The Mindlessness and Mindfulness of Secondary Eating

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Abstract

Since the mid-1970s, obesity has rapidly increased among people in the U.S. Secondary eating is one factor blamed for obesity. Secondary eating is defined as eating while doing something else such as reading or watching TV. We hypothesize that lifestyle is an important moderator of the effect of secondary eating on obesity. Using data from the 2006-8 American Time Use Survey (ATUS), the results indicate that a sedentary lifestyle increases the odds of mindless secondary eating, leading to overeating and obesity.

Keywords: Body Mass Index, secondary eating, sedentary lifestyle, household production theory

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I. Introduction

Since 1975, the prevalence of obesity in the U.S. has rapidly increased; approximately two in three individuals are either overweight or obese (USDA, 2014). In response, researchers have conducted studies to investigate the factors driving excess body weight. Secondary eating is one of those factors blamed for obesity. Especially since the mid-1970s, secondary eating has increased along with obesity (Zick and Stevens, 2011). Secondary eating is defined as eating while doing something else, such as eating while working or driving. In these situations, an individual might not be able to monitor the amount of food eaten. Bellisle and Dalix (2001) show that secondary eating leads to overeating compared to the situation when eating is the primary activity.

The objective of this paper is to further investigate the effect of secondary eating on obesity. The household production theory of Becker paved the way to understand consumers' choices regarding time allocation (Becker, 1965), and health production (Grossman, 1972). Based on the household production theory of Becker (1965), we developed a simplified theoretical model to explain consumers' choices regarding secondary eating and the production of health. Health production and time allocated to eating are affected by economic factors. A high wage increases the opportunity cost of time, suggesting that those consumers engage in secondary eating to economize their time (Hamermesh, 2010). Also, a high wage increases the

expected value of future income (Binkley, 2010), suggesting that those consumers maintain a healthier lifestyle to preserve their income-earning capacity.

The existing literature tackles the issue of secondary eating from different angles. Some studies investigate the effect of economic factors on secondary eating (e.g. Senia et al., 2014). Other studies investigate the effect of secondary eating on body weight (e.g. Hamermesh, 2007; Kolodinsky and Goldstein, 2011). Studies that investigate the effect of secondary eating on obesity are controversial. Some studies find a negative effect of secondary eating on body weight (e.g. Hamermesh, 2010; Zick et al., 2011), whereas other studies find a positive effect (e.g. Bertrand and Schanzenbach, 2009).

Except for Bertrand and Schanzenbach (2009), a potential weakness of previous studies is assuming that secondary eating similarly affects all consumers, leading to overeating and obesity. The assertion of this paper is to relax the assumption that secondary eating similarly affects consumers, identifying situations when secondary eating has a positive relationship with body weight, which we call "mindless," and situations when secondary eating has an inverse relationship with body weight, or "mindful." We hypothesize that lifestyle explains the effect of secondary eating on body weight. Inactive consumers are more likely to engage in mindless secondary eating than those who are active. For example, watching TV for 4 hours increases the odds of mindless secondary eating than watching TV for say half an hour. We test the effect of secondary eating on body weight accounting for sedentary leisure activities (socializing, watching TV, playing games, reading, and using a computer), work, sedentary commute, and physical activities. To account for the cognitive distraction level of the primary task, we break down secondary eating time into eating while grooming, cleaning, preparing food, working, socializing, relaxing, watching TV, reading, and driving an automobile. The intuition is that the

effect of secondary eating on body weight will differ based on the main activity. For example, eating while watching TV might increase the odds of mindless secondary eating more than eating while working or driving.

We use data from the 2006-08 American Time Use Survey (ATUS). A subsample of consumers who participated in the Current Population Survey (CPS) was randomly selected to provide diaries of all activities starting from 4:00 am the day before the interview. The Eating and Heath (EH) module contains information on secondary eating. The results indicate that lifestyle explains the effect of secondary eating on body weight. Maintaining a sedentary lifestyle increases the odds of mindless secondary eating, and therefore contributes to the obesity epidemic. Our findings resolve the issue of the mixed results of previous studies that focus on the effect of secondary eating on obesity. Moreover, our results inform policies to better target individuals with a sedentary lifestyle, to help them develop a healthier lifestyle.

