0.08)	(0.08)	(0.09)	
Observations	151	161	151	161	

Notes: Standard errors are in parentheses. Comparisons between treatment and control group are based on the IPW estimator applied to the corresponding variable of interest.

Table A.8: Comparison of Avoiders & Seekers

Variable	Avoiders ($WTP_i < 0$)	Seekers ($WTP_i \geq 0$)	Comparison p-value
Panel A. Laboratory			
Age	21.66	22.14	0.18
	(0.27)	(0.23)	
Female	0.63	0.38	0.00
	(0.05)	(0.03)	
Bachelor's degree or higher	0.30	0.29	0.81
	(0.05)	(0.03)	
Location: Mannheim	0.67	0.60	0.20
	(0.05)	(0.03)	
Meat-eating habit (stated)			
Omnivorous	0.48	0.52	0.49
	(0.05)	(0.03)	
Flexitarian	0.37	0.36	0.88
	(0.05)	(0.03)	
Vegetarian	0.15	0.12	0.44
	(0.04)	(0.02)	
Panel B. University canteens (2 weeks prior to experiment)			
Share of meals with meat[a]	0.46	0.46	0.99
	(0.05)	(0.03)	
Share of meals without meat[a]	0.34	0.42	0.08
	(0.04)	(0.03)	
Number of purchases	2.75	3.20	0.22
	(0.29)	(0.21)	
At least one purchase	0.71	0.70	0.86
	(0.05)	(0.03)	
Observations	100	230	

Notes: Standard errors are in parentheses. Comparisons between information avoiders and information seekers are based on ordinary least squares regressions with a dummy for being an information avoider as a regressor and robust standard errors. Results are similar if we focus on individuals with a WTP that is bounded by the multiple price list in our experiment (the difference in the share of meals without meat becomes more pronounced, 0.30 vs. 0.42, $p = 0.02$).
[a]These values are only available for subjects who purchased a meal during the considered time period (71 and 161, respectively).

Table A.9: Comparison of Avoiders & Seekers for Additional Variables

Variable	Avoiders ($WTP_i < 0$)	Seekers ($WTP_i \geq 0$)	Comparison p-value
Panel A. Video and Virtual Reality			
Own VR glasses	0.03	0.03	0.98
	(0.02)	(0.01)	
Used VR glasses to watch a 360° video	0.38	0.50	0.04
	(0.05)	(0.03)	
Sensitivity to violence in videos	3.30	2.51	0.00
(1:very low, 5:very high)	(0.13)	(0.07)	
Panel B. Beliefs and preferences: intensive farming			
Evaluation of pigs' living conditions	4.69	4.59	0.21
(1:very good, 5:very bad)	(0.06)	(0.05)	
Evaluation of chickens' living conditions	4.64	4.67	0.78
(1:very good, 5:very bad)	(0.08)	(0.04)	
Interest in pigs' living conditions	2.57	2.63	0.64
(1:very much, 5:not at all)	(0.10)	(0.07)	
Relevance of pigs' living conditions	2.51	2.32	0.13
(1:very relevant, 5:not at all)	(0.11)	(0.07)	
Informed about pigs' living conditions	2.04	2.03	0.91
(1:very well, 5:not at all)	(0.11)	(0.06)	
Seen pigs' living conditions somewhere	0.86	0.88	0.58
	(0.03)	(0.02)	
Pigs' capacity to feel pain	8.54	8.60	0.78
(0:no capacity, 10:like humans)	(0.20)	(0.12)	
Panel C. Beliefs and preferences: meat consumption			
Dishes with meat taste good	1.77	1.70	0.60
(1:totally agree, 5:totally disagree)	(0.11)	(0.08)	
Dishes w/o meat taste good	1.50	1.38	0.31
(1:totally agree, 5:totally disagree)	(0.10)	(0.05)	
Meat is important for health	3.67	3.89	0.17
(1:totally agree, 5:totally disagree)	(0.14)	(0.08)	
Eating meat is normal	2.29	2.37	0.59
(1:totally agree, 5:totally disagree)	(0.12)	(0.08)	
Friends would understand not eating meat	1.62	1.53	0.46
(1:totally agree, 5:totally disagree)	(0.11)	(0.06)	
Observations	100	230	

Notes: Standard errors are in parentheses. Comparisons between information avoiders and information seekers are based on ordinary least squares regressions with a dummy for being an information avoider as a regressor and robust standard errors. Results are similar if we focus on individuals with a WTP that is bounded by the multiple price list in our experiment.

Table A.10: Correlation of Avoiding Information and Observable Characteristics

	(1)	(2)	(3)
Demographics			
Age	-0.01	-0.01	-0.01
	(0.01)	(0.01)	(0.01)
Female	0.23***	0.13**	0.15**
	(0.05)	(0.06)	(0.06)
Bachelor's degree or higher	0.07	0.07	0.04
	(0.06)	(0.06)	(0.06)
Location: Mannheim	0.05	0.06	0.06
	(0.05)	(0.05)	(0.05)
Meat eating habit (stated)			
Omnivorous	0.00	0.03	-0.17
	(0.09)	(0.09)	(0.12)
Flexitarian	-0.05	-0.05	-0.16
	(0.09)	(0.09)	(0.10)
Video and Virtual Reality			
Own VR glasses		0.16	0.12
		(0.14)	(0.14)
Used VR glasses to watch a 360° video		-0.06	-0.07
		(0.05)	(0.05)
Sensitivity to violence in videos (1:very low, 5:very high)		0.11***	0.12***
		(0.02)	(0.02)
Beliefs and preferences: intensive farming			
Evaluation of pigs' living conditions (1:very good, 5:very bad)			0.11*
			(0.06)
Evaluation of chickens' living conditions (1:very good, 5:very bad)			-0.05
			(0.06)
Interest in pigs' living conditions (1:very much, 5:not at all)			-0.03
			(0.03)
Relevance of pigs' living conditions (1:very relevant, 5:not at all)			0.08**
			(0.03)
Informed about pigs' living conditions (1:very well, 5:not at all)			-0.01
			(0.03)
Seen pigs' living conditions somewhere			-0.04
			(0.08)
Pigs' capacity to feel pain (0:no capacity, 10:like humans)			0.00
			(0.01)
Beliefs and preferences: meat consumption			
Dishes with meat taste good (1:totally agree, 5:totally disagree)			-0.03
			(0.03)
Dishes w/o meat taste good (1:totally agree, 5:totally disagree)			0.04
			(0.03)
Meat is important for health (1:totally agree, 5:totally disagree)			-0.02
			(0.02)
Eating meat is normal (1:totally agree, 5:totally disagree)			-0.03
			(0.02)
Friends would show understanding for decision to not eat meat (1:totally agree, 5:totally disagree)			0.02
			(0.03)
R^2	0.06	0.13	0.19
Observations	330	330	330

