

Adjusting to Work Time and Income Reduction:
Change in Household Consumption Behavior and Life Satisfaction

A THESIS
SUBMITTED TO THE FACULTY OF
UNIVERSITY OF MINNESOTA
BY

Jennifer Theodore

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF SCIENCE

Timothy Smith

July 2013

Table of Contents

List of Tables	iii
List of Figures	iv
List of Appendices	v
I. Introduction	1
II. Literature Review	
A. A theory of household production	5
B. Gender, hours of employment and time and expenditure on meal preparation	6
C. Work schedules and outsourcing household tasks	7
D. Attitudinal measures toward convenience food use	8
E. Food consumption by the retired and unemployed	9
F. Income, hours of employment and transportation mode choice	10
G. Demographic and transportation system characteristics affecting travel mode choice	10
H. Factors influencing household trip frequency	12
I. Travel mode choice after unemployment, retirement and key life events	13
J. Habit formation	14
K. Income and life satisfaction	15
L. Time use and life satisfaction	17
M. Trading income for time	19

N. References	23
III. Methods	
A. Sample population and survey administration	30
B. Personal and household characteristics of study participants	32
C. Participation by state and job type	33
D. Furlough characteristics	33
E. Research questions	34
IV. Results	
A. Frequency of reduced work hours and change in household travel and food consumption	43
B. Time and income valuations as moderators of change in life satisfaction when shifting toward slow consumption	75
V. Conclusion	104
References	107
Appendix	114

List of Tables

1. Mean number of furlough days by state	33
2. Mann Whitney test for typical commute and household mode frequency by furlough length	60
3. Odds ratios from binary logistic regression models predicting change in travel mode and trip frequency as a result of furlough time	63
4. Standardized beta values from regression models predicting change in meal type frequency	68
5. Odds ratios for binary logistic regression models predicting life satisfaction stayed the same or increased	96

List of Figures

1. Percentage of employees agreeing to impact to travel mode and trip frequency by furlough length	61
2. Weekly meals from scratch by demographic group and furlough length	66
3. Weekly restaurant meals by demographic group and furlough length	66
4. Weekly convenience food meals by demographic group and furlough length	67
5. Weekly delivery meals by demographic group and furlough length	67
6. Change in meal frequency for all respondents	91
7. Mean change in life satisfaction since furlough began	93
8. Percentage of respondents valuing time as more important to change in behavior	95

List of Appendices

1. Advanced Survey Notice Letter	114
2. Survey Invitation	115
3. First Reminder Letter	116
4. Final Reminder Letter	117
5. Consent Form	118
6. Survey	120
7. Demographic characteristics of participants	147
8. Chi-square test for weekly meals from scratch by demographic group and furlough length	149
9. Chi-square test for weekly restaurant meals by demographic group and furlough length	149
10. Chi-square test for weekly convenience food meals by demographic group and furlough length	149
11. Chi-square test for weekly delivery meals by demographic group and furlough length	150
12. Independent t-test for change in life satisfaction by demographic group and furlough length	151
13. Means and standard deviations for change in life satisfaction by demographic group and furlough length	151

I. Introduction

Work-time reduction has long been upheld as a solution to help individuals balance work and home-life. More recently, work-time reduction has been proposed as a measure to reduce the environmental burden of household consumption. Positive relationships between working hours and ecological impact have been demonstrated at the household and national level (Hayden & Shandra, Hours of work and the ecological footprint of nations: an exploratory analysis, 2009; Kasser & Warren Brown, On Time, Happiness and Ecological Footprints, 2003; Schor J. B., 2005). At the household level, the connection between working hours and environmental impact may manifest itself in two ways. First, as individuals work and earn more, demand for goods and services increases. Second, time-availability may play a significant role in our preferences for goods and services. Long work hours may result in lifestyle practices and preferences for ‘time-buying’ and ‘time-saving’ goods and services that are more environmentally damaging (Hayden & Shandra, Hours of work and the ecological footprint of nations: an exploratory analysis, 2009).

Shelter (heating/cooling plus construction), mobility, and food are the most important consumption categories in the United States for total energy use (Moll, Noorman, Kok, Engstrom, Throne-Holst, & Clark, 2006; Hertwich, 2006). Both transportation and food consumption provide opportunities for individuals to substitute income for personal time in order to ‘buy’ or save time. For example, individuals may cook at home with fresh, home-grown produce or they may want to get a meal on the table as fast as possible so they pick-up a frozen ready to eat meal. One may enjoy taking extra time to ride a bike to visit friends, while another uses a car to accomplish as much as possible during a day-off. Reducing time spent in paid labor may push individuals to substitute their own time to produce household goods and services with lower environmental impact and to consume fewer goods and services over time. A shift to shorter working hours leads to questions regarding how individuals may change their spending and time-use to adjust to new time and income constraints. Demographic differences have been consistently linked to preferences for time-use. Food and travel consumption are ripe for reliance on habit,

which may be more amenable to change if environmental or situational cues are disrupted. Also in question is the effect on quality of life and life satisfaction, as income and time-use have been found to have complex relationships with general life satisfaction.

Findings from two inter-related studies are presented in this thesis. Both studies are inspired by the work-time reduction movement, which aims to reduce time spent in paid labor as a solution to unemployment, work-life conflict and overconsumption at the household level. Through the examination of a sample of 1,452 households, all experiencing varying degrees of employment furlough, ranging from 1 to 108 days between 2009-2011, this research sheds important new insights into the effects of work-time reduction on changing household food and travel consumption habits and how appreciating time as a resource to decreasing consumption contributes to life satisfaction. Specifically, two central questions are posed within this work:

1. How does a shock to time and income resources, in the form of regularly scheduled, temporary unpaid leave, affect household food and travel consumption behavior?
2. How do subjective valuations of time and income as drivers of change in household consumption predict change in life satisfaction during a period of reduced working hours?

I employ a manuscript format in presenting this research, with the first manuscript focused on the first research question and the second manuscript addressing, largely, the second research question. The first manuscript, “Frequency of reduced work hours and change in household travel and food consumption” examines change in household travel and food consumption as reduced hours become more frequent. It is expected that as reduced work hours are greater in number, individuals would reduce their consumption of expensive outsourced meals and consume more home produced meals. Similarly, it is

expected that individuals may be more likely to shift to slower, less convenient, forms of transportation for commuting and household travel or reduce and consolidate household trips. While habit formation and habitual consumption is not directly studied in this research, it is expected that study participants with longer furloughs have stronger informational cues and greater opportunity to establish new consumptive habits.

