BEFORE THE CHANGE ARRIVES: FUTURE PRICE SIGNALS SHAPE FOOD-AWAY-FROM-HOME

Yingxin Tan[1], Valerie Kilders[1], Brenna Ellison[1]

[1]Department of Agricultural Economics, Purdue University, 403 Mitch Daniels Blvd, West Lafayette, IN, 47907, USA

Corresponding author: Valerie Kilders, 403 Mitch Daniels Blvd, Room 609, West Lafayette, IN, 47907, USA, vkilders@purdue.edu

Abstract

Consumers actively adjust their food baskets to cope with ongoing price pressure, yet little is known about how price and the timing of price information affect their behavioral responses when making food-away-from-home (FAFH) decisions. We answer these questions by employing a basket-based choice experiment (BBCE) with a partial-within-subjects and partial-between-subjects design, facing 2,014 U.S. consumers. Respondents react to higher FAFH prices by reducing order size, reallocating across menu items, and substituting away from higher-priced options, such as beef items. However, responses differ markedly by the timing of information. Consumers who receive advance notice of price increases do not adjust their behavior pre-price increase but exhibit more dampened responses once price changes take effect. In contrast, respondents exposed to unexpected price shocks or who receive an immediate price change notice exhibit more pronounced responses. Our study suggests that the timing of price information plays a critical role in the formation of consumer expectations when making FAFH decisions.

Introduction

The growth of the food-away-from-home (FAFH) sector is evident in the amount of household food spending dedicated to FAFH, which has continued to exceed food-at-home (FAH) spending since 2009 (Saksena et al., 2018; Zeballos et al., 2024; Zeballos & Sinclair, 2025). Meanwhile, FAFH prices have increased significantly in recent years, with the FAFH Consumer Price Index (CPI) for urban consumers rising more than 30 percent since 2020 (FRED, 2025). Higher menu prices reflect the cost pressures common in this sector, driven by factors such as rising labor and operating costs (National Restaurant Association, 2026; Sweitzer, 2024). Supply issues, labor shortages, and geopolitical shocks are among the key factors that have driven the significant food price inflation observed since 2020 (Adjemian et al., 2024; Baek & Koo, 2010). Such changes in FAFH prices have the potential to significantly influence consumer choices (Andreyeva et al., 2010; Okrent & Alston, 2012). Indeed, aggregated evidence indicates that rising FAFH prices lead to changes in the extensive margin: people eat out less often and switch to cheaper restaurants to cope with higher food expenses (Lusk and Polzin 2022; Kalaitzandonakes et al. 2023). These adjustments disproportionately affect lower-income households (Kaufman et al., 1997; Ploeg, 2010), and their ripple effects can have broader impacts on food security and public health (Rabbitt et al., 2025; Vos et al., 2023; Yong et al., 2025).

Despite these far-reaching consequences, less is known about how price pressures shape consumers' choices during a restaurant visit. A key reason is data limitations, as most available FAFH datasets are highly aggregated, making it difficult to analyze menu item- or category-specific adjustments (see discussions in Kilders et al. [2024] and Caputo [2025]). In response, some studies have used simulated environments to address these challenges (e.g., Kilders et al. 2024; Liddiard and Hamshaw 2024), but they mostly focus on dining experiences or nutritional outcomes rather than on decisions driven by price changes.

Importantly, earlier studies show that adaptive behaviors can already occur in advance of price changes when price increases are anticipated (Jacobson & Obermiller, 1990). In these cases, anticipated emotions refer to affective states individuals expect to experience in response to future outcomes, and decisions are shaped by the desire to avoid negative emotions such as regret or guilt, even if these feelings are not currently experienced (Baron, 1992). At the firm level, studies have observed shifts in purchases toward periods ahead of trade policy implementation to save

costs (Khan & Khederlarian, 2021). At the individual level, recent evidence shows that in anticipation of higher inflation induced by tariff announcements, households accelerated purchases, delayed planned consumption, or bought larger quantities in advance (Ellison et al., 2025).

These anticipatory responses are often shaped by daily price signals in food markets, such as changes in grocery prices (Chua & Tsiaplias, 2024; D'Acunto et al., 2021; Kalaitzandonakes et al., 2025). Compared with grocery prices, however, FAFH prices are less transparent. Consumers typically have limited information about the sources of restaurant price changes, such as whether increases stem from higher labor costs, rising ingredient prices, or other operating expenses. This ambiguity may shape how consumers interpret and respond to menu price increases (Kalaitzandonakes et al., 2024).

Such price-structure complications are further exacerbated by economy-wide inflationary pressures (Sweitzer, 2024), making them harder for consumers to navigate. Building on this, our paper focused on two research questions: (i) What are consumers' responses to price changes in FAFH choices? (ii) Do advance warnings of future price increases alter FAFH meal composition differently from unexpected price increases once menu prices adjust?

To answer our research questions, we employ a food menu basket-based choice experiment (BBCE), following Caputo and Lusk (2022), Kilders et al. (2024), and Staples et al. (2025), which replicates a casual dining choice setting. Extending the work by Ahn and Lusk (2021) and Kilders et al. (2025), we leverage a partial-within-subjects and partial-between-subjects design in which respondents were randomly assigned to a control group or one of two information treatment groups that varied the timing of future price information: one group received advance notice of a future price increase, while the other only received notice immediately prior to the price change. Our design enables a difference-in-difference (DID) estimation that isolates both pecuniary and non-pecuniary responses in the FAFH environment.

Our findings show that respondents adjust order size and item selection and are less likely to choose expensive options following price increases. Although their responses are not immediate, advance notice of price changes reduces friction in adjustments over time more than unexpected shocks.

Our paper extends the current understanding of FAFH consumption and contributes to the literature in several ways. First, we provide detailed evidence from a BBCE on how consumers adjust FAFH choices within a menu in response to price changes, explaining persistent consumer concerns about FAFH costs. These insights have direct managerial relevance, informing how FAFH establishments can adjust menus, pricing, or incentives during periods of price volatility. Second, we incorporate dynamic price signals into a simulated FAFH environment by employing a partial-within-subjects and partial-between-subject design to examine how sequential price information affects meal composition compared to unexpected price shocks. This setup enables us to calculate differences across rounds and treatments, as well as construct DID estimates to distinguish the effects of different information timings. Our results highlight the importance of information timing, which can enhance price communication strategies to help consumers form expectations and reduce adjustment frictions. Our approach offers guidance for future research on how individuals respond to price and policy uncertainty in the FAFH market.

Background and Conceptual Framework

Food prices are among the most noticeable and salient economic signals that consumers encounter every day, affecting not just what people buy but also their nutrition, well-being, and views on the economy (e.g., Andreyeva et al., 2010; Lusk, 2012; Bellemare, 2015). Recent changes in food prices have reinforced the importance of these signals. According to the 2026 USDA food price outlook, food prices increased by 2.3 percent in 2024 and 2.9 percent in 2025 (Stewart & Dong, 2026). Although food inflation has moderated since 2024, consumers continue to face the cumulative effects of elevated food cost pressure from previous years (Koppes, 2024; Stewart & Dong, 2026).

As concluded in Andreyeva et al. (2010), demand for FAFH is more responsive to price changes than that for FAH, and the continuous increase in FAFH prices has been linked to heightened concerns about the affordability of dining out (Balagtas & Bryant, 2024; Davidenko et al., 2025; Zeballos et al., 2024). At the same time, dining out provides convenience and experiential value (Edwards, 2013; Park, 2004) that consumers may be reluctant to forgo entirely. As a result, when faced with higher menu prices, consumers may not just respond on the extensive margin by

canceling the occasion altogether but also adjust their choices during a dining occasion to preserve the experience of eating out.

Such within-meal adjustments can occur through two primary responses: reducing the number of items ordered or substituting for lower-priced items on the menu. Regarding the former, research in the FAH context shows substantial declines in purchase volumes in response to price increases (Adam et al., 2024), suggesting that similar adjustments may occur in FAFH settings. Regarding the latter, prior research on FAH consumption shows that consumers modify their eating habits when facing sustained price hikes by trading down to lower-cost options, such as store-brand products, sacrificing some ethical standards (like animal welfare), and compromising higher-priced categories like meat and seafood (Lusk & Polzin, 2022; Geddes et al., 2023; Kalaitzandonakes et al., 2023; Bak et al., 2024). In light of this, we propose the following hypotheses:

H1 – Reduce Orders: Higher menu prices lead consumers to order fewer items in the FAFH environment.

H2 – Substitution: Consumers are more likely to switch away from high-price menu items in response to a price increase.

Both behavioral responses may also influence how consumers allocate their orders across menu categories. By triggering greater consumer search behavior (Rotemberg, 2005), they may prompt diners to reconsider the composition of orders across category levels. Indeed, add-ons such as appetizers and sides have been shown as alternative sources of protein within the traditional entrée category (Kilders et al., 2024; Pellegrini, 2016). At the same time, recent industry reports indicate a growing trend toward ordering add-on items as a cost-saving strategy (LaRocco, 2025). Taken together, these findings suggest that consumers may adjust their category choices within the menu. Accordingly, we expect the probability of selecting each category to change when the price increases, by hypothesizing:

H3 – Category Reallocation: Following menu price increases, consumers reallocate spending across menu categories.

However, prices go beyond the posted retail amount to reflect consumer expectations shaped by available information (Evangelidis & Gunadi, 2023; Kalyanaram & Little, 1994; Peine et al., 2009). For instance, evidence from sugar-sweetened beverage (SSB) taxes shows that although retail prices typically rise following policy implementation, consumer awareness of these changes remains incomplete and uneven without targeted information provision (Acton et al., 2022; Altman et al., 2021; Alvarado et al., 2021). Similarly, Kagaya et al. (2025) suggest that egg price changes attract little public attention in the early stages.

Providing contemporaneous cues at the point of purchase may therefore promote the salience of price changes (Briesch et al., 1997). As such, when price increases are explicitly highlighted, consumers are more likely to notice and incorporate them into their purchase decisions, strengthening their behavioral responses to the changes. Accordingly, we hypothesize the following:

H4 – Information Effect: *Information about a price change causes consumers to respond more strongly to the price increase.*

While the presence of information can impact consumers' responses to price changes, the timing of this information may also influence how consumers react. Indeed, research shows that consumer responses can differ markedly when encountering expected versus unexpected shocks (Mertens & Ravn, 2012). When consumers receive price signals in advance, they can update their expectations and adjust their behavior proactively (Working, 1958). Such advance signals allow consumers to make more deliberate choices and avoid impulsive or suboptimal ones (Burdett & Judd, 1983; Varian, 1980), leaving them better prepared ahead of price shocks. Building on these insights, we hypothesize

H5 – Advanced Adjustments: *Consumers informed of price increases in advance alter their menu choices before the change takes effect.*

Advance notice may also shape consumer behavior once a price change takes effect. When consumers are informed ahead of time, they can evaluate available options and identify preferred alternatives before the new prices are implemented (Momsen, 2021). Thus, the advanced information can reduce adjustment frictions by allowing consumers to adapt their purchasing

decisions more gradually rather than reacting abruptly at the moment of the price change (Peine et al., 2009; Remington, 1971). In contrast, prior research shows that unexpected price shocks can influence overall spending levels and even generate spillover effects that reduce purchases in unrelated categories (Janakiraman et al., 2006). Consequently, consumers who receive advance information may exhibit a more muted response when the price change ultimately occurs. Accordingly, we hypothesize:

H6 – Difference in Responses: Consumers who receive advanced price information display dampened responses to price changes compared to those who do not receive advanced notice.

