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Tastes better than expected: Post-intervention effects of a vegetarian month in the student canteen

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Abstract

Interventions to decrease meat consumption are often only implemented for short periods of time, and it is unclear how they might have lasting effects. We combine student canteen consumption (over 270,000 purchases made by over 4,500 guests) and survey data ($N > 800$) to study how a one-month intervention to decrease meat consumption affects consumer behavior post-intervention. During the intervention period, meat meals were eliminated from the menu of the treatment canteen, while the two control canteens were unaffected. Using a difference-in-difference approach, we estimate that guests usually frequenting the treatment canteen did not significantly reduce their visits to the canteen during or after the intervention. In the two months following the intervention, they were still 4% less likely to choose the meat option when visiting the canteen, relative to baseline. A large part of this effect seems explicable with guests learning about the quality of the canteen's vegetarian meals. We find little to no evidence of the intervention changing perceived social norms.

Keywords: food consumption, behavioral intervention, field experiment, habit formation, experience

JEL codes: C93, D12, D83, Q18

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1 Introduction

While meat consumption plays an important role in our diets, providing essential nutrients and energy, its environmental and health impacts are significant (Bonnet et al., 2020; Springmann et al., 2018).[1] Reducing meat consumption has thus been the target of a variety of interventions. Previous research has found that meat intake can be reduced by changing the arrangement of food counters and menus (e.g. Garnett et al., 2020; Kurz, 2018; Lohmann et al., 2024), installing carbon labels (e.g. Bilén, 2022; Ho & Page, 2023; Lohmann et al., 2022; Schulze-Tilling, 2023), changing prices (e.g. Garnett et al., 2021), and introducing green defaults (see Meier et al., 2022, for a meta-review).

However, interventions aimed at decreasing meat consumption are often short-lived.[2] Even if a canteen or supermarket were to persistently implement a policy, an individual would only be exposed to it for a limited time, until they graduate, change jobs, or move house. A crucial question is thus whether we can expect such interventions to have an impact post-intervention, and if so, why. One possible reason might be that an intervention changes beliefs. For example, Jalil et al. (2023) still see the effects of an information intervention to decrease meat consumption after three years. Interventions might also persistently affect attitudes or the perception of social norms, as argued by Gravert and Shreedhar (2022). Both of these channels entail the intervention directly affecting future consumption. Additionally, interventions might impact long-run consumption behavior indirectly, mediated by the change in consumption behavior they induce in the short run. For example, an intervention's initial effect on consumption could lead to the build-up of habit stock, which in turn affects consumption more permanently (Stigler & Becker, 1977). Alternatively, the initial change in

[1] Poore and Nemecek (2018) estimate that meat and dairy provide only 18 % of calories consumed, while using 83% of global farmland and producing 60% of agriculture's greenhouse gas emissions. Further, individuals with high intakes of red and processed meat generally show modestly higher mortality rates in high-income Western countries (Godfray et al., 2018).

[2] For example, a German supermarket charged the "true costs" of its food products, including environmental and social costs, but did so only for a week (tagesschau.de, 2023). Student canteens often operate with special weeks focusing on the environment and/or health and then return to normal operations.

consumption behavior might enable individuals to learn about their preferences, and this might subsequently affect behavior. [3]

This paper studies the intervention and post-intervention effects of a one-month intervention to decrease meat consumption in the student canteen, and offers suggestive evidence on the channels driving post-intervention effects. The intervention affected only one of the University's three student canteens and consisted of the complete removal of all meat options from the menu. The canteen instead offered a higher variety of vegetarian and vegan options.[4] To study the intervention's effects on canteen guests, we combine individual-level canteen consumption data with survey data capturing changes in perceived social norms and canteen guests' perception of the canteen and their own consumption behavior. Our combined data allows us to evaluate whether the intervention led to a change in individuals' behavior during and in the two months following the intervention, and to provide suggestive evidence on the likely drivers of these post-intervention effects.

To examine the effect of the intervention on the relative share of meat meals sold, we first analyze the full canteen consumption data (over $270,000$ purchases made by over $4,500$ guests over six months). We use a difference-in-difference framework comparing which percentage of meals sold in the treatment canteen contained meat, both over time and relative to the control canteens. While the proportion of meat meals sold in the treatment canteen by design decreased by 100% during the intervention month, it decreased by 7 to 12% in the two months following the intervention, relative to baseline.

To examine in how far this effect is attributable to a change in canteen guests' behavior, rather than merely a change in canteen frequenting patterns, we additionally perform an intent-to-treat (ITT) analysis at the guest level, classifying guests as treatment or control based on their pre-intervention behavior. In our main specification, we include guest-level fixed effects to control for baseline meat consumption. We es-

[3]For example, Charness et al. (2023) shows this to be the case concerning risk preferences, with individuals making lottery choices differently after having experienced making risk choices.

[4]This received attention from regional and national news (Die Welt, 2023; Kölner Stadt Anzeiger, 2023; t-online, 2023).

timate that the intervention on average led to guests usually visiting the treatment canteen pre-intervention being less likely to choose a meat meal when they visit one of the canteens in the two months following the intervention period. Specifically, the share of meat meals they consume decreases by 4% relative to baseline. On average, the intervention did not significantly impact treated canteen guests' likelihood of frequenting the student canteens in general or the treated canteen in particular, neither during the intervention period nor post-intervention.

We next consider evidence for the relevance of different channels driving these post-intervention effects. One possible channel could be a change in social norms towards meat consumption, but we find little evidence for this: We track potential changes in perceived social norms by conducting surveys in the treatment and control canteens pre-and post-intervention. Around 400 canteen guests responded to both surveys, allowing us to perform a difference-in-difference analysis for changes in perceived social norms, while controlling for guests' characteristics with guest-level fixed effects. We find little to no evidence of the intervention changing the perceived descriptive norm towards meat consumption (elicited by asking respondents to guess which percentage of canteen guests chooses a vegetarian/vegan meal) or the perceived injunctive norm (elicited by asking respondents to rate the social appropriateness of different meat consumption behaviors and to then indicate what they believe to be the most common response among other respondents).[5]

Our suggestive evidence rather points towards learning and habit formation being the most relevant channels: To shed light on other possibly relevant mechanisms we ask respondents of the post-intervention survey to self-report the reasons for decreasing their meat consumption post-intervention (conditional on respondents indicating their behavior had changed post-intervention). The most frequently cited reason was learning about the taste of previously untried vegetarian options, followed by a perceived improvement in the vegetarian offerings in the cafeteria (although there was in

[5]Following Cialdini and Trost (1998), the "descriptive norm" an individual perceives refers to his impression of how others behave, while his perception of the "injunctive norm" refers to his impression of what others think one should behave like. Our procedure for identifying the perceived injunctive norm follows Krupka and Weber (2013).

fact no difference in offerings before and after the intervention), and making vegetarian eating more of a habit. Suggestive evidence from the post-intervention period further supports that having previously experienced a meal impacts meal choices: Canteen guests are generally more likely to choose a meal if they had already experienced it in a previous visit. A slight majority of canteen guests indicated approval for repeating such an intervention month annually (52% of the control and 58% of treatment guests).

We mainly contribute to two strands of literature. The first concerns the evaluation of interventions to decrease meat consumption in a student canteen context. Lohmann et al. (2022) and Schulze-Tilling (2023) conduct natural field experiments in the student canteen showing that carbon labels decrease guests' meat consumption, and Garnett et al. (2020) and Kurz (2018) show that the order of canteen food counters and menu ordering can influence choices. Notably, Kurz (2018) finds evidence of effects persisting in a 13-week post-intervention period. Garnett et al. (2021) further finds evidence of price changes in the canteen affecting meat consumption. This paper studies a more drastic type of intervention, which sharply decreased meat sales while not reducing the number of student canteen guests. Post-intervention effects are, in comparison, much more modest and comparable in magnitude with those found by Kurz (2018).

The second strand of literature we contribute to examines the possible drivers of such post-intervention effects. Evidence in the food consumption domain is scant in this regard. However, different possible drivers have been examined in the resource consumption domain. Byrne et al. (2021) provide experimental evidence that the post-intervention effects of an intervention to reduce shower length are driven by consumers forming a habit of paying attention to consumption. Goetz et al. (2022) explain persistent spillover effects of an intervention to save hot water using a theoretical framework in which households strive to be consistent with their environmental self-image. Castillo and Petrie (2023) explain the persistent effects of high-frequency information and monetary incentives on gas usage with households in different treatment groups experimenting with different room temperatures, learning about differences in

comfort, and adjusting behavior accordingly. In other domains such as blood donations (e.g. Bruhin et al., 2021) and gym attendance (Acland & Levy, 2015), persistence effects seem well-explicable with the Stigler and Becker (1977) habit-formation model. We contribute to this literature by combining our observations of post-intervention effects with survey data assessing the relevance of possible channels, providing the first evidence of possible drivers of post-intervention effects in the food consumption domain. Our findings suggest that even short-lived interventions can affect food consumption behavior in the longer run, by helping individuals learn about their food preferences.

The rest of this paper proceeds as follows. Section 2 describes the experiment setting and data, as well as the surveys we conducted pre- and post- intervention. Section 3 analyzes the effect of the intervention on canteen sales. Section 4 analyzes the effect of the intervention on guests' behavior in an intent-to-treat analysis. Section 5 provides suggestive evidence on the channels for post-intervention effects, and examines whether the intervention led to a change in the perception of social norms. Section 6 discusses the interventions' popularity among canteen guests. Finally, section 7 discusses our findings.

2 Experiment setting and data

2.1 The canteen intervention and canteen data

The intervention we study was implemented in one of the student canteens of the University of Bonn in May 2023. The student canteen named the intervention a "vegan-vegetarian month", during which all meat options were removed from the menu of one of the student canteens and replaced with vegan or vegetarian alternatives. In the following, we will refer to the intervention as the vegetarian month and the canteen in which it was implemented as the treatment canteen. The vegetarian month was initiated jointly by the operators of the canteen, student representatives, and other local student organizations involved in the organization of the student can-

teen.[6] The student canteens offer very cheap meals, with complete meals costing between €1.00 and €4.00 (prices as of 2023/2024). In fast food restaurants located in the surrounding area, meals are priced upward of €4.00.

We observe consumption decisions in all student canteens and cafes of the University of Bonn. Besides the treatment canteen, there are two other main student canteens in Bonn, which we use as control canteens in our analysis.[7] The first larger control canteen is located 1.7 km from the treatment canteen, and the second smaller control canteen is located 4.7 km from the treatment canteen and frequented much less than the other two canteens. All three student canteens usually offer one vegetarian main meal component and one main meal component containing meat. The options offered as main meal components differ daily, but meal planning is centralized across the three canteens such that usually the same main meal components are offered across canteens on a given day. During the intervention month in May 2023, the treatment canteen deviated from centralized meal planning: It eliminated the meat-containing main meal component from its menu and instead offered two vegetarian main meal components which it chose independently from the coordinated menu. After the vegetarian month, it once again adhered to the centralized menu. The vegetarian month was announced less than a week before it was implemented (See Instagram announcement in Figure A17). In addition to main meal components, all canteens offer side dishes, desserts, and a vegetarian stew which can be supplemented with a sausage.[8] Further, the larger control canteen sometimes offers pizza or pasta in addition, and student canteens might serve leftover main meal components from the previous day.

Our main analysis focuses on whether canteen guests purchase meat-containing or vegetarian main meal components, as these make up the bulk of lunch purchases in the canteens and were mainly re-designed during the vegetarian month. We focus on

[6] We were involved in the planning of the vegetarian month to the extent that we made recommendations on how to adjust its design to allow for the cleanest scientific evaluation possible. This mainly involved making recommendations on the timing of the implementation.

[7] We also have data from several University-run cafes throughout the city of Bonn. These cafes have much fewer sales and a different offer than the main canteens and are thus not included in the analysis. We do not see an effect of the vegetarian month on the sales of these cafes.

[8] This was replaced by a vegetarian sausage during the vegetarian month in the treatment canteen.

purchases made between February 1st (three months before the intervention month) and July 31st (two months after the intervention month). For each purchase, we observe which meal is purchased, the price paid, and the location, day, and time of the purchase. From February to July 2023, a total of 276,673 main meal components were purchased in the student canteens, with 69% of these made in the control and 31% of these made in the treatment canteen. 62% of all purchases were made with a personalized payment card, allowing us to track the consumption decisions of individual guests across time.

2.2 Survey design and data

To examine the channels through which the intervention might have persistently affected consumer behavior, we conducted a pre-intervention survey in the beginning of April and a post-intervention survey in mid-July 2023. 839 participants completely filled out the first survey, 902 the second, and 396 participated in both. Demographic characteristics of our survey respondents are shown in Table 1. Section A4.2 in the Appendix details how we recruited survey participants.

At the beginning of both surveys, participants provided their respective student canteen payment card identifiers. This allows us to link survey responses to canteen consumption decisions.[9] Survey participants were provided with information on this linkage and consented to the procedure.

Both surveys collected participants' demographic information (gender, age, and study program).[10] Further, participants were asked to estimate various figures concerning student life in Bonn. Specifically, we asked for estimates of the percentage of students spending a semester abroad, engaging in university politics, and eating meat or fish on a regular day at the university. We effectively asked respondents to provide an estimate for each item twice, by asking once in a positive framing and again in a negative framing (e.g. asking which percentage of students spend a semester

[9]For individuals who did not participate in our survey, we can still track an individual's consumption decisions over time, but do not have the auxiliary information provided by survey participants.

[10]We make use of this data in the suggestive heterogeneity analyses shown in Tables A7 and A6.

abroad and which percentage of students does not spend a semester abroad).[11] As pre-registered, we are only interested in the questions on meat consumption in our main analysis and use these to elicit participants' perceived descriptive norms. We included the other questions to obfuscate our main interest, and to minimize possible experimenter demand effects following Dannenberg et al. (2024). To additionally elicit respondents' personal norm towards meat consumption and their perception of the injunctive norm, we follow the procedure developed by Krupka and Weber (2013). We first asked respondents as how socially appropriate they perceive different meat consumption behaviors and then asked them to guess what most other respondents answered to this question.[12] For obfuscation purposes, we also asked similar questions to elicit the perceived injunctive norm towards spending a semester abroad and engaging in university politics. Translated survey screens are shown in section A4.2.

While we generally took care to obfuscate the purpose of the surveys, we did include questions focusing on the student canteen at the end of the second survey. As we placed these at the end of the last survey, they are unlikely to have influenced the answers respondents provided previously. Specifically, we asked participants whether they believe that they opt for a vegetarian canteen meal more often after the vegetarian month, and if so why. Participants could agree or disagree with possible reasons we provided, and indicate further reasons in an open comment box. Finally, we asked all participants how much they would support different canteen policies: offering a vegetarian day a week, offering more vegetarian and vegan meals, or offering only vegetarian meals for a month.

[11] We follow this procedure for a higher reliability of participant responses, as pre-registered.
[12] These guesses were not financially incentivized.

	Pre-intervention	Post-intervention	Both
% Female	63%	59%	64%
Age	22.5	22.6	22.7
% Full-time students	96%	93%	96%
% Treatment canteen	34%	36%	39%
N	835	902	392

Table 1: Comparison of the respondents of the two surveys

Note: The first column shows descriptive statistics for participants of the survey we conducted pre-intervention at the beginning of April, the second column shows statistics for participants of the survey we conducted post-intervention mid-July, and the third column shows statistics for individuals who responded to both of our surveys. Age is approximated, as respondents indicated their age on an interval. For the purpose of these descriptive statistics, we assume age to be equal to the midpoint of the indicated interval. The percentage of respondents frequenting the treatment canteen we report here is based on respondents' self-report of which canteen they visit most frequently. For a part of survey respondents (556 in total), we can deduce whether survey respondents mainly frequent the treatment canteen or the control canteens based on linked consumption data. We base our heterogeneity analyses in Table A6 and A7 on this classification, attributing 36% of individuals to the treatment canteen. Data-based and self-reported canteen classification are identical for 98% of these respondents.

3 Canteen-level analyses

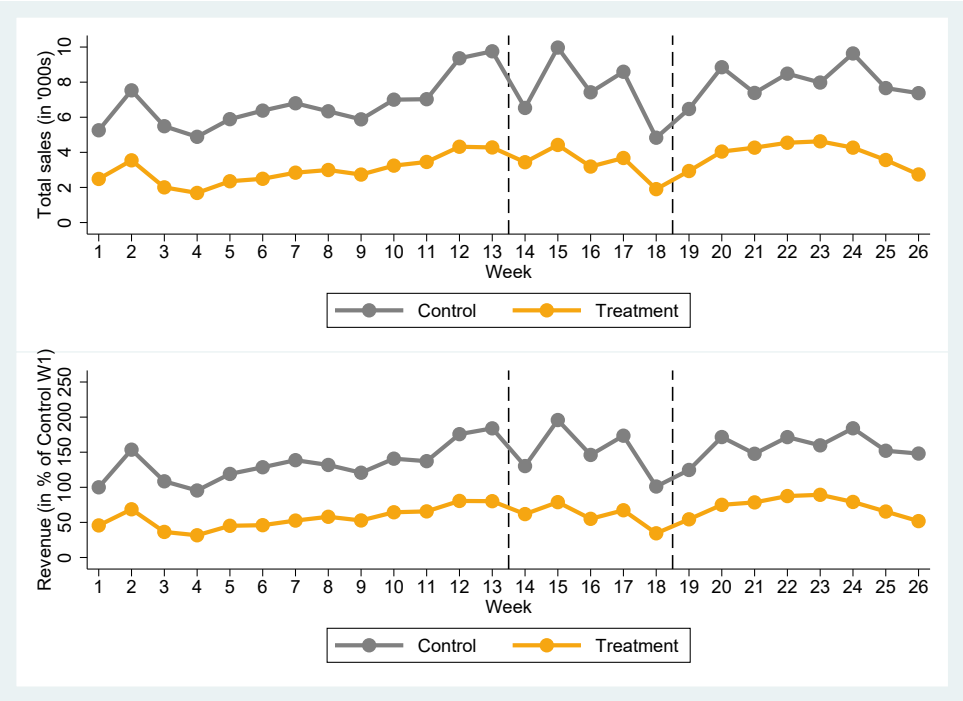
In this section, we analyze the effect of the intervention on canteen-level sales. This analysis can be understood as a first step in assessing the effects of the vegetarian month and does not take a stance on the reasons why the intervention led to a change in sales. Section 4.2 will assess whether these changes in sales are indeed caused by a change in student canteen guests' consumption behavior or if they are merely attributable to changes in canteen frequenting patterns.