The second manuscript “Time and income valuations as moderators of change in life satisfaction when shifting toward slow consumption,” examines how an appreciation for the value of time, relative to income, contributes to life satisfaction during a work-time reduction scenario. One of the purported benefits of work-time reduction is that individuals will be able to counterbalance the effect of reduced income by substituting personal time to produce household goods and services formerly purchased in the marketplace. Consumption would slow, but individuals would have time to explore other options for self-provision, as well as more time for pursuing leisure. The question at the heart of work time reduction is how a trade-off between income and time would affect life satisfaction. The relationship between income and life satisfaction at the individual and national levels has been studied extensively. Time-use accounting has been proposed as an alternative indicator as the relationship between income and life satisfaction remains complex. Studies that relate feelings of time-pressure or work-life conflict to a desire for reduced hours or satisfaction with reduced hours may come closest to capturing how time income trade-offs contribute to life satisfaction. However, none of these studies consider how the appreciation for time as a resource, relative to income, is likely influence life satisfaction within the context of a shift to slower consumption rates. I expect that individuals who appreciate their time-availability as a means to produce time-intensive household goods and services would be the most likely to adapt positively to a work-time reduction scenario. Including a measurement that accounts for subjective valuations of the time/income trade-off may add explanatory power to models that predict change in life satisfaction and may illuminate how cultivating an appreciation for time contributes to life satisfaction.

These two stand-alone manuscripts are preceded by a general review of the literature (Chapter II) and overview of methods employed in sampling and survey development (Chapter III). While the content developed in this front matter may be somewhat redundant, in that it is drawn upon in the subsequent manuscripts, it is provided to give the reader a general overview of the key concepts built upon through this work and to present in greater detail important aspects of the study's methodological approach. Finally, conclusions are presented in Chapter 4, linking the important findings from the manuscripts, providing suggestions to academics for future research, and elucidating implications for policy-makers and employers.

II. Discretionary Time & Income: Trade-Offs for Household Production and Effect on Life Satisfaction, A Review of Relevant Literature

A Theory of Household Production

Earlier documentation on the effects of shorter work-days on work/life balance comes from Kellogg's six-hour work day. Workers describe using the extra free-time for activities such as gardening, canning, visiting, sports and family projects. Hunicutt writes that the shortened work day offered a margin of free-time for leisure "that was not "resting to do more work" or for passive "amusement" or mindless consumption (Hunicutt, 1996)." Modern day proponents of work-time reduction envision a shift away from a work to spend lifestyle toward a lifestyle that offers diverse ways to meet one's needs, such as self-provisioning, co-ops, and bartering (New Economic Foundation, 2010; Schor, 2010). In essence, the theory of household production would play out as personal time-cost decreases and it becomes more economical to produce goods and services at home instead of purchasing them on the market place.

At the crux of Becker's economic theory on household production is the idea that households are both producers and consumers. Households combine inputs of time and market goods to produce commodities according to the same cost-minimization rules followed by firms (Becker, 1965). Examples of household production include cooking a meal, growing food in a household garden, repairing a broken appliance or giving a haircut. The price of the home-produced commodity equals the sum of the price of the commodity in the market and the price of invested time (Davidov, 2007). The substitution effect suggests that higher wages induce individuals to spend more time at work because each hour spent away from work represents greater income loss (Reynolds, 2005). An increase in earnings would cause the prices of home-produced commodities to increase with the cost of foregone earnings and induce a substitution away from home-production and increase hours worked in the market.

Gender, hours of employment and time spent on household production

Women's entrance into the market labor force inspired many studies on the relationship between wives' employment status and time spent on household food production, with particular interest in whether there was a positive correlation between hours worked and expenditure on time-buying or time saving goods and services. Gender has significant correlations with time spent on household production. According to Bianchi et al. "all previous research shows that women spend more time in household labor than men (Bianchi, Milkie, & Sayer, 2000)." Several studies have found that working wife families purchase more meals away from home than families with non-working wives (Bellante & Foster, 1984; Darian & Cohen, 1995; Kim, 1989). Yang and Magrabi found that expenditures for meals in restaurants for full-time employed women were higher than for part time (Yang & Magrabi, 1989). In contrast, Nickols and Fox observed that wife's employment was not related to the purchase of meals in restaurants, but income, husband's employment in a high-status occupation and age of the younger child explained restaurant frequency (Nickols & Fox, 1983). Studies have found that working wives do not rely on convenience foods such as canned fruit, meat and vegetables, more than non-working wives (Kim, 1989; Darian & Cohen, 1995). Another found no significant differences in the strategies that working wives use to prepare meals, ie. using frozen meals, if income or family lifecycle was held constant (Strober & Weinberg, 1980). Overall, results from these studies are mixed; some found significant relationships between wives working hours, others not. A review of wife's employment status and expenditure on services states "Thus far, wife's employment has not been found to be a consistent, significant determinant of ...the purchase or ownership of labor-saving durables or foods (Heslop, Madill, Duxbury, & Dowdles, 2007)."

Mancino and Newman looked at time spent on food preparation as a function of working hours, income and other variables that represent time-resources, such as number of adults in the household, whether adults were healthy or unhealthy, time-availability of other adults for meal preparation. Few variables explained the differences in time spent on food preparation amongst men. Among women, being married and having children increased

time spent on food preparation. Working full-time and being a single parent each had a greater impact on time spent on food preparation than individual or household income. Working women spent less time than those who did not work outside the home and single women spent less time than those with partners (Mancino & Newman, 2007). In a study of household heads age 45-55 who were working full time, a doubling of income coincided with a 16% increase in restaurant meals with table service. Income also had a positive, though less elastic, effect on fast food (Aguilar & Hurst, 2005).

Work schedules and food consumption

De Ruijter & Van der Lippe emphasize that studies have repeatedly looked at the number of working hours as a variable affecting outsourcing of household meal production, but have failed to take into account which hours people work. When people work may play an important role in ability to manage domestic tasks. Some household jobs, such as home maintenance and house cleaning, are flexible because individuals have more discretion over when to perform them. Other household tasks, such as cooking meals and childcare, are less flexible and must be completed at specific times. They found that men and women who were able to decide when their work day ended or who could easily take a day off if something unexpected happened were no different in their preferences for outsourcing meal preparation. Women with rotating work schedules outsourced more frequently; rotating schedules may have been indicative of working outside of normal hours or less predictable schedules. Men who worked at home increased their outsourcing, perhaps because the ability to work at home signals a job that is more busy and demanding. Couple whose schedules overlapped were no different than couples with non-overlapping schedules (De Ruijter, 2007).

Noonan, Estes, and Glass conducted a longitudinal study to see how workplace flexibility policies affected husbands and wives time spent in housework (cooking, cleaning, shopping, etc.). None of the workplace flexibility policies affected fathers time spent on housework. Mothers who could set up their own work hours and days did less housework than those who could not. Flexible schedules may have been indicative of non-traditional

hours worked outside of 9-5 and mothers weren't home to manage routine care. Mothers who worked reduced hours, defined as less than 35 hours or chose to work part time, spent more time on housework than those who work full-time. Fathers who worked reduced hours spent less (Noonan, Estes, & Glass, 2007).

