



United States Department of Agriculture

Timing is Everything: The Role of Time in Fast-food and Sit-down Restaurant Behavior

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Perspectives on Time Use in the U.S. Conference
June 23-24, 2014, Washington, DC

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Research questions

- Food away from home (FAFH) is a growing portion of Americans' budgets, and may contribute to poor diet quality. Better understanding of fast-food purchase behavior can inform nutrition programs and education.
- Questions:
 - What are the associations between time use and fast-food (FF) purchases and sit-down (SD) restaurant visits?
 - What are the eating patterns of FF purchasers and those who go to SD restaurants?
 - What was the impact of the 2007-09 recession on individuals' FF and SD behavior?



Relevant Literature

- Determinants of FAFH demand
 - Becker (1965)
 - Okrent and Alston (2012)
 - Richards and Mancino (2013)
 - Huffman (2011)
- The value of time and the FAFH purchases
 - Davis (2013) – review article
- FAFH and time use
 - Hamermesh (2007)
 - Tashiro (2009)
 - Van der Kippe et al. (2004)
- FAFH and the business cycle
 - Aguiar et al. (2013)
 - Todd (2014)
 - Dave and Kelly (2010)



Data used--American Time Use Survey

- 2003-11 American Time Use Survey data
- Respondents age 18 years old or older
- Excluded bad diaries (TUDQUAL2=1,2,3, or 4)
→ 117,805 respondents
- Primary eating and drinking:
activities 11xxxx and 050202



Data used--American Time Use Survey

- Eating out:

TEWHERE= 4 (restaurant or bar)
 6 (grocery store)
 7 (other store/mall)
 11 (Other place)



Data used--American Time Use Survey

- Fast food/carry out:
 - activity 070103 (food, not grocery)
 - immediately follows a travel activity (180782)

This identifies food purchased as counter service and not at a sit-down restaurant.

→ 11,908 respondents who have at least one reported carry out/fast food purchase (10.1%)
- Sit-down restaurant visit
 - Eating out eating/drinking activities (11xxxx or 050202) NOT fast food/carryout → 23,997 (20.4%)



Data used--American Time Use Survey

- Limitations
 - Based on respondent's reporting of the day
 - nuances of fast-food purchase may be lost
 - May not have vending machine purchases due to short amount of time involved.
 - Cannot distinguish between fast food (limited-service restaurant) and carry out from sit-down restaurant.
 - Do not know what foods or beverages purchased and ate/drank, or even if respondent ate/drank the food/beverages.
 - Do not know respondent's expenditures.
- BUT, ATUS contains information not in food intake or expenditure data.



Time spent in selected activities on an average day, 2003-11—eating/drinking

Minutes	Total population	Fast-food purchasers	Individuals who had a sit-down restaurant visit
Eating & drinking	67.5	57.2	105.4
Eating/drinking out	14.1	16.3	71.0
Eating/drinking elsewhere	53.4	40.9	34.4
<i>Secondary eating 2006-08</i>	23.9	23.1	18.1
<i>Percent who reported primary eating/drinking</i>	95.2%	91.6%	100.0%
N	117,805	15,122	23,997