3.1 Descriptive statistics

Figure 1 shows the number of main meal components sold in the control and treatment canteens during the pre-intervention, intervention, and post-intervention periods, as well as the respective trends in revenue made with the sale of main meal components. While sales in the control canteens are constantly higher than in the treatment canteen, sale trends pre-intervention look quite parallel. During the first eight weeks of the data period, the University was on semester break, with classes resuming from week 12 to week 24. In weeks 25 and 26, the University was again

on semester break.[13]During the intervention and post-intervention phase, sales in the canteens continue to follow similar trends, with no indication of the vegetarian month leading to a decrease in average sales. Figure 2 shows the same figures for the sale of meat main components. Meat sales and revenue made with meat sales drop to zero in the treatment canteen during the intervention month, while meat sales roughly remain at pre-intervention levels in the control canteens.

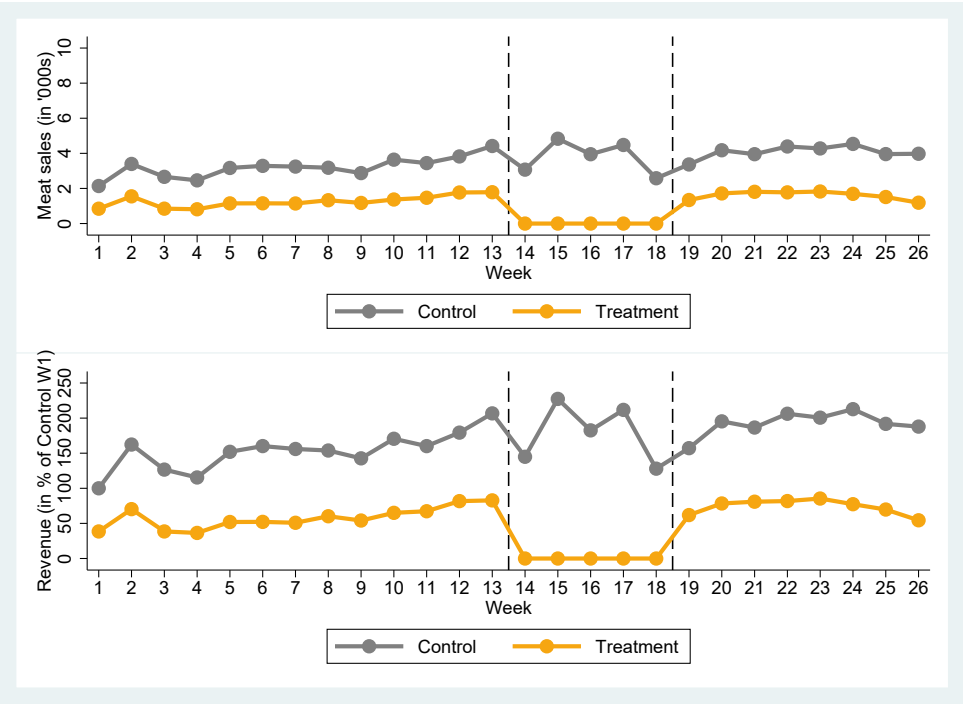
Figure 1: Main meal components sold February 23-July 23



Note: Upper figure shows the weekly number of main meal components sold in the treatment and control canteens, across the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Lower figure shows the respective weekly revenue made with the sale of main meal components, normalized relative to revenue made in the control canteens in week 1. During the first eight weeks of the data period, the University was on semester break, with classes resuming from week 12 to week 24, with a Pentacost break in week 18. In weeks 25 and 26, the University was again on semester break.

[13]During the semester breaks, there are still exams taking place, and students submit homework essays, etc., so there are still activities on campus and sales accordingly do not drop to zero.

Figure 2: Meat main meal components sold February 23-July 23



Note: Upper figure shows the weekly number of meat main meal components sold in the treatment and control canteens, across the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Lower figure shows the respective weekly revenue made with the sale of meat main meal components, normalized relative to revenue in the control canteen in week 1. During the first eight weeks of the data period, the University was on semester break, with classes resuming from week 12 to week 24, with a Pentacost break in week 18. In weeks 25 and 26, the University was again on semester break.

3.2 Effect of the intervention on the proportion of meat sales

We first analyze whether the intervention led to a change in the proportion of meat meals purchased in the treatment canteen relative to the control canteen. The main variable of interest in this analysis is whether canteen guests choose the meat or the vegetarian main meal component, with the most basic difference-in-difference specification being:

$$Meat_{pt} = \alpha + \beta_1 InterPeriod_t + \beta_2 PostPeriod_t + \gamma Treat_p + \delta_1(Treat_p \times InterPeriod_t) + \delta_2(Treat_p \times PostPeriod_t) + \epsilon_{it} \quad (1)$$

The variable $Meat_{pt}$ is a binary outcome describing whether the main meal component purchased in purchase p on day t is meat-based, i.e. $Meat_{pt}$ equals 1 if a meat-

based main meal component is purchased, and 0 if a vegetarian main meal component is purchased. $InterPeriod_t$ is an indicator for whether this purchase occurred during the intervention period (May 2023), and $PostPeriod_t$ is an indicator for whether this purchase occurred in the nine weeks following the intervention period (June/July 2023). $Treat_p$ is an indicator of whether the purchase is made in the treatment canteen. $(Treat_p \times InterPeriod_t)$ identifies differential changes in purchasing behavior during the vegetarian month in the treatment canteen. $(Treat_p \times PostPeriod_t)$ identifies differential changes in purchasing behavior after the vegetarian month in the treatment canteen.

Table 2 shows regression results. Col. (1) follows Equation 1, while Col. (2) exchanges the time indicator dummy variables for daily controls. Since meal planning is centralized across canteens outside of the intervention period, including daily fixed effects controls more precisely for changes in the attractiveness of the main meal components. Col. (3) additionally includes canteen-level controls for additional options on offer. Col. (4) additionally includes canteen-level sales. A full table including coefficients estimated on control variables is shown in Table A1 in the Appendix. Figure A1 shows an event plot.

Spec. (1)-(4) estimate that the vegetarian month led to a decrease of 45 to 46 percentage points in the proportion of meat main component purchased in the treatment canteen. This roughly corresponds to 100% of the proportion of meat main component sales at baseline and is not a particularly surprising result, since the intervention by design eliminated all meat sales. Differing point estimates across Col. (1)-(4) are merely attributable to the specifications estimating slightly differing counterfactual meat sales. The coefficient "Treat x PostPeriod" examines whether the vegetarian month led to a change in the proportion of meat meals sold post-intervention. Across Col. (1)-(4), we estimate that the proportion of meat main components sold decreased by 3 to 5 percentage points, or 7.5% to 12% of the baseline level (42.7 percentage points). We thus find that the intervention led to a significantly lower proportion of meat main components sold in the treatment canteen in the two months

following the intervention. This drop in relative meat sales might be attributable to canteen guests changing their meat consumption behavior, but might also be due to possible changes in guests' frequenting patterns (e.g. changing preferences for one or the other canteen, or for frequenting the canteen in general). The analysis in section 4 is better equipped to isolate a change in meat consumption behavior.

Table 2: Canteen-level estimates of effect on meat sales

	Likelihood of consuming meat (in pp.)			
	Base	Date FE	+Controls	+Sales
Treat x Inter period	-45.66***	-45.81***	-45.26***	-45.06***
	(0.40)	(0.40)	(0.46)	(0.46)
Treat x Post period	-4.84***	-5.10***	-3.78***	-3.18***
	(0.46)	(0.46)	(0.49)	(0.50)
Treat	-4.98***	-4.63***	-2.85***	-6.11***
	(0.30)	(0.30)	(0.54)	(0.74)
Inter period	2.99***			
	(0.31)			
Post period	3.73***			
	(0.26)			
Constant	47.65***	34.49***	33.71***	42.13***
	(0.17)	(0.94)	(1.07)	(1.68)
Date fixed effects	No	Yes	Yes	Yes
Guest fixed effects	No	No	No	No
Control for other offer	No	No	Yes	Yes
Guests control	8,353	8,353	8,353	8,353
Guests treated	3,575	3,575	3,575	3,575
Observations	276,673	276,673	276,673	276,673

Standard errors in parentheses

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

Note: Dependent variable: 0/1 indicator for consumption of the meat option when visiting the canteen. Col. (1) follows Equation 1. The constant describes the proportion of meat main meal components sold in the control canteens pre-intervention. Specifications (2) and (3) include daily date-fixed effects to control for the daily changing offer of main meal components, which is common across canteens pre- and post-intervention. The "PostPeriod" and "Inter period" indicators are thus dropped due to collinearity. Specification (3) includes controls for changes in other elements of the canteens' offers. These include controls for additional offers of the control canteens (special meals, pasta, pizza, other additional meals), as well as a control for whether a second vegetarian main is on offer. This is sometimes the case in all canteens if there are left-overs from the previous day. Specification (4) additionally includes canteen-level sales as a control. Guest numbers are lower-bound estimates since they only include guests paying with an individual payment card. The full table including the coefficients estimated on control variables is shown in Table A1. Standard errors are robust.

4 Guest-level analyses

While section 3 identifies the effect of the vegetarian month on canteen-level sales, it is not clear from this analysis alone in how far effects are attributable to a change in meat consumption behavior as opposed to a mere change in the composition of guests frequenting the canteen. Canteen-level effects are likely in part driven by changes in the composition of canteen guests. This section will thus provide a guest-level analysis, examining whether usual treatment canteen guests on average purchase less meat meals in the canteens during and after the intervention. For this purpose, we construct an intent-to-treat (ITT) sample of canteen guests to whom we can associate a treatment group based on their pre-intervention purchasing behavior.

4.1 Construction of the intent-to-treat sample

62% of the purchases made in the canteens are paid with a personalized payment card. For the guest-level analysis, we restrict the sample to these purchases.[14] Further, we drop instances of a canteen guest purchasing more than one main meal component in one visit.[15] For the main analysis, we further restrict the sample to purchases made by canteen guests who visited a student canteen at least five times in the three months preceding the vegetarian month (80% of the remaining sample) and who either spent at least 80% of these visits at the treatment canteen or at least 80% of these visits at one of the control canteens (92% of the remaining sample). These restrictions allow us to categorize individuals as treatment or control based on intention to treat. Specifically, the treatment group in the IIT analysis consists of canteen guests who primarily visited the treatment canteen and the control group consists of canteen guests who primarily visited the control canteens pre-intervention. Guests' classification as treated or control is thus based entirely on pre-intervention data and stays constant throughout the data period. The resulting sample consists of 117,642 purchases made by a

[14] Of the remaining purchases, 85% are made with a debit or credit card, and the remaining amount with cash. For an analysis at the canteen level including all sales data, please see section 3.

[15] Canteen guests might purchase multiple main meal components because they are very hungry or because they are inviting a friend. Since we cannot distinguish between the two, we drop all instances of multiple main meal components being purchased. These are 5% of the remaining purchases.

total of 4,513 guests. 84% of these purchases are made by university students, 16% by university employees, and less than 0.5% by guests not affiliated with the university.

4.2 Intent-to-treat effect of the intervention on guest behavior

Using the sample constructed in section 4.1, we analyze changes in the consumption behavior of guests who mainly frequent the treatment canteen pre-intervention compared with guests who mainly frequent the control canteen pre-intervention. The main variable of interest is whether canteen guests choose the meat or the vegetarian main meal component when they visit the canteen, with the most basic difference-in-difference specification being:

$$Meat_{it} = \alpha + \beta_1 InterPeriod_t + \beta_2 PostPeriod_t + \gamma Treat_i + \\ + \delta_1 (Treat_i \times InterPeriod_t) + \delta_2 (Treat_i \times PostPeriod_t) + \epsilon_{it} \quad (2)$$

The variable $Meat_{it}$ is a binary outcome describing whether the main meal component purchased by individual i on day t is meat-based, i.e. $Meat_{it}$ equals 1 if a meat-based main meal component is purchased, and 0 if a vegetarian main meal component is purchased. $InterPeriod_t$ is an indicator for whether this purchase occurred during the intervention period (May 2023), and $PostPeriod_t$ is an indicator for whether this purchase occurred in the nine weeks following the intervention period (June/July 2023). $Treat_i$ is an indicator for whether the purchase is made by an individual classified as treated based on pre-intervention purchase patterns.[16] $(Treat_i \times InterPeriod_t)$ identifies intent-to-treat effects of the vegetarian month. $(Treat_i \times PostPeriod_t)$ identifies intent-to-treat post-intervention effects of the vegetarian month. Standard errors are clustered at the individual level.

Regression results are shown in Table 3. Col. (1) performs the regression described in Equation 2. For canteen guests in the treated group, the likelihood of choosing a meat main meal component when visiting one of the canteens is decreased by 42 per-

[16] As described in section 4.1, we classify canteen guests as treated or control guests based on consumption behavior in the three months preceding the vegetarian month. The $Treat_i$ indicator is thus independent of whether the specific purchase $Meat_{it}$ occurred in the treatment or control canteen.

centage points during the intervention period. After the intervention period, the likelihood of choosing a meat main meal component is decreased by 4 percentage points, relative to baseline. One possible factor explaining that estimates are slightly smaller than in our canteen-level analysis might be guests choosing different student canteens during the intervention and post-intervention period than pre-intervention.[17] Col. (2) exchanges the "InterPeriod" and "PostPeriod" indicators for daily fixed effects that capture changes in the attractiveness of the daily-changing meals on offer in the student canteens pre- and post-intervention. This does not change the estimated coefficients.

While the estimates in Col. (1) and (2) are by design not impacted by a possible increase in regular treatment canteen guests visiting the control canteens and vice versa, they might still be driven by changes in guests' decision to visit a student canteen in general. Specifically, the vegetarian month might have led to guests with a taste for meat avoiding the student canteens and guests with a taste for vegetarian options increasingly frequenting the student canteens. Col. (3) thus additionally includes guest fixed effects. In this manner, we can control for individual canteen guests' taste for meat. This is our preferred specification to assess the impact of the intervention on guests' canteen consumption behavior. We find that the intervention on average led to a decrease of 35 percentage points in the proportion of meat meals purchased by the treated group, i.e. the likelihood of an average treated guest to consume meat when in the canteen is reduced by 35 percentage points during the intervention. Post-intervention, we estimate that the proportion of meat meals purchased decreased by 2 percentage points, i.e. the likelihood of an average treated guest to consume meat when in the canteen is reduced by 2 percentage points in the two months following the intervention period. This translates into a 4% decrease in meat consumption relative to baseline meat consumption in the treated group (42%).

[17] Section A2 provides further statistics on the intervention influencing guests' decision to visit the treatment or one of the control canteens. Especially for guests with high baseline meat consumption, the proportion of visits to the control canteen relative to the treatment canteen seems to have increased during the intervention period. The estimates identified in the intent-to-treat analysis are not affected by such changes in canteen frequenting patterns.

Table 3: ITT estimates of effect on meat consumption

	Likelihood of consuming meat (in pp)		
	Base	Date FE	Date+Guest FE
Treat x Inter period	-0.42***	-0.42***	-0.35***
	(0.01)	(0.01)	(0.01)
Treat x Post period	-0.04***	-0.04***	-0.02**
	(0.01)	(0.01)	(0.01)
Treat	-0.03*	-0.02	
	(0.02)	(0.02)	
Inter period	0.03***		
	(0.01)		
Post period	0.04***		
	(0.01)		
Constant	0.45***	0.32***	0.37***
	(0.01)	(0.01)	(0.01)
Date fixed effects	No	Yes	Yes
Guest fixed effects	No	No	Yes
Guests control	3,371	3,371	3,371
Guests treated	1,142	1,142	1,142
Observations	117,642	117,642	117,642

Standard errors in parentheses

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

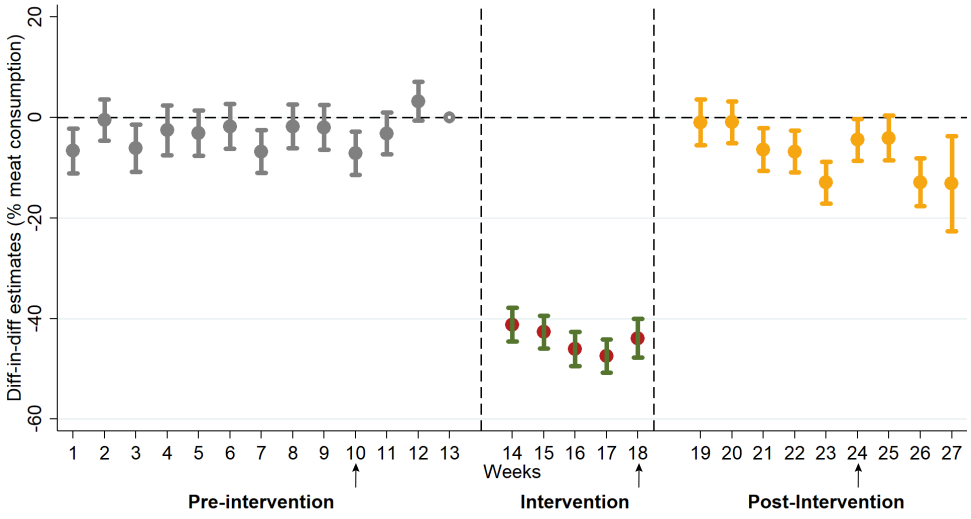
Note: Dependent variable: 0/1 indicator for consumption of the meat option. Estimates show the change in the likelihood of consuming meat in percentage points. Col. (1) corresponds to Equation 2. The Constant term describes the proportion of meat meals sold to the control group pre-intervention. Specifications (2) and (3) include date-fixed effects to control for the daily changing offer of main meal components, which is common across canteens pre- and post-intervention. The "PostPeriod" and "Inter period" indicators are thus dropped due to collinearity. Specification (3) includes individual guest-level effects. Standard errors are clustered at the individual level.

Figure 3 estimates the time trend based on equation 2, exchanging the "InterPeriod" and "PostPeriod" indicators for weekly indicators. The coefficients estimated for the weeks preceding the intervention period move around 0, supporting the validity of the parallel trend assumption for our difference-in-difference analysis. Post-intervention, the coefficients move around 0 in the two weeks immediately following the intervention. We estimate negative coefficients for the following six weeks. [18]

To further investigate a possible effect of the intervention on canteen frequent-

[18] Week 27 consists of just one day of data, since this is the last day in our data period.