Notes: Robust standard errors are in parentheses. Coefficient estimates are based on OLS regressions with the binary variable of having a WTP below zero as dependent variable. For variables which are elicited on a Likert scale, we provide the start and end of the scale in parentheses after the variable name.

Table A.11: Effect of Information in the Lab including Controls – WLS

	(1)	(2)	(3)	(4)	(5)
Panel A. Average effect					
ATE	-0.108**	-0.109**	-0.131**	-0.118**	-0.084*
	(0.047)	(0.047)	(0.055)	(0.052)	(0.047)
Panel B. Heterogeneous effects					
CATE: Avoiders	-0.235***	-0.234***	-0.301***	-0.300***	-0.137
	(0.085)	(0.081)	(0.095)	(0.092)	(0.092)
CATE: Seekers	-0.053	-0.057	-0.057	-0.038	-0.060
	(0.057)	(0.056)	(0.066)	(0.061)	(0.054)
Comparison (p-value)	0.07	0.07	0.03	0.02	0.47
Meat eating habit	Self-report	Self-report	Field:Pre14	Field:Pre28	Field:Pre215
Additional controls	No	Yes	No	No	No
Observations	312	312	220	233	276

Notes: Estimation results based on inverse probability weighting with empirical propensity scores. Each column of a panel refers to a separate estimation. The dependent variable is whether an individual chose a voucher for a meal with meat. Columns 1 and 2 control for the self-reported meat eating habit. Columns 3 to 5 control for the average meat eating level observed in the field in the 14, 28, and 215 days prior to the experiment, respectively. Due to the different dates of the experimental sessions, the length of the available pre-experimental observation period substantially differs across individuals, making it difficult to compare pre-level values when considering a long pre-period (like in column 5). Additional control variables are age, whether the individual is female, whether the individual holds a bachelor's degree, the location of participation, and the midpoint of the WTP interval. Standard errors are in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A.12: Effect of Information in the Lab – Alternative Split

	All	Weak ($\text{WTP}_i < 0.5$)	Strong ($\text{WTP}_i \geq 0.5$)
ATE	-0.156***		
	(0.055)		
CATE		-0.206***	-0.055
		(0.067)	(0.096)
Comparison p-value		0.19	
Mean w/o info	0.450	0.481	0.387
Mean with info	0.294	0.275	0.332
Observations	312	210	102

Notes: Estimation results based on inverse probability weighting with empirical propensity scores. Each column refers to a separate estimation. The dependent variable is whether an individual chose a voucher for a meal with meat. Standard errors are in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A.13: Effect of Information on Positive and Negative Affect

		CATE		
	ATE	Avoiders	Seekers	Comparison (p-value)
Panel A. Indices				
Negative affect	2.672***	3.046***	2.511***	0.00
	(0.080)	(0.149)	(0.092)	
Positive affect	0.449***	0.145	0.580***	0.04
	(0.098)	(0.182)	(0.116)	
Panel B. Separate Measures				
Guilty	2.308***	2.872***	2.065***	0.00
	(0.107)	(0.201)	(0.122)	
Scared	2.683***	3.053***	2.523***	0.02
	(0.100)	(0.184)	(0.117)	
Distressed	3.027***	3.213***	2.947***	0.17
	(0.092)	(0.161)	(0.112)	
Interested	1.245***	0.838***	1.421***	0.03
	(0.121)	(0.222)	(0.143)	
Enthusiastic	-1.258***	-1.632***	-1.096***	0.01
	(0.109)	(0.174)	(0.135)	
Attentive	1.359***	1.230***	1.415***	0.46
	(0.110)	(0.218)	(0.127)	
Observations	312	94	218	

Notes: Estimation results based on inverse probability weighting with empirical propensity scores. Each entry refers to a separate estimation. The last column tests whether the conditional average treatment effect (CATE) is the same for avoiders and seekers. Panel A uses the negative affect index (average value of the items guilty, scared, and distressed) or the positive affect index (average value of the items interested, enthusiastic, and attentive) as dependent variable. Panel B uses the separate items as dependent variables. Standard errors are in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A.14: Effect of Information in the Field

	All	Avoiders ($WTP_i < 0$)	Seekers ($WTP_i \geq 0$)
Panel A. Share of meals w/ meat			
ATE	-0.124***		
	(0.042)		
CATE		-0.153**	-0.112**
		(0.076)	(0.050)
Comparison p-value		0.65	
Panel B. Share of meals w/o meat			
ATE	0.147***		
	(0.041)		
CATE		0.249***	0.103**
		(0.071)	(0.051)
Comparison p-value		0.09	
Panel C. Share of meals w/ meat from terrestrial animals			
ATE	-0.076**		
	(0.038)		
CATE		-0.088	-0.070
		(0.065)	(0.046)
Comparison p-value		0.82	
Panel D. Share of meals w/o meat from terrestrial animals			
ATE	0.099**		
	(0.040)		
CATE		0.187***	0.061
		(0.068)	(0.050)
Comparison p-value		0.14	
Panel E. Share of meals w/ meat from aquatic animals			
ATE	-0.047**		
	(0.021)		
CATE		-0.065	-0.040*
		(0.046)	(0.023)
Comparison p-value		0.62	
Panel F. Share of meals w/o meat from aquatic animals			
ATE	0.033		
	(0.030)		
CATE		0.082	0.011
		(0.055)	(0.035)
Comparison p-value		0.28	
Observations	261	78	183

