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Food Expenditures Away From Home by Type of Meal and by Facility

Miaoru Liu

Graduate Student

Department of Agricultural & Resource Economics

University of Tennessee, Knoxville, TN 37996

Phone Number: 865-974-5357

Email: mliu11@utk.edu

Panagiotis Kasteridis

Research Associate

Agricultural Economics

University of Tennessee, Knoxville, TN 37996

Phone Number: 865-974-7426

Email: pkasteri@utk.edu

Steven Yen

Department of Agricultural & Resource Economics

University of Tennessee, Knoxville, TN 37996

Phone Number: 865-974-7466

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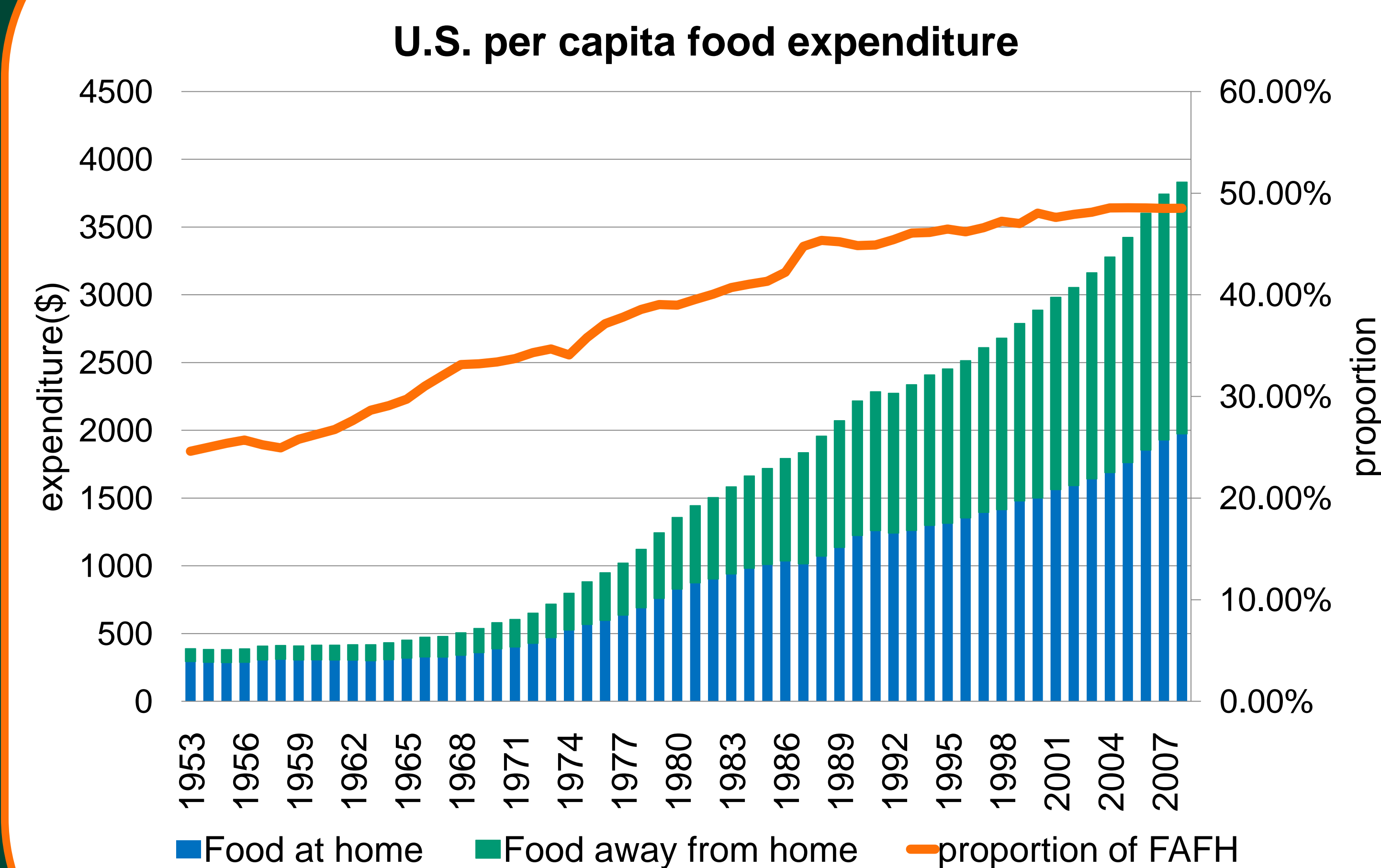
Food Expenditures Away From Home by Type of Meal and by Facility

Miaoru Liu, Panagiotis Kasteridis and Steven T. Yen

Department of Agricultural and Resource Economics, The University of Tennessee, Knoxville, TN 37996-4518



Introduction



Consumer expenditure on food away from home (FAFH) in the U.S. has been growing over the past several decades. Average American households have now devoted a larger proportion of their income to food away from home than ever.