Figure 3: ITT event plot



Note: Figure shows coefficients estimated in a regression analysis following equation 2, but including weekly interaction terms and time controls. We additionally control for day of the week. Coefficients show the estimated change in the likelihood of consuming the meat main meal component, in percentage points. Our data for week 27 includes only one day, since it was the last day of July and our sample period. The first arrow indicates Eastern, the second Pentecost and the third the beginning of the semester break. Bars indicate 95% confidence intervals.

ing patterns, Table 4 examines the effect of the intervention without conditioning on guests' decision to visit the student canteen. For this purpose, we expand the data set to resemble a balanced panel, inserting zeros for days on which a regular canteen guest did not frequent one of the canteens.[19] Col. (1) examines the effect of the intervention on guests' likelihood of visiting one of the student canteens on a given day, performing a similar analysis as shown in Col. (3) of Table 3, but exchanging the dependent variable with a binary variable equalling 1 if the guest visited one of the canteens on a given day, and 0 if not. The baseline likelihood with which treatment guests visit one of the student canteens at lunchtime pre-intervention is 28 pp. (see Col. (1) in Table

[19]Note that the analysis shown in Table 3 uses only observations of guests visiting one of the student canteens on a given day and then examines guests' choice of main meal component. This decision is thus made conditional on guests' previous decision to visit the canteen. The analysis in Table 4 artificially expands the data set to include a zero observation for each day a regular student canteen guest could have visited one of the canteens. In contrast to the data set used in Table 3, we here classify guests as treatment or control canteen guests based only on weeks 1-11 of our pre-intervention period, and then drop these from the analysis and instead use weeks 12-13 as a shorter pre-intervention phase. The reason for this is that in this analysis guests' decision of whether or not to visit the student canteen is part of the analysis outcome, but at the same time also part of the criteria defining the ITT samples. To avoid introducing endogeneity, we use part of the pre-intervention phase (weeks 1-11) to assign ITT groups, and the remaining part (weeks 12-13), to include pre-intervention behavior in the analysis. Tables A11 and A9 repeat the analyses in Table 4 with all specifications shown in Table 3 and find similar results across specifications.

A9). Treated canteen guests' likelihood of visiting one of the canteens does not seem to be affected by the intervention. Table A10 repeats this analysis focusing specifically on guests' likelihood of visiting their "home" canteen rather than visiting any student canteen. Again, we do not find a significant effect of the intervention.

Col. (2) examines guests' likelihood of visiting one of the canteens at lunchtime and then consuming the meat main component. The baseline likelihood for treatment guests to do so is 12 pp. (see Col. (1) in Table A11), which is decreased by 10.3 pp.(86%) during the intervention phase and 1.8 pp. (17%) post-intervention. Col. (3) examines guests' likelihood of visiting one of the canteens at lunchtime and then consuming the vegetarian main meal component. The baseline likelihood for treatment guests is 17 pp. (see Col. (4) in Table A11), which is increased by 9.8 pp (58%) during the intervention and 1.2 pp. (7%) post-intervention. Figures A14, A15, and A16 show event plots for each of the three analyses. Additionally, time trends on regular canteen guests' decision to visit one of the student canteens at lunchtime are shown for all canteen guests in Figure A4, and separated by previous meat consumption in Figures A7, A10, and A13. Table A12 additionally replicates Table A9 conditioning on previous meat consumption. While there is on average no effect of the intervention on visits, there seem to be considerable heterogeneities, with canteen visits increasing during and post-intervention for guests with low previous meat consumption and decreasing for guests with high previous meat consumption. This suggests that changes in guest frequenting patterns are likely a relevant factor in explaining the change in sales identified in section 3, and supports the importance of including individual fixed effects when assessing the effect of the intervention on guest consumption behavior.

Table 4: ITT estimates without conditioning on the decision to visit one of the canteens

	Visit(in pp)	Visit+Meat(in pp)	Visit+Veg(in pp)
	Date+Guest FE	Date+Guest FE	Date+Guest FE
Treat x Inter period	-0.44	-10.26***	9.82***
	(0.74)	(0.63)	(0.67)
Treat x Post period	-0.57	-1.82***	1.24**
	(0.76)	(0.49)	(0.57)
Constant	27.72***	11.00***	16.71***
	(0.68)	(0.46)	(0.56)
Date fixed effects	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes
Guests control	2,722	2,722	2,722
Guests treated	922	922	922
Observations	262,368	262,368	262,368

Standard errors in parentheses

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

Note: For the purpose of this analysis, we expand the main data set to resemble a balanced panel, i.e. inserting zeros for day and student canteen guest combinations on which a regular canteen guest did not visit the canteen. The construction of the data set is explained more in detail in the main text. The dependent variable in Col. (1) is a 0/1 indicator for visiting one of the student canteens and consuming any main meal component. Col. (2) is a 0/1 indicator for visiting one of the student canteens and then consuming the meat main component. Col. (3) is a 0/1 indicator for visiting one of the student canteens and then consuming the vegetarian main component. Regression specification is as in Col. (3) of Table 3. Standard errors are clustered at the individual level. The number of guests is a bit lower than in the main analysis in Table 2 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11. Weeks 1 to 11 are used exclusively for this purpose and then dropped from the analysis, as explained in the main text. Figures A14, A15, and A16 show event plots corresponding to each of the three columns. Tables A9 and A11 repeat the analysis with different specifications, following all specifications of Table 3. Table A10 looks specifically at guests' likelihood of visiting their "home" canteen rather than one of the canteens in general.

4.3 Heterogeneity analysis of post-intervention effects

We now examine how estimated treatment effects differ depending on canteen guests' consumption behavior. Table 5 splits the sample by the frequency with which guests visited one of the student canteens during the intervention period, and repeats the main specification shown in Col. (3) of Table 3 on the restricted samples. Col. (1) includes the full sample, while Col. (2) restricts the sample to control guests, and treatment guests who visited the treatment canteen at least once during the intervention period. Col. (3) restricts the sample to control guests, and treatment guests for whom we did not register a visit to the treatment canteen during the intervention pe-

riod. Note that these guests might have still visited the canteen but used a different payment method than their individual payment cards. Col. (4) - Col. (6) perform further sample splits depending on the number of visits during the intervention period. Treatment effects are more pronounced if guests visit the treatment canteen at least once. However, there is limited evidence of a clear increasing relationship between number of visits and effect sizes. Specifically, we estimate the largest treatment effects for guests visiting the canteen between 3 and 6 times, and estimate smaller effects for guests visiting more frequently. One reason for this could be that guests who come to the student canteen often during the intervention period are also more likely to have primarily consumed vegetarian meals pre-intervention, as shown in section A2. For canteen guests already consuming close to no meat pre-intervention, the vegetarian month can — mechanically — not lead to a decrease in meat meals consumed post-intervention. Patterns are similar when examining student canteen meat consumption without conditioning on an individual visiting the student canteen (i.e. repeating the analysis from Col. (2) in Table 4 on the respective sub-samples), as examined in Table A13.

Table 6 analyzes treatment effects splitting the sample by meat consumption pre-intervention. The coefficients estimated for "Treat x Post period" suggest that the post-intervention effects of the vegetarian month are strongest for canteen guests with high previous meat consumption. Patterns are similar when examining the respective sub-samples without conditioning on guests' decision to visit one of the student canteens, as examined in Table A14.

Tables A6 and A7 further examine heterogeneity by demographic characteristics. For this analysis, we restrict the sample to those canteen guests who took part in our surveys and provided demographic information. Correspondingly, the sample size is decreased to a total of 570 canteen guests, making results more of a suggestive nature. Results indicate that younger guests (21 and younger), female guests, and those who study Law (rather than Culture, Economics, or Social Studies) show larger post-intervention effects. Table A8 examines effects separately for university employees

Table 5: ITT estimates by visits in intervention month

	All	At least 1 visit?		Number visits		
		yes	no	1-2	3-6	over 6
Treat x Inter period	-34.84***	-35.05***		-43.79***	-39.78***	-31.42***
	(1.38)	(1.39)		(2.61)	(1.96)	(1.98)
Treat x Post period	-1.62**	-1.59**	-2.88	-0.47	-3.25***	-0.68
	(0.68)	(0.70)	(2.48)	(1.50)	(1.20)	(0.90)
Constant	36.93***	37.14***	39.43***	39.98***	39.12***	37.25***
	(0.92)	(0.93)	(1.05)	(1.04)	(1.02)	(0.99)
Date fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Guests control	3,371	3,371	3,371	3,371	3,371	3,371
Guests treated	1,142	915	227	232	364	319
Observations	117,642	114,967	90,524	91,553	96,518	102,594

Standard errors in parentheses

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

Note: Dependent variable: 0/1 indicator for consumption of the meat option when visiting the canteen. Col. (1) corresponds to Col. (3) in Table 3 and includes the full sample. Col. (2) restricts the sample to control guests and treatment guests who made at least one purchase with their personalized card during the intervention period. Col. (3) includes only control guests and those treatment guests for whom we did not register such a purchase – Note, however, that they might have still visited the canteens during the time frame, but used a different payment method than their personalized card. Col. (4) - Col. (6) restrict the sample of treatment guests by the number of visits registered during the intervention period. Numeric thresholds are chosen such that each category corresponds to roughly one third of regular student canteen guests. Standard errors are clustered at the individual level. Table A13 repeats the analyses without conditioning on canteen guests visiting the canteen, i.e. examining guests decision to visit the canteen and then consume meat.

(around 16% of the ITT sample). The coefficient on post-intervention effect sizes for university employees is negative, but insignificant.

Table 6: ITT estimates by pre-intervention meat consumption

	All	By percentage of meat meals pre-intervention		
		0-10%	10%-68%	over 68%
Treat x Inter period	-34.84***	-2.68***	-42.67***	-76.73***
	(1.38)	(0.35)	(1.44)	(1.70)
Treat x Post period	-1.62**	-1.02	-2.03	-2.22**
	(0.68)	(0.80)	(1.44)	(1.11)
Constant	36.93***	0.01	26.80***	82.22***
	(0.92)	(0.32)	(2.07)	(2.07)
Date fixed effects	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes
Guests control	3,371	1,117	1,122	1,132
Guests treated	1,142	400	375	367
Observations	117,642	38,644	38,731	40,267

Standard errors in parentheses

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

Note: Dependent variable: 0/1 indicator for consumption of the meat option when visiting the canteen. Col. (1) corresponds to Col. (3) in Table 3 and includes the full sample. Col. (2) - (4) restrict the sample based on canteen guests' purchasing behavior pre-intervention, as registered by their personalized payment cards. Each column corresponds to around one-third of canteen guests. Col. (2) restricts the sample to guests who consumed meat in 0% to 10% of their meals pre-intervention, Col. (3) to guests who consumed meat in 10% to 68% of their meals pre-intervention, and Col. (4) to guests who consumed meat in over 68% of their meals pre-intervention. Percentage thresholds are chosen such that each category corresponds to roughly one third of regular student canteen guests. Standard errors are clustered at the individual level. Table A14 repeats the analyses without conditioning on canteen guests visiting the canteen, i.e. examining guests' decision to visit the canteen and then consume meat.

5 Channels for post-intervention effects

Why did the vegetarian month lead to a post-intervention change in consumption behavior? Prominent reasons why effects might last could be (1) habit formation (as modeled by Stigler and Becker (1977)), (2) learning about one's preferences for vegetarian options (similar to individuals learning about their risk preferences in Charness et al. (2023)), or (3) a change in perceived social norms with respect to meat consumption (as suggested by Gravert and Shreedhar (2022)[20]). This section will first present survey evidence on the possible relevance of each of these channels, and then present evidence from additional analyses of canteen data.

[20]Nyborg et al. (2016) argue that policy can help shift social norms towards new self-sustaining social norms.

5.1 Survey evidence

Guests' self-reported motives

As a first step, we examine the reasons that the respondents of our post-intervention survey self-report as motives to change their behavior after the vegetarian month. Of the respondents of the post-intervention survey, 325 (36%) report mainly going to the treatment canteen[21], of which 287 report having visited the treatment canteen at least once during the intervention period. 54 of the respondents (19%) report that they believe they are choosing the vegetarian option more often after the vegetarian month than before.[22] Table 7 shows the reasons which the respondents of the post-intervention survey selected for this being the case. 67% believe the change is driven by learning about the taste of different vegetarian options, 39% believe it is driven by an alleged improvement in the vegetarian and vegan offer of the canteen, and 31% believe it is due to a change in habits.

One might also think of the following reasoning to explain post-intervention effects: The vegetarian month might lead to students obtaining their desired level of meat consumption by consuming meat outside of the student canteen, e.g. always at dinner time or by frequenting fast food restaurants instead. This then might become a habit that persists even after the vegetarian month, e.g. persistently eating vegetarian at lunchtime and eating meat for dinner. As 11% of survey respondents agree to

[21] Participants' indication of their main canteen seem to be quite trustworthy: For those respondents survey respondents for which we have a self-reported main canteen and can additionally deduce canteen frequenting behavior based on the consumption data (556 participants), there is a 98% correlation between the two values.

[22] Of the remaining 287 respondents, 74 (26%) report that they do not believe that they are choosing the vegetarian option more often after the vegetarian month than before, and 159 (55%) report this cannot be the case for them because they already consumed entirely vegetarian pre-intervention. For those participants for whom we can also deduce from the consumption data whether they visited the treatment canteen during the intervention period, self-report and data match in 79% of cases. In almost all of the remaining cases, the respondent reports having visited the intervention canteen but we do not observe a payment with the respondent's individual payment card in the data. This would be explicable with the respondent using a different payment method in this visit. Self-report and consumption data diverge more widely concerning the perceived reduction in meat consumption. The patterns reported here are similar when we designate guests as treatment or control guests based not on their self-reported group, but on their consumption data as described in section 4.1, and also when restricting the sample only to guests for whom we see a reduction in meat consumption in the consumption data, as shown in Table A5.

this item, we believe that the above explanation might play a smaller role in driving post-intervention effects. [23]

A further channel one might think of to explain treatment effects is a possible change in guests' perception of the social norm towards meat consumption.We asked respondents whether a change in students' general consumption behavior or their friend group's behavior drives their change in consumption. 9% report this to be the case. Section 5.1 investigates this possible channel more systematically.

The patterns reported here are similar when we designate guests as treatment or control guests based not on their self-reported group, but on their consumption data as described in section 4.1, and also when restricting the sample only to guests for whom we see a reduction in meat consumption in the consumption data, as shown in Table A5. They are also similar for usual control canteen guests who frequented the treatment canteen at least once during the intervention period.[24]

[23]The item reads: I started consuming meal rather outside of the canteen during the vegetarian month and stuck to that after the month was over. Unfortunately, we do not have data of students' consumption outside of the institutions run by the university, and correspondingly cannot directly assess whether meat consumption increased in these settings. However, we do have data for the university-run cafes surrounding the student canteens. There, we do not see the vegetarian month causing a change in consumption behavior.

[24]For those mainly frequenting the control canteen, 37% report visiting the treatment canteen at least once during the intervention period, and 24% of these report that the vegetarian month made them consume more vegetarian after than before the vegetarian month. Patterns of reported reasons are similar as in the treatment group, and are shown in detail in Table A4.

Table 7: Guests' self-reported motives for decreasing meat consumption

Motive	Count	Percentage
Norm1	5	9.26%
Norm2	5	9.26%
Taste	36	66.67%
Habit	17	31.48%
Offer	21	38.89%
Spillover	6	11.11%
None of above	6	9.80%
Total respondents	54	100%

Note: Table shows reasons cited by guests who report mainly going to the treatment canteen and that they consume the vegetarian option more frequently after the vegetarian month. Multiple options were selectable. The statements read: I now consume the vegetarian option more frequently, because ... (1) more students eat vegetarian/vegan meals since the month. (2) my friends eat more vegetarian/vegan meals since the month. (3) I got to know vegetarian vegan meals in the month which were new for me and which I find tasty. (4) It's becoming a habit for me to eat vegan/vegetarian. (5) The vegetarian/vegan offer has improved since the month. (6) I started consuming meat rather outside of the canteen during the month and stuck to that after the month was over.

Changes in perceived social norms

We additionally evaluate possible changes in perceived social norms more systematically by comparing the norm perceptions we elicited in our pre-intervention and post-intervention surveys. We elicited norms in both the treatment and control canteens, and both before and after the intervention, so our data allows for a difference-in-difference analysis of possible changes in the perceived social norm. To avoid that our results are confounded by changes in the composition of survey respondents between the first and the second survey, our main analysis is restricted to survey respondents who filled out both surveys. Further, we include individual fixed effects to control for respondents' norm perception at baseline.

Table 8 investigates possible changes in the perceived descriptive norm. Col. (1) shows possible changes in respondents' guess for the percentage of canteen guests NOT eating meat in the canteen, while Col. (2) investigates possible changes in respondents' guess for the percentage of canteen guests eating meat. We elicited both items to increase the reliability of our estimates, as detailed in section 2. Section A4.2 shows translated screenshots of the elicitation. We find no evidence for a sizeable overall change in the perception of the descriptive norm over time, nor a sizeable dif-

ferential effect for regular guests of the treatment canteen.

Table 9 examines possible changes in the perceived injunctive norm. We follow the procedure developed by Krupka and Weber (2013) to identify changes in the perceived injunctive norms. For Col. (1) - (3), respondents were asked as how socially appropriate they personally perceive the consumption behavior of a student who consumes a meat-containing lunch on one out of five typical days (Col. 1), or who does so on three out of five days (Col. 2), or five out of five days (Col. 3). Col. (4) - (6) then identify the perceived injunctive norm by asking respondents to guess what most other respondents answered to the previous questions.

We find no evidence for a differential change in perceived injunctive norms for respondents frequenting the treatment canteen, i.e. there is no change in the personal norm or the perception of the injunctive norm attributable to the experience of the vegetarian month.

Overall, the analysis, together with the self-reported motives reported above, suggests that a change in perceived social norms does not seem to be a major driver of the treatment effects identified for the treatment canteen.