Method

Experiment Design

To experimentally capture consumers' food choices across different scenarios, discrete choice experiments (DCEs) have long been the preferred method (Caputo & Scarpa, 2022). However, while DCEs are suitable for capturing trade-offs and interactions between specific attributes (de Bekker-Grob et al., 2012; Rakotonarivo et al., 2016), they are typically limited to capturing only substitution patterns. Meanwhile, BBCEs have been shown to allow respondents to compose complete food choices across multiple categories rather than make a single-item selection, creating a more realistic choice environment that captures substitution and complementarity patterns observed in real-world food decisions (Caputo & Lusk, 2022; Kilders et al., 2024; Staples et al., 2025).

Adopting this design, we simulated a casual full-service restaurant[1] menu to capture respondent choice behavior for common FAFH items. This setting is appropriate for two main reasons. First, Saksena et al. (2018) suggest that consumers of full-service restaurants are less sensitive to restaurant proximity than those of limited-service restaurants[2], reducing concerns about location- or accessibility-driven selection. Second, demand in full-service restaurants has been shown to be

[1] Full-service restaurants are dining establishments in which customers are seated, provided menus, served by waitstaff throughout the meal, and pay after eating (U.S Census Bureau, n.d.).

[2] Limited-service restaurants are dining establishment where customers order and pay before eating, characterized by minimal or no table service and quick service (U.S Census Bureau, n.d.).

more price elastic than in limited-service settings (Okrent & Alston, 2012), making this setting particularly relevant for studying individual responses to price changes.

Participants were asked to compose an order from 18 menu items from four menu categories for themselves: appetizers (pretzel & dip, onion rings, chips & salsa, mozzarella sticks, bone-in chicken wings, hummus and veggies), entrées (chicken sandwich, veggie burger, beef burger, grilled salmon, ribeye steak, and margherita pizza), sides (French fries, side salad, and a cup of soup), and desserts (chocolate brownie, New York cheesecake, and two scoops of vanilla ice cream). Following the approach outlined in Kilders et al. (2024), the categories, items, and prices were chosen based on a review of menus from casual full-service restaurants across the U.S. in rural and urban areas. The menu encompasses both higher- and lower-priced items, spread across the four categories, to facilitate testing *H1-H3*. Beverages were purposefully excluded from the menu to limit the dimensionality of the choice task and maintain respondent tractability. Respondents also had the option of not ordering any of the available dishes (see Figure S1 in the Supplemental information). Each dish displayed an image of the food and the corresponding calorie information[3] alongside one of four dish-specific price levels across the choice questions (Table 0 in the Supplemental information).

To capture responses to both anticipated and unanticipated price changes (*H4-H6*), we employed a partial within-, partial between-subject design (see Figure 1), building on Ahn and Lusk (2021) and Kilders et al. (2025) with each respondent completing two rounds of BBCE choice tasks. More specifically, all respondents were presented with the same choice sets in Round 1. In the second round, menu items from Round 1 remained unchanged, while prices were increased by approximately 10% on average, reflecting recent increases in restaurant prices (Koerber, n.d.; National Restaurant Association, 2026). For each menu item, the price increment was based on 10% of the mean of its four Round 1 price levels and expressed in quarter-dollar increments to maintain realistic menu pricing[1].

[3] We include calorie information for each item as required by the FDA's menu labeling rule, which provides consumers with nutrition information in covered chain restaurants (FDA, 2024).

[1] Because a common item-specific dollar increment was applied across the four price levels, the realized percentage increase varied mechanically with the baseline price. Accordingly, the price manipulation represents an approximately 10% increase in menu prices on average rather than an exact 10% increase at every displayed price. Exact prices for both rounds are reported in Table .5.

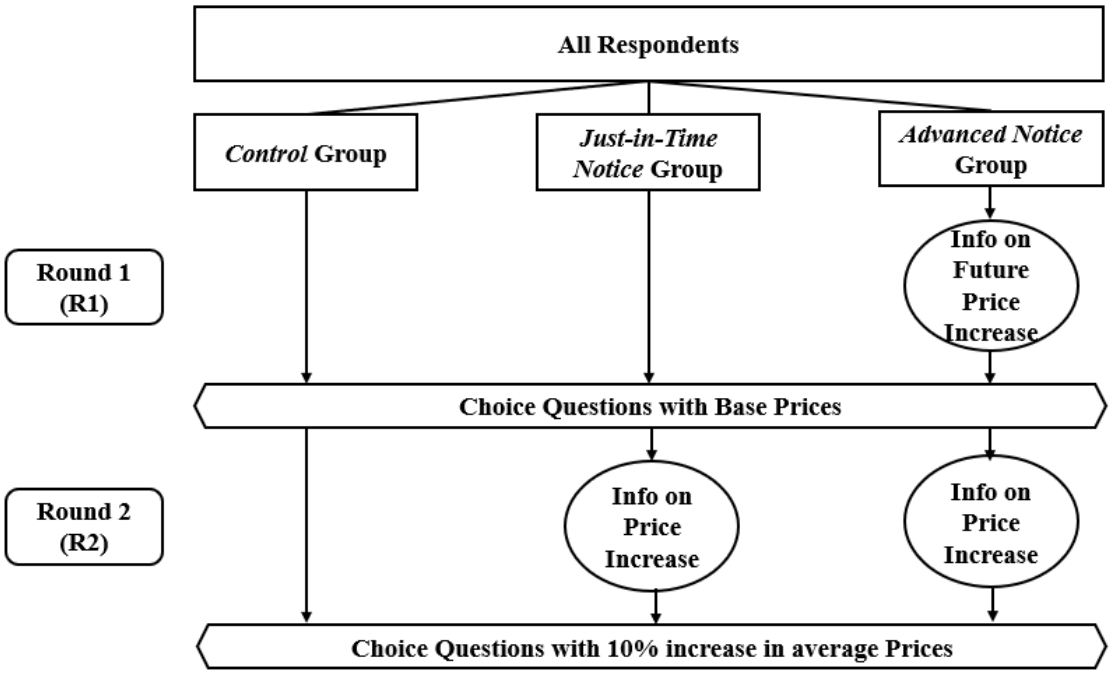


Figure 1 Experiment design

In addition to the price change, we randomly assigned respondents to either the *Control* group or one of two treatment conditions, which we call *Just-in-Time Notice* and *Advance Notice*, respectively. In the *Control* group, respondents received no information about the price change in either round. We compared responses across rounds to assess the effect of uninformed price increases on respondent's menu preferences. For the *Advance Notice* treatment group, we provided additional information about future price increases before respondents began answering choice questions in Round 1:

"Please note that prices at full-service restaurants are expected to increase by 10% in the near future due to rising ingredient costs and increased labor expenses."[4]

After Round 1, respondents in both the *Advance Notice* and the *Just-in-Time Notice* treatment groups received information about immediate price increases before Round 2 began:

[4] The indication of the why price increased builds on Kalaitzandonakes et al. (2024), who found that consumers tend to value transparency and view price increases as more acceptable when cost pressures stem from food manufacturing inputs.

"Please note that prices at full-service restaurants have increased by 10% due to rising ingredient costs and increased labor expenses."

To generate the BBCE questions, we followed Staples et al. (2025) and used an orthogonal fractional factorial design to reduce the full factorial design to 40 choice tasks, blocked into four sets of 10. Therefore, each respondent saw 10 choice tasks in each round. The set of questions remained the same across rounds to facilitate comparison in subsequent analysis. Instructions preceding each question are shown in Figure in the Supplemental information. They included a reminder of how much respondents typically expect to spend at a full-service restaurant when dining in, in line with Kilders et al. (2025).

In addition to the BBCE questions, respondents were asked to report their FAFH consumption habits and expenditures, their expectations for future FAFH prices over the next 12 months, and their socio-demographic characteristics. We also adopted questions from Völckner (2008) on financial constraints and price consciousness to understand the effect of price on respondent's product evaluations.

Our experiment was conducted through an IRB-approved online survey (IRB number: STUDY2025-00000331) via Qualtrics, with Kantar managing the data collection. To qualify for participation, respondents had to be at least 18 years old and reside in the U.S. Research questions and procedures were preregistered at AsPredicted (Reference Number: #279377).

Data Analysis

In line with Ahn and Lusk (2021) and Kilders et al. (2025), this experimental design enabled us to (i) capture the difference before and after price changes, (ii) compare the treatments in the same round, and (iii) construct DID estimates for the information effect and difference in responses. The non-parametric calculation is summarized in Table 1.

Table 1 The DID price information effect

	Pooled sample	*Control* group	*Just-in-Time Notice* group	*Advance Notice* group
Round 1 (Baseline Price)	$M_{Round\ 1}$	$M_{Round\ 1}^{Control}$	$M_{Round\ 1}^{Just-in-Time\ Notice}$	$M_{Round\ 1}^{Advance\ Notice}$
Round 2 (Increased Price)	$M_{Round\ 2}$	$M_{Round\ 2}^{Control}$	$M_{Round\ 2}^{Just-in-Time\ \ Notice}$	$M_{Round\ 2}^{Advance\ Notice}$
Differences	$\Delta M^{Price\ Effect}$	$\Delta M^{Control}$	$\Delta M^{Just-in-Time\ \ Notice}$	$\Delta M^{Advance\ Notice}$
DID estimate			$DID^{Information\ Effect} = \Delta M^{Just-in-Time\ \ Notice} - \Delta M^{Control}$	$DID^{Difference\ in\ Responses} = \Delta M^{Advance\ Notice} - \Delta M^{Just-in-Time\ \ Notice}$

First, in the full sample, M_{Round1} is the choice outcome in the BBCE, including item- and category-level choices, the total price for meal constructions in the first round, and M_{Round2} indicates respondents' choice outcomes when menu prices increased in Round 1. The difference across the two rounds, $\Delta M^{Price\ Effect} = M_{Round2} - M_{Round1}$, is the price effect, which helps test the first three hypotheses.

To test whether higher menu prices lead respondents to order fewer menu items, we use count regression methods as the dependent variables represent non-negative integers. Following the procedure for modeling count data outlined in Too et al. (2025), we initially estimated fixed-effect Poisson regression models[5]. Let N_{ibq} denote the choice outcomes selected by the respondent i in the question q. The log-likelihood equation is written as

$$\log\left(E\left(N_{iq}\right)\right) = \delta_0 + \delta_1 After + \gamma_q + \varepsilon. \quad (1)$$

[5] Because the Poisson regression relies on the assumption that the conditional mean equals the conditional variance, following McCullagh (2019) we first conduct a dispersion diagnostic by computing the ratios of the model deviance and the Pearson statistic to their corresponding degrees of freedom. This allows us to evaluate whether the assumption is violated. Following the thresholds listed in Payne et al. (2018), the Poisson model provides consistent and efficient estimates when the dispersion statistic is not bigger than 1.2. If substantial overdispersion is detected, we estimate negative binomial models instead by relaxing the assumption that the conditional variance equals the conditional mean.

In equation (2.1), $After$ is a binary variable with value one if Round 2, and γ_q indicates the fixed effect for the menu scenario (i.e., the BBCE question) respondents faced. δ_0 is the intercept and δ_1 captures the log difference in the expected count between the post- and pre-price increase, enabling us to test *H1 – Reduce Orders*. The error term is represented by ε. In addition to testing the total number of items, similar to the setup in equation (1), we estimate whether the price increase affects the number selected in each menu category.

Next, to test *H2 – Substitution*, we estimate the probability of selecting certain menu items using a linear probability model (LPM). Consumer food trade-offs under price pressure are most pronounced for relatively expensive items, such as meat and seafood (Geddes et al., 2023). In light of this, we chose items in the entrée category for analysis, as they represent the most expensive items in our menu. Specifically, we focus on the probability of selecting the two cheapest items, the chicken sandwich and the Margarita pizza, and the probability of selecting the two most expensive items, grilled salmon and ribeye steak. We exclude the beef burger from consideration, even though it has the same price as the Margarita pizza. As the beef burger is one of the most popular items shown in Kilders et al. (2024), its selection probability may be driven by respondent preferences rather than by price changes. As such, we use $P(S_{ibq})$ to indicate the probability that a high-price and a low-price item were selected in each choice set. Our setup can be derived as:

$$P(S_{ibq}) = \alpha_0 + \alpha_1 After + \gamma_q + \varepsilon, \quad (2)$$

where α_1 reflects the changes in probability of choosing each menu item for respondents in Round 2, which helps us to assess *H2 – Substitution*. We leverage the same approach to examine the probability of selecting an item from the different menu categories across rounds to see how respondents reallocate menu categories in response to price changes. This allows us to test *H3 – Category Reallocation*.