A variety of economic and demographic factors may contribute to these persistent unhealthy eating habits, and the effects of these economic and demographic factors on FAFH may vary with different types of facilities and meals away from home.

There is continued interest among agricultural economists, academicians and policy makers in consumers' FAFH expenditure. This study represents a necessary first step in understanding how and why people's consuming behavior on FAFH and the structure of the foodservice industry are changing.

Objective

To determine the factors that influence consumers' food expenditure patterns away from home (1) by type of meal, i.e., breakfast, lunch and dinner; (2) by type of facility, i.e., at full service restaurants, fast food restaurants, and other commercial facilities, such as vending machines, under new economic environment.



Methods

Due to censoring in the dependent variables, the two sets of FAFH expenditure equations are estimated with the trivariate Tobit approach. For a three-equation system, the trivariate Tobit model is specified as

$$y_i = \max\{0, x_i'\beta_i + u_i\}, i = 1, 2, 3$$

Marginal effect on probability

$$\Pr(y_i > 0) = \Phi(x_i'\beta_i / \sigma_i)$$

conditional mean

$$E(y_i | y_i > 0) = x_i'\beta_i + \sigma_i \frac{\phi(x_i'\beta_i / \sigma_i)}{\Phi(x_i'\beta_i / \sigma_i)}$$

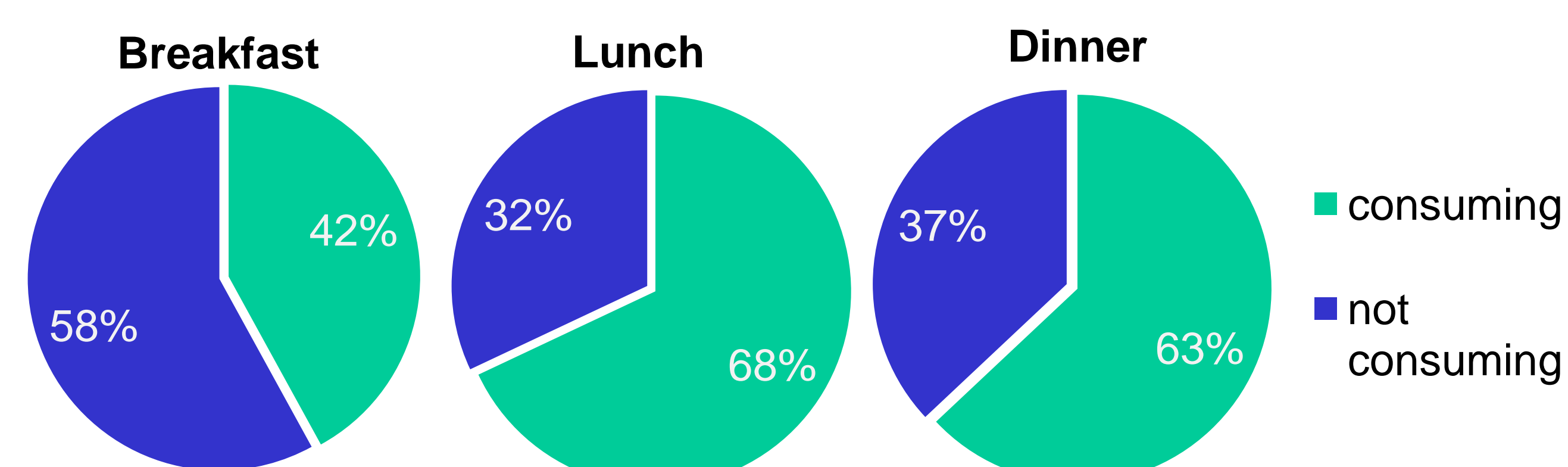
unconditional mean

$$E(y_i) = \Phi(x_i'\beta_i / \sigma_i) x_i'\beta_i + \sigma_i \phi(x_i'\beta_i / \sigma_i)$$

