

## Ithaca 2018 Abstract Submission

### Title

The Impact of Information Disclosure on Consumer Behavior:  
Do Calorie Labels on Restaurant Menus Influence Beverage Choice?

### I want to submit an abstract for:

Conference Presentation

### Corresponding Author

Alex Sussskind

### E-Mail

[ams76@cornell.edu](mailto:ams76@cornell.edu)

### Affiliation

Cornell University School of Hotel Administration

### Keywords

Consumer behavior, beverage choice, calorie information on restaurant menus

### Research Question

Does calorie information on restaurant menus in full-service restaurants influence consumers' decision to order food and beverage products?

### Methods

A randomized controlled field experiment in a full-service restaurant; the control group received the normal set of menus and the treatment group received the same menus with calorie counts included.

### Results

We found that calorie information influenced the guests choice of appetizers and several types of non-alcoholic and alcoholic beverages.

### Abstract

The impact of information on consumer behavior is a classic topic in economics, and there has recently been particular interest in whether providing nutritional information leads consumers to choose healthier diets. For example, a nationwide requirement of calorie counts on the menus of chain restaurants in the United States is scheduled to take effect in the U.S. in early 2018, and the results of such information disclosure are not well known, particularly in full service restaurants.

In this study we are interested in seeing how beverage purchases—both alcoholic and non-alcoholic—are influenced by the presence of calorie information on the menu. To test this impact, over the course of 5 months, we conducted a randomized controlled field experiment in a full-service restaurant, in which the control group received the usual set of menus but the treatment group received the same set of menus but with calorie counts included for all items including the beverages.

Our contributions to the literature are the following. First, we conduct a randomized controlled field experiment. Second, we have unusually rich data, with information on individual-level food orders, notes from the servers that indicate when items were shared between patrons, detailed information on the restaurant experience that allow us to control for fixed effects for server, table, and even seat, plus survey data of the patrons. Third, we estimate the impact of menu labeling in a full-service, sit-down restaurant. Fourth, the calorie labels that are our treatment are

designed to be fully compliant with the requirements of the ACA; as a result, they are informative about the effects of the upcoming nationwide menu label requirement. Fifth, we have a relatively large sample size (N=2,553) which gives us the statistical power to detect plausible effect sizes. Collectively, these contributions amount to an important addition to the literature on the impact of this important policy, and more generally to the economic literature on how consumers respond to information.

In sum, we found no detectable impact of the calorie information on total calories ordered, but it does decrease the probability of ordering an appetizer and the number of calories from appetizers. The calorie information also decreases the total amount of carbohydrates and fiber that is ordered. There is no impact of providing calorie information on restaurant revenue, and exposure to the information increases consumers' support for requiring such information disclosure.

To dig a little deeper and look at how each category on the menu was impacted by the calorie labels, we examined the extensive and intensive margins by course; the extensive margin is the probability of ordering any item in that course (drink, appetizer, entrée, dessert) and the intensive margin is the number of calories ordered conditional on ordering any. The results show that the treatment of calorie labels on menus is associated with a 4.0 percentage point (4.9%) reduction in the probability of ordering an appetizer, a 3.3 percentage point (3.6%) reduction in the probability of ordering an entrée, and a 5.5 percentage point (14.7%) INCREASE in the probability of ordering a drink (we define "drink" as a caloric beverage; i.e. we exclude water and diet soda). The point estimate of the effect on ordering a dessert was not statistically significant.

The results of regression of the intensive margin of calories show that the treatment of calorie labels is associated with a reduction of 25.2 calories (11.2%) from drinks. The treatment effects on the intensive margin of calories for other courses were not statistically significant. The marginal effect on the intensive margin for entrees is particularly small: 4.4 calories or 0.4%.

We found that calorie labels increased the probability of ordering a drink by 5.5 percentage points (14.7%) and that they decreased the number of calories per drink ordered by 25.2 (11.2%). We conduct a more detailed analysis to better understand these changes. First, we estimate the effect of calorie labels on the extensive margin and intensive margin of calories for each major category of drinks: non-caloric, non-alcoholic (such as sparkling water or a diet cola); caloric, non-alcoholic (such as cola or juice); and alcoholic (such as wine, beer, or a cocktail). For alcoholic drinks, we limit the sample to those of legal drinking age: 21 years or older. The results for the extensive margin, indicate that there was no significant treatment effect on the probability of ordering any of those categories of drinks. Next, we examine the intensive margin for each of those categories; i.e. the number of calories ordered in that drink category conditional on ordering any. For non-caloric, non-alcoholic drinks this is irrelevant because all drinks have zero calories. Results for the other two categories indicate that, conditional on ordering an alcoholic drink, calorie labels decreased the number of calories ordered of alcoholic drinks by 35.1 (15.1%).

Lastly, we examined the effect of calorie labels on the probability of ordering certain categories of alcoholic drinks: beer, wine, and cocktails. The results indicate that they increase the probability of ordering a beer by 2.8 percentage points or 40.6%.