The remaining of this paper is organized as follows. Section II provides the theoretical framework. Section III explains the data, and section IV represents the empirical model. Section V provides the results, and Section VI concludes.

II. Theoretical Model

The objective of this paper is to investigate the effect of secondary eating on obesity, incorporating the effect of economic factors in determining time allocations as well as the production of health. The basic setting of the theoretical model is similar to those in Chen et al., (2002) and Huffman, (2011). Assume preferences can be represented by the following utility function,

$$U = U(H, I, E, L, S, P, Z; N, \tau), \qquad (1)$$

where U is strictly concave and twice differentiable, H is health, I is leisure sedentary activities, E is physical activities, L other leisure time, S is secondary eating, P is primary eating, Z is a composite of other goods, N is the observed characteristics such as education, and τ is the unobserved characteristics such as genes. Health is produced by the following production function,

$$H = H(S, I, E, P; \varphi), \qquad (2)$$

where φ denotes unobserved productivity. In the empirical analysis, we measure health by obesity level. However, it should be noted that obesity is not monotonic because any weight less or higher than the normal range negatively affects health. For simplicity, we keep health more broad due to monotonicity, more health level is better.

Secondary eating has three effects on utility. The first is indirect and positive through increasing leisure, indicating how consumers can economize their time. The increase in leisure can be spent on either household production, paid work, or sedentary activities. The second effect is positive due to the taste and texture of food. The last effect is indirect through health, which depends on lifestyle. A sedentary lifestyle increases the odds of mindless secondary eating more than does an active lifestyle. Moreover, the utility from the taste and texture of food when secondarily eating or primarily eating are assumed to be the same. This assumption is consistent with the findings of (Bellisle and Dalix, 2001). In an experimental setting, Bellisle and Dalix (2001) show that secondary eating does not significantly affect palatability.

Physical activities increase utility through increasing health and decreases utility through feeling fatigue or decreasing leisure. There are two constraints: a budget constraint and a time constraint. The budget constraint is,

$$Z = WM + V, \qquad (3)$$

where W is the wage, M is time allocated to paid work, and V is non-work income. For simplicity, we assume no monetary cost of physical activities, for example, the consumer can run outside for free. The time constraint is,

$$P + I + E + M + L = T, \qquad (4)$$

where T is equal to 24 hours (1440 minutes). Finally, secondary eating is at most equal to the summation of time allocated to paid work, physical activities, and leisure, not including primary eating,

$$M + I + E + L \leq S. \qquad (5)$$

By maximizing (1) subject to (2)-(5), we obtain the demand functions for time allocations.

$$Q_j^* = Q(W, V, N, \tau; \varphi) \ ; \quad j = S, P, I, E, M, L \qquad (6)$$

where Q denotes the demand for time allocated to activity j. The asterisk means that time allocation is at the optimal level. By substituting the optimal time allocation functions in (6) into the health production function in (2), we can determine how lifestyle explains the effect of secondary eating on health.

$$H^* = H(S^*, I^*, E^*, P^*; \varphi), \qquad (7)$$

In the empirical analysis, we focus on (7), using lifestyle to explain the effect of secondary eating on health.

III. Data and Variables

We use data from the 2006-8 American Time Use Survey (ATUS). A proportion of participants in the Current Population Survey (CPS) aged 15 years or older were selected to provide diaries of all activities for 24 hours, starting from 4:00 am the day before the interview. The Eating and Health Module (EH) also provides information on secondary eating and drinking and information on weight and height.

After reporting all activities, participants were asked if they were eating while doing other activities. The same were applied to secondary drinking (see the Eating & Health Module User's Guide (2010) for more information)[1]. Obesity is measured by Body Mass Index (BMI) which equals to weight in kilograms divided by the square of height in meters (kg/m^2). BMI under 18.5 is classified as underweight, between 18.5 and 24.9 is classified as normal weight, between 25 and 29.9 is classified as overweight, and 30 and above is classified as obese. (Centers for Disease Control and Prevention (CDC), 2014). These classifications are for adults age 20 years and older, so we limit the sample to them. It should be noted that being underweight has negative impacts on health. Nonetheless, being underweight has not raised a concern as much as being overweight or obese, so we omit underweight consumers. We limit the analysis to individuals who reported weekly earning and who reported weekly working hours to determine the role of the opportunity cost of time in time allocations and health production. The hourly wage measures the opportunity cost of time.