Attitudinal measures toward convenience food use

Brunner et al. studied attitudinal measures and their relationship with frequency of convenience food-use when the relationship between employment status and convenience food use was found to be unpredictable. Results showed that age was the strongest predictor for frequency of use. Other significant socio-demographic characteristics were gender, having children and working status. Women consumed less than men; having children and working full time decreased consumption. Concern with naturalness, concern for price and knowledge of nutrition had significant negative relationships. The desire to reduce time spent on cooking was not significant, nor were feelings of time pressure or the desire to minimize mental effort, although wanting to save physical effort was significant. Time spent cooking did not predict convenience food use, which suggests that convenience food items are omnipresent; everyone uses them to some extent and not necessarily to save time (Brunner, van der Horst, & Siegrist, 2010). Darian and Cohen examined perception of time-availability as it related to purchasing frequency of three types of convenience foods. They hypothesized that time-shortage groups valued product characteristics differently. Instead, the two highest priorities for all time-shortage groups was that the product taste good and be healthy; there were no significant differences for any of the other product characteristics. However, the very time-poor considered 4 out of 6 convenience factors as significantly more important than other groups. The very time poor valued not having to plan ahead, little or no preparation, little or no clearing up and another household member usually prepares (Darian & Cohen, 1995).

Food consumption by the retired and unemployed

Aguiar and Hurst examined the relationship between time spent on meal preparation and time spent in paid employment by studying individuals who were either retired or unemployed. In retirement, we see how time spent on meal preparation changes given an anticipated, permanent withdrawal from the labor market. Retirees reduced expenditure by 17% at retirement, yet the quantity of food consumed remained the same. Evidence suggests that retirees substituted time for expenditure. Retirees spent 42% more time shopping and 54% more time cooking than non-retirees. The extra time spent on food production, when valued at half the sample's pre-retirement average wage, was enough to compensate for the decline in expenditure. Evidence suggests that it may take time for individuals to get in the habit of spending time on meal preparation. Men in pre-retirement years (60-62), and peak retirement years (63-65), spent similar amounts of time on food production, but the post-retired (66-68) spent 21 percent more time than those age 60-62. Hurd and Rohwedder looked at time spent on activities with market counterparts, such as housecleaning, washing/ironing and yard work and gardening, by retirees and non-retirees and found that the extra time retirees spent on household production could offset a decline in expenditure, although a decline in work-related expenses could also have explained 5-10% of the decline (Hurd & Rohwedder, 2003).

Examination of specific meal types lead Aguiar and Hurst to speculate that preferences for quality of meal types changes as retirement continues. While retirees made fewer visits to fast food restaurants and cafeterias, frequency of meals at restaurants with table service did not decrease. Data from the 1968 Panel Study of Income Dynamics found that retirees were 9.5% points less likely than non-retirees to reduce expenditure on food "by eating cheaper or lower-quality foods" and were slightly more inclined to report bargain-shopping, cooking their own meals and growing their own food in order to reduce food cost.

In unemployment, we see the effects of an unexpected, temporary withdrawal from the labor market. The unemployed experienced a 19% decline in total food expenditure and

spent 28% more time on food production compared to employed individuals. Expenditures on food away from home dropped 40%. In contrast to retirement, unemployment resulted in a significant decline in quantity of food consumed (Aguilar & Hurst, 2005).

Income, hours of employment and transportation mode choice

Becker's theory on the allocation of time implies that any difference in income per hour between different socio-demographic groups leads to different time costs which are responsible for different travel-mode choices (Becker, 1965). Davidov et al.'s study on travel-mode choice in Germany confirmed that time has a value. Individuals with higher incomes, and hence higher time costs, were more likely to use a personal vehicle than public transportation (Davidov, Schmidt, & Bamberg, 2003). Rajamani et al. found that for high income individuals, an additional minute of walk or bike time was slightly more costly than a minute driving or riding public transportation. Individuals in higher-income households also had a greater tendency to drive alone to non-work activity sites than did individuals in lower-income household, although middle-income individuals carpooled, used public transportation and walked and biked more frequently relative to driving for non-work activities than the lower income category. More frequent multi-modal use amongst the middle-income category may reflect increased time-availability compared to that of the lower income category. Middle income individuals might have more time for leisurely activities such as a walk in the park or bike ride. Higher income households might have more restrictive schedules and want faster modes (Rajamani, Bhat, Handy, Knaap, & Song, 2003).

Demographic and transportation system characteristics affecting travel mode choice

While this study focuses on the effects of time and income on transportation mode choice, it must be acknowledged that many demographic and household characteristics have been found to have significant relationships with mode choice, including number of vehicles per adult, number of children or adults in the household, physical health, and

race. The number of vehicles per adult in the household increased the likelihood of choosing to drive alone. A household with more children (below 16 years of age) was more likely to rideshare. The number of adults in a household indicated a lower propensity to walk. Physically handicapped individuals were more likely to travel with other people and Caucasians had a greater aversion to walking than did individuals from other ethnic backgrounds (Rajamani, Bhat, Handy, Knaap, & Song, 2003). One study found that education had no effect on travel mode choice, although it could have been reflected in different time costs between education classes. Younger and older people were less likely to use a car than people in the middle ages (Davidov, Schmidt, & Bamberg, 2003). Rajamani et al. found that age had a significant positive impact when predicting carpooling for nonwork trips relative to driving alone, taking public transportation, walking and biking. Older individuals may have fewer time constraints and prefer the social aspects of carpooling (Rajamani, Bhat, Handy, Knaap, & Song, 2003). Davidov et al. observed that the effect of demographic characteristics on travel-mode choice surpassed that of time-cost. Bridge assumptions may provide explanations beyond those of time and income that explain travel mode choice for different socio-demographic groups. For example, there may be a difference in technical affinity for males and females that makes driving a personal vehicle more appealing to men. Married people tend to live in less urban areas, where there is less access to public transportation and parking is less of a problem.

Transportation system characteristics that represent convenience and comfort, such as time spent transferring buses and the ratio of walk time to wait time, have been found to significantly affect choice of a personal vehicle for work and shopping trips (Williams, 1978). Exogenous variables such as land use type and mix, accessibility of public transportation, residential and employment density and local street network are significant to the use of public transportation, walking and biking or driving (Saelens, Sallis, & Frank, 2003; Rajamani, Bhat, Handy, Knaap, & Song, 2003).

Factors influencing household trip frequency

Bawa and Ghosh found that employment status had a significant negative relationship with grocery trip frequency, where households with two working adults shopped less than households with no working adults and less than households with one working adult. They reasoned that household income would have a negative effect on number of shopping trips, because of high time-costs, but that the effect would be tempered by the demand-effect of income that would lead to higher consumption levels. Initially, income had the expected negative effects, but was not consistently significant. When they controlled for the number of wage earners, they found that those who earned more shopped less frequently. Retired individuals with high incomes shopped more than retirees with low incomes. Middle income households made fewer trips to the grocery store than higher and lower income categories, regardless of number of wage earners. Middle income households may be the most pressed for time (Bawa & Ghosh, 1999). Empirical data collected after France legalized the 35-hour work week showed that working less boosted short term travel; 28% of workers said that shorter hours allowed them to “travel more on weekends and take short trips.” However, marked distinctions existed: fifty percent of managers reported traveling more frequently, compared to fifteen percent of unskilled workers (Hayden, 2006).