Second, we calculate the difference in choice outcomes between the two rounds for the *Control* and *Just-in-Time Notice* groups, which is expressed as

$$DID^{Information\ Effect} = \Delta M^{Just-in-Time\ Notice} - \Delta M^{Control}.$$

This DID estimate isolates the effect of a price-increase notice right before the change on the FAFH menu selection, beyond the price effect, enabling us to test *H4 – Information Effect*.

To capture the information effect, we extend equations (1) and (2) using $DID^{Information\ Effect}$ to understand the effects of the price-increase reminder on the selected item number, low and high-price items, and menu compositions. The extended equation (1) can then be written as

$$\log\left(E\left(N_{iq,r}^{t}\right)\right) = \delta_0 + \delta_1 T_i + \delta_2 After + \delta_3 (After \times T_i) + \gamma_q + \varepsilon. \quad (3)$$

$N_{iq,r}^{t}$ denotes the number of selected items by the respondent i who is assigned to the group t in the question q in the round r. The coefficient δ_3 on the interaction term represents the percentage change in the number of items selected in each menu category for the *Just-in-Time Notice* group in Round 2 relative to the corresponding change for the *Control* group.

Similarly, we extend equation (2) to:

$$P(S_{iq,r}^{t}) = \alpha_0 + \alpha_1 T_i + \alpha_2 After + \alpha_3 (After \times T_i) + \gamma_q + \varepsilon, \quad (4)$$

where α_3 captures the changes in probability of choosing most and least expensive items for respondents in groups that receive price-related information in Round 2 relative to the *Control* group.

To then assess whether advanced price information leads to choice responses prior to the implementation of the price increase (*H5 – Advanced Adjustments*), we calculate the difference in choice outcomes between the *Control* and *Advance Notice* groups in Round 1:

$$\Delta M^{Advanced\ Adjustments} = M_{Round\ 1}^{Advanced\ Notice} - M_{Round\ 1}^{Control}.$$

In line with equations (1) and (2), we then estimate the changes in the number of items using count regression and the probabilities of selecting certain items with an LPM, which are expressed as

$$\log\left(E\left(N_{iq}\right)\right) = \delta_0 + \delta_1 Informed + \gamma_q + \varepsilon, \quad (5)$$

$$P\left(S_{ibq}\right) = \alpha_0 + \alpha_1 Informed + \gamma_q + \varepsilon. \quad (6)$$

The binary variable $Informed$, with a value of 1 if receiving price information and 0 otherwise. And the coefficients of $Informed$, δ_1 and α_1 help us to test whether there are advanced adjustments for the *Advance Notice* group.

Following this and similar to the calculation for the difference across rounds in the full sample, in Table 1, $\Delta M^{Control}$ indicates the increase in prices without any provision of price information on the menu choice outcome, $\Delta M^{Advance\ Notice}$ shows the effect of price increases when respondents are informed of the price change ahead of time, while $\Delta M^{Just-in-Time\ Notice}$ represents the pecuniary responses when respondents are informed right before the price change.

Leveraging these, we calculate the difference in choice outcomes between the two rounds for the *Just-in-Time Notice* and *Advance Notice* groups to examine whether respondents informed in advance are less responsive to price changes compared to those who only receive information about price increases ad hoc (*H6 – Difference in Responses*):

$$DID^{Difference\ in\ Responses} = \Delta M^{Advance\ Notice} - \Delta M^{Just-in-Time\ \ Notice}.$$

The setups are the same as in equations (3) and (4); the coefficients of the interaction terms are of interest to us, as they represent the difference in order changes across rounds for respondents who received price information in advance and just before the change took place.

Results

Descriptive Statistics

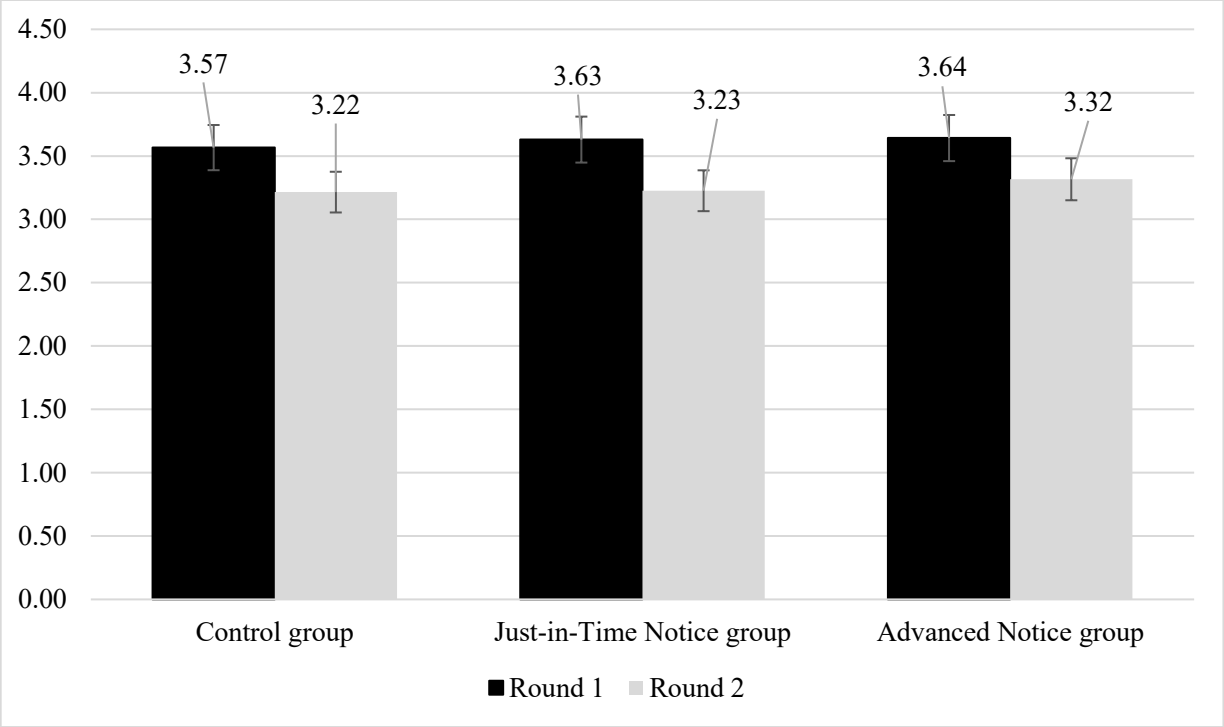
We collected 2,014 completed and qualifying responses from U.S. consumers in March and April 2026. Our sample closely aligns with U.S. Census population averages (see Table S2 in the Supplemental information). Respondents under 18 years of age, those who did not complete the survey, and those who failed the two included attention checks were excluded from the final sample. There are no statistically significant differences across treatments for the collected demographics.

Approximately 61% of respondents reported being satisfied with the FAFH options in their living area, while about 40% expected to see higher prices when eating out over the next 12 months. Respondents also reported experiencing more pronounced price increases at full-service restaurants when dining in (46%) compared to other options, such as takeout and delivery. The average expected expenditure for respondents when dining in at a full-service restaurant was $21.29 for their own meal, with a standard deviation of $36.82.

Actual expenditures in the BBCE substantially exceeded this stated expectation: In Round 1, respondents' average total spending was about $34.23, with an average of 3.61 items per order. These expenditures align with recent industry data findings that fewer than 45% of respondents spend less than $20 per person when dining out (US.FOODS, n.d.). In Round 2, average spending fell by roughly $0.78, and the number of selected items per order fell by about 10%, suggesting that respondents maintained a relatively stable expenditure even as prices rose[2].

Figure 2 shows the average number of total items selected in each round per treatment group. In all groups, the average item count decreases in Round 2, supporting *H1 – Reduce Orders*. The largest decline (about 11%) occurs in the *Just-in-Time Notice* group, while the smallest change (about 9%) is seen in the *Advance Notice* group, aligning with *H6 – Difference in Responses*. Additionally, the change across rounds is more pronounced for the *Just-in-Time Notice* group compared to the *Control* group, but the differences are not significant.

[2] A fixed effects model confirmed the significance of this difference.



Note: The error bars indicate the 95% confidence interval.

Figure 2 Average number of total items selected in each round per treatment group

Consistent with this, Figure 3 shows that the probability of selecting each menu item declined across all items following the price change, providing initial descriptive support for *H1 – Reduce Orders*. Item preferences were stable across rounds. French fries and side salad are the most popular items, while hummus and veggies and ribeye steak are the least popular. Pretzel & dip is the most popular appetizer. Among entrées, beef burgers and chicken sandwiches are the most popular items, while New York cheesecake is the most popular dessert.

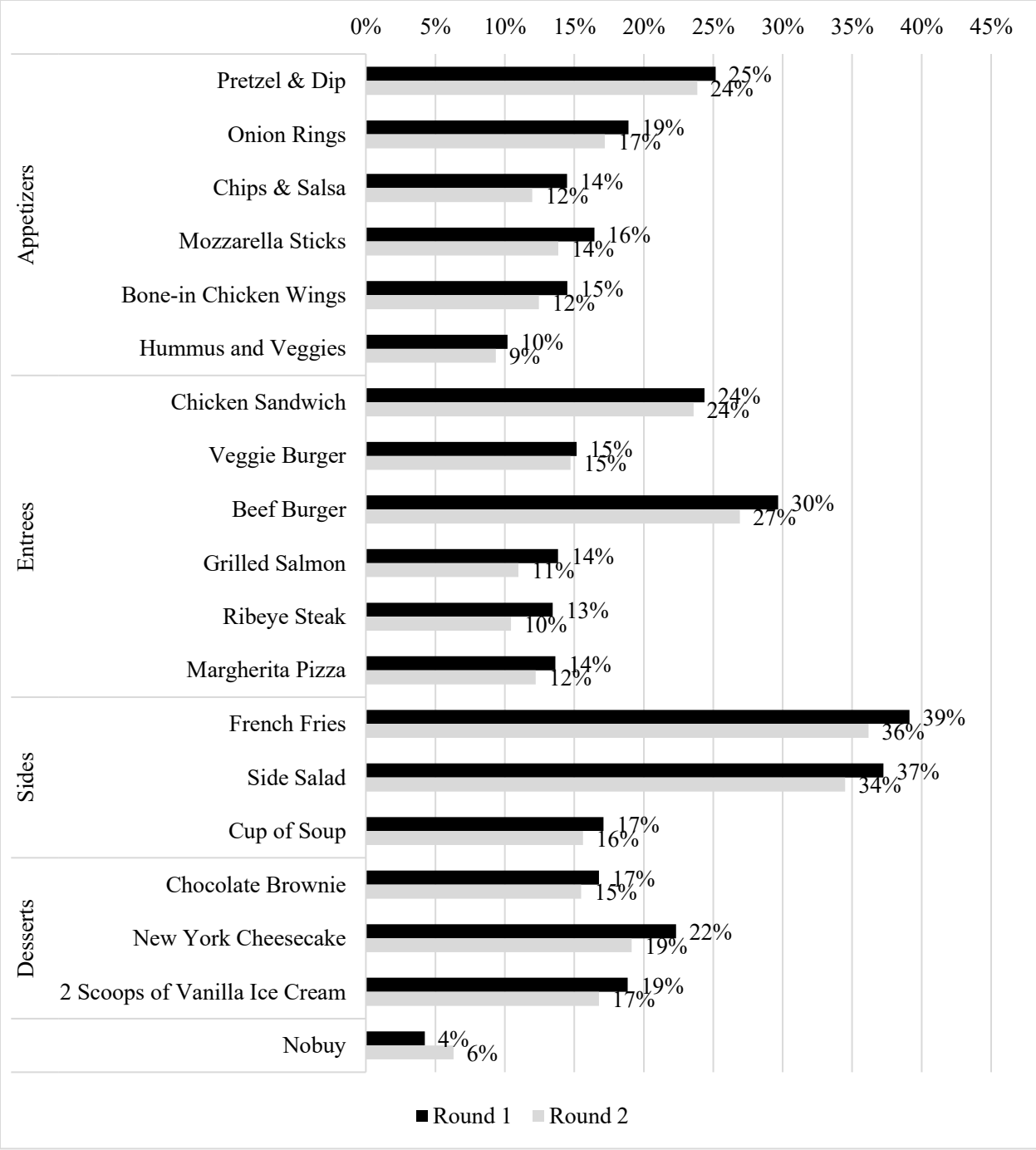


Figure 3 Probability of a menu item being selected in each round

Figure 4 illustrates the composition of menu categories across both rounds. We find that price increases lead respondents to shift away from desserts (a decline of 0.42%), while the share of entrée items increasinged by 0.2% and the share of side items increased by 0.16%. Meanwhile, the share of appetizer items remains relatively unchanged. Therefore, these results provide little support for our third hypothesis, *H3 – Category Reallocation*.