Leisure sedentary activities are those activities that require more lying and sitting (Sugiyama et al., 2008), including watching TV, reading, computer use, video and board games,

[1] Secondary drinking includes beverages other than plain water. The total time spent secondary eating and drinking was also calculated using the procedure suggested by the USDA (http://www.ers.usda.gov/data-products/eating-and-health-module-(atus)/documentation.aspx)

and sedentary commute[2]. Physical activities include all activities under the category of Sports, Exercise, and Recreation coded in the Lexicon of the ATUS as 1301xx, in addition to active commute, walking and biking. To assure health generation, we only consider sports with a metabolic equivalent of 3 and above (Dunton et al., 2009). We also restrict our analysis to paid work of the main occupation[3]. Secondary eating is the total sum of secondary eating and secondary drinking that occurred while doing other activities.

After investigating secondary eating during the main analysis, we restrict our analysis to activities in which at least 4% of the sample reported eating and drinking while doing them. These activities include washing, dressing and grooming one-self; interior cleaning; work; socializing and communicating with others; relaxing and thinking; reading for personal interest and driving an automobile. We expect secondary eating while watching TV, reading and socializing to increase BMI because these activities are assumed to be more distracting. In contrast, we expect secondary eating while relaxing and thinking to have a negative effect on BMI due to less cognitive distraction.[4] We expect eating while work, driving an automobile, grooming, doing interior household activities to have negative effects on BMI because of less cognitive distraction and less sedentariness.[5]

[2] Due to low variation, we omit other leisure activities: tobacco and drug use; television (religious); listening to the radio; listening to playing music (not radio); arts and crafts and hobby; hobbies, except arts and crafts and collecting; writing for personal interest and not else specified activities.
[3] We omit other jobs because of low variation
[4] The ATUS lexicon activity codes provide examples of relaxing and thinking activities coded as 120301. The examples are: doing nothing/goofing off/wasting time; hanging around/hanging out (alone); resting/relaxing/lounging; sunbathing, worrying/crying; breaks at work, unspecified activity; watching husband assemble lawnmower; sitting in the sauna; sitting in the hot tub/Jacuzzi/whirlpool; reflecting; grieving; sitting around; daydreaming; fantasizing; wondering; watching wife garden; and watching husband cook dinner.
[5] To gauge the sedentarily level we use the metabolic Equivalence Rate (MET). One MET is defined as the energy to sit or lay (Tudor-Locke et al., 2009).

We use dummy variables to control for age, male, black, Hispanic and other race. The omitted groups are white and female. We similarly control for married/cohabitating, education level of high school, some college or a college degree and beyond. The omitted groups are single households and education entailment less than high school. We add a dummy variable that takes a value of 1 if family income in greater than 185% of the poverty income level and 0 otherwise. We add another dummy variable to control for households with missing income. Finally, we control for the number of children age 0-5 years old, and the number of children age 6-17 years old.

Table 1 presents summary statistics of consumers' characteristics. The average BMI is 28 which highlights the high obesity prevalence. On average, consumers spend 88 minutes per day eating while doing other activities. Table 2 presents summary statistics of consumers' time allocations. The average secondary eating time is 2 minutes while grooming, cleaning and preparing food, 36 while working, 14 minutes while watching TV, 1 minute while reading, and 4 minutes while driving. Moreover, on average, consumers allocate 12 minutes to socialize with others, 129 minutes to watch TV, and 76 to commute.

IV. Empirical Model

We apply OLS to test how lifestyle explains the effect of secondary eating on BMI. Our dependent variable is BMI, and our main independent variable is secondary eating time.

$$BMI = \beta_0 + \beta_1 S + X'\delta + \epsilon, \qquad (8)$$

where S denotes secondary eating, X denotes a vector of controls and ϵ denotes the error term. $\beta_0, \beta_1 \; and \; \delta$ are the coefficients to be estimated.