Notes: Estimation results based on inverse probability weighting with empirical propensity scores. Each entry refers to a separate estimation. The dependent variable is the share of meals which certainly contain meat (Panel A), the share of meals which certainly do not contain meat (Panel B), the share of meals which certainly contain meat from terrestrial animals (Panel C), the share of meals which certainly do not contain meat from terrestrial animals (Panel D), the share of meals which certainly contain meat from aquatic animals (Panel E), and the share of meals which certainly do not contain meat from aquatic animals (Panel F). The dependent variables always considers for each individual the share of respective meals in the complete post-experimental observation period (observation period ends on March 16, 2020, in Mannheim and March 19, 2020, in Bonn). Due to the different dates of the experimental sessions, the length of the post-experimental observation period substantially differs across individuals, making it difficult to give the estimated effect a straight-forward interpretation. Standard errors are in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

Table A.15: Effect of Information in the Field – Alternative Split

	All	Weak ($WTP_i < 0.5$)	Strong ($WTP_i \geq 0.5$)
Panel A. Share of meals w/ meat			
ATE	-0.124***		
	(0.042)		
CATE		-0.125**	-0.122
		(0.050)	(0.075)
Comparison p-value		0.97	
Panel B. Share of meals w/o meat			
ATE	0.147***		
	(0.041)		
CATE		0.167***	0.107
		(0.049)	(0.077)
Comparison p-value		0.51	
Panel C. Share of meals w/ meat from terrestrial animals			
ATE	-0.076**		
	(0.038)		
CATE		-0.067	-0.093
		(0.045)	(0.069)
Comparison p-value		0.75	
Panel D. Share of meals w/o meat from terrestrial animals			
ATE	0.099**		
	(0.040)		
CATE		0.106**	0.084
		(0.047)	(0.077)
Comparison p-value		0.81	
Panel E. Share of meals w/ meat from aquatic animals			
ATE	-0.047**		
	(0.021)		
CATE		-0.060**	-0.023
		(0.026)	(0.036)
Comparison p-value		0.40	
Panel F. Share of meals w/o meat from aquatic animals			
ATE	0.033		
	(0.030)		
CATE		0.046	0.006
		(0.036)	(0.051)
Comparison p-value		0.53	
Observations	261	173	88

Notes: Estimation results based on inverse probability weighting with empirical propensity scores. Each entry refers to a separate estimation. The dependent variable is the share of meals which certainly contain meat (Panel A), the share of meals which certainly do not contain meat (Panel B), the share of meals which certainly contain meat from terrestrial animals (Panel C), the share of meals which certainly do not contain meat from terrestrial animals (Panel D), the share of meals which certainly contain meat from aquatic animals (Panel E), and the share of meals which certainly do not contain meat from aquatic animals (Panel F). The dependent variables always considers for each individual the share of respective meals in the complete post-experimental observation period (observation period ends on March 16, 2020, in Mannheim and March 19, 2020, in Bonn). Due to the different dates of the experimental sessions, the length of the post-experimental observation period substantially differs across individuals, making it difficult to give the estimated effect a straight-forward interpretation. Standard errors are in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

