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Is Dietary Knowledge Enough?

Hunger, Stress, and Other Roadblocks To Healthy Eating

Lisa Mancino and Jean Kinsey

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Lisa Mancino and Jean Kinsey

Abstract

Poor diets and rising obesity rates among Americans have persisted despite increased awareness and publicity regarding the benefits of a healthy lifestyle. This analysis of consumer food choice developed a consumer demand model to illustrate how both long-term health objectives and immediate visceral influences—long intervals between meals and away-from-home eating—can affect individuals' food choices. The model predicts that dietary knowledge will have less influence on food choices in the face of immediate visceral factors. The model predictions were tested using data from the 1994-96 Continuing Survey of Food Intake by Individuals and the companion Diet Health and Knowledge Survey. Longer intervals between meals and consumption of more food away from home both contribute to one's consuming more calories and more calories from solid fats, alcohol, and added sugars. Longer intervals between meals are also associated with lower diet quality.

Keywords: behavioral economics, food consumption, obesity, fixed effects, instrumental variables.

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Summary

Poor diets and rising obesity rates among Americans have occurred concurrently with increased awareness and publicity regarding the benefits of a healthy lifestyle. This seeming contradiction provides an opportunity to incorporate elements of behavioral economics into consumer food choice analysis. This report presents a consumer demand model to illustrate how both long-term health objectives and immediate visceral influences—long intervals between meals, eating away from home, or time pressures—can drive individuals' food choices.

What Is the Issue?

A better understanding of how situational factors affect food choices will strengthen public programs aimed at improving diet, health, and nutrition. Knowing when individuals are more likely to forgo health concerns may suggest ways to combat the effect of such situations or to identify commitment mechanisms more in keeping with long-term health goals. And the likely relationship between visceral factors and food choices implies that analysis over shorter time periods, such as per eating occasion, may uncover important information that is hidden when food choices are aggregated over an entire day or more.

What Did the Project Find?

When individuals extend the interval between meals or consume more of their food away from home, they are significantly more likely to consume more calories and more calories from solid fats, alcohol, and added sugars (discretionary calories) at each eating occasion. For example, going 5 hours between meals instead of 4 adds about 52 calories for someone on a diet of 2,000 calories per day; extending that interval from 4 to 6 hours would add about 91 calories to the meal.

Going longer stretches between meals is also estimated to lower diet quality at each meal. The location at which someone makes his or her food choices and when these choices are made significantly affect what and how much is consumed. Not surprisingly, people are estimated to consume more calories when eating foods from a restaurant compared with foods prepared at home—about 107 more calories per meal.

The model suggests that people who work more hours in a week—a proxy for time pressures—are also more influenced by the interval between meals than those who work fewer hours. As an individual who works more hours in a week goes longer between meals, he or she will choose a meal that is significantly higher in calories, higher in discretionary calories, and lower in diet quality. At 4 hours between meals, an individual who works 40 hours a week is estimated to eat about 20 percent more calories than someone who is not employed. At 8 hours between meals, the calorie discrepancy jumps to nearly 40 percent.

Our model shows that a situational change in caloric intake and diet quality is more pronounced among individuals who are less informed about diet and

nutrition. A person with a knowledge score of 50 (from USDA's Diet and Health Knowledge Survey) is estimated to increase per-meal caloric intake by about 28 percent when eating away from home, while a person whose score is 100 points is estimated to eat about only 12 percent more calories.

As people change their dietary goals based on prevailing nutritional beliefs, situational factors like hunger and time pressures will continue to interfere with long-term health objectives. Making specific reference to such situations and suggesting ways to mitigate their effects should enhance the usefulness of educational campaigns designed to improve diet quality. For example, encouraging consumers to take more active control in limiting the interval between meals and choosing nutrient-dense snacks, such as fruits and vegetables, may help them better align their intentions to eat well with their actual behavior. Limiting intake of foods prepared away from home is also estimated to significantly decrease caloric consumption. Thus, another possibility would be to encourage individuals to plan ahead or seek out information about nutrient and caloric content of foods prepared away from home.

How Was the Project Conducted?

A theoretical model of both long-term health objectives and short-term situational factors affecting food choices predicts that when individuals face intense visceral influences, such as hunger or stress, their information about health and nutrition will have a smaller impact. It also predicts that individuals who are less informed about health and nutrition, or face higher levels of stress, will be more likely to eschew their long-term goals when faced with visceral factors such as hunger. These hypotheses are tested using data from the 1994-96 Continuing Survey of Food Intake by Individuals and the companion Diet Health and Knowledge Survey, both administered by USDA. The analysis of choices made at each eating occasion enables the use of a fixed-effects estimator. This then controls for the endogeneity between dietary information and food choices. Instrumental variable estimators further account for endogeneity that may exist between food choices and meal timing.