When ignoring lifestyle, we test the null hypotheses that secondary eating does not affect BMI against the alternative hypothesis that secondary eating has a positive effect on BMI,

$$H_0: \beta_1 = 0$$

$$H_1: \beta_1 > 0. \; (9)$$

Rejecting the null hypothesis indicates that secondary eating has an adverse relation with BMI. We hypothesize that lifestyle explains the effect of secondary eating on BMI, so we expand equation (8) to control for aspects of lifestyle.

$$BMI = \beta_0 + \beta_1 S + Z'\delta + \epsilon \qquad (10)$$

where Z denotes a vector of controls and includes aspects of lifestyle. These aspects are leisure sedentary activities, physical activities, paid work, and sedentary commute. The leisure sedentary activities include watching TV, reading, playing games, using a computer, and socializing with others. To determine the effect of lifestyle, we test the null hypothesis of no effect of secondary eating on BMI against the alternative hypothesis as represented in (9). Failing to reject the null hypothesis support our hypothesis that lifestyle explains the effect of secondary eating on body weight.

V. Results

Tables 3-6 present our results. For all specifications, observations are weighted using the Eating and Health Module sample weights. The Variance Inflation Factor (VIF) test indicates that multicollinearity is not a concern. Table 3 represents the OLS estimates of equation (8), estimating the effect of secondary eating time on BMI. Holding other variables constant, secondary eating has a positive effect on BMI.

To test how lifestyle explains the effect of secondary eating on obesity, we estimate equation (10), controlling for different aspects of lifestyle. In column 1 of table 4, we control for leisure sedentary activities including socializing, watching TV, playing games, computer use, and reading. We fail to reject the null hypothesis of no effect of secondary eating on BMI. When controlling for paid work time in column 2, sedentary commute time in column 3, and physical activities in column 4 we reject the null hypothesis.

Results in tables 3 and 4 did not control for the level of cognitive distraction. It is possible that distraction increases the odds of mindless secondary eating regardless of lifestyle. To account for distraction, we estimate the effect of secondary eating while grooming, doing interior household cleaning, food preparation, work, socializing, relaxing and thinking, reading and driving an automobile. Results in table 5 represent the effect of secondary eating time while doing these activities. As expected, eating while grooming, cleaning and relaxing decreases BMI. In contrast, eating while watching TV increases BMI. In table 6, we control for physical activities, and the results are roughly similar to those in table 5.

The results for sedentary lifestyle were as expected, but the results for physical activities were unexpected. Sedentary activities and physical activities independently affect BMI (Dunton et al., 2009; Sugiyama et al., 2008), and so too it was expected that physical activities and

sedentary lifestyle to independently explain the effect of secondary eating on BMI. Our results illuminate the importance of lifestyle regarding eating time on obesity. The results suggest that secondary eating does not directly affect obesity, but that an inactive lifestyle increases the odds of mindless secondary eating. However, the results are preliminary, and the analysis is incomplete. In further analysis, we plan to address a number of issues. Many consumers did not report earnings. This issue of missing values may be solved by imputing earning, using a larger sample from the Current Population Survey (CPS). Since earning is only observed for those who participate in the labor force, there arises an issue of selection bias. Thus, earning will be imputed using the Heckman Two-Stage estimation model (Heckman, 1979). Weight and height are self-reported, so there might be an issue of measurement error. Similar Cawley and Burkhauser (2006), the analysis will consider measurement error using information from the National Health and Nutritional Examination Survey (NHANES). For each observation, the NHANES provides two values of weight and height; one is self-reported, and the other is actual. There is an endogeneity issue when estimating the effect of secondary eating on obesity, controlling for aspects of lifestyle. On one hand, lifestyle affects obesity. On the other hand, obesity affects lifestyle. To reduce endogeneity, we will employ instrumental variables (IVs).

VI. Conclusion

Since the mid-1970s, obesity has rapidly increased among people in the U.S.; approximately two in three adults are either overweight or obese (USDA, 2014). Secondary eating is one factor blamed for obesity. Secondary eating is defined as eating while doing something else such as reading or watching TV. While engaging in secondary eating, consumers are not able to closely monitor the amount of food eaten, leading to overeating and obesity (Bellisle and Dalix, 2001).