G Additional Figures

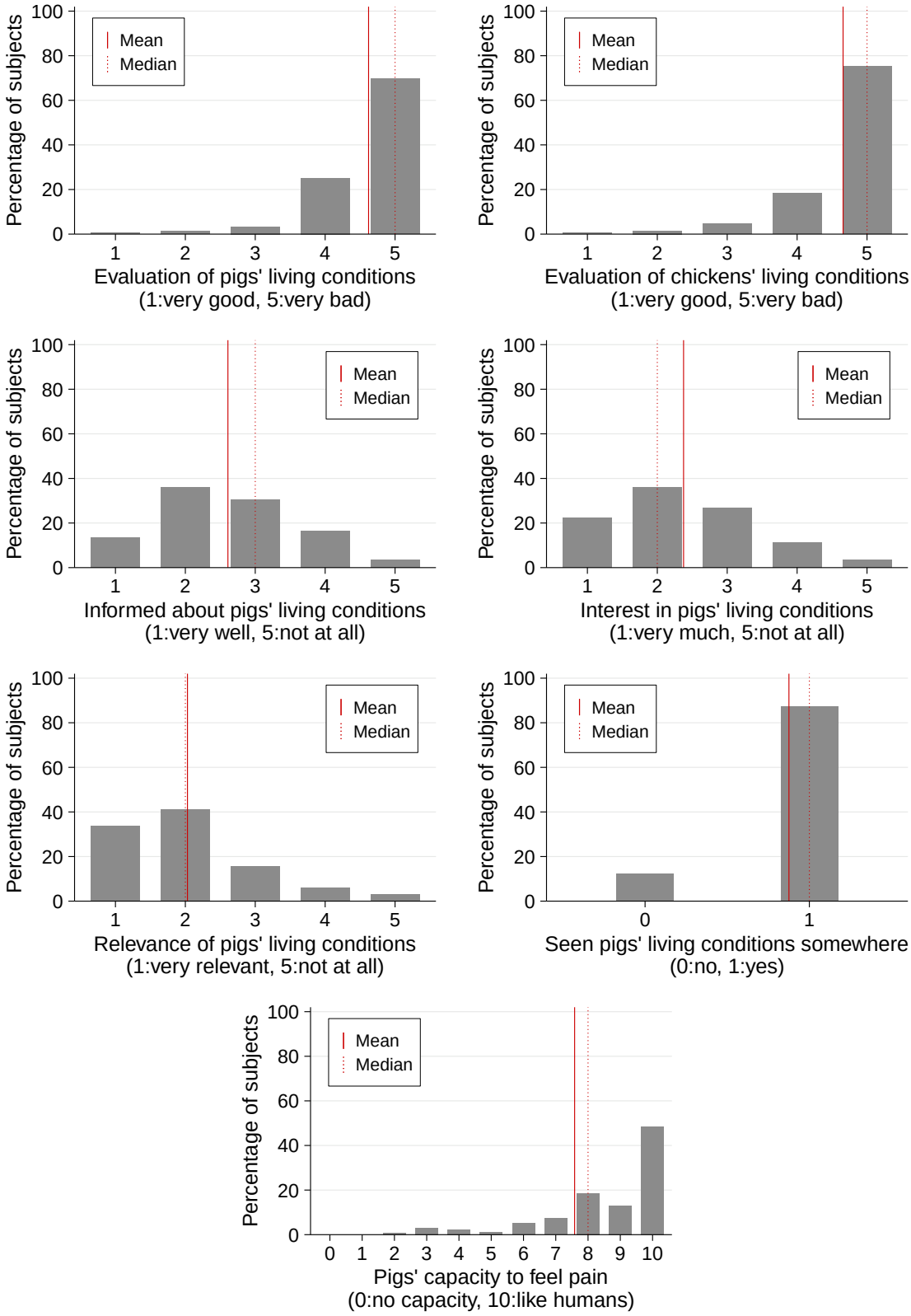


Figure A.5: Beliefs and Preferences: Intensive Farming

Notes: The figure shows the distributions of beliefs and preferences regarding intensive farming. They have been elicited before eliciting subjects' WTP for information. Each graph is based on 330 observations.

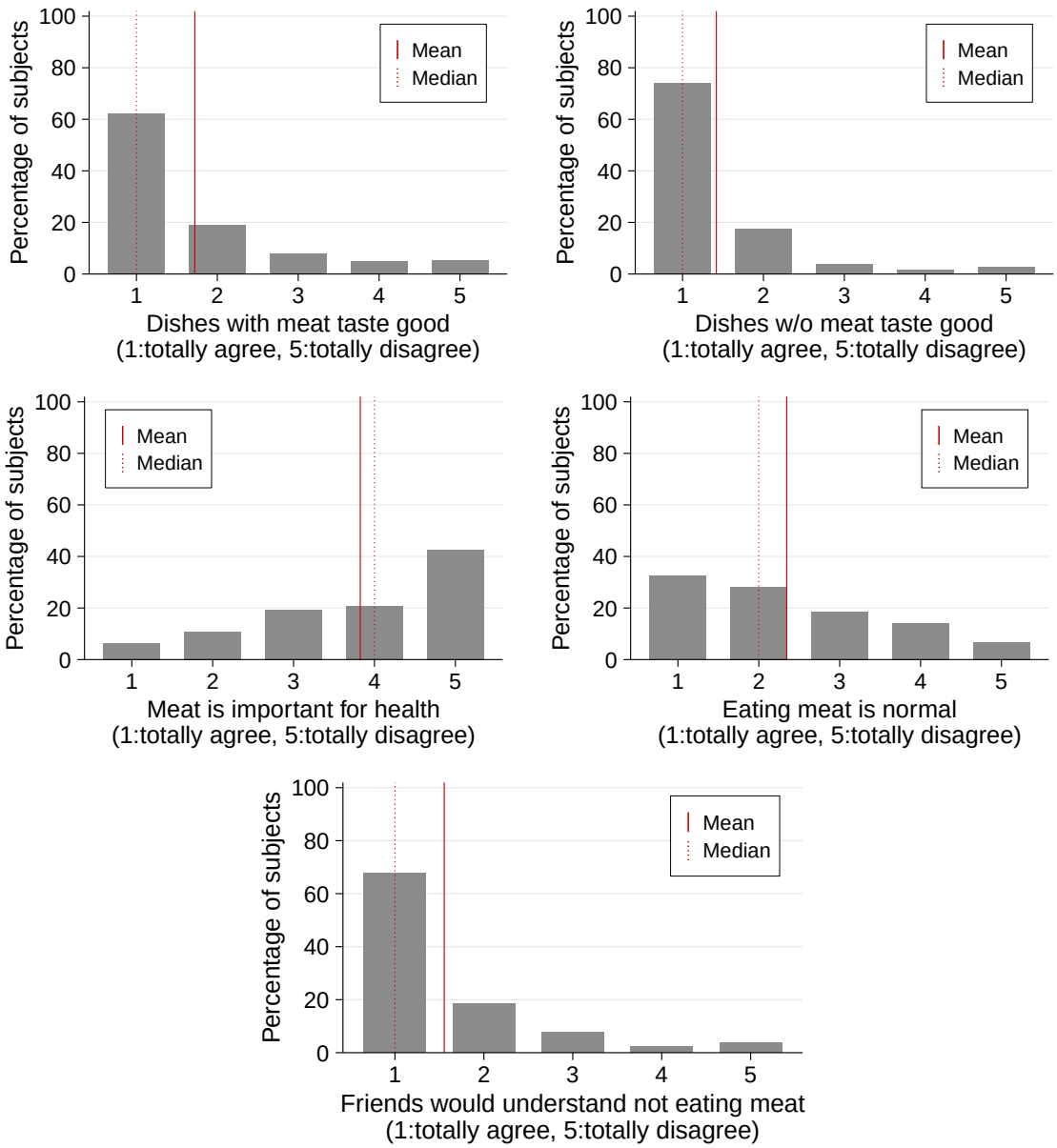


Figure A.6: Beliefs and Preferences: Meat Consumption

Notes: The figure shows the distributions of beliefs and preferences regarding meat consumption. They have been elicited before eliciting subjects' WTP for information. Each graph is based on 330 observations.