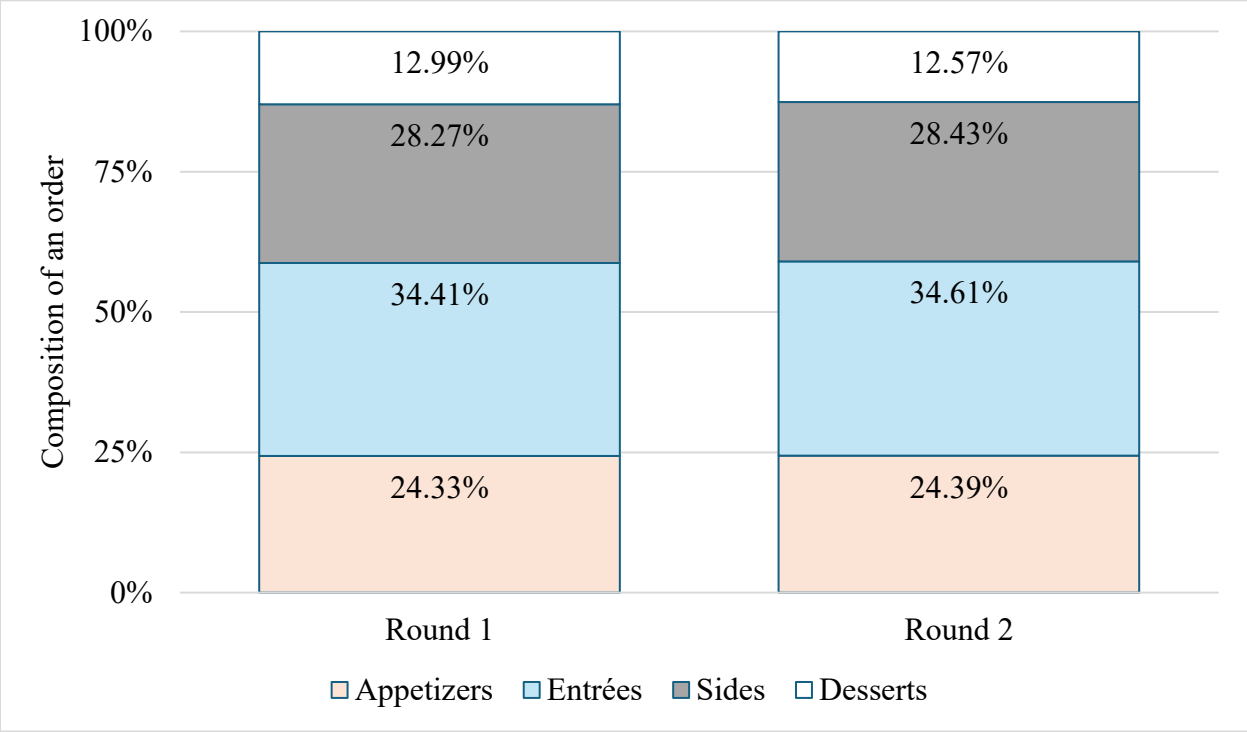
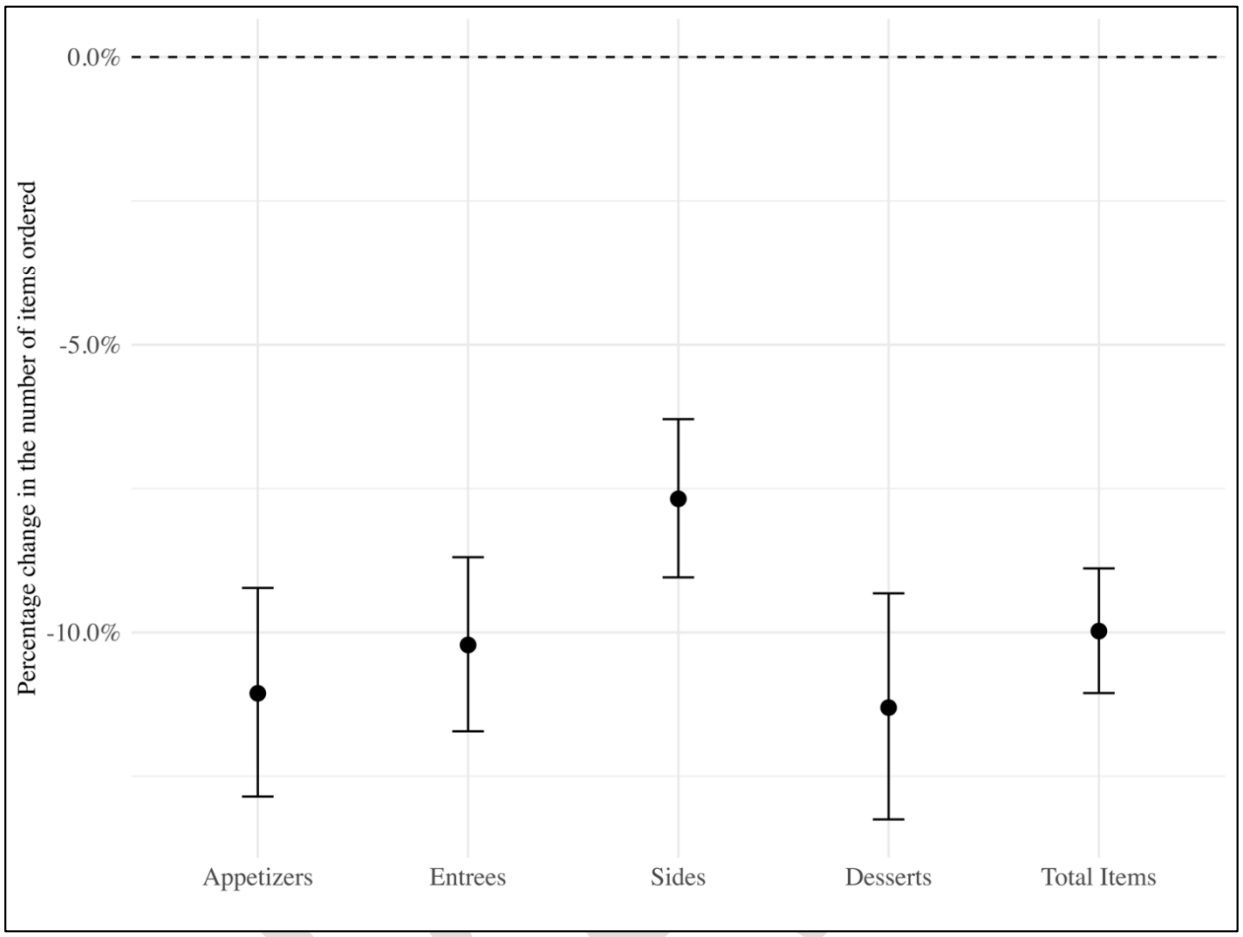


Figure 4 Menu categories composition

Price Effect Results

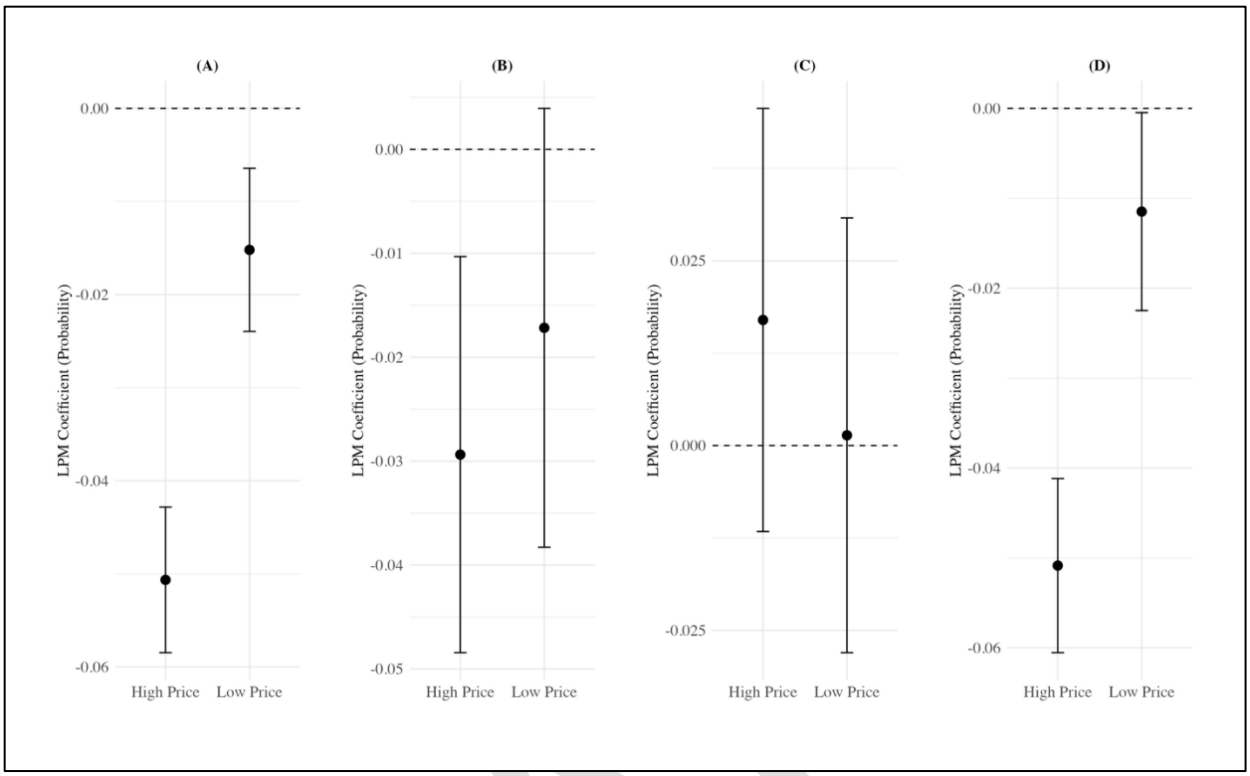
Results for the categorical selection numbers in equation (1) for the full sample across two rounds are shown in Figure 5 (coefficients are reported in Table in the Supplemental information). We find that price increases significantly reduce the total number of items and items across all categories (-10.42% for total numbers, -11.31% for appetizers, -10.42% for entrées, -7.69% for sides, -11.31% for desserts), supporting our first hypothesis about reduced ordered quantities (*H1 – Reduce Orders*).