We hypothesize that lifestyle explains the effect of secondary eating on obesity. Using data from the 2006-8 American Time Use Survey (ATUS), the results indicate that a sedentary lifestyle increases the odds of mindless secondary eating, leading to overeating and obesity. We also control for the level of distraction by estimating the effect of eating while grooming, cleaning, preparing food, and working, reading and driving and physical activities. We show evidence that lifestyle better explains the effect of secondary eating.

References

Becker, Gary S. "A Theory of the Allocation of Time." *The Economic Journal*(1965): 493-517.

Bellisle, France, and Anne-Marie Dalix. "Cognitive restraint can be offset by distraction, leading to increased meal intake in women." *The American Journal of Clinical Nutrition* 74, no. 2 (2001): 197-200.

Bertrand, Marianne, and Diane Whitmore Schanzenbach. "Time use and food consumption." *The American Economic Review* 99, no. 2 (2009): 170-176.

Binkley, James. "Low income and poor health choices: The example of smoking." *American Journal of Agricultural Economics* (2010): aaq036.

Bureau of Labor Statistics "American Time Use Survey — Activity Coding Lexicons." http://www.bls.gov/tus/lexicons.htm. Accessed 2016.

Cawley, John, and Richard V. Burkhauser. "Beyond BMI: The Value of More Accurate Measures of Fatness and Obesity in Social Science Research."*NBER Working Paper Series* (2006): 12291.

Centers for Disease Control and Prevention. " About Adult BMI" https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html. Accessed 2016.

Chen, Shih-Neng, Jason F. Shogren, Peter F. Orazem, and Thomas D. Crocker. "Prices and Health: Identifying the effects of nutrition, exercise, and medication choices on blood pressure." *American Journal of Agricultural Economics* 84, no. 4 (2002): 990-1002.

Dunton, G. F., D. Berrigan, R. Ballard-Barbash, B. Graubard, and A. A. Atienza. "Joint associations of physical activity and sedentary behaviors with body mass index: results from a time use survey of US adults." *International journal of obesity* 33, no. 12 (2009): 1427-1436.

Hamermesh, Daniel S. "Incentives, time use and BMI: The roles of eating, grazing and goods." *Economics & Human Biology* 8, no. 1 (2010): 2-15.

Heckman, J.J. 1979. "Sample selection bias as a specification error." *Econometrica: Journal of the Econometric Society*:153-161.

Kolodinsky, Jane M., and Amanda B. Goldstein. "Time use and food pattern influences on obesity." *Obesity* 19, no. 12 (2011): 2327-2335.

Huffman, Wallace E. "Household production theory and models." *The Oxford Handbook of Food Consumption and Policy. Oxford* (2011): 35-74.

Grossman, Michael. "On the concept of health capital and the demand for health." *The Journal of Political Economy* (1972): 223-255.

Senia, Mark C., Helen H. Jensen, and Oleksandr Zhylyevskyy. "Time in eating and food preparation among single adults." *Review of Economics of the Household* (2014): 1-34.

Sugiyama, Takemi, Genevieve N. Healy, David W. Dunstan, Jo Salmon, and Neville Owen. "Joint associations of multiple leisure-time sedentary behaviours and physical activity with obesity in Australian adults."*International Journal of Behavioral Nutrition and Physical Activity* 5, no. 1 (2008): 35.

Terza, Joseph V., Anirban Basu, and Paul J. Rathouz. "Two-stage residual inclusion estimation: addressing endogeneity in health econometric modeling." *Journal of Health Economics* 27, no. 3 (2008): 531-543.

Tudor-Locke, Catrine, Tracy L. Washington, Barbara E. Ainsworth, and Richard P. Troiano. "Linking the American Time Use Survey (ATUS) and the compendium of physical activities: methods and rationale." *Journal of Physical Activity and Health* 6, no. 3 (2009): 347-353.

USDA "Eating and Health Module (ATUS). " http://www.ers.usda.gov/data-products/eating-and-health-module-(atus)/documentation.aspx. Accessed 2016.

--- "Eating and Health Module User's Guide. " http://www.ers.usda.gov/media/138567/ap047_1_.pdf. Accessed 2016.