Our elicitation of the personal norm towards meat consumption shown in Col. (1) - (3) of Table 9 might also be used as an indication of the relevance of a change in beliefs towards the negative consequences of meat consumption driving treatment effects: It could be argued that the vegetarian month may have led to increased discussion about animal welfare and the environmental impact of meat consumption, which might have changed guests' beliefs towards meat consumption, and in turn influenced treatment effects. Such a change in beliefs would have arguably affected guests' perceived personal norms. However, Table 9 does not show any evidence of this being the case, as we find no differential change in the personal norm for guests visiting the treatment canteen. [25]

[25] At the same time, there seems to be an overall trend towards a stricter personal norm towards meat consumption in both the treatment and the control canteens, and it is of course possible that the vegetarian month affected norms across canteens and contributed to this trend. Any change in consumption behavior occurring due to such a common trend is not causally identified in our difference-in-difference analysis, and would lead to our analysis underestimating treatment effects.

Table 8: Estimates of the intervention possibly changing perceived descriptive norms

	Perceived descriptive norm	
	% not eating meat	% eating meat
Treat x Post period	1.37	-0.72
	(1.67)	(1.52)
Post period	0.02	-0.07
	(1.12)	(1.04)
Constant	52.50***	48.21***
	(0.42)	(0.38)
Guest fixed effects	Yes	Yes
Guests control	236	236
Guests treated	156	156
Observations	784	784

Standard errors in parentheses

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

Note: Regression includes only survey data from respondents who filled out both surveys, allowing for the inclusion of guest fixed effects. Dependent variables differ by column. Col. (1) assesses changes in respondents' guess for which percentage of students of the University of Bonn do NOT consume a fish- or meat-containing meal on a typical university day, between surveys one and two. Col. (2) assesses changes in respondents' guess for which percentage of students of the University of Bonn do consume a fish- or meat-containing meal on a typical university day, between surveys one and two. Answers were not incentivized, but the purpose of the study was obfuscated as described in section 2. Guest fixed effects control for each respondents' norm perception at baseline. The number of control guests refers to the number of respondents who filled out both surveys and usually frequent the control canteens, and the number of treatment guests refers to the number of respondents who filled out both surveys and usually frequent the treatment canteen. Translated screen shots of the survey questions are shown in section A4.2. Standard errors are clustered at the individual level.

Table 9: Estimates of the intervention possibly changing perceived injunctive norms

	Personal norm			Perceived injunctive norm		
	1/5	3/5	5/5	1/5	3/5	5/5
Treat x Post period	0.13	0.14	0.25	-0.03	-0.15	-0.04
	(0.12)	(0.12)	(0.16)	(0.13)	(0.15)	(0.17)
Post period	0.16**	0.02	-0.19**	0.06	0.09	0.04
	(0.08)	(0.07)	(0.09)	(0.09)	(0.10)	(0.11)
Constant	4.67***	3.51***	2.43***	4.81***	3.58***	2.42***
	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.04)
Guest fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Guests control	236	236	236	236	236	236
Guests treated	156	156	156	156	156	156
Observations	784	784	784	784	784	784

Standard errors in parentheses

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

Note: Regression includes only survey data from respondents who filled out both surveys, allowing for the inclusion of guest fixed effects. Dependent variables differ by column. Col. (1) - (3) assess changes in respondents' personal norm towards meat consumption, between surveys one and two. Specifically, they assess changes in respondents' perception of how socially appropriate a student of the University of Bonn is behaving if they consume meat on 1 out of 5 typical university days (Col. 1), on 3 out of 5 typical university days (Col. 2) or on 3 out of 5 typical university days (Col. 3). Approval is indicated on a 7-point scale ranging from 0 (not socially appropriate) to 6 (very socially appropriate). Col. (4) - Col. (6) elicit the perceived injunctive norm by asking respondents' what they believe is the most common answer to these questions among other respondents. Answers were not incentivized, but the purpose of the study was obfuscated as described in section 2. Guest fixed effects control for each respondents' norm perception at baseline. The number of control guests refers to the number of respondents who filled out both surveys and usually frequent the control canteens, and the number of treatment guests refers to the number of respondents who filled out both surveys and usually frequent the treatment canteen. Translated screen shots of the survey questions are shown in section A4.2. Standard errors are clustered at the individual level.

5.2 Additional analysis of canteen data

Effect of being familiar with a meal on meal choice

The most popular reason for changing consumption behavior reported in Table 7 is that respondents got to know vegetarian and vegan meals which were new for them in the course of the vegetarian month, and that they found them tasty. To gather further evidence on whether this might play a role in driving effects, we investigate in how far canteen guests' decision to consume the meat option in the post-intervention period correlates with whether they have consumed the meat or the vegetarian meal on offer previously. Table 10 regresses two dummy indicators of whether a canteen guest had consumed the meat/vegetarian option on offer already in the (pre-)intervention period on the guest's choice of the meat option. Columns (2) and (3) include individual fixed effects to control for differences in an individual's general taste for meat or vegetarian meals. Column (3) additionally includes date fixed effects to control for how attractive canteen guests on average perceive the meat and vegetarian option on offer on a given day to be. Results indicate that having tasted the meat meal on offer previously correlates with an 11 percentage point increase in the likelihood of choosing the meat meal, while having tasted the vegetarian meal on offer correlates with a 6 percentage point decrease in the likelihood of choosing the meat option.[26] Importantly, these estimates cannot be interpreted as causal, as they might still correlate with individual-specific tastes (e.g. an individual who loves chicken will be more likely to have consumed a chicken-including meal in the past and will also be more likely to consume it in the present without effects being driven by previous exposure to the meal). However, the date-fixed effects in the regression do control for differences in tastiness canteen guests would on average agree upon, and the individual-fixed effects control for an individual's general inclination to consuming meat. We thus interpret

[26]On some days, there are multiple meat or vegetarian main meal components on offer, most often because there are main meal components left over from the previous day. In these cases, the "Know meat meal" dummy turns one if a guest has tasted one of the meat components on offer previously, and the "Know veg. meal" dummy turns one if a guest has tasted one of the vegetarian components on offer previously.

Table 10: Correlation between previous experience of meal options and meat consumption

	Meat consumption Post-period		
	Base	Date FE	Date+Guest FE
Treat	2.28*		
	(1.30)		
Know meat meal	41.85***	11.39***	11.38***
	(0.72)	(0.63)	(0.66)
Know veg. meal	-26.21***	-6.12***	-5.35***
	(0.65)	(0.49)	(0.51)
Constant	42.29***	45.41***	41.05***
	(0.77)	(0.24)	(0.97)
Date fixed effects	No	Yes	Yes
Guest fixed effects	No	No	Yes
Guests control	2,813	2,813	2,813
Guests treated	929	929	929
Observations	35,879	35,879	35,879

Standard errors in parentheses

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

Note: We use data from the pre-intervention and intervention period to create indicators, for each canteen guest and each meal on offer, of whether the guest had already consumed the meal previously. We restrict the analysis of consumption choices to the post-intervention data, and "Know meat meal" and "Know veg. meal" are indicators for whether the guest making the consumption choice had already consumed the meat meal or the vegetarian meal on offer in the pre-intervention or intervention period. Col. (2) additionally includes daily fixed effects to control for changes in daily meal offer. They control for differences in the attractiveness of the vegetarian and meat option offered on a given day, as on average perceived by canteen guests. Col. (3) additionally includes guest fixed effects to control for a guests' general inclination to consume meat in the student canteen. Standard errors are clustered at the individual level.

the results as suggestive evidence for previous exposure to a meal influencing an individual's likelihood of choosing the meat meal.

Effect of the intervention on the canteen menu

Among the reasons survey respondents report for a change in behavior, an apparent change in the offer of the student canteen is one popular reason. A comparison of meals offered before and after the intervention, however, shows that the student canteen offered similar meals pre- and post-intervention. Of the vegetarian meals offered in the post-intervention period, 84% had already been offered at least once pre-intervention (78% of the meat meals). We thus interpret these results as evidence of

canteen guests' perception of canteen meals having changed. Canteen guests might have learned about the canteens' vegetarian meals on offer, which, although not new to the menu, might well be "new" to the guests who have not experienced them previously.

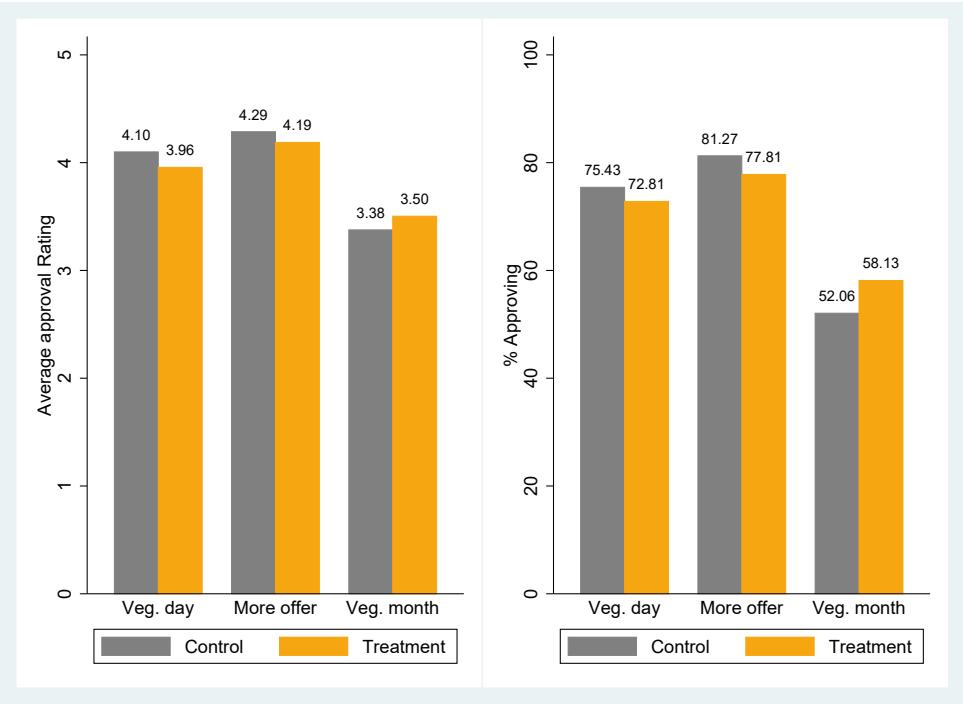
Note also that meal planning is centralized across student canteens pre- and post-intervention, so if the vegetarian month was to have led to a change in the offer, this would affect both the treatment and control canteens. It would thus not be a factor explaining the effects identified in the ITT regressions, since it would affect groups equally.

6 Canteen guests' approval of the intervention

Of the 902 canteen guests who took part in the post-intervention survey, 75% would like a vegetarian day a week, 80% would like more vegan and vegetarian meals, and 54% are in favor of a vegetarian month every year. Figure 4 depicts approval for the different policies grouping respondents by whether they pre-dominantly visit the control or treatment canteens. Approval ratings do not significantly differ between the two groups.

The differences in policy approval are greater when looking at the support rates of participants grouped by perceived reduction in meat consumption, as shown in Figure 5. Policy approval is highest among survey participants who already ate exclusively vegetarian in the canteen before the intervention, with over 90% in favor of a vegetarian day and an increase in vegetarian options. Among respondents who said they had reduced their meat consumption after the vegetarian month, 75% are in favor of a vegetarian day a week and 63% would like to have a vegetarian month every year. In contrast, of those who stated that they had not reduced their meat consumption, only around 37% were in favor of a vegetarian day a week and only 13% support having a vegetarian month every year.

Figure 4: Canteen guests' approval of different policies

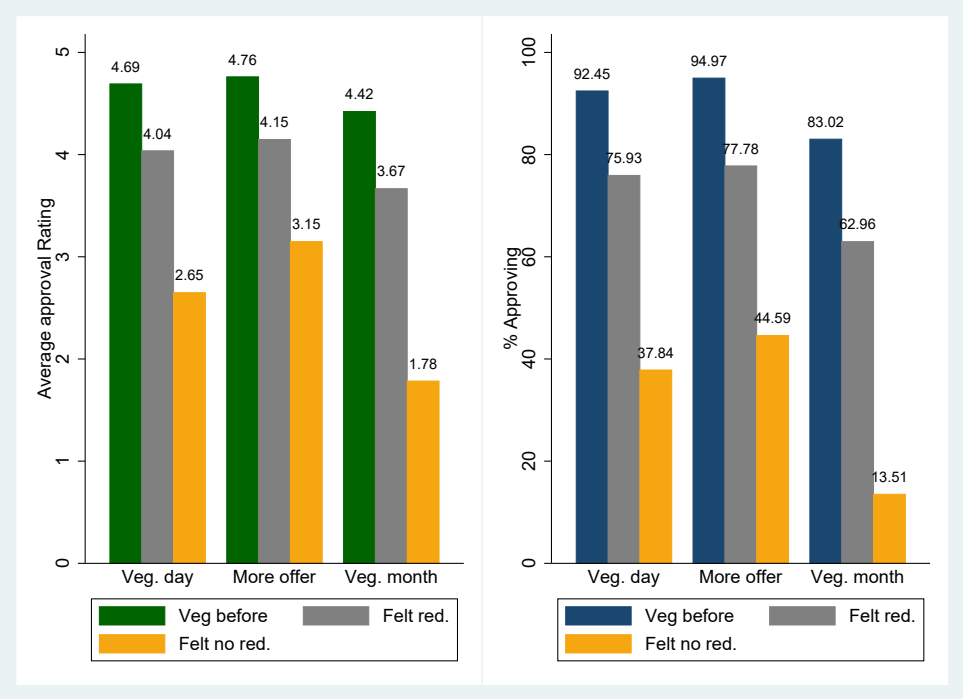


Note: We use survey data from 582 control and 320 treatment guests (based on self-reported main student canteen). The left figure shows the average approval for different policies, as indicated on a scale from 1 (does not apply at all) to 5 (completely applies). The right figure shows the percentage of respondents indicating approval of 4 or 5. The questions were phrased as: "For more climate and animal protection, I wish that the student canteens in Bonn would... (1) ... offer one vegetarian day a week. (2) ... offer more vegan/ vegetarian meals. (3) ... only offer exclusively vegan and vegetarian meals for one month every year."

7 Discussion

We study the effects of a somewhat radical intervention to decrease meat consumption in the student canteen: One of the University's student canteens completely eliminated meat options from its menu for a month and instead offered more vegetarian and vegan options. In a difference-in-difference analysis using the usual guests of the other two student canteens as a control group, we estimate that the intervention did not lead guests usually frequenting the treatment canteen to reduce their visits during or after the intervention. We estimate that the proportion of meat meals sold in the treatment canteen decreased by 7 to 12% in the two months following the intervention, relative to the baseline period. In an intent-to-treat analysis including guest fixed effects, we estimate that guests who usually frequented the treatment canteen pre-intervention were 4% less likely to choose a meat meal in the canteen in the post-

Figure 5: Canteen guests' approval of different policies by self-reported reduction in meat consumption



Note: We use survey data from 280 guest who exclusively eat vegetarian, 104 guests who indicate to have reduced meat consumption post-intervention and 111 guests who indicate to not have reduced meat consumption post-intervention. The left figure shows the average approval for different policies, as indicated on a scale from 1 (does not apply at all) to 5 (completely applies). The right figure shows the percentage of respondents indicating approval of 4 or 5. The questions were phrased as: "For more climate and animal protection, I wish that the student canteens in Bonn would... (1) ... offer one vegetarian day a week. (2) ... offer more vegan/ vegetarian meals. (3) ... only offer exclusively vegan and vegetarian meals for one month every year."

intervention period, relative to baseline levels.

Post-intervention effects are thus noticeable but modest. Effect sizes are comparable to the post-intervention effects Kurz (2018) identifies for an intervention changing choice architecture in the canteen. It remains immensely difficult to permanently shift consumers' meat consumption behavior, and even a radical intervention such as that examined here is no "silver bullet". A one-month intervention period also does not seem to be long enough or perhaps the intervention not strong enough to shift guests' perception of the social norm towards meat consumption.

Our evidence suggests that guests' learning about their preferences for different vegetarian and vegan options mainly drives post-intervention effects. We expect this channel to play a role in any intervention successfully shifting meat consumption be-

havior, even if it is only implemented for a short time. Other types of interventions targeting food consumption behavior might additionally impact consumers through other channels such as a change in social norms or attitudes. For the intervention we study, a possible change in social norms does not seem to be a major driver of post-intervention effects, with auxiliary survey evidence offering little to no evidence of the intervention producing a change in perceived social norms.

The experience made with the vegetarian month might also hold interesting insights in the sense that it is an example of a rather radical policy not sparking as much discontent as some opinion leaders seem to have expected pre-intervention. At the beginning of the intervention month, the regional agricultural minister received harsh criticism from within her own party for supporting the policy (Die Welt, 2023; Kölner Stadt Anzeiger, 2023; t-online, 2023), and the intervention sparked considerable online discussions on Twitter/X and Reddit, with some people expressing concerns about the intervention drastically decreasing student canteen guest numbers. Our results suggest that there might not have been that much reason for concern: We do not see any evidence of the intervention decreasing the number of student canteen guests, a majority of guests are in favor of the intervention even after the intervention month, and the green student party who co-initiated the policy measure was re-elected as the strongest student party. Of course, the social dynamics, environmental awareness, and baseline consumption of vegetarian dishes among university students likely differ from those of the general population, and this might have led to a more favorable outcome than had the policy been implemented in other groups of the population. However, the concerns expressed before the intervention month were also context- and group-specific, i.e., people expected this specific segment of the population to react more negatively to the intervention than it in fact did. In this sense, our paper connects to Andre et al. (2021), who show evidence of people underestimating the prevalence of climate-friendly behaviors among fellow citizens.

One reason the intervention was, to a reasonable extent, accepted by students might have been that the intervention was developed jointly by student representa-

tives, canteen operators, and local student organizations. Collaboration and exchange between these parties was fostered by a state-funded initiative.[27] Student involvement in the development of the measure may have impacted its acceptance in different ways, e.g. by leading to a greater sense of ownership and commitment among students, or by influencing the implementation of the vegetarian month such that it is better accepted by students. In a back-of-the-envelope calculation, we estimate that the canteen avoided around seven tonnes of CO_2 emissions during the intervention period.[28]

Importantly, the student canteen environment cannot be understood as representative of the population as such, and effect sizes will likely differ among other groups of the population. Further, our results focus on meat consumption *in the canteen*. We do not observe students' meat consumption outside of the canteen. It is of course possible that students decreased meat consumption in the canteen while simultaneously increasing their meat consumption at home or in other dining settings. While such potential displacement effects seem plausible during the intervention period, it seems less plausible for them to play a major role post-intervention when meat meals are again available in the canteen. This intuition is backed by our survey evidence.