Family size, the presence of children under age sixteen, and age have all been found to have positive relationships with trip frequency. Kitamura, Mokhtarian & Laidet concluded that socio-demographic factors largely determined trip frequency, while neighborhood characteristics such as pleasant streets for walking and biking, good parking, problems with traffic congestion, etc., were more strongly associated with travel mode choice (Kitamura, Mokhtarian, & Laidet, 1997; Bawa & Ghosh, 1999). Bawa and Ghosh expected homeowners to make fewer trips because of increased capacity to hold inventory; home ownership had a negative, yet insignificant effect. Szplett and Kieck found that individuals who lived closer to the city center generated more vehicle trips than those living in the inner or far-suburban areas. Trip frequency was probably encouraged by a greater number of destinations in the city center and low disincentives to

condense trips because short trips did not have a huge travel cost (Szplett & Kieck, 1995).

Travel mode choice after unemployment, retirement and key life events

Studies document how car ownership makes it easier to procure and hold onto employment (Lucas & Nicholson, 2003; Ong, 2002; Onesimo Sandoval, Cervero, & Landis, 2011), but less information exists on transportation mode choice and trip frequency following unemployment. Scheiner and Holz-Rau write that “travel behavior change has been (relatively) neglected in research” (Scheiner & Holz-Rau, 2013). A study using 1950’s household expenditure data from before and during unemployment for a primary worker found that consumption elasticity was the highest for ‘other’, clothing, medical and transportation. Elasticity for a secondary earner was higher in other areas, most likely because it made more sense for them to substitute their own time to make up for lost goods (Grossman, 1973). An Australian study used principle component analysis to classify the unemployed as likely to rely on others for transportation (Delbosc & Currie, 2011).

A German study that looked at change in travel mode use from year to year found that key events were loosely related to change in travel mode use. Starting a job was associated with more driving and less walking, but graduating from school, and starting or completing an apprenticeship had no significant effect on daily trip rates by any mode. Leaving the labor market without retiring was associated with more walking and less public transportation use. Retiring had no significant effect on mode-specific trip frequencies but non-motorized trips made up a larger percentage of mode use. They suggest that the loose connection between life events and change in mode use may be underscored because of a delay-effect, strong habits, or high levels of freedom of choice (Scheiner & Holz-Rau, 2013).

Habit formation

Individuals are likely to rely on habit to make everyday decisions regarding food consumption or travel mode choices because the decisions are recurring and made under stable circumstances. Arts et al. define habit as “the learning of sequences of acts that have become automatic responses to certain situations, which may be functional in order to achieve a given result, or to obtain specific goals (Aarts, Verplanken, & van Knippenberg, 1997).” When an individual first performs an action, he makes decisions about how to carry it out to achieve the desired result. As he repeats the action, decision making recedes and environmental cues trigger the action. Relying on habit reduces mental energy and time spent in reaching a decision. Environmental cues might be time of day, location, mood, presence of others, mood, etc. (Verplanken & Wood, 2006). Work time-reduction could be categorized as an upstream intervention aimed to stop habit development because it hopes to develop social norms and environments that promote a desired action (Verplanken & Wood, 2006). It aims to reduce cues that trigger convenience or ‘fast’ consumption and that may arise when working longer hours.

Research has shown that individuals with strong habits are less likely to seek out or consider new information when situations vary and the behavioral options remain the same. Aarts et al. found that when students were asked to make travel mode choices for hypothetical destinations, and were provided with information about weather conditions, distance, etc., students did not consistently use the information to evaluate the options. Those with weak habits used trip attributes more frequently than those with strong habits. Those with a strong habit of using a bicycle were more likely to choose a bicycle as their travel mode choice (Aarts, Verplanken, & van Knippenberg, 1997). Thogerson found that past behavior is a better predictor of the use of public transportation than attitude towards the use of public transportation (Thogerson, 2006).

In a longitudinal study on the effects of an intervention- a pre-paid bus pass- on student transportation mode choice, Bamberg, Azjen and Schmidt learned that the intervention influenced attitudes, subjective norms and perceived behavioral control toward taking the

bus, and increased bus-taking behavior. A measure of past behavior lost its predictive power after the intervention, which they interpreted as meaning that travel-mode choice is a reasoned decision and that interventions can destabilize situations enough so that past behavior is not a strong predictor (Bamberg, Ajzen, & Schmidt, Choice of Travel Mode in the Theory of Planned Behavior: The Roles of Past Behavior, Habit and Reasoned Action, 2003).

The amount of time it may take for individuals to adopt new food consumption habits may vary widely and depends upon the complexity of the task. Lally et. al asked study participants to adopt a daily eating, drinking or exercise behavior to be performed in conjunction with another activity and found that the average time for automaticity to plateau was 66 days, and ranged between 18 and 254 days. Even though the study encouraged participants to develop habits, roughly half of them did not perform the behaviors frequently enough for habit formation. Ronis, Yates and Kirscht (1988) argued that a behavior is habitual once it is performed at least twice a month for at least 10 times (Lally, Van Jaarsveld, Potts, & Wardle, 2010).

Income and life satisfaction

The effect of income on life satisfaction should be factored in when examining change in life satisfaction during a period of work-time reduction. At the individual level, the correlation between household income and reported general life happiness on a numeric scale (distinct from experienced happiness over time) in U.S. samples typically ranges from $r= 0.15$ to $r= 0.30$. Data from the 2004 General Social Survey revealed that income has a considerable effect on reported happiness. Individuals “with incomes over \$90,000 were nearly twice as likely to report being ‘very happy’ as those with incomes below \$20,000. There was hardly any difference between the highest income group (\$90,000 and over) and those in the next highest group (\$50,000-\$89,000) (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2006).”

When subjective well-being is measured on a real-time basis, the correlation between experienced happiness averaged over the course of the day and income is not as strong. As income rises, people tend to spend more time on work, mandatory non-work activities, such as shopping and childcare, and active leisure. The activities that higher-income individuals spend relatively more of their time engaged in are associated with no greater happiness, on average, but with slightly higher tension and stress, which might help explain why income is more highly correlated with general life satisfaction than with experienced happiness. Tension and stress may accompany goal attainment, which in turn contributes to judgments of life satisfaction more than it does to experienced happiness (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004). A RAND study found that of the four most important contributors to life satisfaction (job or daily activities, social contacts and family, health and income), income had the lowest impact (RAND Corporation, 2009).