--- "Obesity. " http://www.ers.usda.gov/topics/food-choices-health/obesity.aspx. Accessed 2016.

Zick, Cathleen D., and Robert B. Stevens. "Time spent eating and its implications for Americans' energy balance." *Social Indicators Research* 101, no. 2 (2011): 267-273.

---, Cathleen D., Robert B. Stevens, and W. Keith Bryant. "Time use choices and healthy body weight: a multivariate analysis of data from the American Time Use Survey." *Int J Behav Nutr Phys Act* 8, no. 84 (2011): 10-1186.

Table 1. Summary statistics of consumers' characteristics		
Variable name	Mean	SD
Body Mass Index (kg/m^2)	27.56	5.48
Age (year)	41.24	12.88
Male	0.55	0.50
Black	0.11	0.31
Other race	0.06	0.24
Hispanic	0.14	0.34
Married	0.64	0.48
Income > 185% of Income Poverty Level	0.78	0.42
Missing income	0.12	0.33
High school	0.29	0.45
Some college	0.19	0.39
College degree and beyond	0.33	0.47
Number of children age 0-5 years	0.27	0.61
Number of children age 6-17 years	0.55	0.91
Observations are weighted using the Eating and Health Module sample weights. n= 17,539		

Table 2. Summary statistics of time allocations		
Variable name (Time allocations are in 10 minutes' intervals)	Mean	SD
Secondary eating	8.78	20.56
Secondary eating while grooming	0.23	1.13
Secondary eating while interior household cleaning	0.17	1.69
Secondary eating while food preparation	0.17	1.39
Secondary eating while working	3.68	12.00
Secondary eating while socializing	0.45	2.82
Secondary eating while relaxing	0.12	1.09
Secondary eating while watching TV	1.38	5.45
Secondary eating while reading	0.14	1.13
Secondary eating while driving an automobile	0.42	2.16
Socializing	1.16	4.14
Watching TV	12.88	13.24
Video/board games	0.76	3.99
Computer use	0.64	3.12
Reading	1.42	4.22
Work	32.64	25.28
Sedentary commute	7.59	6.72
Observations are weighted using the Eating and Health Module sample weights. N= 17,539		

Table 3. The effect of secondary eating on BMI

	(1)	(2)	(3)
Dependent variable is Body Mass Index (BMI)			
Secondary eating	0.006**	0.005*	0.005*
	(0.003)	(0.003)	(0.003)
Age	0.039***	0.042***	0.042***
	(0.005)	(0.005)	(0.005)
Male	1.150***	1.135***	1.149***
	(0.113)	(0.112)	(0.112)
Black	1.858***	1.642***	1.617***
	(0.173)	(0.177)	(0.179)
Other race	-0.913***	-0.782***	-0.696***
	(0.242)	(0.238)	(0.242)
Hispanic	0.992***	0.598***	0.683***
	(0.168)	(0.172)	(0.177)
Married		0.174	0.140
		(0.130)	(0.130)
Income > 185% of Income poverty level		-0.371**	-0.335**
		(0.149)	(0.149)
Income missing		-0.215	-0.210
		(0.191)	(0.190)
High school		0.408**	0.387**
		(0.174)	(0.174)
Some college		0.288	0.290
		(0.192)	(0.192)
College degree and beyond		-1.112***	-1.063***
		(0.160)	(0.160)
Number of children age 0-5 years		0.109	0.114
		(0.093)	(0.093)
Number of children age 6-17 years		0.169***	0.175***
		(0.059)	(0.059)
Northeast			-0.547***
			(0.160)
Midwest			-0.075
			(0.144)
West			-0.369**
			(0.157)
Metropolitan area			-0.383**
			(0.155)
Constant	24.997***	25.232***	25.690***
	(0.225)	(0.300)	(0.328)
Observations	17,539	17,539	17,539
R-squared	0.033	0.051	0.053

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Table 4. The effect of secondary eating on BMI