Our findings offer valuable insights into how and why interventions to decrease meat consumption may have an impact post-intervention, as well as on the behavioral frictions that might make consumers avoid vegetarian or vegan dishes. Future research might further investigate the potential of interventions to help individuals to update their beliefs and perceptions about vegetarian options, leading to more informed and potentially lasting changes in their dietary habits.

[27] This is the initiative "Nachhaltige Ernährung im Studienalltag" (Sustainable consumption in daily student life) funded by the consumer protection agency of the state of North-Rhine-Westphalia.

[28] 16,634 purchases were made in the treatment canteen during the intervention period. Pre-intervention, 42% of purchases were meat meals. Schulze-Tilling (2023) estimates that the difference in emissions between a meat meal and a vegetarian meal is on average around 1 kg in the student canteen in Bonn. We thus calculate: 16,634 times 0.42 = 6,986 kg.

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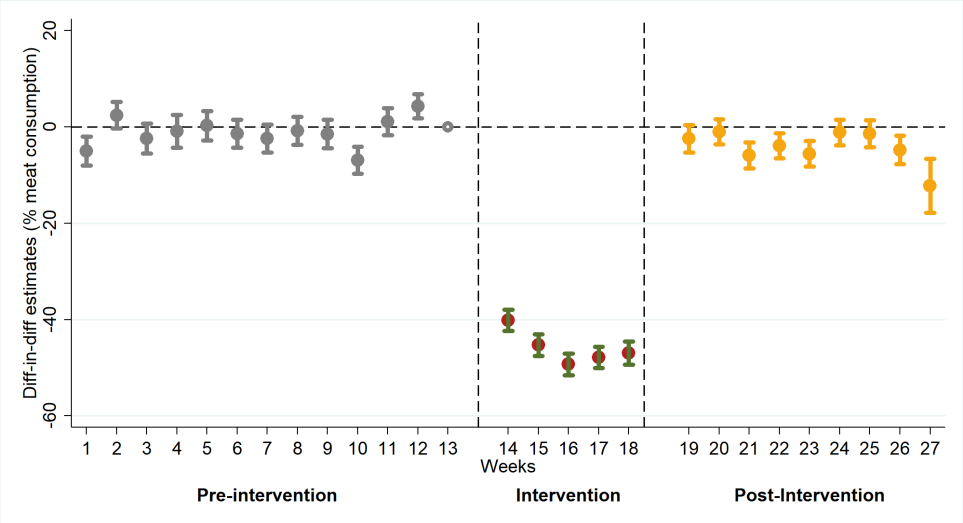
Appendix

A1 Additional tables and figures

Figure A1: Canteen-level event plot



Note: Figure shows coefficients estimated in a regression analysis following equation 1, but including weekly interaction terms and time controls. We additionally control for day of the week and the controls added in Col. (4) of Table 2. Coefficients show the estimated change in the likelihood of consuming the meat main meal component, in percentage points. Our data for week 27 includes only one day, since it was the last day of July and our sample period. Bars indicate 95% confidence intervals.

Table A1: Canteen-level estimates including coefficients estimated for control variables

	Likelihood of consuming meat (in pp.)			
	Base	Date FE	+Controls	+Sales
Treat x Inter period	-45.66***	-45.81***	-45.26***	-45.06***
	(0.40)	(0.40)	(0.46)	(0.46)
Treat x Post period	-4.84***	-5.10***	-3.78***	-3.18***
	(0.46)	(0.46)	(0.49)	(0.50)
Treat	-4.98***	-4.63***	-2.85***	-6.11***
	(0.30)	(0.30)	(0.54)	(0.74)
Inter period	2.99***			
	(0.31)			
Post period	3.73***			
	(0.26)			
Sales				-0.01***
				(0.00)
Constant	47.65***	34.49***	33.71***	42.13***
	(0.17)	(0.94)	(1.07)	(1.68)
Special			-2.06***	-2.05***
			(0.40)	(0.40)
Pasta			1.12**	0.56
			(0.45)	(0.46)
Pizza			-1.62***	-2.15***
			(0.36)	(0.37)
Extra meal type 1			-1.98***	-1.78***
			(0.49)	(0.49)
Extra meal type 2			-0.91	-0.50
			(0.59)	(0.59)
2nd veg main			-2.42***	-2.26***
			(0.28)	(0.28)
Extra meal type 3			-1.15*	-0.83
			(0.61)	(0.61)
Control res. 2			10.16***	5.63***
			(0.63)	(0.94)
Date fixed effects	No	Yes	Yes	Yes
Guest fixed effects	No	No	No	No
Control for other offer	No	No	Yes	Yes
Guests control	8,353	8,353	8,353	8,353
Guests treated	3,575	3,575	3,575	3,575
Observations	276,673	276,673	276,673	276,673

Standard errors in parentheses

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

Note: Table shows a full version of Table 2 including the coefficients estimated for controls. Standard errors are robust.

Table A2: Estimates of the intervention possibly changing perceived descriptive norms, assigning treatment group based on consumption data

	Perceived descriptive norm	
	% not eating meat	% eating meat
Treat x Post period	1.03	-1.19
	(2.55)	(2.33)
Post period	1.13	0.13
	(1.72)	(1.58)
Constant	50.89***	49.44***
	(0.64)	(0.59)
Guest fixed effects	Yes	Yes
Guests control	107	107
Guests treated	70	70
Observations	354	354

Standard errors in parentheses

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

Note: Regression includes only survey data from respondents who filled out both surveys, allowing for the inclusion of guest fixed effects. Additionally, we restrict the sample to those responses which we can link to individual consumption data, and assign treatment group to each individual based on previous consumption behavior, using the same rule as in our main ITT analysis. Dependent variables differ by column. Col. (1) shows respondents' guess for which percentage of students of the University of Bonn do NOT consume a fish- or meat-containing meal on a typical university day. Col. (2) shows respondents' guess for which percentage of students of the University of Bonn do consume a fish- or meat-containing meal on a typical university day. Answers were not incentivized, but the purpose of the study was obfuscated as described in section 2. Standard errors are clustered at the individual level.

Table A3: Estimates of the intervention possibly changing perceived injunctive norms, assigning treatment group based on consumption data

	Personal norm			Perceived injunctive norm		
	1/5	3/5	5/5	1/5	3/5	5/5
Treat x Post period	-0.01	0.02	-0.10	-0.10	-0.10	0.11
	(0.18)	(0.17)	(0.22)	(0.19)	(0.20)	(0.25)
Post period	0.27**	0.14	0.08	0.25**	0.21*	0.16
	(0.12)	(0.10)	(0.11)	(0.12)	(0.12)	(0.15)
Constant	4.69***	3.63***	2.65***	4.68***	3.59***	2.44***
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.06)
Guest fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Guests control	107	107	107	107	107	107
Guests treated	70	70	70	70	70	70
Observations	354	354	354	354	354	354

Standard errors in parentheses

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

Note: Regression includes only survey data from respondents who filled out both surveys, allowing for the inclusion of guest fixed effects. Additionally, we restrict the sample to those responses which we can link to individual consumption data, and assign treatment group to each individual based on previous consumption behavior, using the same rule as in our main ITT analysis. Dependent variables differ by column. Col. (1) - (3) show responses for the question of how ethically correct a student of the University of Bonn is behaving if they consume meat on 1 out of 5 typical university days (Col. 1), on 3 out of 5 typical university days (Col. 2) or on 3 out of 5 typical university days (Col. 3). Approval is indicated on a 7-point scale ranging from 0 (not socially appropriate) to 6 (socially appropriate). Col. (4) - Col. (6) elicit the perceived norm by asking respondents' what they believe is the most common answer to these questions among other respondents. Answers were not incentivized, but the purpose of the study was obfuscated as described in section 2. Standard errors are clustered at the individual level.

Table A4: Self-reported motives for decreasing meat consumption among guests mainly frequenting the control canteen

Motive	Count	Percentage
Norm1	6	12.5%
Norm2	7	14.58%
Taste	27	56.25%
Habit	26	54.17%
Offer	17	35.42%
Spillover	1	2.08%
None of above	4	8.33%
Total respondents	48	100%

Note: Table shows reasons cited by guests who report mainly going to the control canteen and that they consume the vegetarian option more frequently after the vegetarian month. 203 (37%) of respondents who reported mainly going to the control canteen report going to the treatment canteen at least once during the intervention period, and of these, 48 (24%) report consuming the vegetarian option more frequently after the vegetarian month. Multiple options were selectable. The statements read: I now consume the vegetarian option more frequently, because ... (1) more students eat vegetarian/vegan meals since the month. (2) my friends eat more vegetarian/vegan meals since the month. (3) I got to know vegetarian vegan meals in the month which were new for me and which I find tasty. (4) It's becoming a habit for me to eat vegan/vegetarian. (5) The vegetarian/vegan offer has improved since the month. (6) I started consuming meat rather outside of the canteen during the month and stuck to that after the month was over.

Table A5: Self-reported motives for decreasing meat consumption among guests with a behavioral change in the consumption data

Motive	Count	Percentage
Norm1	1	7.69%
Norm2	1	7.69%
Taste	7	53.85%
Habit	4	30.77%
Offer	6	46.15%
Spillover	0	0%
None of above	0	0%
Total respondents	13	100%

Note: Table shows reasons cited by guests who we classify as Treatment following the procedure described in section 4.1, report that they consume the vegetarian option more frequently after the vegetarian month, and consume a higher proportion of vegetarian main meal components after than before the vegetarian month according to their consumption data. Multiple options were selectable. The statements read: I now consume the vegetarian option more frequently, because ... (1) more students eat vegetarian/vegan meals since the month. (2) my friends eat more vegetarian/vegan meals since the month. (3) I got to know vegetarian vegan meals in the month which were new for me and which I find tasty. (4) It's becoming a habit for me to eat vegan/vegetarian. (5) The vegetarian/vegan offer has improved since the month. (6) I started consuming meat rather outside of the canteen during the month and stuck to that after the month was over.

Table A6: ITT estimates by gender and study

	All	Gender split		Split treatment group + Full control	
		male	female	Culture, Economics, Society	Law
Treat x Inter period	-28.33***	-32.46***	-23.55***	-23.49***	-35.73***
	(2.83)	(4.03)	(4.06)	(3.31)	(4.96)
Treat x Post period	-1.18	-0.24	-2.20	-0.91	-1.88
	(1.60)	(2.41)	(2.00)	(2.23)	(1.86)
Constant	27.01***	35.47***	16.95***	25.56***	29.78***
	(2.21)	(3.13)	(3.10)	(2.22)	(2.63)
Date fixed effects	Yes	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes	Yes
Guests control	357	177	176	357	357
Guests treated	199	102	94	111	70
Observations	15,961	8,792	7,018	13,404	11,891

Standard errors in parentheses

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

Note: Dependent variable: 0/1 indicator for consumption of the meat option. Col. (1) corresponds to Col. (3) in Table 3, but includes only canteen guests for whom we have demographic information. Col. (2) - (3) restrict the sample based on canteen guests' gender, as indicated in the surveys. Col. (4) - Col. (5) restricts the treatment group based on field of study. Both include the full control sample, but restrict the treated group to only Humanities and Arts, Economics, and Social Sciences in Col. (4) and to only Law students in Col. (5). Standard errors are clustered at the individual level.

Table A7: ITT estimates by age

	All	Age split		
		under 22	22-23	over 23
Treat x Inter period	-28.33***	-32.30***	-26.10***	-24.91***
	(2.83)	(4.78)	(4.98)	(4.98)
Treat x Post period	-1.18	-5.16**	-1.24	1.92
	(1.60)	(2.32)	(1.84)	(3.61)
Constant	27.01***	30.34***	33.08***	13.99***
	(2.21)	(3.17)	(3.76)	(4.39)
Date fixed effects	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes
Guests control	357	156	99	101
Guests treated	199	71	53	74
Observations	15,961	6,212	4,806	4,895

Standard errors in parentheses

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

Note: Dependent variable: 0/1 indicator for consumption of the meat option. Col. (1) corresponds to Col. (3) in Table 3, but includes only canteen guests for whom we have demographic information. Col. (2) - (4) restrict the sample based on canteen guests' age, as indicated in the surveys. Standard errors are clustered at the individual level.

Table A8: ITT estimates for university employees

	All	Group
		Only employees
Treat x Inter period	-34.84***	-57.45***
	(1.38)	(4.75)
Treat x Post period	-1.62**	-2.08
	(0.68)	(2.08)
Constant	36.93***	59.28***
	(0.92)	(2.69)
Date fixed effects	Yes	Yes
Guest fixed effects	Yes	Yes
Guests control	3,371	554
Guests treated	1,142	101
Observations	117,642	18,746

Standard errors in parentheses

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

Note: Dependent variable: 0/1 indicator for consumption of the meat option.

A2 Effect of the intervention on canteen visiting patterns

To examine whether the vegetarian month led to guests changing their canteen visiting patterns, we classify guests as treated or control guests based on their pre-intervention behavior, similarly to the procedure described in section 4.1, but with one difference: We base classification only on the first 11 weeks instead of the entire 13-week pre-intervention period, to also be able to present a short pre-trend for each of the analyses.[29]

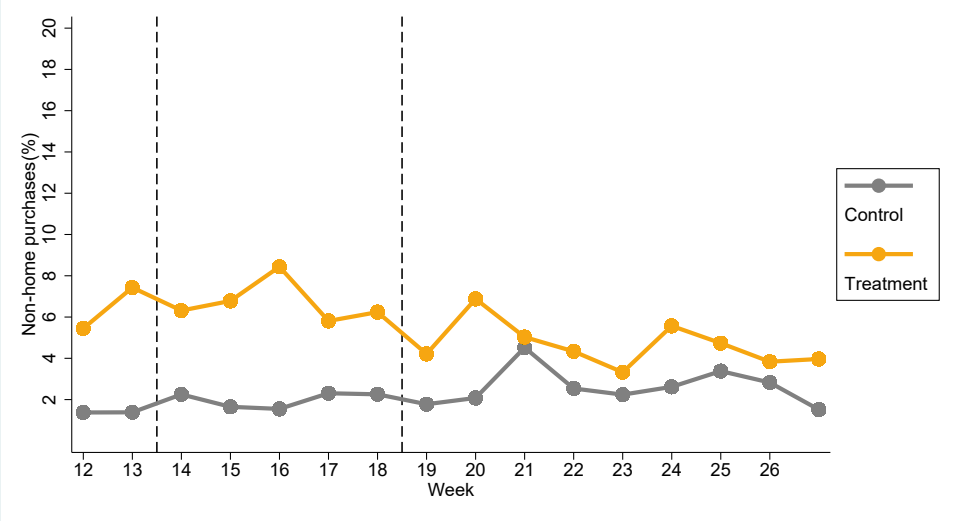
We first examine how frequently guests we classified as treated or control visit the respective other canteen. As can be seen in Figure A2, around 4% to 8% of the purchases made by the group we classify as treated are made in the control canteen, while between 1% and 5% of the purchases made by the group we classify as control are made in the treatment canteen. The percentage fluctuates across weeks, but there is no clear pattern of the vegetarian month differentially leading to increases in "non-home" visits in the treated group. Figure A3 additionally examines whether those in the treatment group visiting the control canteen consume a higher proportion of meat meals during their visits to the control canteen. Also here, there is if at all only a slight increase, with guests eating the meat meal on 40% of these visits before the intervention, and between 40% and 60% during the intervention period.

To examine whether the vegetarian month led to guests usually frequenting the treatment canteen visiting the student canteens less in general, we analyze which proportion of the usual canteen guests visited one of the canteens on a given day on which the student canteens are operating. In the first two weeks following the weeks used for classification, a typical regular student canteen guest would visit the canteen on

[29]The reasoning for this is as follows: We are looking at outcome variables in this section that also form part of our treatment and control group definitions: quantity of visits and whether the guest eats in the treatment or control canteen. There is thus little value to be gained from considering the pre-intervention behavior of these outcomes since they are influenced by the nature of our treatment group definition. To still be able to examine a pre-trend, we base classification in this section only on the first 11 weeks. In the main analysis presented in section 4, we show the full pre-intervention trend since the dependent variable we examine in the main analysis – meat consumption – plays no role in our sample definitions.

30% of the days on which it is open. This percentage consistently decreases – among both groups – throughout the sample period. This is likely due to canteen frequenting patterns changing in both groups across time: Someone who meets our criteria for being a regular canteen guest in the first weeks of the intervention period might have, for example, already left the university by week 26. To examine whether the intervention led to a change in the canteen frequenting behavior of the treated, we examine the intervention period for differential trends between control and treatment groups. There is no evidence of this being the case. Thus, overall, the intervention period does not seem to have had an effect on overall sales on canteen frequenting behavior.

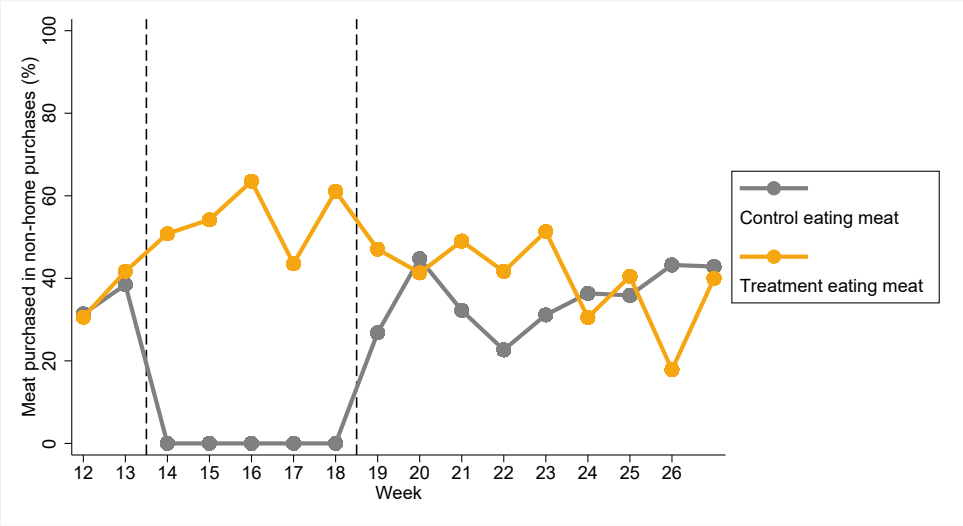
Figure A2: Visits to the "non-home" canteen



Note: This figure shows the weekly percentage of meals which guests classified as treated consumed in the control canteen and vice-versa. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on purchases made by 2,722 control and 922 treatment guests. The number of guests is a bit lower than in the main analysis in Table 2 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11.