Large income effects are particular to general individual life satisfaction and seem to disappear when looking at trends in income/happiness over time. The Easterlin Paradox describes the phenomena where, at the national level, we see relatively stable levels of happiness despite large increase in income (Easterlin R. , 1995). Country-level data has not demonstrated that large increases in income over time are associated with increases in average subjective well-being (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004). At low or moderate levels of consumption, rising income is correlated with a significant improvement in welfare. However, beyond a certain point, the marginal utility of consumption slows and the pursuit of additional income can even diminish quality of life (Costanza, 2007). At the national level “average life satisfaction tends to rise with gross domestic product per capita at low levels of income, there is little or no further increases in life satisfaction once GDP per capita exceeds \$12,000.”

Relative affluence, where individuals constantly compare themselves to their peers, is one explanation for why we do not see income effects on life satisfaction over time. If everybody is getting richer and staying in the same place relative to their peers, then the

effect of income over time would be stable (Brooks, 2008). One study found support for the theory when two-thirds of participants thought they would be happier at a job where they earned more than their co-workers than at a job where they reached their personal salary maximum, but made less than their coworkers (Solnick & Hemenway, 1998). DiTella and MacCulloch support the idea that relative income has a positive effect on happiness, but reject the idea that it has a more important effect than income (Di Tella & MacCulloch, 2008).

Another explanation for the Easterlin Paradox is the “hedonic treadmill” whereby individuals grow accustomed to their current level of income and continually desire more. A 1978 study presented participants with a list of 24 major items, such as a house, international travel, and swimming pool, and asked which items they owned and which they felt they needed for the good life they’d like to have. They asked the same participants the same question 16 years later and found that while they had accrued more of the items on the list, their list of items necessary for ‘the good life’ had also grown (Easterlin R. A., 2003). The Leyden approach measures “the principal of adaptation” by asking individuals what income level they require. In general, studies show that the amount is 40% of the current amount. The required amount will jump up even after a raise (Brooks, 2008). Judgements for what constitutes a sufficient income are informed not only by individual circumstances, such as family size, but current income and past and expected income (van Praag & Frijters, 1999). Effects of the hedonic treadmill and relative affluence may always be present and exerting on life satisfaction; if work-time reduction cannot stop the treadmill, it attempts to slow it down.

Time use and life satisfaction

The United Nation’s Human Development Index, the Genuine Progress Indicator, etc. are recognized as valuable non-economic indicators of national well-being (Vemuri & Costanza, 2006). To the effect that the amount of time spent doing enjoyable activities indicates well-being, Krueger et al. proposed a national time-accounting system. Their day reconstruction method classified time-use activities by whether or not the most

intense feeling experience at the time was negative. They found that time spent on religious activities, sports and exercise, eating and drinking, leisure and socializing had lower levels of negative affect. The correlation between reported life satisfaction and net affect in the PATS was $r = .35$ (Krueger, 2009), which is higher than the typical range for correlations between general life happiness and income for American samples (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2006). Asking for generic, belief-based judgments about time-use activities versus capturing emotions during specific episodic events produces different classifications. Juster measured activity benefits by asking participants to rate how much they enjoy a given activity and observed that interacting with one's children topped the list of enjoyable activities, followed by going on trips with one's friends and working at one's job. In Krueger et al.'s study, taking care of one's children ranked just above some of the least enjoyable activities, such as spending time on the computer, housework, working and commuting. While overall, individuals may get enjoyment out of an activity, the day reconstruction reflects the variety of emotions experienced during specific episodes

Evidence of the effect of work time on life satisfaction can be duplicitous. DiTella and MacCulloch found that hours worked had a significant negative effect on happiness of 350,000 individuals in OECD countries. They estimated that a 1% increase in working hours would have to be compensated with a 2.4% rise in GDP in order to see an increase in happiness (Di Tella & MacCulloch, 2008). In a study by Kasser and Brown, being time affluent seemed to support happiness; the correlation between work hours and happiness was $r = -.14$, $p < .05$. They stress that correlation does not imply causation; for example, unhappy people might work more to escape problems and we do not know if working fewer hours really makes people happier (Kasser & Warren Brown, 2003). One study found that time pressure at work was unrelated to enjoyment of home situations, even though it had a significant negative effect on enjoyment at work (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004). Brooks argues that work in and of itself brings a lot of happiness and meaning to Americans' lives. In 2002, Americans were asked if they would stop working if they were given enough money to live comfortably for the rest of

their lives. Only 39% said they would stop working and 69% said they would continue working. People who work more are likelier to report higher levels of happiness and it is only when working hours exceed the average range do we see negative effects. Having more hours to relax is not related to higher happiness (Brooks, 2008).

Trading time for income

If the previous studies tell us anything, it is that it may be extremely hard to predict how different combinations of income and work-time contribute to life satisfaction and to predict preferences for time spent in paid labor and free-time. Theorists have proposed that at a certain point, the utility of any additional income will be less valuable than free-time, but the ways in which time and income trade-offs are made are highly speculative. Juliet Schor writes that while individuals often say they would trade income for free-time in the future, they rarely do (New Economic Foundation, 2010). In the 2008 American General Social Survey, 11% of workers said they wished they could spend less time in paid labor and 12% said they wished they could spend more time (Brooks, 2008).

Studies have investigated whether certain demographic groups are more willing to trade income for free-time, ie. men and women (Reynolds, 2005; Moen & Dempster-McClain, 1987) or those with children and those without (Reynolds, 2005; Clarkberg & Phyllis, 2001; Jacobs & Gerson, 2000). Reynolds found that women were more likely to want reduced work hours, regardless of whether work/life conflict sprang from work or family life, while men were likely to want reduced hours only if their work life interfered with their personal or family life (Reynolds, 2005). Mothers working full-time or more were more likely to work reduced hours, but preferences amongst men working part, full-time or more were similar (Moen & Dempster-McClain, 1987). Noonan, Estes & Glass write that men and women show equally high levels of interest in work-time flexibility and employers tend to offer it to high-level employees, the majority of which are men. The odds of preferring fewer work hours only slightly increased for women according to number of school or pre-school age children, but not for men (Clarkberg & Phyllis, 2001). The effects of age of the youngest child and number of children were insignificant

in another model predicting preferences for reduced hours (Moen & Dempster-McClain, 1987). Those with higher incomes have been found more willing to reduce their work hours (Reynolds, 2005; Clarkberg & Phyllis, 2001). Clarkberg and Phyllis observed that financial obligations, such as presence of credit card debt predicted a desire for wives to work less and presence of mortgage predicted that husbands or both spouses would say they wanted to work less (Clarkberg & Phyllis, 2001). Reynolds saw that economic rewards were good predictors of work hour preferences. Part-time employees were more often interested in working more and employees who were paid overtime were less interested in reduced hours (Reynolds, 2005). Acknowledgement of work-life conflict had the strongest effect on preference for reduced hours after controlling for effect of gender (Moen & Dempster-McClain, 1987).

