Commodity Effects of Food Away From Home

James K Binkley
Purdue University
Email: jbinkley@purdue.edu

Yuhang Liu
Purdue University
Email: liu103@purdue.edu

Selected Poster prepared for presentation at the
2015 Agricultural & Applied Economics Association and Western Agricultural Economics
Association Joint Annual Meeting, San Francisco, CA, July 26-28

Copyright 2015 by James K Binkley, Yuhang Liu. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.
Data
We employ two data sets. The first is the National Health and Nutrition Examination Survey (NHANES). The second data set is the USDA Food Intakes Converted to Retail Commodities Database (FICRCD). FICRCD was designed specifically to convert intake data from NHANES and similar sources to retail equivalents. We use NHANES 2003-04, 2005-06, and 2007-08, the latest for which there are specific FICRCD data sets. Foods are grouped into 8 categories and 52 specific commodities. In this post we focus on the 2007-08 survey.

Methods
Respondents were grouped by those who did not eat FAFH during the two day survey period and who did. To obtain estimates, we make an assumption about how consumers who have FAFH would replace their current FAFH consumption. In this initial analysis, we assume they replace total FAFH grams with an equivalent amount of FAH grams. To allocate this to home, we matched their current FAH patterns. This analysis was conducted separately for children and teens (age<18), and adults (age>18), and for liquid and solid foods. Results from these were aggregated to obtain final estimates. We assume any food losses for FAH and FAFH are approximately the same. A more refined analysis may need to account for any differences.

Results

Meat
With the replacement of FAFH by FAH, chicken consumption declines by 21.52%, beef consumption decreases by 11.96% and pork consumption increases by 5.91%.

Dairy
More than 90% of fluid milk and yogurt are consumed at home. Thus eliminating FAFH increases fluid milk consumption by 6% and yogurt consumption by 22%. Cheese is the only dairy commodity to decline, decreasing by 11%.

Vegetables
We find that 39.58% of potatoes and 41.73% of lettuce are consumed at FAFH. When FAFH is eliminated, potato consumption decreases by 22.48% while lettuce consumption declines by 24.86%. Because of this, total vegetable consumption declines with the elimination of FAFH. A somewhat surprising result.

Fruits
Because full-service and fast food restaurants rarely provide fruits on their menus, most fruits are consumed at home. As a result, if FAFH is eliminated, virtually all fruit commodities increase. Apples, bananas and oranges are the top three gainers, each increasing by more than 20%.

Drinks
If FAFH is eliminated, the most significant change is 13% decrease in soft drink consumption. Alcoholic drinks decrease by 8.4%.

Conclusion
In this counterfactually analysis, we have shown that the elimination of food away from home would have large effects on the composition of the American diet. This implies that the growth of FAFH has changed the structure of agricultural production and the nature of food demand.

By comparing results from 2003-04, 2005-06, and 2007-08 in table above, we can see a consistent change across years, implying these patterns are fairly robust.