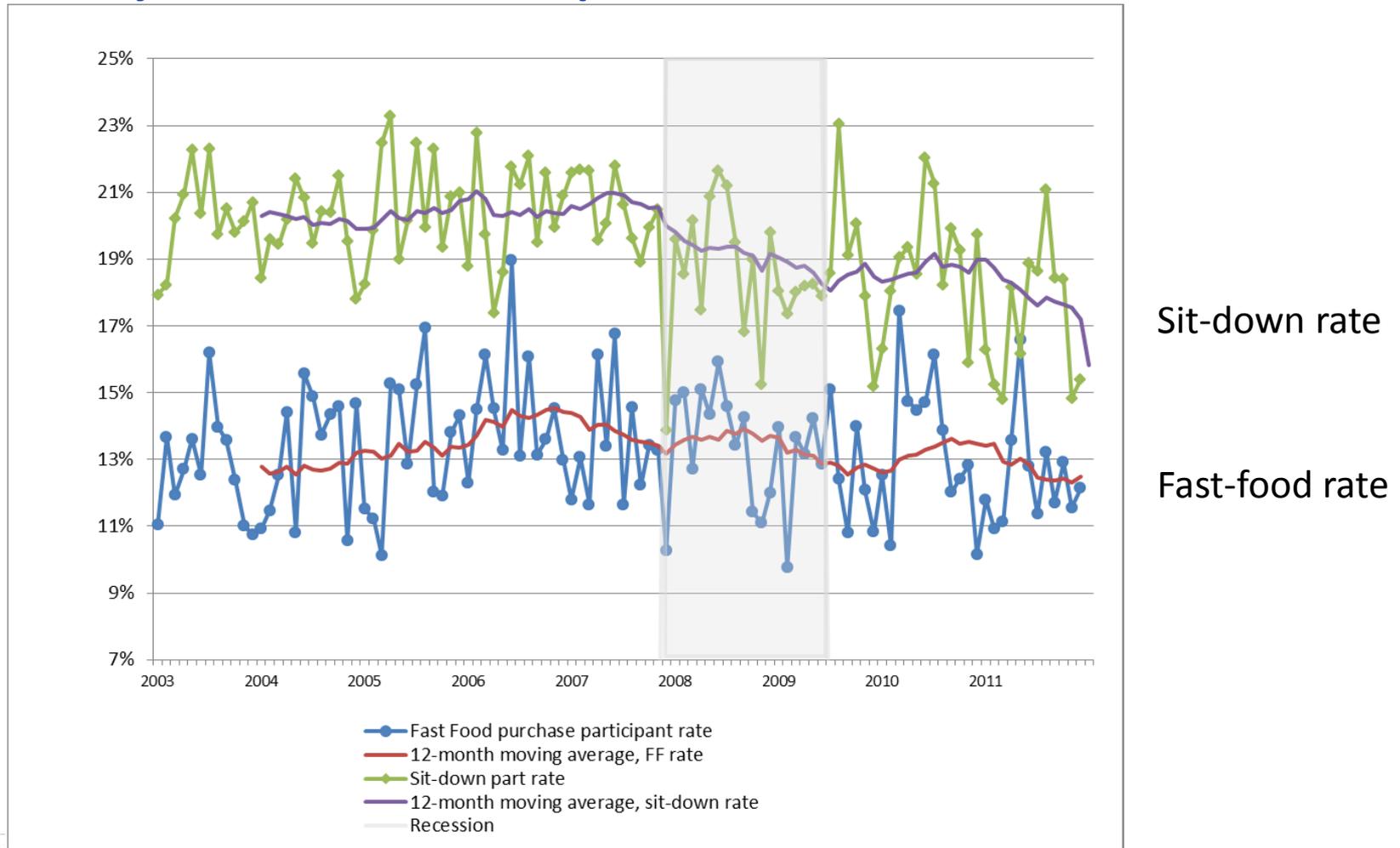


Time spent in selected activities on an average day, 2003-11

Minutes	Total population	Fast-food purchasers	Individuals who had a sit-down restaurant visit
Personal care—sleep	513.9	491.0	500.6
HH-Meal prep & cleanup	33.5	20.0	17.2
HH-other household activities	77.8	60.5	65.3
Caring activities	38.3	41.6	32.5
Working and related	212.8	241.2	180.0
Leisure—watching TV	162.0	131.8	131.5
Travel	74.4	110.7	116.0
N	117,805	15,122	23,997



Rates of Fast-food and Sit-down purchases by US Adult Population, 2003-11



Multivariate analysis

$$P_j = \Pr[y_j = 1 | \mathbf{D}_j, \mathbf{W}_j, \mathbf{M}_{mt}, V_j]$$
$$= \Phi(\mathbf{D}'_j \boldsymbol{\beta}_1 + \mathbf{W}'_j \boldsymbol{\beta}_2 + \mathbf{M}'_{mt} \boldsymbol{\beta}_3 + V_j \beta_4)$$

Where: j = individual

y_j = fast food purchase/sit down visit

\mathbf{D} = demographic, labor force, household characteristics

\mathbf{W} = value of time proxied by time spent in labor market, hh and leisure activities

\mathbf{M} = area market price and other econ var.

V = household income

Φ = cdf, standard normal



Probit results 2003-11, selected marginal effects

Pr[$y_j = 1$] where $y =$	Fast food purchase		Sit-down restaurant visit	
Time use:				
Primary eating/drinking, hours	-0.0340	***	0.1302	***
Worked 1-12 hrs	-0.0181	***	-0.0634	***
Worked > 12 hours	-0.0875	***	-0.0912	***
Personal care time (sleep), hours	-0.0068	***	-0.0004	
Housework (incl. meal prep)	-0.0109	***	-0.0198	***
Travel time, hours	0.0273	***	0.0551	***
Unemployment rate	-0.0023	**	-0.0020	
Meal price (2011\$)	-0.0071	**	-0.0018	
Post December 2007	-0.0013		-0.0075	
Controls, including:				
Employed	0.0240	***	0.0290	***
Income > 200% pov. threshold	0.0196	***	0.0384	***
Weekend/holiday	-0.0009		0.0169	***
...other controls				

Discussion

- Fast food purchasers have different eating patterns than others.
 - Probability of fast-food purchase negatively correlated with time in primary eating/drinking.
 - More likely to report no primary eating/drinking.
 - Same amount or time in secondary eating as others.
- Fast-food purchase negatively correlated with sleep, meal preparation; positively correlated with employment and travel time.
 - Positively correlated with employment, but negatively correlated with hours worked on the average day.



Discussion

- Fast-food purchase behavior in terms of the percent of population purchasing fast food on a given day stayed fairly constant during and after the 2007-09 recession.
- Fast-food purchase negatively related to the unemployment rate and to fast food meal price.
- Sit-down restaurant visits did not seem affected by the unemployment rate, meal price, or the post-December 2007 period. Perhaps other attributes affecting decisions.



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WWI war poster