Less common are studies on the subsequent effects of work-time reduction on general life satisfaction, and on life satisfaction within different demographic groups. Historical documentation of Kellogg's 6-hour day tells us that women were the last hold-outs for continuing the shortened day. Hayden writes that men and women achieved similar levels of satisfaction with France's 35-hour work week (Hayden, 2006). Parents with younger children were the most positive about the 35-hour week. Fifty-eight percent of parents with a child under age six agreed that the law had made it easier to combine family and work life (Fagnani & Letablier, 2004). Cette, Dromel and Meda found that the use of time made by the shorter working week significantly effected satisfaction; uses such as time for family, rest, household and leisure activities. Citing a lack of time before the shorter work week had a significant effect on satisfaction (Cette, Dromel, & Meda, 2004). Work-place flexibility studies may tell us more about how different work schedules affect life satisfaction via work-life balance. One study looked at the perceived workplace flexibility as indicated by ability for the employee to select the work location, work hour schedule and what work they do and found that paid hours had a negative effect on work life balance and explained the most variance. Occupational level had a negative effect on work-life balance and explained the most variance of all the

demographic variables. Presence of preschoolers had a very slight negative effect, as did time spent in unpaid domestic labor (Hill, Hawkins, Ferris, & Weitzman, 2001).

How and when work-hours are scheduled have been shown to have a significant effect on employee satisfaction (Cette, Dromel, & Meda, 2004). Two years after France instituted a 35-hour work week, 55% of employees on permanent contract felt positively about the law and 50% of those on fixed-term contract felt positively. Parents who had been able to negotiate their work hours viewed work time reduction as having a positive effect on family life. Those working non-standard working hours did not have as positive an experience (Fagnani & Letablier, 2004). The way in which work is organized has been found to be more important to determining views on the effect of work-time reduction than personal characteristics of employees (Doiseneau 2000).

Most of the literature on work-time reduction has focused on salaried professionals. Professionals are more likely to have long work weeks, which are associated with the desire to work less, than are workers with lower skill-levels in other occupations. Lautsch and Scully write “Thirty-seven percent of workers overall express a desire to reduce their work hours, but salaried professionals are more likely to express a desire for reduced hours than are other groups”, probably because they do not face the same repercussions as hourly workers (Lautsch & Scully 2007).

The benefits of time-affluence have been found to be equally available to individuals with a high need to achieve, who are sensation-seeking or desirous of keeping busy because it is enjoyable, challenging or valued. Time affluence may mediate subjective well-being via mindfulness, which is described as not feeling concerned or distracted about the future or past but able to stay “in the present.” More time affluence was associated with enhanced states of mindfulness, which has been demonstrated to enhance well-being. People with higher time affluence also reported experiencing “more autonomy, competence, and feelings of intimacy with others” and spent more time on activities that satisfied psychological needs and therefore well-being (Kasser & Sheldon,

Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence for Four Studies, 2008).

In summary, this literature review provides a broad overview of several factors influencing time spent on household meal production and meal outsourcing, including hours of employment and scheduling of work-time, demographic characteristics, and attitudes towards convenience goods and services. It discusses change in time spent on household food production following major shocks to time and income resources, such as retirement and unemployment, and illustrates a gap in information regarding change in consumption of home-produced and outsourced meals following a shift to reduced hours. The review covers the relationship between hours of employment and travel mode choice and trip frequency, as well as the effects of demographic and exogenous variables on transportation consumption. Again, it illustrates a gap in which empirical evidence for the effect of reduced work hours on transportation mode choice and trip frequency is lacking. The review makes a considerable leap to findings on the relationship between income, discretionary time and life satisfaction. It notes preferences for work-time reduction by different demographic groups and life satisfaction as a result of work-time flexibility or reduced-hours policies. Lastly, it demonstrates that no previous studies have considered how time and income trade-offs within the context of slowing consumption rates may moderate life satisfaction.

References

- Aarts, H., Verplanken, B., & van Knippenberg, A. (1997). Habit and information use in travel mode choices. *Acta psychologica*, 1-14.
- Aguiar, M., & Hurst, E. (2005). Consumption versus Expenditure. *The Journal of Political Economy*, 919-948.
- Ashkanasy, N. M. (2011). International Happiness: A Multilevel Perspective. *The Academy of Management* , 23-29.
- Bamberg, S., Ajzen, I., & Schmidt, P. (2003). Choice of Travel Mode in the Theory of Planned Behavior. *Basic and Applied Social Psychology* , 175-187.
- Bawa, K., & Ghosh, A. (1999). A Model of Household Grocery Shopping Behavior. *Marketing Letters*, 149-160.
- Becker, G. S. (1965). A Theory of the Allocation of Time. *The Economic Journal*, 493-517.
- Bellante, D., & Foster, A. C. (1984). Working Wives and Expenditure on Services. *Journal of Consumer Research*, 700-707.
- Bianchi, S. M., Milkie, M. A., & Sayer, L. C. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, 191-228.
- Blanchflower, D. G., & Oswald, A. J. (2011). International Happiness: A New View on the Measure of Performance . *Academy of Management Perspectives*, 6-22.
- Bohen, H. H., & Viveros-Long, A. (1981). *Balancing jobs and family life: do flexible work schedules help?* Philadelphia: Temple University Press.
- Bonheim, R., & Taylor, M. P. (2004). Actual and Preferred Working Hours. *British Journal of Industrial Relations*, 149-166.
- Brajsa-Zganec, A. (2011). Quality of Life and Leisure Activities: How do Leisure Activities Contribute to Subjective Well-Being? . *Social Indicators Research*, 81-91.
- Brooks, A. C. (2008). *Gross National Happiness: Why Happiness Matters for America- and How We Can Get More of It*. New York: Basic Books .