However, the composition of guests might have changed during the intervention period. Figures A7, A10, and A13 reproduce Figure A4 restricting the sample based on previous meat consumption. Figure A7 shows that for canteen guests in the lowest tercile of meat consumption pre-intervention (0-10% of their pre-intervention meals contained meat), the intervention led to a visible increase in canteen visits in the treatment group relative to the control group. For guests in the second tercile (Figure A10),

Figure A3: Meat consumption when visiting the "non-home" canteen

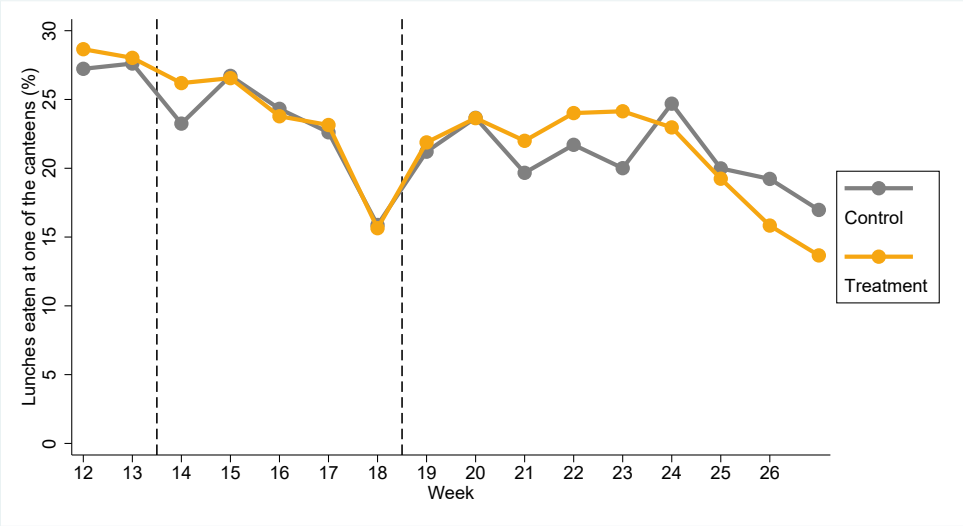


Note: This figure shows the percentage of meat meals consumed among guests eating at their "non-home" canteen. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on purchases made by 2,722 control and 922 treatment guests. The number of guests is a bit lower than in the main analysis in Table 2 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11.

trends are very similar to overall trends. For guests in the third tercile (over 68% of pre-intervention meals contained meat), there is a visible decrease in canteen visits in the treatment group relative to the control group. Figures A5 to A12 recreate Figures A2 and A3 splitting the sample by baseline meat consumption and finds a similar pattern: treatment guests with low baseline meat consumption do not seem to frequent the control canteen more frequently during the intervention period, while guests in the highest tercile of previous meat consumption seem to be visiting the canteen more frequently. For these guests, the proportion of meat meals consumed during these visits also seems to increase.

Thus, simply examining changes in average canteen frequenting patterns seems to mask important heterogeneities: While the vegetarian month did not lead to a change in average consumption patterns, the composition of guests in the canteen seems to have changed during the intervention period.

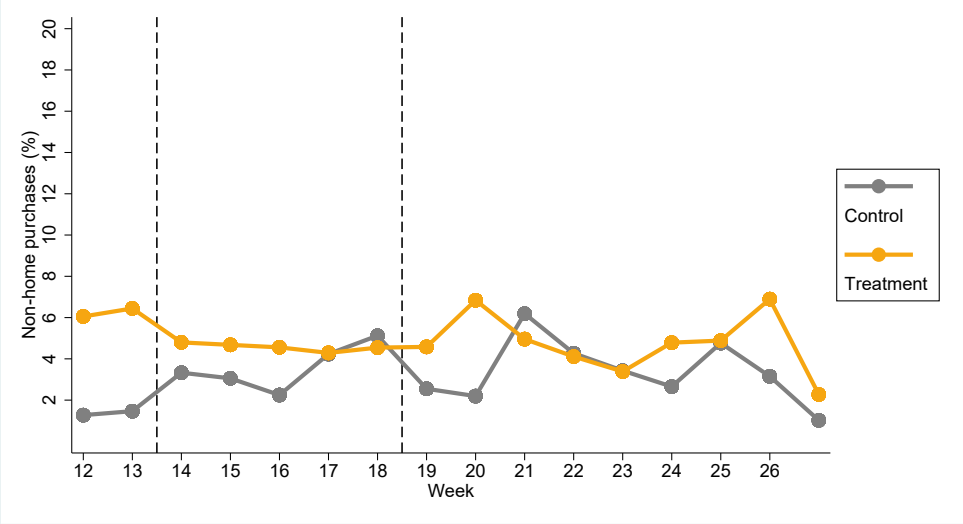
Figure A4: Percentage of usual canteen guests eating lunch at the student canteen



Note: This figure shows the percentage of lunch meals consumed at one of the student canteens for guests classified as regular treatment or control canteen guests. Weeks 1 to 11 are excluded from the graph, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on purchases made by 2,722 control and 922 treatment guests. The number of guests is a bit lower than in the main analysis in Table 2 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11.

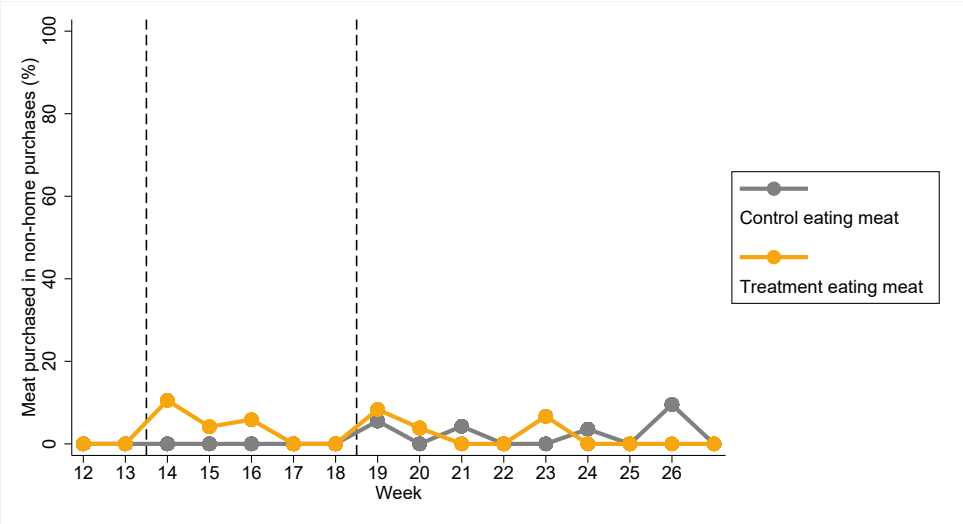
A2.1 Restricting to guests with low meat consumption at baseline

Figure A5: Visits to the "non-home" canteen (sub-sample low meat at baseline)



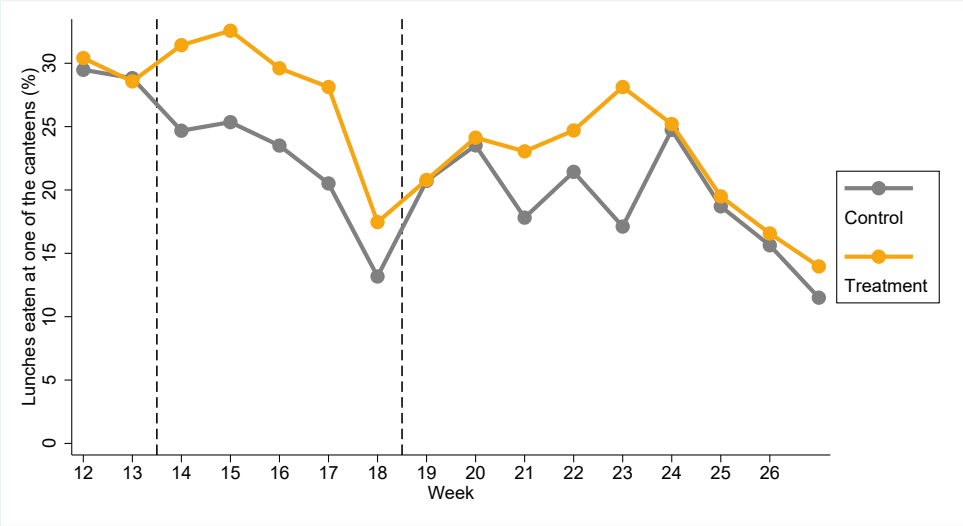
Note: This figure shows the weekly percentage of meals which guests classified as treated consumed in the control canteen and vice-versa. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on 32,845 purchases made by 852 control and 315 treatment guests. These are guests consuming meat in less than 10% of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the lowest tercile.

Figure A6: Meat consumption when visiting the "non-home" canteen (sub-sample low meat at baseline)



Note: This figure shows the percentage of meat meals consumed among guests eating at their non-home canteen. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on 32,845 purchases made by 852 control and 315 treatment guests. These are guests consuming meat in less than 10% of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the lowest tercile.

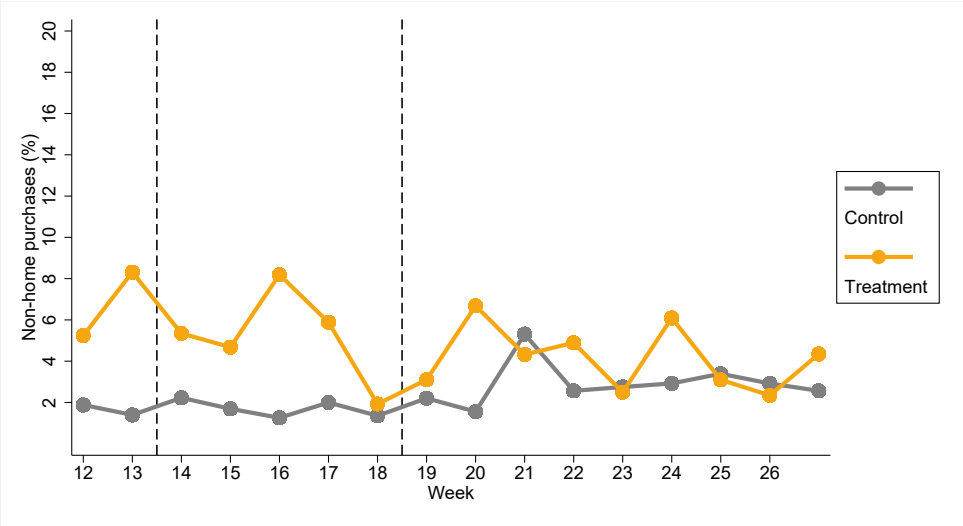
Figure A7: Percentage of usual canteen guests eating lunch at the student canteen (sub-sample low meat at baseline)



Note: This figure shows the percentage of meals consumed at one of the student canteens for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the graph, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on purchases made by 852 control and 315 treatment guests. These are guests consuming meat in less than 10% of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the lowest tercile.

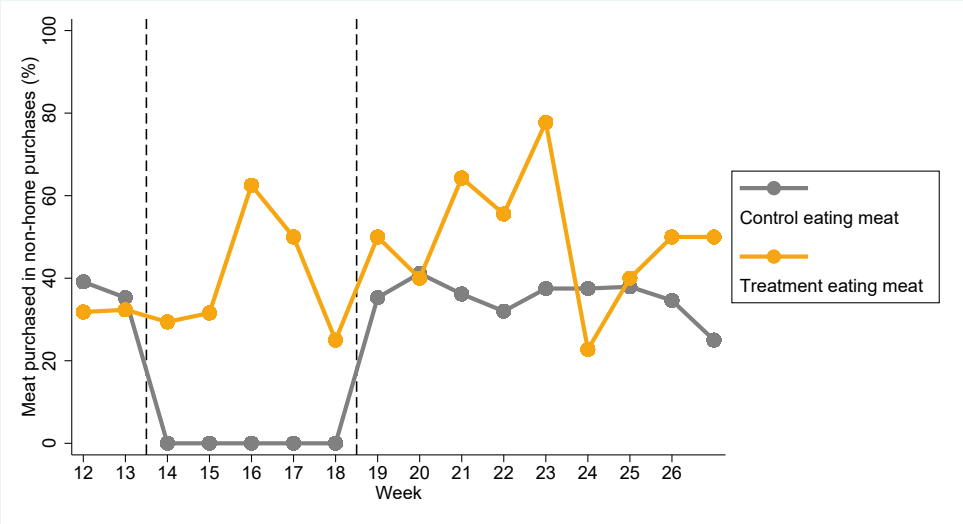
A2.2 Restricting to guests with medium meat consumption at baseline

Figure A8: Visits to the "non-home" canteen (sub-sample med. meat at baseline)



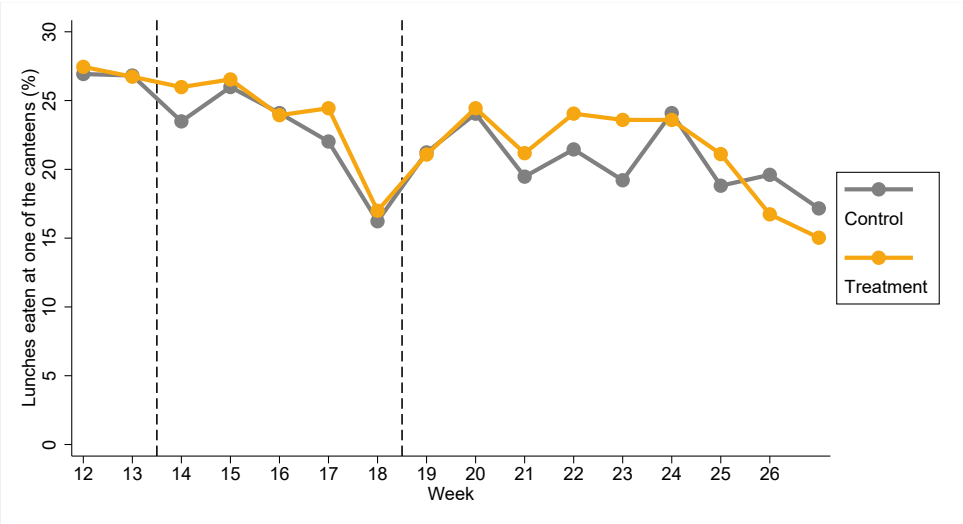
Note: This figure shows the weekly percentage of meals which guests classified as treated consumed in the control canteen and vice-versa. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on 34,175 purchases made by 909 control and 306 treatment guests. These are guests consuming meat in over 10%, but less than 68% of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the medium tercile.

Figure A9: Meat consumption when visiting the "non-home" canteen (sub-sample med. meat at baseline)



Note: This figure shows the percentage of meat meals consumed among guests eating at their non-home canteen. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on 34,175 purchases made by 909 control and 306 treatment guests. These are guests consuming meat in over 10%, but less than 68% of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the medium tercile.

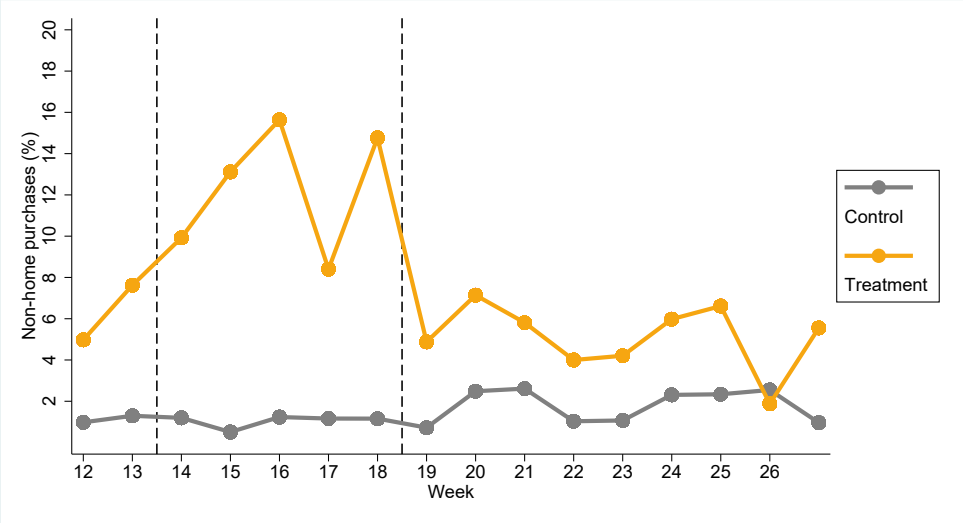
Figure A10: Percentage of usual canteen guests eating lunch at the student canteen (sub-sample med. meat at baseline)



Note: This figure shows the percentage of meals consumed at one of the student canteens for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the graph, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on purchases made by 909 control and 306 treatment guests. These are guests consuming meat in over 10%, but less than 68% of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the medium tercile.