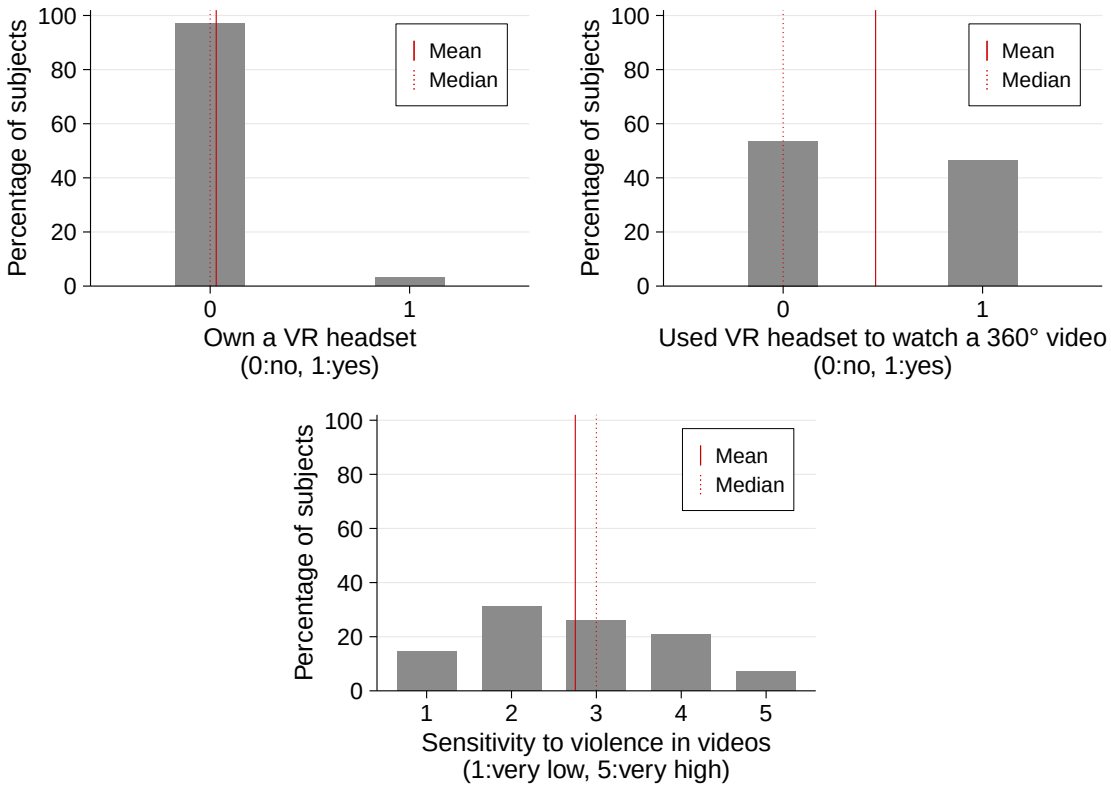


Figure A.7: Video and Virtual Reality

Notes: The figure shows the distributions of experience with Virtual Reality and sensitivity to violence in videos. They have been elicited at the beginning of the experiment. Each graph is based on 330 observations.

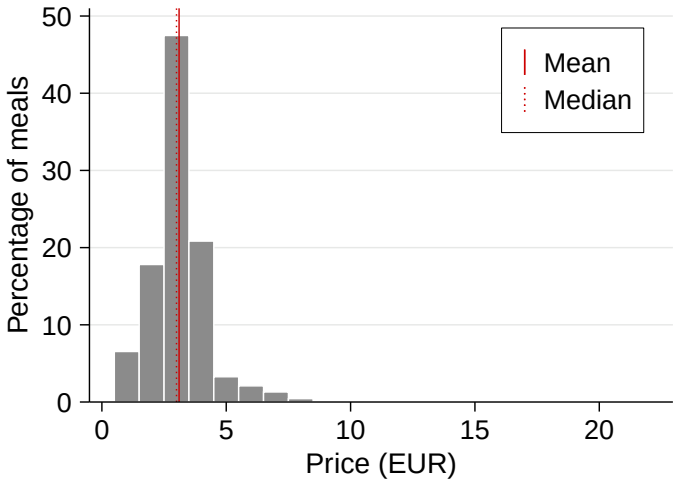


Figure A.8: Distribution of Prices

Notes: The figure shows the distribution of prices for meals purchased during the main observation period. The minimum and maximum prices are EUR 0.35 and 9.84, respectively.

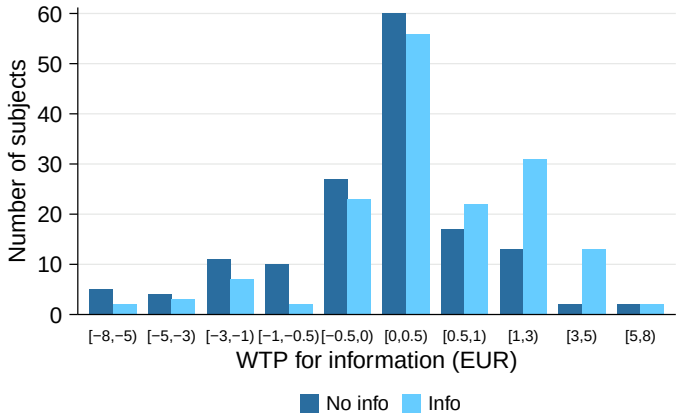


Figure A.9: Treatment Status by WTP for Information

Note: The figure shows the allocation of subjects with a given WTP into the different treatment groups.