Sample Statistics

Variable	Mean	SD	Variable	Mean
Age < 18	0.62	1.05	Black (ref.)	0.10
Age 18-64	1.54	0.99	Other races	0.06
Age > 64	0.32	0.62	< High school	0.13
Income (\$1,000)	66.24	68.04	High school (ref.)	0.26
Age	49.47	16.97	College	0.50
Hour worked/wk	27.50	21.30	Graduate	0.11
Home owner	0.69		Professional	0.27
FSP	0.06		Administrative	0.07
Below poverty	0.11		Labor	0.12
Urban	0.94		Sales	0.23
MSA	0.87		Unemployed (ref.)	0.31
White	0.84			

Percentages of FAFH consumption by type of meal



By meal	Consuming		By facility	Consuming	
	Full Sample	Sample		Full Sample	Sample
Breakfast	9.14	21.72	Full service rest.	46.51	80.46
Lunch	30.64	45.07	Fast food rest.	37.71	51.74
Dinner	43.22	68.61	Other facilities	9.14	21.72

Results and Discussion

Estimation of the expenditure equations in a system improves statistical efficiency. Most parameter estimates in the Tobit system have higher *t*-ratios. Marginal effects of explanatory variables are shown in the tables.

- Age is negatively significant for all three types of meals, and at fast food restaurants and other facilities.
- Working hours of household manager have positive impact on lunch and dinner, and at both full service and fast food restaurants.
- Education of household manager has positive influence for all meals, and at full service restaurants.

Marginal effect (Full service restaurant)			
Variable	Prob. (x 100)	Level (C)	Level (U)
Income / 10	2.386***	2.556***	3.557***
Hour / 10	1.449**	1.552**	2.160**
Age < 18	-1.089*	-1.167*	-1.623*
Age 18-64	1.872**	2.005**	2.790**
Age > 64	3.618**	3.876**	5.394**
Midwest	-4.250**	-4.474**	-6.196**
< High school	-6.332***	-6.253***	-8.457***
College	4.697***	5.032***	7.000***
Graduate	8.067***	8.911***	12.471***
White	11.574***	11.644***	15.843***
Others	8.763***	8.634***	11.654***
Labor	-9.393***	-9.677***	-13.294***
Home owner	4.515***	4.774***	6.618***
MSA	3.896*	4.081*	5.644*
Male	2.918**	3.132**	4.360**
FSP	-9.336***	-9.417***	-12.839***

Marginal effect (Dinner)			
Variable	Prob. (x 100)	Level (C)	Level (U)
Age / 10	-2.683***	-2.549***	-3.615***
Income / 10	2.222***	2.111***	2.995***
Hour / 10	0.933*	0.886*	1.257*
Age < 18	0.959*	0.911*	1.292*
Age 18-64	4.379***	4.160***	5.901***
Age > 64	4.855***	4.613***	6.543***
South	3.146**	2.997**	4.252**
< High school	-7.839***	-6.795***	-9.508***
College	3.249**	3.131**	4.446**
Graduate	3.414*	3.296*	4.681*
White	6.047***	5.491***	7.746***
Others	4.868*	4.368*	6.152*
Labor	-7.916**	-7.176**	-10.116**
MSA	5.320**	4.865**	6.869**
Male	3.982***	3.796***	5.385***
FSP	-5.744*	-5.195**	-7.324**

- White people generally consume more FAFH than blacks.
- Men are more likely to consume dinner, and FAFH at full service restaurants.
- Income is positively significant for all meals, and at all facilities; households with higher income will spend proportionately more on dinner than breakfast and lunch.
- Household composition also influences all meals away from home, and significantly affects FAFH at full service and fast food restaurants.
- Household in metropolitan area spend more on dinner, and at full service restaurants.

Conclusions



- The primary determinants of FAFH consumption are income, working hours, household composition, education, race and gender.
- Overall, most variables have differentiated effects on FAFH expenditures by type of meal and by facility.
- By type of meal, the most notable effects are observed in the consumption of dinner away from home.
- Education, home ownership and gender have no effect on consumption at fast food restaurants but they increase FAFH consumption at full service restaurant.

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