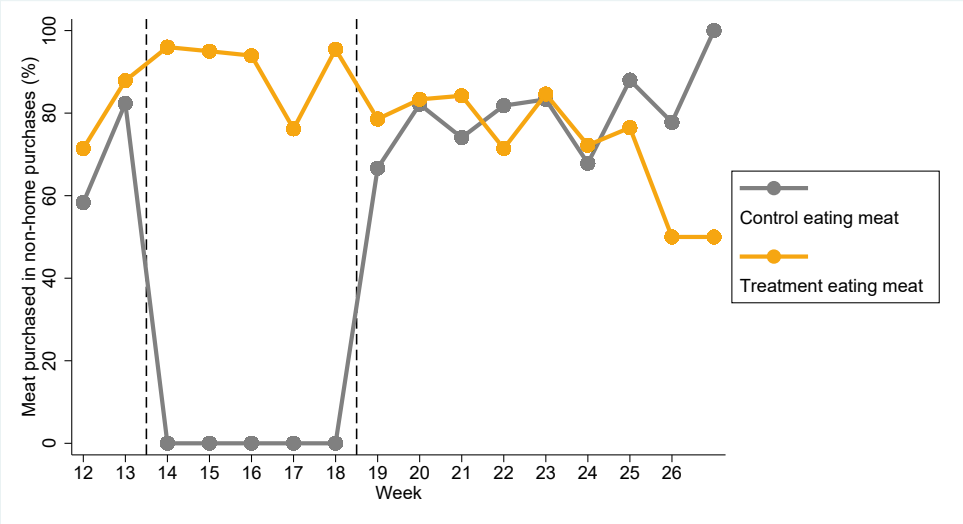
A2.3 Restricting to guests with high meat consumption at baseline

Figure A11: Visits to the "non-home" canteen (sub-sample high meat at baseline)



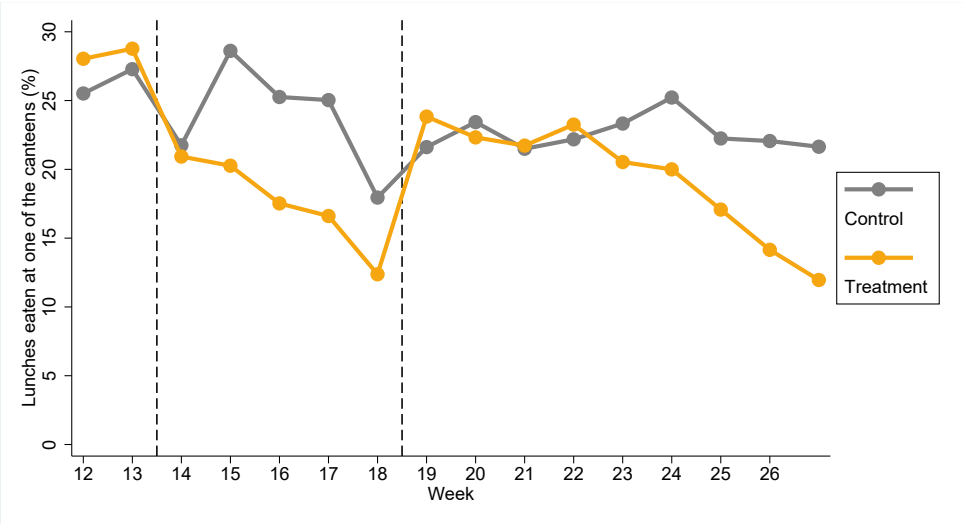
Note: This figure shows the weekly percentage of meals which guests classified as treated consumed in the control canteen and vice-versa. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on 36,296 purchases made by 961 control and 301 treatment guests. These are guests consuming meat in 68% and over of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the highest tercile.

Figure A12: Meat consumption when visiting the "non-home" canteen (sub-sample high meat at baseline)



Note: This figure shows the percentage of meat meals consumed among guests eating at their non-home canteen. Weeks 1 to 11 are excluded from the graph, since classification as control or treated is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on 36,296 purchases made by 961 control and 301 treatment guests. These are guests consuming meat in 68% and over of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the highest tercile.

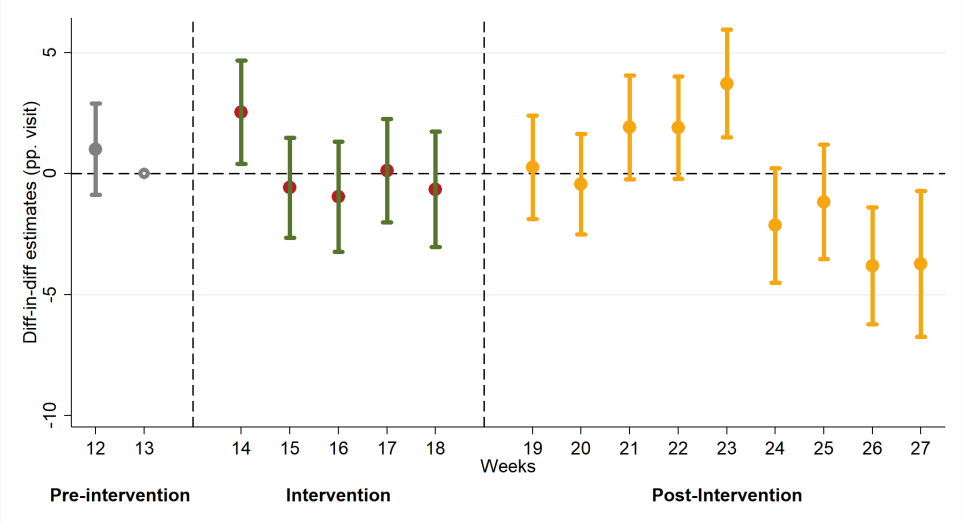
Figure A13: Percentage of usual canteen guests eating lunch at the student canteen (sub-sample high meat at baseline)



Note: This figure shows the percentage of meals consumed at one of the student canteens for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the graph, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. Graph shows the final two weeks of the pre-intervention phase (weeks 1-13, February to April 2023), intervention phase (weeks 14 - 18, May 2023), and post-intervention phase (weeks 19 - 25, June to July 2023). Based on purchases made by 961 control and 301 treatment guests. These are guests consuming meat in 68% and over of their meals in weeks 1 to 11. We split guests into three terciles based on previous meat consumption, this is the highest tercile.

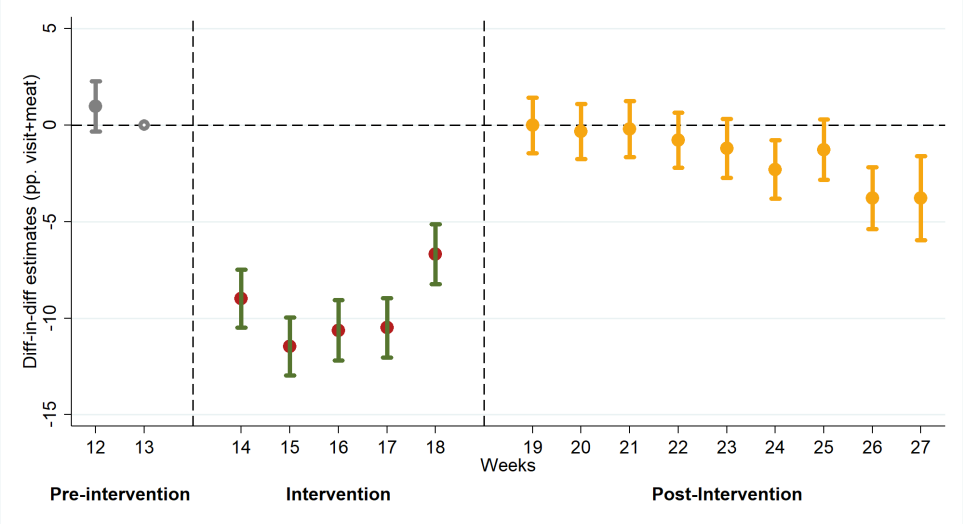
A3 Additional intent-to-treat estimates

Figure A14: ITT event plot on visits, corresponding to Table 4 Spec. (1)



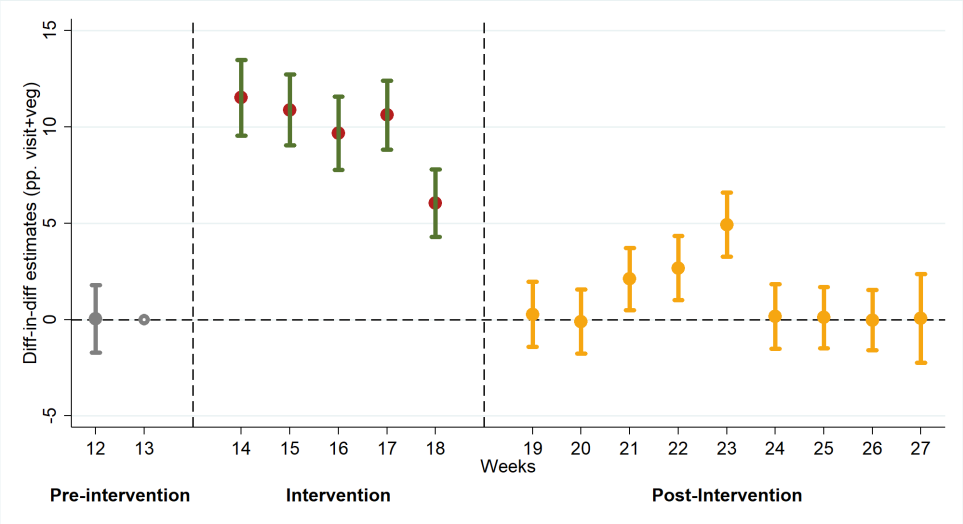
Note: Figure shows coefficients estimated in a regression analysis following Table 4 Spec. (1), but including weekly interaction terms. Coefficients show the estimated change in the likelihood of visiting one of the student canteens, in percentage points. Our data for week 27 includes only one day, since it was the last day of July and our sample period. Bars indicate 95% confidence intervals.

Figure A15: ITT event plot on visit+meat, corresponding to Table 4 Spec. (2)



Note: Figure shows coefficients estimated in a regression analysis following Table 4 Spec. (2), but including weekly interaction terms. Coefficients show the estimated change in the likelihood of visiting one of the student canteens and then consuming the meat main, in percentage points. Our data for week 27 includes only one day, since it was the last day of July and our sample period. Bars indicate 95% confidence intervals.

Figure A16: ITT event plot on visit+veg, corresponding to Table 4 Spec. (3)



Note: Figure shows coefficients estimated in a regression analysis following Table 5 Spec. (3), but including weekly interaction terms. Coefficients show the estimated change in the likelihood of visiting one of the student canteens and then consuming the vegetarian main, in percentage points. Our data for week 27 includes only one day, since it was the last day of July and our sample period. Bars indicate 95% confidence intervals.

Table A9: ITT estimates of the effect of the intervention on canteen visits

	Visit(in pp)		
	Base	Date FE	Date+Guest FE
Treat x Inter period	-0.44	-0.44	-0.44
	(0.74)	(0.74)	(0.74)
Treat x Post period	-0.57	-0.57	-0.57
	(0.76)	(0.76)	(0.76)
Treat	0.92	0.92	
	(0.92)	(0.92)	
Inter period	-4.67***		
	(0.36)		
Post period	-6.26***		
	(0.38)		
Constant	27.42***	27.48***	27.72***
	(0.46)	(0.77)	(0.68)
Date fixed effects	No	Yes	Yes
Guest fixed effects	No	No	Yes
Guests control	2,722	2,722	2,722
Guests treated	922	922	922
Observations	262,368	262,368	262,368

Standard errors in parentheses

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

Note: Regressions analyze the likelihood of consuming a main meal component at one of the student canteens for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the analysis, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. Dependent variable is is a 0/1 indicator for visiting one of the student canteens. The number of guests is a bit lower than in the main analysis in Table 2 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11. Weeks 1 to 11 are dropped from the analysis as explained in the main text around Table 4. Col. (1) corresponds to Equation 2 apart from the dependent variable. The Constant term describes the likelihood of the control group to visit one of the student canteens pre-intervention. Specifications (2) and (3) include date-fixed effects to control for the daily changing offer of main meal components, which is common across canteens. The "PostPeriod" and "Inter period" indicators are thus dropped due to collinearity. Specification (3) includes individual fixed effects. Standard errors are clustered at the individual level.

Table A10: ITT estimates of the effect of the intervention on visits specifically to the home canteen

	Visit(in pp)		
	Base	Date FE	Date+Guest FE
Treat x Inter period	-0.11	-0.11	-0.11
	(0.73)	(0.73)	(0.73)
Treat x Post period	0.42	0.42	0.42
	(0.75)	(0.75)	(0.75)
Treat	-0.52	-0.52	
	(0.91)	(0.91)	
Inter period	-4.74***		
	(0.36)		
Post period	-6.45***		
	(0.38)		
Constant	27.04***	27.27***	27.14***
	(0.45)	(0.76)	(0.68)
Date fixed effects	No	Yes	Yes
Guest fixed effects	No	No	Yes
Guests control	2,722	2,722	2,722
Guests treated	922	922	922
Observations	262,368	262,368	262,368

Standard errors in parentheses

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

Note: Analysis repeats that in Table A9, but counts only those visits in line with the ITT group guests are assigned to, i.e. for guests classified as treated it only counts visits to the treatment canteen, and for guests classified as control it only counts visits to the control canteen. This is the case for 97.7% of visits. Standard errors are clustered at the individual level.

Table A11: ITT estimates of the effect of the intervention on canteen visits split by choice of main meal component

	Visit+Meat(in pp)			Visit+Veg(in pp)		
	Base	Date FE	Date+Guest FE	Base	Date FE	Date+Guest FE
Treat x Inter period	-10.26***	-10.26***	-10.26***	9.82***	9.82***	9.82***
	(0.63)	(0.63)	(0.63)	(0.67)	(0.67)	(0.67)
Treat x Post period	-1.82***	-1.82***	-1.82***	1.24**	1.24**	1.24**
	(0.49)	(0.49)	(0.49)	(0.57)	(0.57)	(0.57)
Treat	0.14	0.14		0.78	0.78	
	(0.68)	(0.68)		(0.76)	(0.76)	
Inter period	-0.60**			-4.08***		
	(0.24)			(0.27)		
Post period	-1.01***			-5.25***		
	(0.25)			(0.28)		
Constant	11.57***	10.97***	11.00***	15.86***	16.51***	16.71***
	(0.34)	(0.54)	(0.46)	(0.39)	(0.64)	(0.56)
Date fixed effects	No	Yes	Yes	No	Yes	Yes
Guest fixed effects	No	No	Yes	No	No	Yes
Guests control	2,722	2,722	2,722	2,722	2,722	2,722
Guests treated	922	922	922	922	922	922
Observations	262,368	262,368	262,368	262,368	262,368	262,368

Standard errors in parentheses

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

Note: Regressions analyze the likelihood of visiting one of the canteens and then consuming a meat or vegetarian main component, for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the analysis, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. The dependent variable in Col. (1)-(3) is a 0/1 indicator for visiting one of the student canteens and then consuming the meat option. The dependent variable in Col. (4)-(6) is a 0/1 indicator for visiting one of the student canteens and then consuming the vegetarian option. The number of guests is a bit lower than in the main analysis in Table 2 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11. Weeks 1 to 11 are dropped from the analysis as explained in the main text as explained in the main text around Table 4. Col. (1) and (4) correspond to Equation 2 apart from the dependent variable. The Constant terms describe the likelihood of the control group visiting one of the student canteens pre-intervention and then consuming the meat meal/ the vegetarian meal. Specifications (2),(3),(5), and (6) include date-fixed effects to control for the daily changing offer of main meal components, which is common across canteens. The "Post period" and "Inter period" indicators are thus dropped due to collinearity. Specifications (4) and (6) include individual fixed effects. Standard errors are clustered at the individual level.

Table A12: ITT estimates of the effect of the intervention on canteen visits split by previous meat consumption levels

	All	By percentage of meat meals pre-intervention		
		0-10%	10%-68%	over 68%
Treat x Inter period	-0.44	6.15***	1.02	-8.39***
	(0.74)	(1.21)	(1.23)	(1.33)
Treat x Post period	-0.57	2.52*	0.72	-4.64***
	(0.76)	(1.32)	(1.32)	(1.31)
Constant	27.72***	27.93***	27.00***	28.21***
	(0.68)	(1.21)	(1.17)	(1.17)
Date fixed effects	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes
Guests control	2,722	852	909	961
Guests treated	922	315	306	301
Observations	262,368	84,024	87,480	90,864

Standard errors in parentheses

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

Note: Regressions analyze the likelihood of visiting one of the canteens and then consuming a meat or vegetarian main component, for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the analysis, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. Weeks 1 to 11 are dropped from the analysis as explained in the main text as explained in the main text around Table 4. All columns follow the same specification as in 2, but use guests' decision to visit one of the student canteens as the outcome variable. Col. (2) includes only guests in the lower tercile of previous meat consumption, col. (3) includes guests in the medium tercile and col. (4) includes guests in the highest tercile. Standard errors are clustered at the individual level.

Table A13: ITT estimates by visits in the intervention month, unconditional on visit

	All	At least 1 visit?		Number visits		
		yes	no	0-2	3-6	over 6
Treat x InterPeriod	-10.26***	-11.72***		-6.91***	-11.20***	-11.51***
	(0.63)	(0.72)		(0.81)	(1.02)	(1.44)
Treat x Post period	-1.82***	-1.93***	1.69***	-1.94***	-2.80***	-0.98
	(0.49)	(0.55)	(0.45)	(0.67)	(0.91)	(0.95)
Constant	11.00***	11.25***	10.39***	10.29***	10.98***	10.97***
	(0.46)	(0.48)	(0.51)	(0.49)	(0.51)	(0.52)
Date fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Guests control	2,722	2,722	2,722	2,722	2,722	2,722
Guests treated	922	737	185	350	266	196
Observations	262,368	249,048	209,304	221,184	215,136	210,096

Standard errors in parentheses

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

Note: Regressions analyze the likelihood of visiting one of the canteens and then consuming the meat main component, for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the analysis, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. The dependent variable is a 0/1 indicator for visiting one of the student canteens and then consuming the meat option. The number of guests is a bit lower than in the main analysis in Table 5 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11. Weeks 1 to 11 are dropped from the analysis as explained in the main text as explained in the main text around Table 4. Col. (1) corresponds to Col. (2) in Table 4 and includes the full sample. Col. (2) restricts the sample to control guests and treatment guests who made at least one purchase with their personalized card during the intervention period. Col. (3) includes only control guests and those treatment guests for whom we did not register such a purchase – Note, however, that they might have still visited the canteens during the time frame, but used a different payment method than their personalized card. Col. (4) - Col. (6) restricts the sample of treatment guests by number of visits registered during the intervention period. Standard errors are clustered at the individual level.