Note: Reported percentage changes are computed from count regression coefficients. Error bars denote 95% confidence intervals based on robust standard errors.

Figure 5 Count regression results across rounds with the full sample ($\Delta M^{Price\ Effect}$)

Plot (A) in Figure 6 shows the effect of price changes on the probability of selecting the low and high-price menu items. Specific LPM estimates corresponding to equation (2) are reported in Table . The effects are negative and statistically significant for both high- and low-price items, indicating that a menu price increase is associated with a significant decrease in the probability of choosing menu items, regardless of price, which is consistent with our first hypothesis. However, the magnitude of the decreases varies across price levels: the probability of choosing high-price items decreases by 5.06%, while the probability of choosing low-price items declines by 1.52%. Therefore, our results provide some support for the claim that consumers move away from high-priced menu items in response to a price increase (*H2 – Substitution*), but do not have sufficient evidence to prove that consumers trade down to lower-cost options.



Note: Error bars denote 95% confidence intervals based on robust standard errors. Plot (A) shows the LPM results on the price effect from the full sample ($\Delta M^{Price\ Effect}$). Plot (B) shows LPM results on the information effect with responses from the Control and the Just-in-Time Notice groups across two rounds ($DID^{Information\ Effect}$). Plot (C) shows the LPM results of the advanced adjustment with responses from the Control and Advanced Notice groups in Round 1 ($\Delta M^{Advanced\ Adjustments}$). Plot (D) shows the LPM results of the Just-In-Time and Advance Notice groups ($DID^{Difference\ in\ Responses}$).

Figure 6 LPM results

Additionally, an increase in menu prices significantly lowers the likelihood of selecting each category, as shown in Table 2. Respondents are less likely to choose entrées and sides (a 5% decrease) than appetizers and desserts (a 4% decrease). However, we do not have sufficient evidence to support *H3 – Category Reallocation*. We also find that the decline in the probability of choosing desserts is greatest among female (a 7% decrease) and low-income (an 8% decrease) respondents compared to changes in the probabilities of selecting other menu categories.

Table 2 LPM estimates on categories across rounds

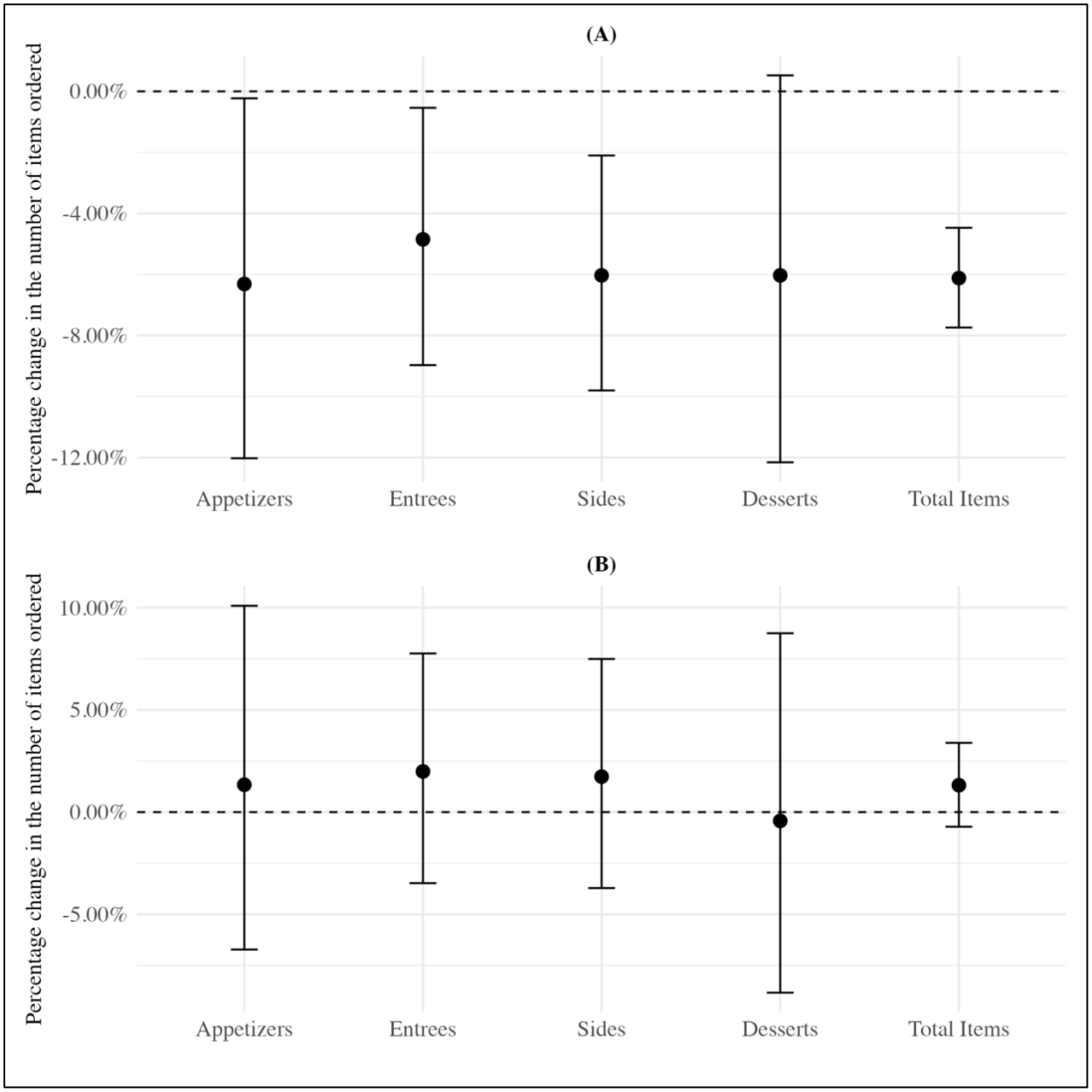
Variable	Choose Appetizers	Choose Entrées	Choose Sides	Choose Desserts
After	-0.04* (0.00)	-0.05* (0.00)	-0.05* (0.00)	-0.04* (0.00)
Female	-0.06* (0.02)	-0.03* (0.01)	0.00 (0.01)	-0.07* (0.02)
Low Income	-0.06* (0.02)	-0.05* (0.01)	-0.03* (0.01)	-0.08* (0.02)
Rural	-0.05* (0.02)	-0.03 (0.02)	-0.01 (0.02)	-0.10* (0.02)
Unemployed	0.03 (0.03)	0.00 (0.02)	0.00 (0.03)	0.00 (0.03)
College	0.03 (0.02)	0.03* (0.01)	0.02 (0.01)	0.06* (0.02)
White	0.00 (0.02)	0.02 (0.01)	0.01 (0.01)	0.03 (0.02)
Kids	0.18* (0.02)	0.04* (0.01)	0.06* (0.01)	0.19* (0.02)
Number of FAFH per week	0.02* (0.00)	0.00* (0.00)	0.01* (0.00)	0.03* (0.00)
SNAP Benefit	0.14* (0.02)	0.00 (0.01)	0.05* (0.02)	0.17* (0.02)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level. Alternative specifications, including models incorporating price consciousness and expected price for dining in, were tested for all models estimated in this chapter, but none outperformed the chosen specification.

Information Effect Results

We now examine how providing price information affects meal choices by comparing the *Control* and *Just-In-Time* groups across rounds to derive the $DID^{Information\ Effect}$ effect. Plot (A) in Figure 7 shows percentage changes calculated from the count regression in equation (2.3) estimates of the effect of information (full estimates are in Table S5 in the Supplemental information). All findings are negative, indicating that the *Just-In-Time* group ordered fewer items after seeing the price notice than respondents with no price information in Round 2, supporting *H4 – Information Effect*. The lack of a significant effect for the dessert category likely reflects that respondents are more likely to stick with desserts than other menu categories. In addition, the

information effect leads to a $0.01 decline in total spending in Round 2 for the *Just-In-Time* group, but the change is not significant (see Table S3 in the Supplemental information).



Note: Reported percentage changes are computed from count regression coefficients. Error bars denote 95% confidence intervals based on robust standard errors. Plot (A) shows results on the information effect with responses from the Control and the Just-in-Time Notice groups across two rounds. Plot (B) shows the results of the advanced adjustment with responses from the Control and Advanced Notice groups in Round 1.

Figure 7 Count regression results on the information effect ($DID^{Information\ Effect}$) and the advanced adjustment ($\Delta M^{Advanced\ Adjustments}$)

This information effect also reduces the probability of selecting items at different price levels in the second round, as shown in Plot (B) in Figure 6 (LPM estimates for equation [4] are reported in Table 6). The probability of selecting high-priced items (a significant decrease of 3%) is more negative than that of low-priced items (a decrease of 2%). The change in the selection of low-price items is not statistically significant. In addition to the information effects, respondents' frequency of eating out also significantly affects their choices among items at various price levels.

Table 3 shows how price information affects the probabilities of choosing each menu category. For the *Just-In-Time* group, there is a 4% decrease in selecting appetizers, entrées, and sides, and a 3% decrease in choosing desserts following the price change in Round 2. These changes are statistically significant. Female respondents are more likely to reduce their chances of selecting add-ons, such as appetizers (a decrease of 4%) and desserts (a decrease of 6%). Low-income respondents also tend to choose entrées less often (a 6% decrease) but are more likely to forgo appetizers (an 8% decrease) and desserts (a 10% decrease). In all, our results provide evidence supporting the fourth hypothesis that information provision on a price change leads respondents to respond more strongly to the price increase (*H4 – Information Effect*).

Table 3 LPM estimates on categories on the information effect

Variable	Choose Appetizers	Choose Entrées	Choose Sides	Choose Desserts
After:Informed	-0.04* (0.01)	-0.04* (0.01)	-0.04* (0.01)	-0.03* (0.01)
Female	-0.04* (0.02)	-0.03 (0.01)	0.00 (0.02)	-0.06* (0.02)
Low Income	-0.08* (0.02)	-0.06* (0.02)	-0.03 (0.02)	-0.10* (0.02)
Rural	-0.05 (0.03)	-0.02 (0.02)	0.00 (0.02)	-0.09* (0.03)
Unemployed	0.05 (0.04)	-0.02 (0.03)	0.00 (0.03)	0.00 (0.04)
College	0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.05* (0.02)
White	-0.02 (0.02)	0.03 (0.02)	0.00 (0.02)	0.00 (0.02)
Kids	0.17* (0.02)	0.04* (0.02)	0.06* (0.02)	0.19* (0.02)
Number of FAFH per week	0.02* (0.00)	0.00 (0.00)	0.01* (0.00)	0.03* (0.00)
SNAP Benefit	0.15* (0.02)	0.00 (0.02)	0.06* (0.02)	0.19* (0.02)