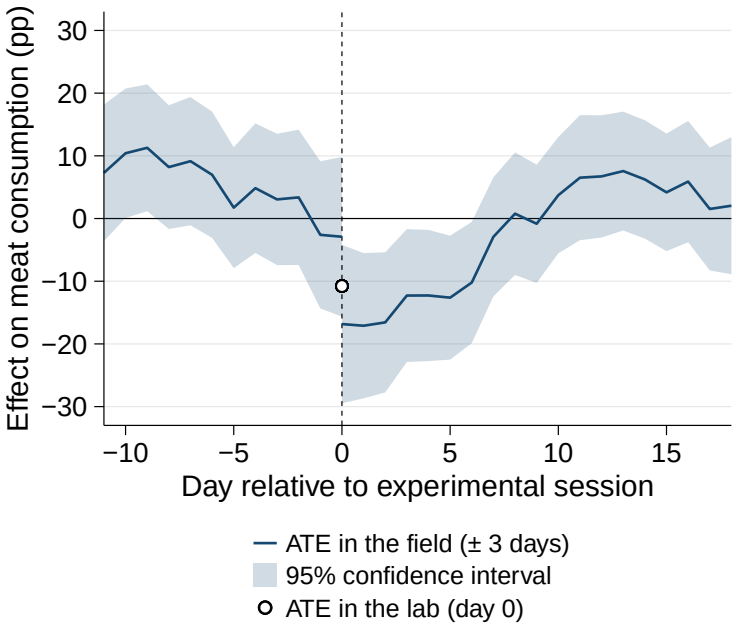


Figure A.10: Effect of Information over Time – WLS

Notes: The figure shows the average effect of receiving information on the propensity to eat a meal with meat over time. Day 0 represents the day of the experimental session. The effect is estimated based on weighted least squares, controlling for the stated meat eating habit, and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly contain meat.

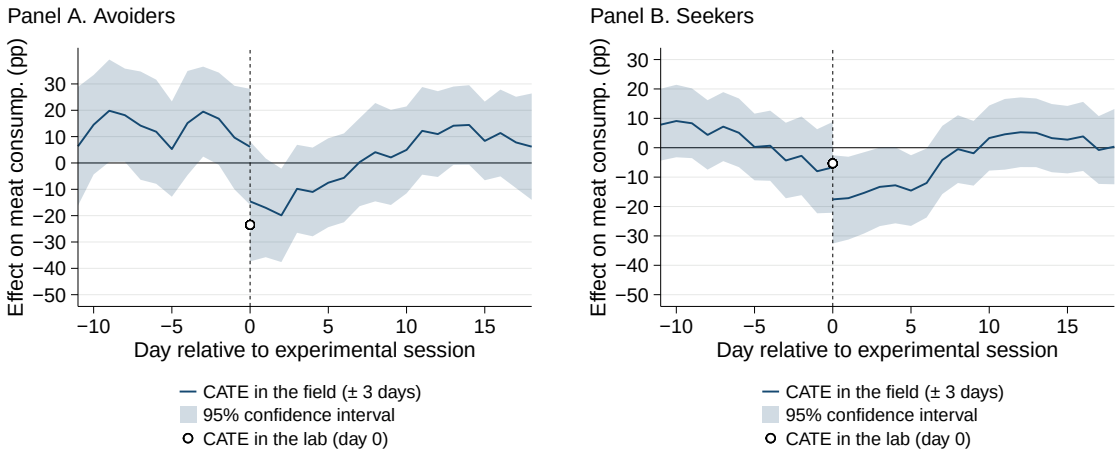


Figure A.11: Effect of Information over Time by Type – WLS

Notes: The figure shows the conditional average effect of receiving information on the propensity to eat a meal with meat over time for avoiders (Panel A) and seekers (Panel B). Day 0 represents the day of the experimental session. The effect is estimated based on weighted least squares, controlling for the stated meat eating habit, and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly contain meat.

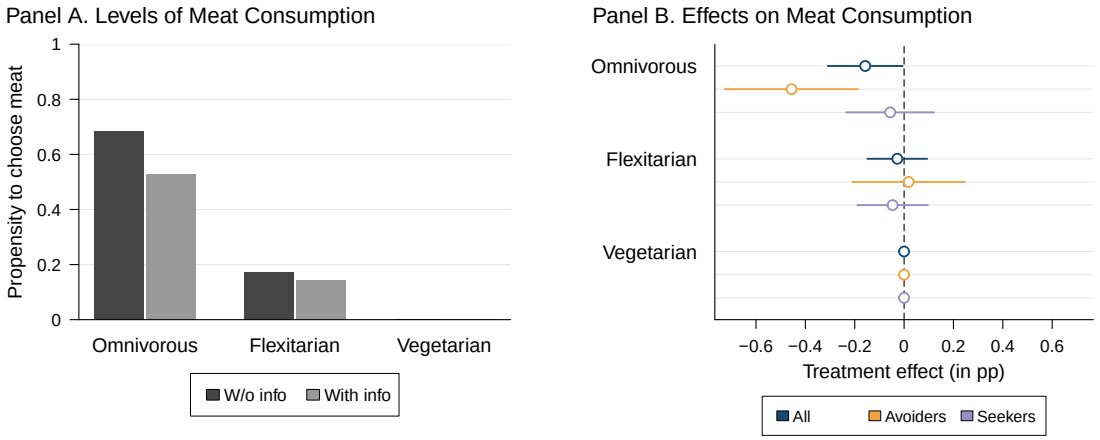


Figure A.12: Heterogeneity by Meat Eating Habit in the Lab

Notes: Panel A of this figure shows the average propensity to choose meat with and without the information treatment for different self-reported meat-eating habits (omnivorous, flexitarian, and vegetarian). The average levels are obtained from the IPW estimator with the binary variable of choosing a voucher with meat as the outcome variable and considering only observations with the corresponding meat-eating habit. Panel B reports the associated average effects of receiving information in each category, separately for all subjects, avoiders, and seekers. Error bars indicate 95% confidence intervals.