- Brunner, T. A., van der Horst, K., & Siegrist, M. (2010). Convenience food products. Drivers for consumption. *Appetite*, 498-506.
- Cette, G., Dromel, N., & Meda, D. (2004). The Determinants Behind Employees' Attitudes to the Shorter Working Week. *Économie et Statistique*.
- Clarkberg, M., & Phyllis, M. (2001). Understanding the Time Squeeze: Married Couples' Preferred and Actual Work-Hour Strategies. *American Behavioral Scientist*, 1115-1136.
- Costanza, R. (2007). Quality of Life: An Approach Integrating Opportunities, Human Needs, and Subjective Well-Being. *Ecological Economics*, 267-276.
- Cotte, J., & Ratneshwar, S. (2000). Timestyle and Consuming Time: Why we do what we do with our time. In R. S., D. G. Mick, & C. Huffaman, *The Why of Consumption, Contemporary perspectives on consumer motives, goals and desires*. Routledge.
- Darian, J. C., & Cohen, J. (1995). Segmenting by consumer time shortage. *Journal of Consumer Marketing*, 32-44.
- Darygay, J., & Hanly, M. (2007). Volatility of car ownership, commuting and time in the UK. *Transportation Research Part A*, 934-948.
- Davidov, E., Schmidt, P., & Bamberg, S. (2003). Time and Money: An Empirical Explanation of Behavior in the Context of Travel Mode Choice with the German Microcensus. *European Sociological Review*, 267-280.
- Delbosc, A., & Currie, G. (2011). Journal of Transport Geography. *Transport Problems that matter- social and psychological links to transport disadvantage*, 170-178.
- Di Tella, R., & MacCulloch, R. (2008). Gross national happiness as an answer to the Easterlin Paradox. *Journal of Development Economics*, 22-42.
- Easterlin, R. (1995). Will raising the incomes of increase the happiness of all? . *Journal of Economic Behavior and Organization*, 35-47.
- Easterlin, R. A. (2003). Explaining Happiness. *Proceedings of the National Academy of Sciences*, 11176-11183.
- Ewing, R., & Cervero, R. (2010). Travel and the Build Environment A Meta-Analysis. *Journal of the American Planning Association*, 265-294.
- Grossman, M. (1973). Unemployment and Consumption: Note. *The American Economic Review*, 208-213.

- Gwozdz, W., Reisch, L., & Sousa-Poza, A. (2010). Time Allocation, Consumption and Consumer Policy. *Journal of Consumer Policy*, 115-118.
- Hayden, A. (2006). France's 35-Hour Week: Attack on Business? Win-Win Reform? Or Betrayal of Disadvantaged Workers? *Politics and Society*, 503-542.
- Hayden, A., & Shandra, J. M. (2009). Hours of work and the ecological footprint of nations: an exploratory analysis. *Local Environment*, 575-600.
- Heath, Y., & Gifford, R. (2002). Extending the Theory of Planned Behavior: Predicting the Use of Public Transportation. *Journal of Applied Psychology*, 2154-2189.
- Hertwich. (2006). Accounting for Sustainable Consumption: A Review of Studies of the Environmental Impacts of Households. In T. Jackson, *The Earthscan Reader in Sustainable Consumption* (pp. 88-108). London: James and James Ltd. .
- Heslop, L. A., Madill, J., Duxbury, L., & Dowdles, M. (2007). Doing what has to be done: Strategies and orientations of married and single working mothers for food tasks. *Journal of Consumer Behavior*, 75-93.
- Hill, J. E., Hawkins, A. J., Ferris, M., & Weitzman, M. (2001). Finding an Extra Day a Week: The Positive Influence of Perceived Job Flexibility on Work and Family Balance. *Family Relations*, 49-58.
- Hubbard, R. (1978). A Review of Selected Factors Conditioning Consumer Travel Behavior. *Journal of Consumer Research*, 1-21.
- Hunnicut, B. K. (1996). *Kellogg's Six Hour Day*. Philadelphia: Temple University Press.
- Hurd, M., & Rohwedder, S. (2003). *The Retirement Consumption Puzzle: Anticipated and Actual Declines in Spending at Retirement*. Cambridge: National Bureau of Economic Research.
- Jabs, J., & Devine, C. M. (2006). Time scarcity and food choices: An overview. *Appetite*, 196-204.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwartz, N., & Stone, A. A. (2004). A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method. *Science*, 1776-1780.
- Kahneman, D., Krueger, A. B., Schkade, D., Schwartz, N., & Stone, A. A. (2006). Would You Be Happier If You Were Richer? A Focusing Illusion. *Science*, 1908-1910.

- Kasser, T., & Sheldon, K. M. (2008). Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence for Four Studies. *Journal of Business Ethics*, 243-255.
- Kasser, T., & Warren Brown, K. (2003). On Time, Happiness and Ecological Footprints. In J. de Graaf, *Take Back Your Time: Fighting Overwork and Time Poverty in America* (pp. 107-). San Francisco : Berrett-Koehler Publishers, Inc. .
- Kim, C. (1989). Working Wives' Time-Saving Tendencies: Durable Ownership, Convenience Food Consumption, and Meal Purchases. *Journal of Economic Psychology*, 391-409.
- Kitamura, R., Mokhtarian, P. L., & Laidet, L. (1997). A micro-analysis of land use and travel in five neighborhoods in the San Francisco Bay Area . *Transportation* , 125-158.
- Krueger, A. B. (2009). *Measuring the Subjective Well-Being of Nations*. Chicago: University of Chicago Press.
- Lally, P., Van Jaarsveld, C. H., Potts, H. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, 998-1009.
- Lucas, M. T., & Nicholson, C. F. (2003). Subsidized vehicle acquisition and earned income in the transition to welfare to work. *Transportation*, 483-501.
- Mancino, L., & Newman, C. (2007, May). *Who Has Time to Cook? How Family Resources Influences Food Preparation*. Retrieved December 18, 2011, from United States Department of Agriculture: <http://www.ers.usda.gov/publications/err40/err40.pdf>
- Moen, P., & Dempster-McClain, D. I. (1987). Role Strain, Work Time, and Preferences for Working Less. *Journal of Marriage and Family*, 579-590.
- Moll, H., Noorman, K., Kok, R., Engstrom, R., Throne-Holst, H., & Clark, C. (2006). Pursuing More Sustainable Consumption by Analysing Household Consumption in European Countries and Cities. In T. Jackson, *The Earthscan Reader in Sustainable Consumption* (pp. 67-87). London: James and James Ltd.
- Moller, B., & Thogerson, J. (2008). Car Use Habits: An Obstacle to the Use of Public Transportation? In C. J. Butler, B. Sloth, M. M. Larsen, B. Madsen, & O. A. Nielsen, *Road Pricing, the Economy and the Environment* (pp. 301-313). Springer.