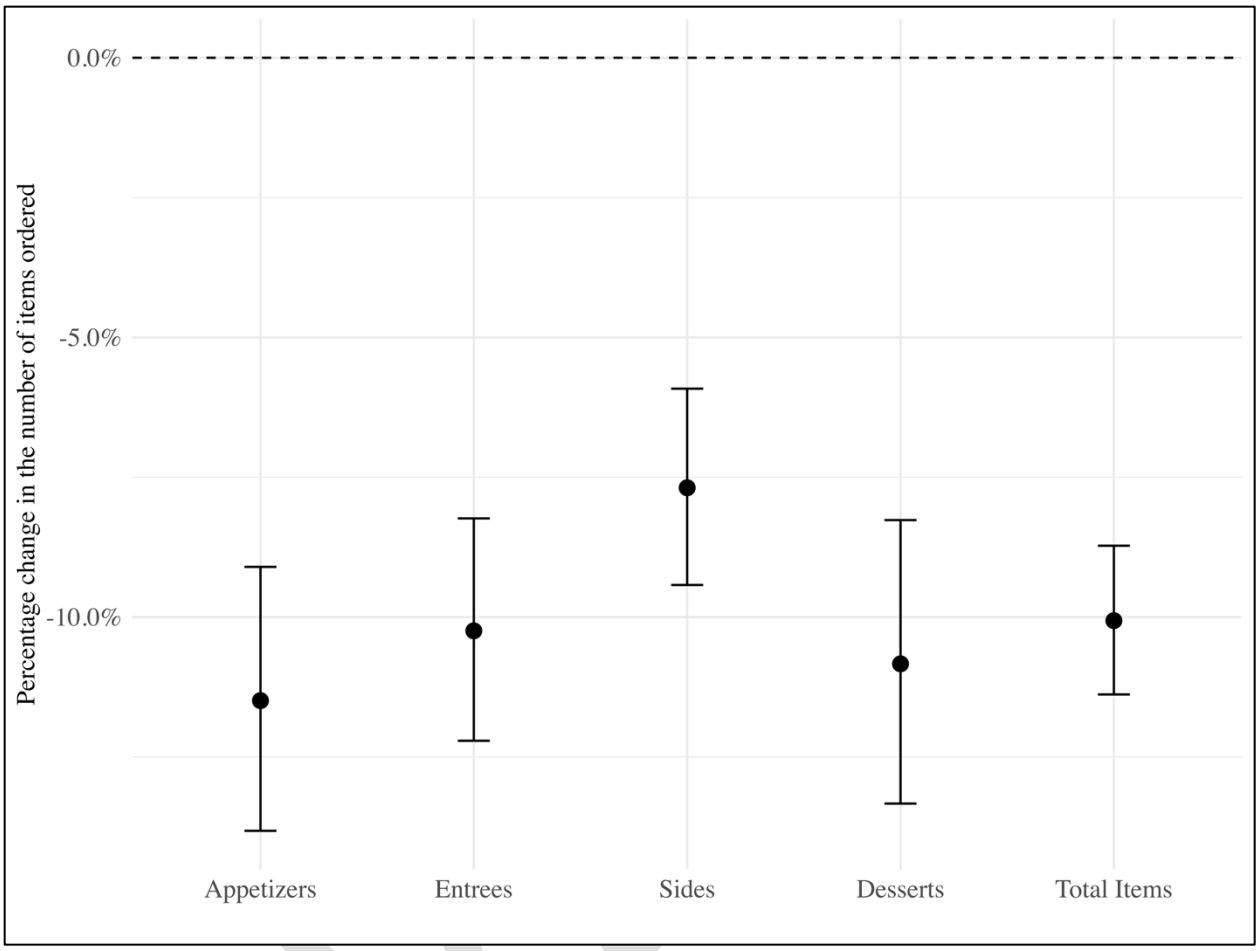
Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

We then compared choice outcomes for the *Control* and *Advance Notice* groups in Round 1 to evaluate whether respondents who received price information in advance made advanced adjustments, $\Delta M^{Advanced\ Adjustments}$. We observe increases in the number of items selected (see Plot (B) in Figure 6 and Table Table for count regression estimates for equation [5]). However, none of these changes are statistically significant. The *Advance Notice* group also spent $0.59 more in Round 1, but the change is not statistically significant (see Table in the Supplemental information). Respondents in this group also have a 1% higher probability of choosing both high and low-price entrée items in Round 1, but these changes are not significant, as shown in Plot (C) in Figure 6 (Table in the Supplemental information reports the estimates for equation [6]). Similarly, we note a significant increase (1%) in entrée selection for the *Advance Notice* group, while changes in the selection of other categories are not statistically significant (see Table S10 for estimates). Together, we do not have sufficient evidence to support *H5 – Advanced Adjustments*. Despite that, we find that the frequency of eating-out has a positive and significant

influence on the number of items selected and on the probability of choosing each menu category other than entrées, when respondents receive a price-increase notice in advance.

Difference in Responses Results

Lastly, we compared the choices of the *Advance Notice* and *Just-In-Time* groups across rounds to capture $DID^{Difference\ in\ Responses}$. First, as shown in Figure 8, the percentage changes calculated from the count regressions are all negative and statistically significant (see count regression results in Table in the Supplemental information). This suggests that changes in ordered items between Round 1 and Round 2 are smaller for the *Advance Notice* group than for the *Just-In-Time* group. We observe that, compared to the *Advance Notice* group, the *Just-In-Time* group is more likely to adjust the appetizer item number (a difference of about 11.31%), but less likely to adjust the side number (a difference of 7.69%) across rounds. Respondents who receive price information immediately before the change show a 10.42% larger adjustment in the total number of ordered items compared to those who were informed of the price change in advance. Such differences in responses also appear in the overall price changes across rounds: compared to *Advance Notice* respondents, the *Just-In-Time* group reveals $0.83 more changes between the first and second rounds.



Note: Reported percentage changes are computed from count regression coefficients. Error bars denote 95% confidence intervals based on robust standard errors.

Figure 8. Count regression results on the differences in responses with responses from *Just-In-Time* and *Advance Notice* groups ($DID^{Difference\ in\ Responses}$)

Plot (D) in Figure 6 shows that respondents' adjustments differ across menu items at different price levels between the *Just-In-Time* and *Advance Notice* groups. The *Just-In-Time* group exhibits greater changes in its selection of high-price items across rounds (1.70%). Notably, the difference in changes in lower items across rounds between the two groups is minimal (see all estimates in Table). Accordingly, respondents who receive price information right before the price change are more likely to adjust premium items across rounds than the *Advance Notice* group.

Table 4 indicates that respondents' adjustments differ across menu categories. The *Just-In-Time* respondents' changes in responses are more pronounced for selecting sides (6%) and entrées (5%), whereas changes in probabilities of appetizer and dessert selections remain relatively smaller (both

4%), suggesting heterogeneous adjustment patterns across categories between the two treatment groups. Together, our findings support *H6 – Difference in Responses*.

Table 4 LPM estimates for categories on various responses

Variable	Choose Appetizers	Choose Entrées	Choose Sides	Choose Desserts
After: Informed	-0.04* (0.01)	-0.05* (0.00)	-0.06* (0.01)	-0.04* (0.01)
Female	-0.05* (0.02)	-0.01 (0.01)	0.01 (0.02)	-0.05* (0.02)
Low Income	-0.04* (0.02)	-0.06* (0.01)	-0.03* (0.02)	-0.08* (0.02)
Rural	-0.05 (0.03)	-0.02 (0.02)	-0.01 (0.02)	-0.10* (0.03)
Unemployed	0.01 (0.04)	0.01 (0.03)	0.01 (0.03)	-0.01 (0.04)
College	0.04 (0.02)	0.03 (0.02)	0.01 (0.02)	0.05* (0.02)
White	0.01 (0.02)	0.03 (0.02)	0.02 (0.02)	0.04 (0.02)
Kids	0.19* (0.02)	0.04* (0.01)	0.06* (0.02)	0.18* (0.02)
Number of FAFH per week	0.03* (0.00)	0.01* (0.00)	0.01* (0.00)	0.03* (0.00)
SNAP Benefit	0.11* (0.02)	-0.02 (0.02)	0.02 (0.02)	0.14* (0.02)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Discussion

We use BBCEs and a partial-within and partial-between-subjects design to elicit pecuniary and non-pecuniary adjustments to price increases in the FAFH environment. Our approach allows us to compare outcomes across treatments and between rounds, as well as construct DID estimates that identify sequential price information shapes menu composition both in anticipation of and following a price change. Methodologically, this design helps compensate for hypothetical biases: By differencing across treatments and rounds, our approach can net out individual-level biases and isolate the effects of interests.

First, respondents' pecuniary responses (*H1-H3*) suggest that food frugality, well documented in the FAH context, extends to FAFH decisions, particularly given that dining out has become part of daily food consumption in the U.S. (Balagtas et al., 2026; Leppert, 2025; Zeballos et al., 2024).

With the ongoing rise in menu prices (FRED, 2025), consumers appear unable to avoid this sector but instead adapt their behavior within it. Consistent with evidence that FAFH demand is relatively price-sensitive (Andreyeva et al., 2010), we find that respondents primarily adjusted through the

intensive margin within menu composition, as shown in *H1 – Reduce Orders*, rather than exiting the market entirely. As such, price increases in the FAFH space might translate into smaller purchases per occasion, even as consumers continue to eat out.

At the same time, respondents do not respond uniformly to price increases across menu items. Our results suggest that price pressure steers choices away from high-price entrées more, but also reduces the likelihood of selecting low-price entrées, which does not provide sufficient support for *H2 – Substitution*. This finding suggests that respondents prefer to reduce the number of items selected rather than simply downgrading quality in response to a price increase. Consistent with that, a recent report by Mathews et al. (2026) notes declining traffic at higher-priced restaurants. This pattern implies that rising costs could reduce demand for traditionally popular yet costly items, even if basic preferences remain unchanged. Understanding which items consumers trade away helps FAFH service providers strategically adjust the menu to avoid sudden declines in demand through subtler strategies. For instance, substituting toward lower-priced menu items or reducing portion sizes of higher-priced items moderates the menu prices presented to consumers (Escoffier, 2025). Beyond price changes, gender, education, income levels, and FAFH frequency are also significant factors in item selection.

Although our findings provide limited support for *H3 – Category Reallocation*, they offer insights into respondent's menu category preferences. Among all menu categories, appetizers are less responsive to price changes. One explanation is that appetizers may be viewed as alternative sources of protein within the traditional entrée category (Kilders et al., 2024; Pellegrini, 2016). As shown by Kilders et al. (2024), appetizer items tend to exhibit more inelastic demand than entrée items, making them less sensitive to price fluctuations. Industry supply-chain data from the food service sector further supports this pattern, indicating that appetizer orders increased by approximately 20% year-over-year in 2025 while other categories declined (LaRocco, 2025). Similarly, respondents are less likely to forego desserts, which is consistent with Klebanov's report (2025), indicating only a 2% decline in dessert orders in 2025, a smaller decline compared to other categories. Our results show that consumers adjust across menu categories asymmetrically and become more flexible in their FAFH item choices.

Despite the price hike, we did not observe a significant difference in total spending before and after the price change. This indifference aligns with a recent report highlighting the FAFH industry's strength and resilience amid elevated inflation and uncertainty (Richter, 2025). 2025 data from the National Restaurant Association also shows that FAFH sales are surpassing price hikes and are projected to reach $1.5 trillion, a new industry record (National Restaurant Association, 2025). At the same time, there is an increased reliance on pickup options (Mathews et al., 2026), indicating that consumers aim to retain the convenience and experiential benefits of FAFH while reducing related costs, such as service charges and tipping. This shift toward lower-cost service channels suggests that price responses might occur not only within menus but also across dining modes. Overall, these pecuniary findings (*H1-H3*) show that rising FAFH prices are unlikely to cause a simple drop in demand; instead, they lead to a re-optimization across menu categories and items.

Our findings are consistent with *H4 – Information Effect*, suggesting that a 10% price-change information alone is sufficient to trigger behavioral adjustments. Indeed, consumers are more likely to respond to salient information (Chetty et al., 2009; Mackowiak & Wiederholt, 2009). As such, clear policy communication and information disclosure can promote policy effectiveness by balancing transparency with potential behavioral responses (Kilders et al., 2025). At the same time, price-related signals are increasingly disseminated through news and social media (e.g., Murphy & Wu, 2026; Kelly et al., 2026), thereby amplifying their salience. Public attention to price changes further increases once those changes are reported in the media (Kagaya et al., 2025). Building on this, consumers may use media information as a signal of future price movements, particularly as more individuals turn to online platforms for purchasing insights (Widmar et al., 2020). In this context, media coverage may serve as a key channel for highlighting both current and future price signals, triggering consumer reactions to perceived cost pressures.