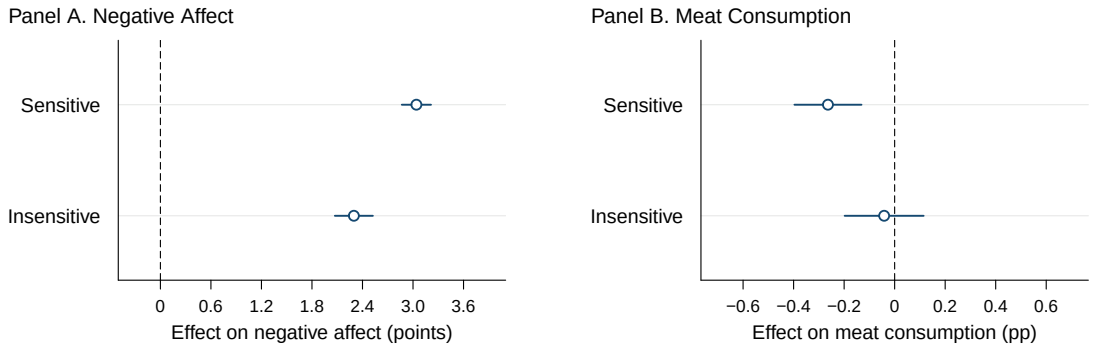


Figure A.13: Effect of Information by Sensitivity to Violence

Notes: The figure shows conditional average treatment effects of receiving information by sensitivity to violence in videos. Subjects whose reported sensitivity to violence is below the median are categorized as "insensitive" ($N = 145$) while all others are categorized as "sensitive" ($N = 167$). The median sensitivity amounts to 3 on a scale from 1 (very low) to 5 (very high). Estimation results are based on inverse probability weighting with empirical propensity scores. In Panel A, the dependent variable is the negative affect index (average value of the items guilty, scared, and distressed). In Panel B, the dependent variable is whether an individual chose a voucher for a meal with meat. Error bars indicate 95% confidence intervals. The conditional average treatment effects of sensitive and insensitive individuals are significantly different in both panels ($p < 0.01$ and $p = 0.03$, respectively).

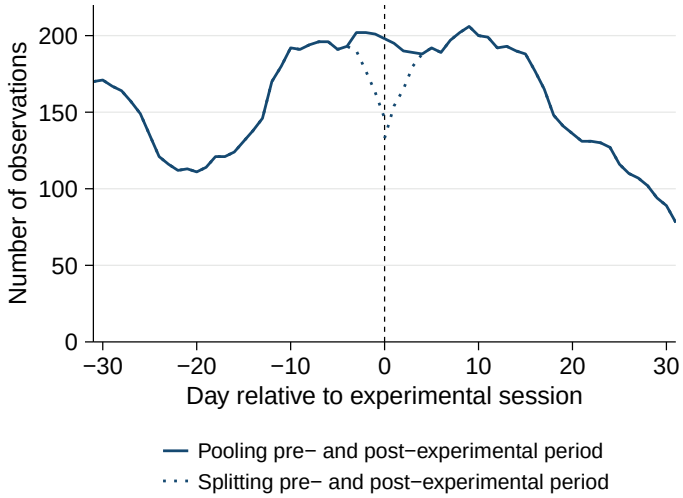


Figure A.14: Observations in Moving Time Window

Notes: The figure shows the number of subjects who purchase at least one meal in the time window of seven days, with the day on the x-axis as the midpoint (±3 days). Day 0 represents the day of the experimental session. The dotted line treats the periods before and after the experiment separately, implying that the time windows become shorter around zero.

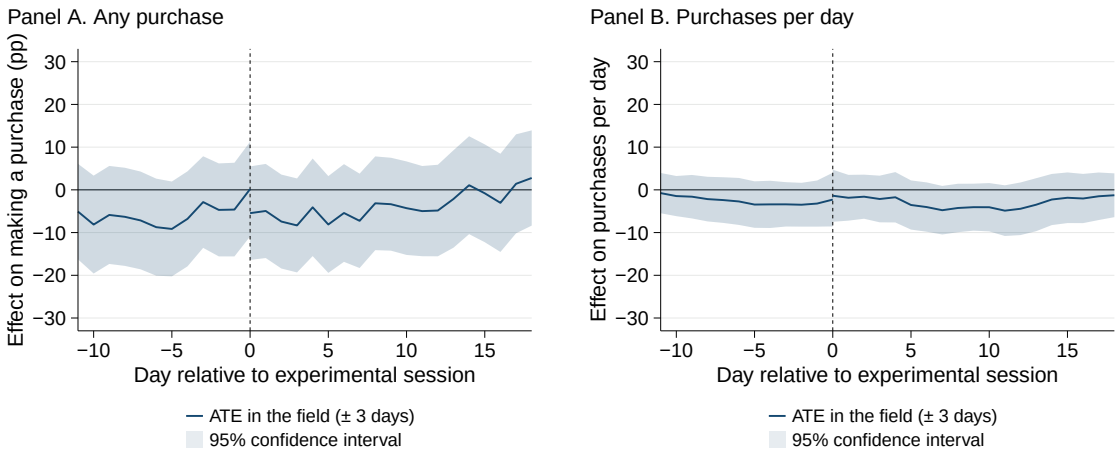


Figure A.15: Propensity to Purchase Food over Time

Notes: The figure shows the average effect of receiving information on the propensity to purchase a meal (Panel A) and the number of purchased meals per day (Panel B) over time. Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment.