Table A14: ITT estimates by previous meat consumption, unconditional on visit

	All	By percentage of meat meals pre-intervention		
		0-10%	10%-68%	over 68%
Treat x InterPeriod	-10.26***	-0.86***	-9.97***	-20.59***
	(0.63)	(0.17)	(0.83)	(1.45)
Treat x Post period	-1.82***	-0.40*	-0.77	-4.67***
	(0.49)	(0.21)	(0.78)	(1.18)
Constant	11.00***	0.00	8.07***	24.01***
	(0.46)	(0.06)	(0.75)	(1.11)
Date fixed effects	Yes	Yes	Yes	Yes
Guest fixed effects	Yes	Yes	Yes	Yes
Guests control	2,722	852	909	961
Guests treated	922	315	306	301
Observations	262,368	84,024	87,480	90,864

Standard errors in parentheses

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

Note: Regressions analyze the likelihood of visiting one of the canteens and then consuming the meat main component, for guests classified as treatment or control canteen guests. Weeks 1 to 11 are excluded from the analysis, since classification as a regular student canteen guest is determined based on these weeks, following the procedure described in section 4.1. The dependent variable is a 0/1 indicator for visiting one of the student canteens and then consuming the meat option. The number of guests is a bit lower than in the main analysis in Table 5 because treatment and control group assignment criteria are applied using only data from weeks 1 to 11. Weeks 1 to 11 are dropped from the analysis as explained in the main text as explained in the main text around Table 4. Col. (1) corresponds to Col. (2) in Table 4 and includes the full sample. Col. (2) restricts the sample to guests who consumed meat in 0% to 10% of their meals pre-intervention, Col. (3) to guests who consumed meat in 10% to 68% of their meals pre-intervention, and Col. (4) to guests who consumed meat in over 68% of their meals pre-intervention. Standard errors are clustered at the individual level.

A4 Details on the experimental set-up

A4.1 Materials from the canteen

Figure A17: Instagram Post announcing the vegetarian month

Note: Published on the 26th of April. Translation: Announcement: This May is going to be green! Vegan-vegetarian month from the 2nd of May until the 2nd of June in the canteen "am Hofgarten". For five weeks, the canteen "am Hofgarten" will serve only vegan and vegetarian dishes — from breakfast to dessert. This month is part of a comprehensive re-strategizing for a sustainable canteen of the future, which the student canteens in Bonn are currently engaging in.

A4.2 Surveys

To make survey participation attractive, survey participants had the chance to win one of 20 50€coupons for the student canteen by participating in one of the surveys.[30] We advertised the survey by distributing leaflets in front of the treatment and the larger control student canteen (see figures A18 and A19. It is common for students and student groups to advertise surveys, projects, and events in this manner. Further, the experimental lab at the University of Bonn sent out an e-mail to its entire participant pool advertising survey participation. The e-mail texts are shown below. Finally, respondents of the first survey could indicate their e-mail address at the end of the

[30] Per survey ten vouchers were randomly distributed among survey respondents.

first survey and agree to be contacted directly by e-mail for the second survey. We advertised the survey as a survey on life as a student in Bonn.

Advertisement - Leaflets

Figure A18: Leaflet advertising participation in the first survey

Note: Translation: Your opinion is wanted! Answer a short survey about daily student life in Bonn! Among all participants we are raffling 10 x 50 Euro student canteen credit! Scan the QR-Code to participate now. (*) The raffle will include all participants who have completely filled out the survey by the 18th of April.

Figure A19: Leaflet advertising participation in the second survey

Note: Translation: New survey on daily student life in Bonn! Your opinion is wanted! Answer a short survey! Among all participants we are raffling 10 x 50 Euro student canteen credit! Scan the QR-Code to participate now. (*) The raffle will include all participants who have completely filled out the survey by the 16th of July.

Advertisement - Emails

Text sent to the participant pool of the BonnEconLab to advertise the first survey (translated from German)

* Study on Daily Student Life in Bonn: Participate and Win Credit for Your Canteen Card!*

Hello XX,

We would like to bring to your attention a study currently being conducted by a doctoral student at the Bonn Graduate School of Economics:

Participate and Win Credit for Your Cafeteria Card!

Dear Students,

How do you perceive your daily life as a student in Bonn? What are your views on your fellow students?

This is being explored in a current study by the Bonn Graduate School of Economics at the University of Bonn. Filling out the online survey takes five minutes, and there are ten €50 credits for the canteen card up for grabs! All questionnaires completed in full by April 16, 2023, will be entered into the draw. Participation is only possible if you own a canteen card.

Here is the link to the survey: https://studienalltag.econ.uni-bonn.de/room/umfrage

Please Note:

- The study is not being conducted by BonnEconLab, so registration is not through our participation database. You can access the survey directly via the link above.
- You are, of course, welcome to share the survey invitation with your fellow students.

Best regards,

Your BonnEconLab

Text sent to the participant pool of the BonnEconLab to advertise the second survey (translated from German)

* New Study on Daily Student Life in Bonn: Participate and Win Credit for Your Canteen Card!

Hello XX,

We would like to bring to your attention a study currently being conducted by a doctoral student at the Bonn Graduate School of Economics:

Participate and Win Credit for Your Cafeteria Card!

Dear Students,

How do you perceive your daily life as a student in Bonn? This is being explored in a current study by the Bonn Graduate School of Economics at the University of Bonn. Specifically, it looks at your views on studying abroad as part of your degree, your

attitude towards involvement in university politics, and your opinions on some of the services offered by the Student Services Organization.

This online survey is the second of two surveys being conducted in the context of the study. It doesn't matter whether you have participated in the first survey or not: you are welcome to participate in this survey and the associated prize draw. We look forward to your participation!

Filling out the survey takes five minutes, and there are ten €50 credits for the canteen card up for grabs! All questionnaires completed in full by July 16, 2023, will be entered into the draw. Participation is only possible if you own a canteen card.

Here is the link to the survey: https://studienalltag.econ.uni-bonn.de/room/umfrage

Please Note:

- The study is not being conducted by BonnEconLab, so registration is not through our participation database. You can access the survey directly via the link above.
- You are, of course, welcome to share the survey invitation with your fellow students.

Best regards,
Your BonnEconLab

Core part of the survey: Elicitation of the perceived social norm

Questions on studying abroad and involvement in student politics were added to obfuscate the purpose of the survey. In the elicitation of the perceived descriptive norm questions, the slider only appeared once participants clicked on the bar, to avoid giving survey participants a reference point.

Elicitation of the perceived descriptive norm

In the following questions, we are interested in your perception of the University of Bonn and its students.

Next

Please make a guess: Which percentage of the students of the University of Bonn spends at least one semester abroad during their studies?

Please click on the blue bar to make the slider visible.

0% 100%

Next

Please make a guess: Which percentage of the students of the University of Bonn eats a fish or meat containing meal for lunch on a typical University day?

Please click on the blue bar to make the slider visible.

0% 100%

Next

Please make a guess: Which percentage of the students of the University of Bonn eats a fish or meat containing meal for lunch on a typical University day?

Please click on the blue bar to make the slider visible.

0% 100%

You guess: **44%** eat a fish or meat containing meal for lunch on a typical University day.

Next

Please make a guess: Which percentage of the students of the University of Bonn is **not** involved in university politics or student associations?

Please click on the blue bar to make the slider visible.

0% 100%

Next

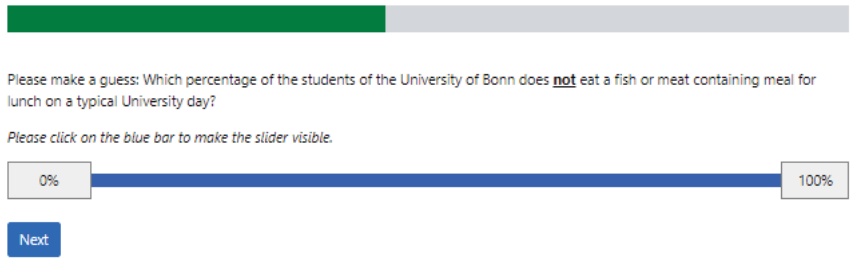
Please make a guess: Which percentage of the students of the University of Bonn does **not** spend at least one semester abroad during their studies?

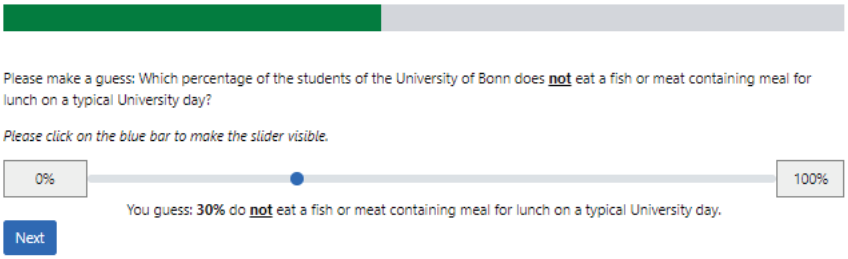
Please click on the blue bar to make the slider visible.

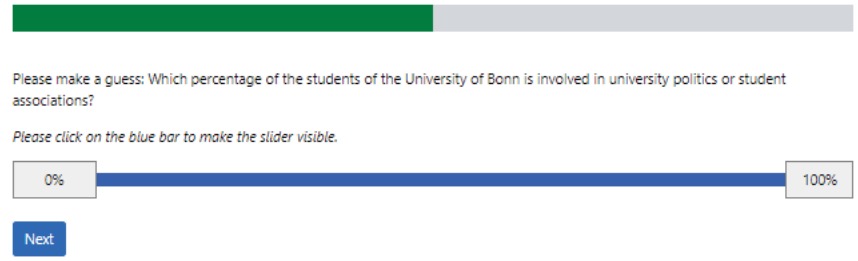
0% 100%

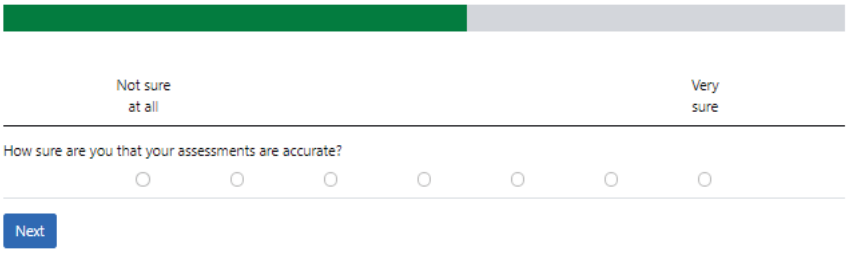
Next

Elicitation of the perceived descriptive norm

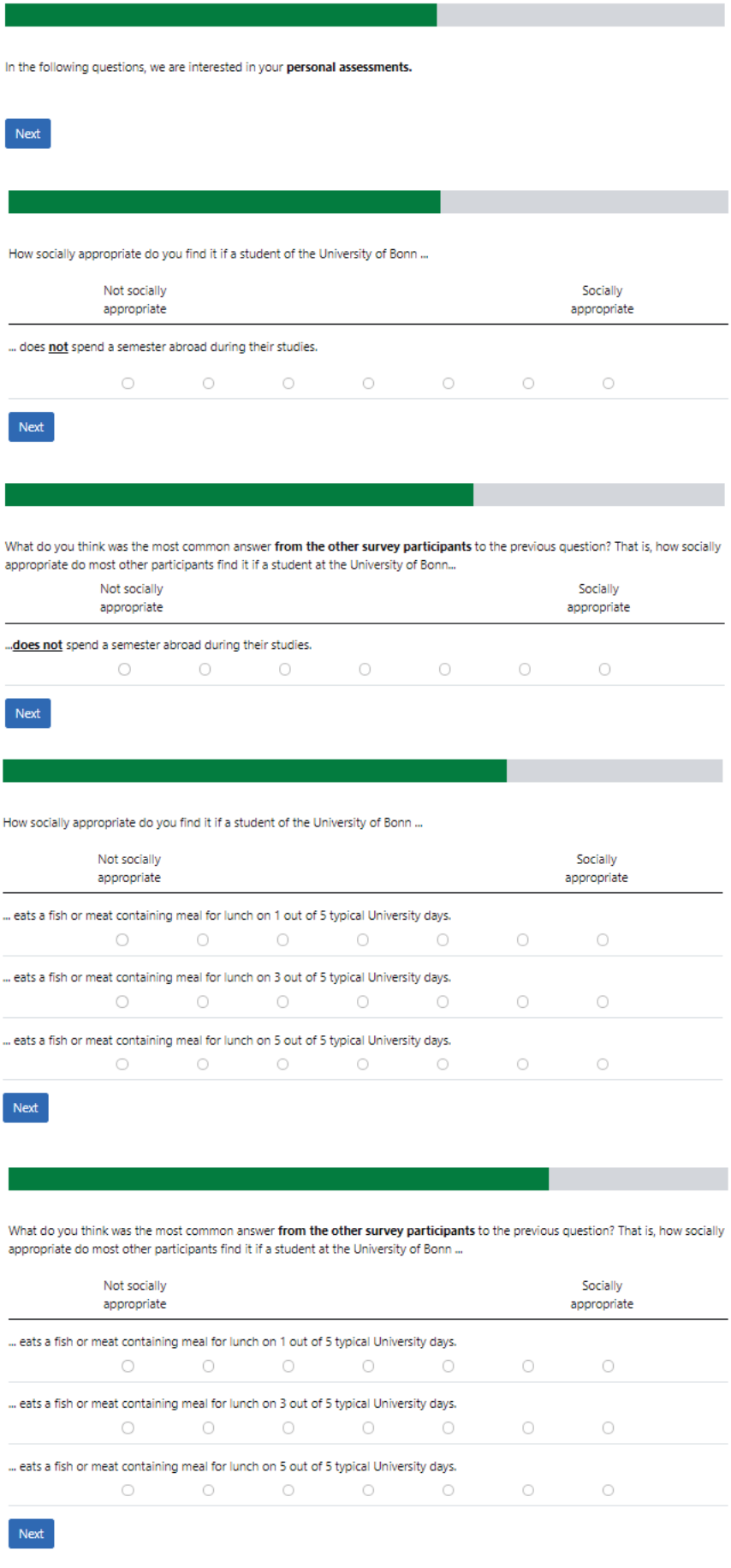








Elicitation of the personal injunctive norm and perceived social injunctive norm



In the following questions, we are interested in your **personal assessments.**

Next

How socially appropriate do you find it if a student of the University of Bonn ...

	Not socially appropriate						Socially appropriate
... does **not** spend a semester abroad during their studies.	○	○	○	○	○	○	○

Next

What do you think was the most common answer **from the other survey participants** to the previous question? That is, how socially appropriate do most other participants find it if a student at the University of Bonn...

	Not socially appropriate						Socially appropriate
...**does not** spend a semester abroad during their studies.	○	○	○	○	○	○	○

Next

How socially appropriate do you find it if a student of the University of Bonn ...

	Not socially appropriate						Socially appropriate
... eats a fish or meat containing meal for lunch on 1 out of 5 typical University days.	○	○	○	○	○	○	○
... eats a fish or meat containing meal for lunch on 3 out of 5 typical University days.	○	○	○	○	○	○	○
... eats a fish or meat containing meal for lunch on 5 out of 5 typical University days.	○	○	○	○	○	○	○

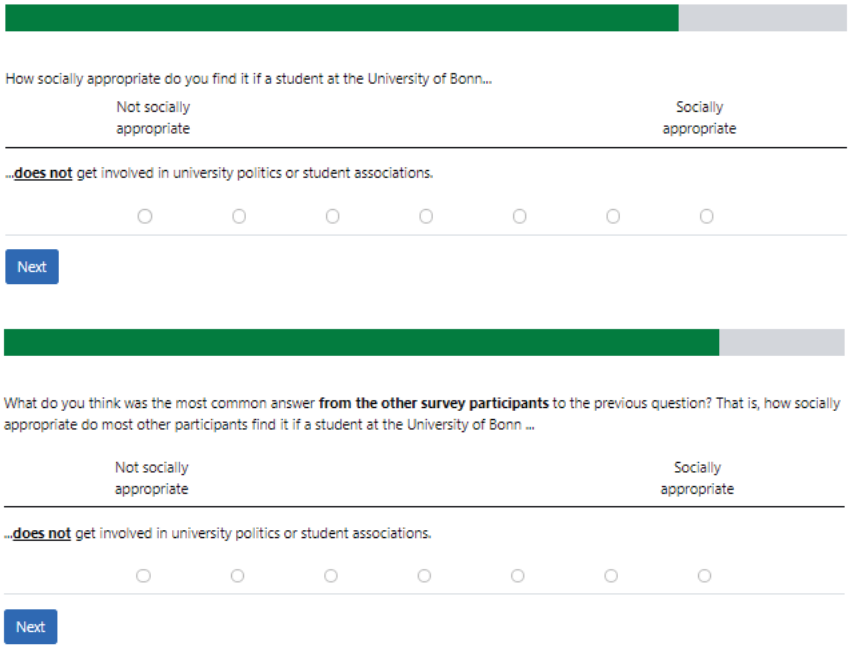
Next

What do you think was the most common answer **from the other survey participants** to the previous question? That is, how socially appropriate do most other participants find it if a student at the University of Bonn ...

	Not socially appropriate						Socially appropriate
... eats a fish or meat containing meal for lunch on 1 out of 5 typical University days.	○	○	○	○	○	○	○
... eats a fish or meat containing meal for lunch on 3 out of 5 typical University days.	○	○	○	○	○	○	○
... eats a fish or meat containing meal for lunch on 5 out of 5 typical University days.	○	○	○	○	○	○	○

Next

Elicitation of the personal injunctive norm and perceived social injunctive norm



Elicitation of the perception of the intervention

In the following, we are interested in your perception of the vegan-vegetarian month at the Mensa am Hofgarten, which likely represented a change in the daily routine of some students.

Did you visit the Mensa at Hofgarten during the vegan-vegetarian month at least once?

- ○ Yes
- ○ No

Next

If YES:

Do you believe that after the vegan-vegetarian month you opt for the vegetarian main component more often than before the vegan-vegetarian month?

- ○ Yes
- ○ No
- ○ No, because I always chose the vegetarian main component even before the vegan-vegetarian month.

	Not sure at all						Very sure
How sure are you of this answer?	○	○	○	○	○	○	○

Next

If YES:

What do you think are the reasons you opt for the vegan-vegetarian main component more frequently after the intervention month? Please check all options that apply to **you personally**.

I opt for the vegan-vegetarian main component more frequently because...

- ☐ ...more students have been eating more vegetarian/vegan dishes since the intervention month.
- ☐ ...my friends have been eating more vegetarian/vegan dishes since the intervention month.
- ☐ ...I discovered new vegan/vegetarian dishes during the intervention month that I like.
- ☐ ...it has become more of a habit for me to eat vegan/vegetarian.
- ☐ ...the vegan/vegetarian options have improved since the intervention month.
- ☐ ...I started to consume meat more outside the cafeteria during the intervention month and have continued to do so after the month ended.
- ☐ None applicable
- ☐ Prefer not to respond

Next

Space for comments, in case you have additional reasons or if the month has affected you in other ways:

Next

All participants regardless of previous answers:

Elicitation of the perception of the intervention