	(1)	(2)	(3)	(4)
Dependent variable is Body Mass Index (BMI)				
Secondary eating	0.004	0.005*	0.005*	0.005*
	(0.003)	(0.003)	(0.003)	(0.003)
Socializing	-0.003			
	(0.010)			
Watching TV	0.024***			
	(0.004)			
Playing games	0.050***			
	(0.017)			
Computer use	0.037			
	(0.024)			
Reading	0.006			
	(0.021)			
work		0.002		
		(0.002)		
Sedentary commute			0.002	
			(0.008)	
Sport				-0.040***
				(0.001)
Active commute				-0.150***
				(0.005)
Age	0.042***	0.042***	0.042***	0.041***
	(0.005)	(0.005)	(0.005)	(0.005)
Male	1.042***	1.140***	1.148***	1.182***
	(0.113)	(0.113)	(0.112)	(0.112)
Black	1.594***	1.615***	1.616***	1.614***
	(0.179)	(0.179)	(0.179)	(0.179)
Other race	-0.679***	-0.700***	-0.696***	-0.688***
	(0.244)	(0.242)	(0.242)	(0.243)
Hispanic	0.720***	0.677***	0.682***	0.693***
	(0.175)	(0.176)	(0.177)	(0.176)
Married	0.173	0.139	0.139	0.115
	(0.129)	(0.130)	(0.130)	(0.130)
Income > 185% of Income poverty level	-0.282*	-0.340**	-0.337**	-0.339**
	(0.150)	(0.150)	(0.150)	(0.150)
Income missing	-0.222	-0.212	-0.210	-0.204
	(0.188)	(0.190)	(0.190)	(0.190)
High school	0.352**	0.386**	0.387**	0.389**
	(0.174)	(0.174)	(0.174)	(0.174)
Some college	0.276	0.293	0.288	0.294
	(0.192)	(0.192)	(0.192)	(0.192)
College degree and beyond	-1.008***	-1.064***	-1.065***	-1.032***
	(0.161)	(0.160)	(0.160)	(0.160)
Number of children age 0-5 years	0.154*	0.115	0.114	0.101

	(0.093)	(0.093)	(0.093)	(0.092)
Number of children age 6-17 years	0.203***	0.176***	0.175***	0.171***
	(0.059)	(0.059)	(0.059)	(0.059)
Northeast	-0.534***	-0.543***	-0.546***	-0.491***
	(0.159)	(0.160)	(0.160)	(0.161)
Midwest	-0.062	-0.073	-0.074	-0.060
	(0.143)	(0.144)	(0.144)	(0.144)
West	-0.358**	-0.368**	-0.368**	-0.345**
	(0.155)	(0.157)	(0.157)	(0.157)
Metropolitan area	-0.398**	-0.384**	-0.384**	-0.386**
	(0.155)	(0.155)	(0.155)	(0.156)
Constant	25.312***	25.637***	25.676***	25.807***
	(0.331)	(0.332)	(0.334)	(0.329)
Observations	17,539	17,539	17,539	17,539
R-squared	0.058	0.053	0.053	0.055
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1				

Table 5. The effect of secondary eating on BMI

	(1)	(2)	(3)
Dependent variable is Body Mass Index (BMI)			
Secondary eating while grooming	-0.086	-0.096*	-0.098*
	(0.056)	(0.056)	(0.055)
Secondary eating while cleaning	-0.042*	-0.048**	-0.047**
	(0.023)	(0.023)	(0.023)
Secondary eating while preparing food	-0.041	-0.038	-0.038
	(0.035)	(0.036)	(0.036)
Secondary eating while work	0.004	0.005	0.005
	(0.005)	(0.005)	(0.005)
Secondary eating while Socializing	-0.002	-0.002	-0.001
	(0.020)	(0.019)	(0.019)
Secondary eating while relaxing	-0.086***	-0.083***	-0.089***
	(0.031)	(0.031)	(0.030)
Secondary eating while watching TV	0.037***	0.032***	0.031**
	(0.012)	(0.012)	(0.012)
Secondary eating while reading	0.041	0.074	0.073
	(0.072)	(0.070)	(0.070)
Secondary eating while driving	0.052	0.052	0.049
	(0.042)	(0.041)	(0.041)
Age	0.039***	0.042***	0.042***
	(0.005)	(0.005)	(0.005)
Male	1.117***	1.102***	1.116***
	(0.114)	(0.113)	(0.112)
Black	1.861***	1.650***	1.628***
	(0.173)	(0.176)	(0.179)
Other race	-0.902***	-0.771***	-0.683***
	(0.242)	(0.238)	(0.242)
Hispanic	1.002***	0.609***	0.698***
	(0.167)	(0.172)	(0.176)
Married		0.183	0.149
		(0.130)	(0.130)
Income > 185% of Income poverty level		-0.370**	-0.334**
		(0.149)	(0.149)
Income missing		-0.218	-0.213
		(0.190)	(0.190)
High school		0.395**	0.374**
		(0.174)	(0.174)
Some college		0.291	0.293
		(0.192)	(0.192)
College degree and beyond		-1.117***	-1.068***
		(0.160)	(0.160)
Number of children age 0-5 years		0.116	0.120
		(0.093)	(0.093)
Number of children age 6-17 years		0.171***	0.178***

