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# **“Order This, Not That”: Does Nutrition Information on Restaurant Menus Influence Food Choice?**

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## Introduction

With obesity and other diet-related diseases on the rise in the United States (World Health Organization 2010), policymakers are focusing their efforts on helping Americans make “healthier” (often, lower-calorie) food choices. Given the increasing rate of consumption away from home, helping consumers make healthful choices in a restaurant setting has been a primary objective of policymakers. Suggested solutions have included implementing “fat taxes/thin subsidies,” restructuring farm subsidies, and designing information policies to educate restaurant patrons on menu items. The majority of previous research has examined the effects of nutrition labeling (specifically, calorie labeling) on menus, yet there are many gaps/weaknesses which need to be addressed: (1) effects of labeling are still inconclusive, (2) most studies have been conducted in a lab, cafeteria, or fast-food restaurant setting (see Harnack and French 2008) as opposed to a full service, sit-down restaurant, (3) consumers were aware of their participation in an on-going experiment, (4) only numeric nutritional information has been considered, and (5) few, if any, studies have compared the impacts of menu labeling and “fat taxes/thin subsidies” on caloric intake *and* restaurant revenue.

## Objectives

This research will determine:

1. Whether caloric labels in a full-service restaurant influence food choice
2. Whether symbolic calorie labels are more/less influential than numeric calorie labels
3. The economic value of menu labels
4. How effective menu labeling are relative to “fat taxes/thin subsidies” at reducing caloric intake
5. How restaurant revenue is affected by menu labeling and “fat taxes/thin subsidies”

## Data and Experimental Design

### Data Source:

- Daily lunch receipt from the Rancher’s Club restaurant during Fall, 2010
- 1,500 observations
- Diners were unaware of on-going experiment

### Experimental Design:

- Diners were randomly assigned to one of three menus: (1) control menu with no nutritional information, (2) menu with calorie information only, or (3) menu with calorie information *and* a traffic light symbol indicating specific calorie ranges.
- Price intervention occurred at Week 13 in the experiment. The restaurant’s regular prices were used for the first 12 weeks, but prices were increased (decreased) for the last seven weeks on select menu items to mimic “fat taxes” (“thin subsidies”)

## Effects of Policy Options on Caloric Intake, Restaurant Revenue

### Simulated Calorie Impacts

Policy Option	Expected Calories Consumed (kcal/person/entrée)	Change from Status Quo
Status-quo	641.0	
Thin Subsidy	629.5	-11.5
Fat tax	619.0	-22.0
Calorie Label	613.6	-27.4
Calorie + Traffic Light Symbol	585.4	-55.6

### Simulated Revenue Impacts

Policy Option	Expected Revenue (\$/person/entrée)	Change from Status Quo
Status-quo	\$11.19	
Thin Subsidy	\$10.82	-\$0.37
Fat tax	\$11.21	\$0.02
Calorie Label	\$10.97	-\$0.22
Calorie + Traffic Light Symbol	\$10.75	-\$0.44

## Methods

- Discrete choice multinomial logit utility model (studied main entrée choice)
- Probability of choosing item  $j = f(\text{Price}_j, \text{Calories}_j, \text{Menu Category}_j \mid \text{Menu Type})$
- Value of Information for menu labeling formats calculated following Leggett (2002)
- Effects of different menus simulated by changing the estimated parameters in the utility function
- Effects of a “tax” simulated by changing selected prices in the utility function
- Expected calories consumed and restaurant revenue were calculated by a weighted average based on the probability of each item being ordered

## Results

- Simple numeric calorie information only has very modest (if any) effect on choice
- Symbolic nutritional information (traffic light menu) has more pronounced effect on choice; expected to reduce calories consumed by 55 kcal/meal on average
- Menu labels expected to reduce caloric intake more than “fat taxes/thin subsidies”
- Value of information for numeric and symbolic nutritional information on menus is \$0.03/meal and \$0.13/meal, respectively
- Symbolic nutritional information has the most negative influence on restaurant revenue

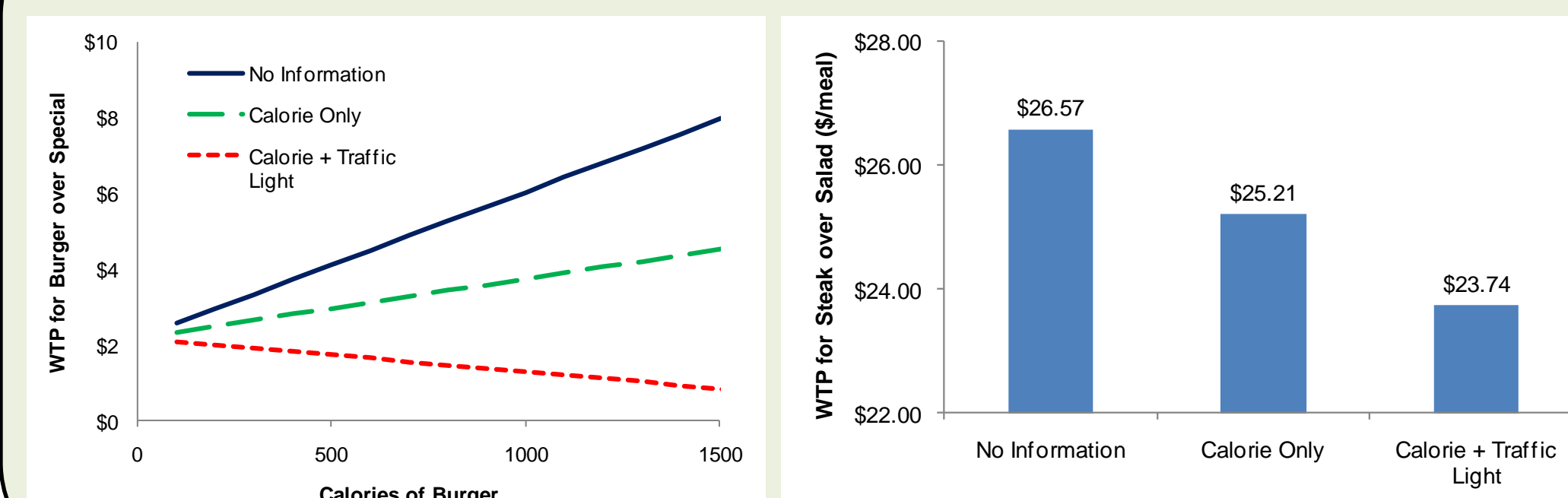
## Conclusions

Results of this field experiment reveal menu labeling can influence food choice; however, the format in which nutritional information is presented does matter. Symbolic nutritional information (traffic light menu) lead to the greatest reduction in calories ordered at 55 kcal/meal, whereas the numeric nutritional information (calorie-only menu) reduced caloric intake by only 27 kcal/meal. While both labeling policies out performed the “fat taxes/thin subsidies” at reducing caloric intake, it is important to note the reductions are still relatively small in magnitude. An individual could reduce caloric intake by 150 calories simply by ordering water instead of a soft drink, almost three times the reduction caused by symbolic nutritional labeling! Another important finding is that while symbolic labeling leads to the greatest calorie reductions, it is also the most detrimental to restaurant revenue (-\$0.44/meal). Consumers’ value of this symbolic information is only \$0.13/meal; this suggests future research should focus on the potential trade-offs between consumer health and restaurant profitability.

## References

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- World Health Organization 2010. *WHO Global Infobase: Indicators: BMI/Overweight/Obesity Prevalence*. <https://apps.who.int/infobase/Indicators.aspx>.

## Willingness to Pay Across Menu Treatments



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