However, we do not have enough evidence to support *H5 – Advanced Adjustments*, implying that consumers' responses to price notice might not be immediate. One explanation relates to habitual behavior[3]. As a growing share of income is allocated to FAFH (Zeballos & Sinclair, 2025), dining out has become a routine in daily food decisions. Our collected responses indicate that, on average,

[3] Habitual behavior is defined as displaying a positive relation between past and current consumption (Becker, 1992).

respondents eat out approximately four times per week. Such habitual consumption shapes spending patterns (Lee & Capps, 2023) and even introduces adjustment costs that may delay responses, even when consumers are informed in advance. On the other hand, consumers may perceive price changes as less transparent in the FAFH sector because it relies on ancillary charges, such as service fees or surcharges (Chu et al., 2020; Joung et al., 2025). Therefore, they may not adjust until the actual price change is realized.

Although there is limited immediate responsiveness to price signals, our results are consistent with *H6 – Difference in Responses*, suggesting that advance notice of changes can facilitate adjustment to shocks. When information is provided in advance, consumers have more time to process and incorporate it into their decisions, reducing the stress caused by scarcity and cognitive constraints (Mullainathan, 2013; Sims, 2003). Considering these findings, the timing and communication of policy are crucial in influencing consumer adaptation. Announcing price-related policies in advance can help smooth consumer reactions by giving them time to form expectations and then adjust their behavior. For FAFH service providers, proactive communication about expected price changes can also help prevent sudden shifts in demand by preparing consumers early.

Conclusion and Limitation

This paper builds on prior literature on FAFH consumption and information effects to study the effects of price changes and various price information provision on consumers' menu ordering behavior. To answer our research questions, we use a BBCE with 18 items and incorporate a partial-within-subject and partial-between-subject design, facing 2,000 U.S. consumers with a simulated dining environment in a full-service restaurant to capture respondents' behavioral changes before and after the price change and across the information received. Our design allows us to construct DID estimates to assess the changes occurring at the item- and category-levels, as well as in the total ordered numbers.

We find that consumers modify the number of items they order, reallocate choices across menu options, and substitute away from higher-priced items in response to price changes. Although they do not adjust immediately upon receiving price-change information, those with advance notice exhibit smoother adjustments over time than consumers experiencing unexpected shocks.

Although our findings are insightful, several limitations should be acknowledged. First, our BBCE design does not capture quantities for each menu item. However, ordering multiple units of a specific item is less likely in our case, as respondents were asked to compose a menu order for themselves. Second, we design balanced menu items across rounds to ensure comparison, which might not fully reflect the real-world changes. Future studies could vary the set of available items and the number of items within each menu category to capture potential reallocation across categories in response to price changes.

Third, Kalaitzandonakes et al. (2024) and Kilders et al. (2025) have shown that information disclosure is key to communicating monetary changes to consumers. While our study explains the source of price changes, the explanation is identical across all respondents. Our responses were collected at a single point in time. We cannot determine whether behavior would change over time, given ongoing uncertainties in the current food supply chain (e.g., Brown et al., 2015; Felix et al., 2020; Widmar et al., 2025; Swanson, 2026). Future studies could extend to include the various factors driving price increases from a long-term perspective. Similarly, price changes are applied uniformly across all items in our design, whereas in real-world settings, they are usually heterogeneous (see Koerber, n.d.).

Lastly, as shown by Kilders et al. (2024) and Caputo (2025), consumers are experiencing more FAFH options than before, whereas our study focuses only on dining in casual full-service restaurants. Alcoholic beverages also constitute an important, high-margin category on FAFH menus, and many consumers report they are willing to purchase these options when dining out (National Restaurant Association, 2023). Future research could incorporate more menu items and dining formats into experimental designs to better mimic a real-world menu.

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Supplemental Information

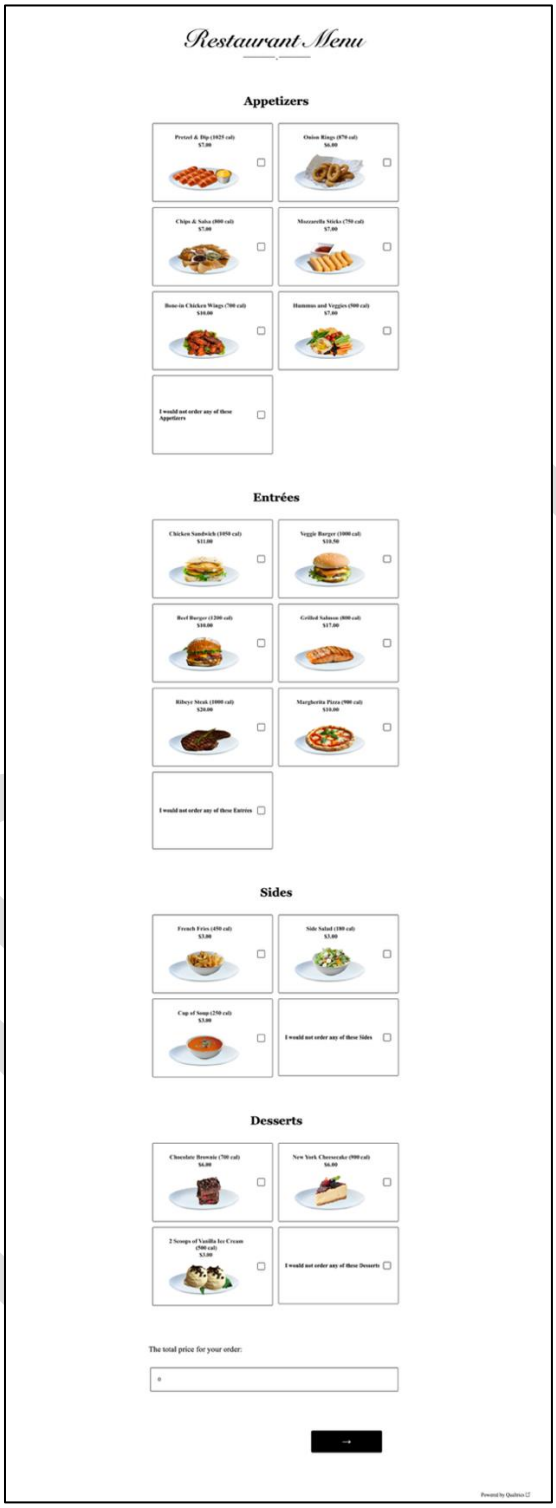

Figure S1 Example of a choice question

Please imagine you are going to a restaurant to have a dine-in dinner.

In what follows, we will present you with **ten choice questions**, where you will be asked to put together a meal order **for yourself** resembling what you would typically order at **a casual full-service restaurant and dine-in** (a dining establishment where customers can be seated at tables and served by waitstaff, providing a complete dining experience from ordering to payment).

The dishes we presented **remain the same** in all ten questions.

When deciding what to order, please keep in mind that you stated earlier you expect to spend 45 dollars at a full-service restaurant when dining in.

How to answer the questions:

- For each scenario, please answer as honestly as possible and in a manner that you think would truly reflect how you would actually order at the prices shown, and the ones you would actually order in a real situation.
- Do not choose a higher priced option unless you would really pay the higher price in the full-service restaurants.
- Prices and Calories are displayed above each item.
- You may select any number of items within each category (Appetizers, Entrées, Sides, and Desserts).
- To remove an item, click it again.
- If you do not want any of the options presented, please click "I would not order any of these Appetizers/ Entrées / Sides/ Desserts" in the respective category.
- At the bottom of the menu, you are presented with the total price of your order.
- You will also be asked to indicate how much you would tip, if at all.

Figure S2 Choice question introduction

Table 0S1 Item-specific price level in two rounds

	Item	Calorie	Price Level - Round 1				Price Level - Round 2			
			1	2	3	4	1	2	3	4
Appetizer										
1	Pretzel & Dip	1025	$7.00	$8.50	$10.00	$11.50	$8.00	$9.50	$11.00	$12.50
2	Onion Rings	870	$6.00	$7.50	$9.00	$10.50	$7.00	$8.50	$10.00	$11.50
3	Chips & Salsa	800	$7.00	$8.50	$10.00	$11.50	$8.00	$9.50	$11.00	$12.50
4	Mozzarella Sticks	750	$7.00	$8.50	$10.00	$11.50	$8.00	$9.50	$11.00	$12.50
5	Bone-in Chicken Wings	700	$10.00	$11.50	$13.00	$14.50	$11.25	$12.75	$14.25	$15.75
6	Hummus and Veggies	500	$7.00	$8.50	$10.00	$11.50	$8.00	$9.50	$11.00	$12.50
Entrees										
1	Chicken Sandwich	1050	$9.00	$11.00	$13.00	$15.00	$10.25	$12.25	$14.25	$16.25
2	Veggie Burger	1000	$10.50	$12.50	$14.50	$16.50	$12.00	$14.00	$16.00	$18.00
3	Beef Burger	1200	$10.00	$12.00	$14.00	$16.00	$11.25	$13.25	$15.25	$17.25
4	Grilled Salmon	800	$17.00	$19.00	$21.00	$23.00	$19.00	$21.00	$23.00	$25.00
5	Ribeye Steak	1000	$20.00	$22.00	$24.00	$26.00	$22.25	$24.25	$26.25	$28.25
6	Margherita Pizza	900	$10.00	$12.00	$14.00	$16.00	$11.25	$13.25	$15.25	$17.25
Side										
1	French Fries	450	$3.00	$4.00	$5.00	$6.00	$3.50	$4.50	$5.50	$6.50
2	Side Salad	180	$3.00	$4.00	$5.00	$6.00	$3.50	$4.50	$5.50	$6.50
3	Cup of Soup	250	$3.00	$4.00	$5.00	$6.00	$3.50	$4.50	$5.50	$6.50
Dessert										
1	Chocolate Brownie	700	$6.00	$8.00	$10.00	$12.00	$7.00	$9.00	$11.00	$13.00
2	New York Cheesecake	900	$6.00	$8.00	$10.00	$12.00	$7.00	$9.00	$11.00	$13.00
3	2 Scoops of Vanilla Ice Cream	500	$3.00	$5.00	$7.00	$9.00	$3.50	$5.50	$7.50	$9.50

Table S2 Summary statistics of basic demographics (Number of observations: 1,003)

Variable	Definition	Mean (SD)
Age	Current age in years	48.38 (18.93)
Female	1 if female; 0 if male	55.51%
Low Income	1 if annual household income lower than $75,000; 0 otherwise	56.90%
Rural	1 if residence in the rural area; 0 otherwise	15.59%
White	1 if white; 0 if others	65.29%
College	1 if obtaining a 4-year college or above; 0 otherwise	36.64%
Married	1 if married; 0 otherwise	41.01%
Kid	1 if having kids in the household	49.60%
FAFH Satisfaction	1 if being satisfied with FAFH options in living area	60.72%
Delivery Availability	1 if delivery app available in living/work area	91.76%
Delivery Usage	1 if using delivery app	71.40%
Price consciousness	Price consciousness	23.71 (6.12)
FAFH Number	The number of eating out per week.	3.95 (3.91)