		(0.059)	(0.059)
Northeast			-0.532***
			(0.160)
Midwest			-0.058
			(0.144)
West			-0.364**
			(0.156)
Metropolitan area			-0.389**
			(0.155)
Constant	25.018***	25.251***	25.703***
	(0.226)	(0.301)	(0.328)
Observations	17,539	17,539	17,539
R-squared	0.035	0.052	0.055
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1			

Table 6. The effect of secondary eating on BMI

	(1)	(2)	(3)
Dependent variable is Body Mass Index (BMI)			
Secondary eating while grooming	-0.084	-0.094*	-0.096*
	(0.056)	(0.056)	(0.055)
Secondary eating while cleaning	-0.043*	-0.049**	-0.048**
	(0.023)	(0.023)	(0.023)
Secondary eating while preparing food	-0.044	-0.040	-0.040
	(0.035)	(0.036)	(0.036)
Secondary eating while work	0.003	0.004	0.004
	(0.005)	(0.005)	(0.005)
Secondary eating while Socializing	0.000	-0.001	-0.000
	(0.020)	(0.020)	(0.020)
Secondary eating while relaxing	-0.080**	-0.079**	-0.084***
	(0.031)	(0.031)	(0.030)
Secondary eating while watching TV	0.037***	0.032***	0.031**
	(0.012)	(0.012)	(0.012)
Secondary eating while reading	0.042	0.073	0.073
	(0.072)	(0.070)	(0.070)
Secondary eating while driving	0.057	0.056	0.054
	(0.041)	(0.040)	(0.039)
Sport	-0.040***	-0.040***	-0.040***
	(0.001)	(0.001)	(0.001)
Active commute	-0.190***	-0.160***	-0.140***
	(0.006)	(0.005)	(0.005)
Age	0.037***	0.040***	0.041***
	(0.005)	(0.005)	(0.005)
Male	1.153***	1.136***	1.149***
	(0.114)	(0.113)	(0.112)
Black	1.856***	1.643***	1.625***
	(0.173)	(0.176)	(0.179)
Other race	-0.887***	-0.761***	-0.675***
	(0.243)	(0.239)	(0.243)
Hispanic	1.003***	0.618***	0.706***
	(0.167)	(0.171)	(0.176)
Married		0.155	0.124
		(0.130)	(0.130)
Income > 185% of Income poverty level		-0.373**	-0.336**
		(0.149)	(0.149)
Income missing		-0.210	-0.208
		(0.190)	(0.189)
High school		0.397**	0.376**
		(0.174)	(0.174)
Some college		0.295	0.298
		(0.192)	(0.192)
College degree and beyond		-1.082***	-1.036***

		(0.160)	(0.160)
Number of children age 0-5 years		0.102	0.107
		(0.093)	(0.092)
Number of children age 6-17 years		0.167***	0.174***
		(0.059)	(0.059)
Northeast			-0.478***
			(0.161)
Midwest			-0.042
			(0.144)
West			-0.341**
			(0.156)
Metropolitan area			-0.390**
			(0.155)
Constant	25.170***	25.391***	25.820***
	(0.228)	(0.303)	(0.329)
Observations	17,539	17,539	17,539
R-squared	0.038	0.055	0.057
Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1			