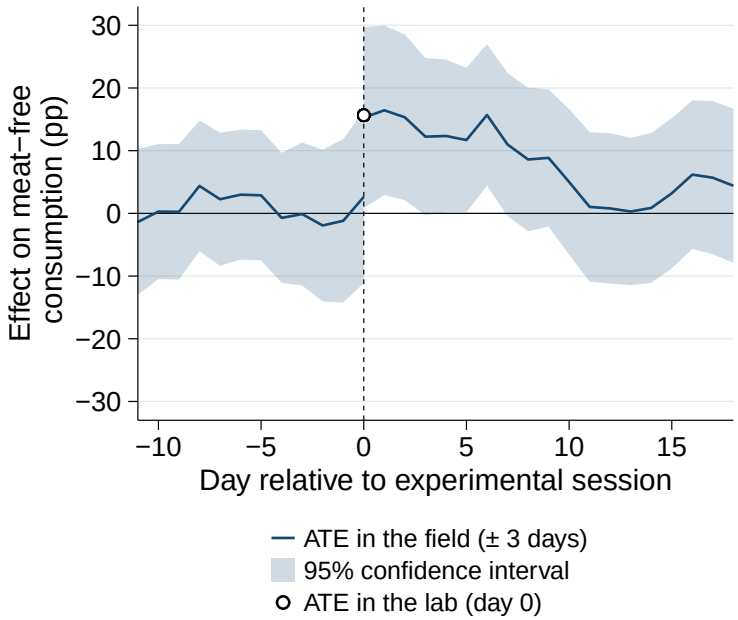


Figure A.16: Effect of Information over Time – Alternative Outcome Variable

Notes: The figure shows the average effect of receiving information on the propensity to eat a meal without meat over time. Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly do not contain meat.

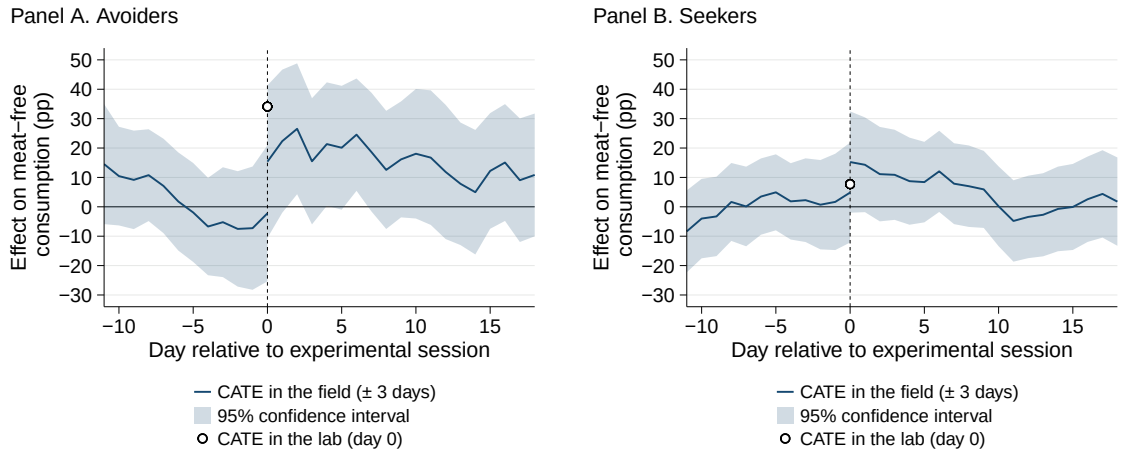


Figure A.17: Effect of Information over Time by Type – Alternative Outcome Variable

Notes: The figure shows the conditional average effect of receiving information on the propensity to eat a meal without meat over time for avoiders (Panel A) and seekers (Panel B). Day 0 represents the day of the experimental session. The effect is estimated based on inverse probability weighting and a moving time window of seven days with the day on the x-axis as the midpoint (±3 days). Around day 0, the time window captures only those days before or after the experiment. The dependent variable is the share of meals within the seven-day time window that certainly do not contain meat.

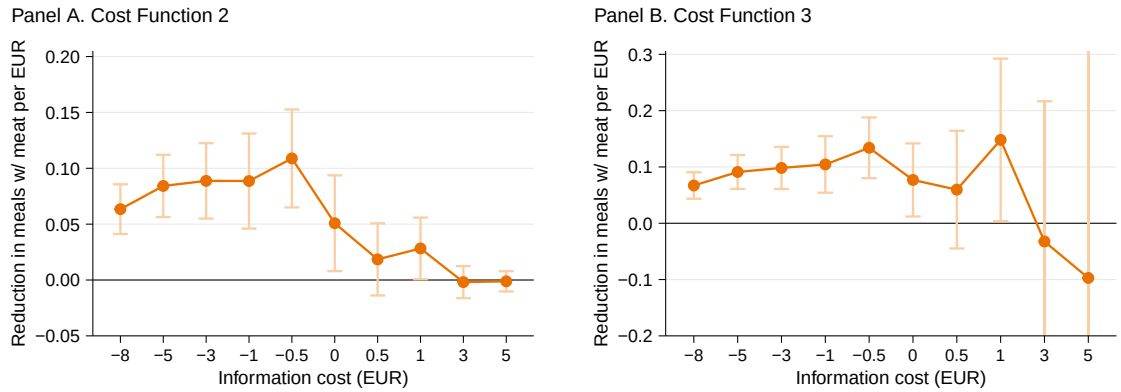


Figure A.18: Cost Effectiveness under Alternative Cost Functions

Notes: Dots depict the cost-effectiveness estimate of an intervention that makes information available at a given information cost. Cost-effectiveness is calculated as $[CATE(c)/K(c)] \cdot [I(c) - I(\bar{c})]\, N$ and treats the program cost per policy complier as deterministic. The underlying program cost functions differ from the program cost function applied in Section 5. In Panel A, the compensation is also to be paid to non-compliers, i.e., $K(c) = (\text{EUR } 6 - c)N$. In Panel B, both the compensation and the rental fees only arise for policy compliers, i.e., $K(c) = (\text{EUR } 6 - c)\,[I(c) - I(\bar{c})]\, N$. Error bars indicate standard errors.