Table S3 Count regression results across rounds

Variable	Total Number of Items	Number of Appetizers	Number of Entrées	Number of Sides	Number of Desserts
After	-0.11* (0.01)	-0.12* (-0.01)	-0.11* (-0.01)	-0.08* (-0.01)	-0.12* (-0.01)
Female	-0.13* (0.01)	-0.19* (-0.04)	-0.12* (-0.02)	-0.04 (-0.02)	-0.19* (-0.04)
Low Income	-0.12* (0.01)	-0.15* (-0.04)	-0.13* (-0.03)	-0.05* (-0.02)	-0.20* (-0.04)
Rural	-0.12* (0.01)	-0.18* (-0.06)	-0.09* (-0.03)	-0.01 (-0.03)	-0.28* (-0.07)
Unemployed	0.03* (0.01)	0.08 (-0.08)	-0.02 (-0.04)	0.02 (-0.04)	0.04 (-0.09)
College	0.04* (0.01)	0.03 (-0.04)	0.03 (-0.03)	0.02 (-0.03)	0.08 (-0.04)
White	-0.01 (0.01)	-0.02 (-0.04)	-0.01 (-0.03)	-0.01 (-0.03)	-0.01 (-0.05)
Kids	0.19* (0.01)	0.34* (-0.04)	0.07* (-0.03)	0.07* (-0.02)	0.38* (-0.05)
Number of FAFH per week	0.03* (0.00)	0.05* (0.00)	0.03* (0.00)	0.02* (0.00)	0.05* (0.00)
SNAP Benefit	0.21* (0.01)	0.32* (-0.04)	0.10* (-0.03)	0.11* (-0.03)	0.36* (-0.04)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S4 LPM estimates on items across rounds

Variable	**P(selecting high-price items)**	**P(selecting low-price items)**
After	-0.05* (0.00)	-0.03* (0.00)
Female	-0.03* (0.01)	-0.01 (0.01)
Low Income	-0.08* (0.01)	0.01 (0.01)
Rural	-0.02 (0.02)	-0.01 (0.02)
Unemployed	0.03 (0.02)	-0.02 (0.03)
College	0.02 (0.01)	0.00 (0.01)
White	-0.02 (0.01)	0.01 (0.01)
Kids	0.00 (0.01)	0.00 (0.01)
Number of FAFH per week	0.01* (0.00)	0.00* (0.00)
SNAP Benefit	0.01 (0.01)	-0.01 (0.02)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S5 Count regression results on the information effect

Variable	Total Number of Items	Number of Appetizers	Number of Entrées	Number of Sides	Number of Desserts
After:Informed	-0.06* (0.01)	-0.07* (-0.03)	-0.05* (-0.02)	-0.06* (-0.02)	-0.06 (-0.03)
Female	-0.10* (0.01)	-0.14* (-0.04)	-0.10* (-0.03)	-0.03 (-0.03)	-0.16* (-0.05)
Low Income	-0.12* (0.01)	-0.16* (-0.05)	-0.11* (-0.03)	-0.04 (-0.03)	-0.23* (-0.05)
Rural	-0.12* (0.01)	-0.21* (-0.07)	-0.10* (-0.04)	-0.01 (-0.04)	-0.25* (-0.09)
Unemployed	0.04* (0.01)	0.12 (-0.09)	-0.03 (-0.05)	0.03 (-0.05)	0.02 (-0.10)
College	0.05* (0.01)	0.05 (-0.05)	0.05 (-0.03)	0.03 (-0.03)	0.08 (-0.06)
White	-0.03* (0.01)	-0.06 (-0.05)	0.00 (-0.04)	-0.02 (-0.03)	-0.07 (-0.06)
Kids	0.18* (0.01)	0.32* (-0.05)	0.07 (-0.04)	0.07* (-0.03)	0.37* (-0.06)
FAFH Number per week	0.04* (0.00)	0.05* (-0.01)	0.03* (0.00)	0.01* (0.00)	0.05* (0.00)
SNAP Benefit	0.24* (0.01)	0.35* (-0.05)	0.12* (-0.04)	0.14* (-0.03)	0.42* (-0.05)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S6 LPM estimates on items on the information effect

Variable	**P(selecting high-price items)**	**P(selecting low-price items)**
After:Informed	-0.03* (0.01)	-0.02 (0.01)
Female	-0.01 (0.01)	-0.03 (0.02)
Low Income	-0.09* (0.02)	0.03 (0.02)
Rural	0.00 (0.02)	-0.02 (0.02)
Unemployed	0.02 (0.03)	-0.03 (0.03)
College	0.02 (0.02)	0.00 (0.02)
White	-0.01 (0.02)	0.03 (0.02)
Kids	-0.01 (0.02)	0.01 (0.02)
Number of FAFH per week	0.01* (0.00)	0.00 (0.00)
SNAP Benefit	0.03 (0.02)	-0.03 (0.02)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S7 FE results on the total price of the information effect

Variable	**Total Price**
After:Informed	-0.01 (0.84)
Female	-3.73* (1.13)
Low Income	-5.31* (1.31)
Rural	-3.72* (1.38)
Unemployed	0.77 (1.87)
College	2.07 (1.28)
White	-0.90 (1.41)
Kids	5.75* (1.34)
Number of FAFH per week	1.57* (0.22)
SNAP Benefit	8.65* (1.62)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S8 Count regression results on the advanced adjustment

Variable	Total Number of Items	Number of Appetizers	Number of Entrées	Number of Sides	Number of Desserts
After	0.01 (0.01)	0.01 (-0.04)	0.02 (-0.03)	0.02 (-0.03)	0.00 (-0.05)
Female	-0.19* (0.01)	-0.29* (-0.04)	-0.17* (-0.03)	-0.09* (-0.03)	-0.26* (-0.05)
Low Income	-0.14* (0.01)	-0.17* (-0.05)	-0.15* (-0.03)	-0.06* (-0.03)	-0.21* (-0.05)
Rural	-0.11* (0.02)	-0.19* (-0.07)	-0.09* (-0.04)	-0.01 (-0.04)	-0.26* (-0.08)
Unemployed	0.06* (0.02)	0.12 (-0.10)	0.02 (-0.06)	0.02 (-0.06)	0.13 (-0.12)
College	0.04* (0.01)	-0.01 (-0.05)	0.03 (-0.03)	0.04 (-0.03)	0.11* (-0.05)
White	0.00 (0.01)	0.03 (-0.05)	-0.02 (-0.04)	-0.01 (-0.03)	0.01 (-0.06)
Kids	0.21* (0.01)	0.35* (-0.05)	0.09* (-0.04)	0.08* (-0.03)	0.42* (-0.06)
Number of FAFH per week	0.03* (0.00)	0.04* (0.00)	0.02* (0.00)	0.01* (0.00)	0.04* (0.00)
SNAP Benefit	0.20* (0.01)	0.32* (-0.05)	0.09* (-0.04)	0.12* (-0.03)	0.32* (-0.05)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S9 LPM estimates for items on the advanced adjustment

Variable	**P(selecting high-price items)**	**P(selecting low-price items)**
Informed	0.02 (0.01)	-0.01 (0.02)
Female	-0.05* (0.02)	-0.02 (0.02)
Low Income	-0.08* (0.02)	0.01 (0.02)
Rural	-0.01 (0.02)	-0.02 (0.02)
Unemployed	0.04 (0.03)	0.00 (0.04)
College	0.02 (0.02)	0.01 (0.02)
White	-0.04* (0.02)	0.02 (0.02)
Kids	0.01 (0.02)	0.00 (0.02)
Number of FAFH per week	0.01* (0.00)	0.00* (0.00)
SNAP Benefit	0.01 (0.02)	-0.01 (0.02)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S10 LPM estimates for categories on the advanced adjustment

Variable	Choose Appetizers	Choose Entrées	Choose Sides	Choose Desserts
Informed	0.00 (0.02)	0.01* (0.01)	0.00 (0.02)	-0.01 (0.02)
Female	-0.09* (0.02)	-0.03* (0.01)	-0.03 (0.02)	-0.10* (0.02)
Low Income	-0.06* (0.02)	-0.04* (0.01)	-0.03 (0.02)	-0.08* (0.02)
Rural	-0.06* (0.03)	-0.03 (0.02)	-0.01 (0.02)	-0.10* (0.03)
Unemployed	0.04 (0.04)	0.02 (0.03)	-0.01 (0.03)	0.02 (0.04)
College	0.04 (0.02)	0.04* (0.02)	0.03 (0.02)	0.08* (0.02)
White	0.01 (0.02)	0.01 (0.02)	0.01 (0.02)	0.04 (0.02)
Kids	0.18* (0.02)	0.04* (0.01)	0.05* (0.02)	0.21* (0.02)
Number of FAFH per week	0.02* (0.00)	0.00 (0.00)	0.01* (0.00)	0.02* (0.00)
SNAP Benefit	0.16* (0.02)	-0.01 (0.02)	0.05* (0.02)	0.16* (0.02)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S11 FE results on the advanced adjustment

Variable	**Total Price**
Informed	0.59 (1.05)
Female	-7.32* (1.08)
Low Income	-6.07* (1.27)
Rural	-3.68* (1.30)
Unemployed	1.96 (2.10)
College	1.19 (1.19)
White	-0.27 (1.34)
Kids	6.59* (1.39)
Number of FAFH per week	1.45* (0.22)
SNAP Benefit	6.96* (1.53)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S12 Count regression results for various responses

Variable	Total Number of Items	Number of Appetizers	Number of Entrées	Number of Sides	Number of Desserts
After:Informed	-0.11* (0.01)	-0.12* (-0.01)	-0.11* (-0.01)	-0.08* (-0.01)	-0.11* (-0.01)
Female	-0.10* (0.01)	-0.17* (-0.04)	-0.11* (-0.03)	-0.01 (-0.03)	-0.16* (-0.05)
Low Income	-0.12* (0.01)	-0.12* (-0.05)	-0.13* (-0.03)	-0.05 (-0.03)	-0.19* (-0.06)
Rural	-0.11* (0.01)	-0.15* (-0.07)	-0.09* (-0.04)	-0.01 (-0.04)	-0.29* (-0.08)
Unemployed	0.00* (0.02)	0.00 (-0.09)	-0.03 (-0.05)	0.01 (-0.05)	0.02 (-0.11)
College	0.03* (0.01)	0.04 (-0.05)	0.02 (-0.03)	-0.01 (-0.03)	0.06 (-0.05)
White	-0.01* (0.01)	-0.02 (-0.05)	-0.02 (-0.04)	0.00 (-0.03)	0.01 (-0.06)
Kids	0.19* (0.01)	0.34* (-0.05)	0.07 (-0.04)	0.06* (-0.03)	0.35* (-0.06)
Number of FAFH per week	0.04* (0.00)	0.05* (0.00)	0.03* (0.00)	0.02* (0.00)	0.05* (0.00)
SNAP Benefit	0.18* (0.01)	0.28* (-0.06)	0.08 (-0.04)	0.08* (-0.04)	0.32* (-0.06)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S13 LPM estimates for items on various responses

Variable	**P(selecting high-price items)**	**P(selecting low-price items)**
After:Informed	-0.05* (0.00)	0.01 (0.02)
Female	-0.03* (0.01)	-0.01 (0.02)
Low Income	-0.08* (0.02)	0.01 (0.02)
Rural	-0.03 (0.02)	-0.01 (0.03)
Unemployed	0.04 (0.03)	-0.01 (0.02)
College	0.01 (0.02)	-0.01 (0.02)
White	-0.01 (0.02)	0.00 (0.02)
Kids	0.00 (0.02)	0.01* (0.00)
Number of FAFH per week	0.01* (0.00)	0.00 (0.02)
SNAP Benefit	0.00 (0.02)	0.00 (0.00)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.

Table S14 FE results on the total price for various responses

Variable	**Total Price**
After:Informed	-0.83* (0.37)
Female	-4.11* (1.12)
Low Income	-5.11* (1.35)
Rural	-3.80* (1.36)
Unemployed	-0.05 (1.76)
College	1.18 (1.21)
White	-0.27 (1.36)
Kids	5.87* (1.38)
Number of FAFH per week	1.73* (0.21)
SNAP Benefit	6.40* (1.67)

Note: Numbers in parentheses are standard errors. Asterisk denotes statistical significance at the .05 level.