- New Economic Foundation. (2010, February 13). *21 hours: Why a shorter working week can help us all to flourish in the 21st century*. Retrieved January 2011, from New Economic Foundation:
http://www.neweconomics.org/sites/neweconomics.org/files/21_Hours.pdf
- Nickols, S. Y., & Fox, K. D. (1983). Buying Time and Saving Time: Strategies for Managing Household Production . *Journal of Consumer Research* , 197-208.
- Noonan, M. c., Estes, S. B., & Glass, J. L. (2007). Do Workplace Flexibility Policies Influence Time Spent in Domestic Labor? . *Journal of Family Issues*, 263-288.
- Onesimo Sandoval, J., Cervero, R., & Landis, J. (2011). The transition from welfare-to-work: How cars and human capital facilitate employment for welfare recipients. *Applied Geography*, 352-362.
- Ong, P. M. (2002). Car Ownership and Welfare to Work. *Journal of Policy Analysis and Management*, 239-252.
- Parkins, W. (2004). Out of Time: Fast Subjects and Slow Living . *Time & Society*, 363-382.
- Rajamani, J., Bhat, C. R., Handy, S., Knaap, G., & Song, Y. (2003). Assessing Impact of Urban Form Measures on Nonwork Trip Mode Choice After Controlling for Demographic and Level-of-Service Effects. *Transportation Research Record*, 158-165.
- RAND Corporation . (2009, October). Retrieved October 21, 2010, from Working Paper: Comparing Life Satisfaction :
http://www.cgi.rand.org/pubs/working_papers/WR623-1/
- Reynolds, J. (2005). In the Face of Conflict: Work-Life Conflict and Desired Work Hour Adjustments. *Journal of Marriage and Family*, 1313-1331.
- Rosnick, D., & Weisbrot, M. (2006, December). *Are Shorter Work Hours Good for the Environment? A Comparison of U.S. and European Energy Consumption* . Retrieved October 2011, from Center for Economic and Policy Research:
http://www.cepr.net/documents/publications/energy_2006_12.pdf
- Saelens, B. E., Sallis, J. F., & Frank, L. D. (2003). Environmental Correlates of Walking and Cycling: Findings From the Transportation, Urban Design, and Planning Literatures. *The Society of Behavioral Medicine*, 80-91.

- Scheiner, J., & Holz-Rau, C. (2013). A comprehensive study of life course, cohort, and period effects on changes in travel mode use. *Transportation Research Part A: Policy and Practice*, 167-181.
- Schor, J. (1998). Work, Free Time and Consumption: Guest Editor's Introduction. *Time and Society*, 119-127.
- Schor, J. (2010). *Plenitude: the new economics of true wealth*. New York : Penguin Press .
- Schor, J. B. (2005). Sustainable Consumption and Worktime Reduction. *Journal of Industrial Ecology*, 37-50 .
- Solnick, S. J., & Hemenway, D. (1998). Is more always better? A survey on positional concerns. *Journal of Economic Behavior and Organization*, 373-383.
- Strober, M. H., & Weinberg, C. B. (1980). Strategies Used by Working and Nonworking Wives to Reduce Time Pressures. *Journal of Consumer Research* , 338-348.
- Szplett, D., & Kieck, L. T. (1995). Variations of Trip Generation and Trip Distance Within the Urban Area. *Compendium of Technical Papers* (pp. 422-426). Denver: Institute of Transportation Engineers .
- Thogerson, J. (2006). Understanding travel mode choices in a stable context: A panel study approach. *Transportation Research Part A: Policy and Practice*, 621-638.
- van Praag, B. M., & Frijters, P. (1999). The Measurement of Welfare and Well-Being: The Leyden Approach. In D. Kahneman, E. Diener, & N. Schwartz, *Well-Being: The Foundations of Hedonic Psychology* (pp. 413-433). New York: Russel Sage Foundation.
- Veenhoven, R. (2005). Apparent Quality-Of-Life In Nations: How Long and Happy People Live. *Social Indicators Research Group* , 61-86.
- Vemuri, A., & Costanza, R. (2006). The role of human, social, built, and natural capital in explaining life satisfaction at the country level: Toward a National Well-Being Index (NWI). *Ecological Economics*, 119-133.
- Verplanken, B., & Wood, W. (2006). Interventions to Break and Create Consumer Habits . *Journal of Public Policy & Marketing*, 90-103.
- Williams, M. (1978). Factors Affecting Modal Choice Decisions in Urban Travel Some Further Evidence. *Transportation Research* , 91-96.

Yang, S.-J., & Magrabi, F. M. (1989). Expenditure for Services, Wife's Employment, and Other Household Characteristics. *Home Economics Research Journal*, 133-147.

III. Methods

Sample population and survey administration

Mandatory furloughs, in which employees are required to take time off without pay, offered a prime opportunity to examine how different time and income constraints affect change in household consumption and change in life satisfaction. An online survey of state-government employees whose work schedules included regularly scheduled furlough days provided empirical data. A stratified sampling frame provided a regional representation of the United States. States included were California (West/Rockies), Arizona (Southwest), Ohio (Midwest/Great Plains), Maine (Northeast/Mid-Atlantic), and Georgia (Southeast). The initial sampling frame included employees within the education, environmental and fiscal departments. Telephone and written communication with department staff verified each department's furlough schedule. Various reasons excluded departments from the survey population as survey implementation progressed.

Participation in the study was limited to employees who were subject to furlough days at the time of taking the survey. Two groups of state-government employees were surveyed. The first group was subject to mandatory days off without pay by decree of the state legislature. Employees had been furloughed during fiscal years (FY) 2010 and 2011 or only during FY 2011. Fiscal year 2010 ran from July 1, 2009 through June 30, 2010. FY 2011 ran from July 1, 2010 through June 30, 2011. The second group was subject to mandatory days off without pay via participation in the Personal Leave Program as stipulated in a contract agreement between the Service Employees International Union and the state legislature.

Researchers combed department websites to collect employee contact information in Arizona, California and Maine. Public records requests procured contact information for employees in Ohio and Georgia. Collection criteria did not discriminate between full-time employees and those likely to have been exempt from furloughs, including part-time employees, contractors, and retired annuitants. It is uncertain to what degree this affected the response rate. The Georgia State Department of Education and Georgia Office of the

State Treasurer were excluded because they had been subject to furloughs only during FY 10. We excluded the California State Treasurer's Office from the survey population because the department did not provide individual employee e-mail addresses online which made contact information difficult to gather. The extent to which response bias affects the ability to make inferences about the larger furloughed population is also uncertain. Employees who volunteered to participate in the study may have had different experiences during their furlough time than those who did not participate.

Employees within the furlough group received a pre-survey notice one week prior to receipt of the survey invitation. Upon receipt of the pre-survey notice, the Arizona Department of Environmental Quality (AZDEQ) requested that their employees be removed from the survey population. The majority of AZDEQ employees were removed from the survey population with the exception of those who personally responded to the pre-survey notice. The survey was open for thirty-two days. Employees received the first reminder letter eleven days after receiving the survey invitation and the final reminder five days before the survey closed. Employees in the furlough group totaled 7,772. Employees participating in the Personal Leave Program received a pre-survey notice twenty-five days prior to receipt of the survey invitation. The survey was open for ten days. They received one reminder letter three days prior to the survey closing. Employees in the PLP group totaled 1,438. All survey participants had the opportunity to enter in a raffle to win a twenty-five dollar gift certificate to an online retailer. The gift certificate value was set at a minimal value to adhere to rules regarding employee acceptance and reporting of gifts.

The Institutional Review Board at the University of Minnesota approved the study prior to any materials being sent to the survey population. Staff and faculty at the University of Minnesota reviewed the survey for content and to test the online application. An employee from the Ohio Department of Natural Resources volunteered to pilot-test the survey and provided valuable insight into the perspective of the survey population. The

Office of Measurement Services at the University of Minnesota programmed and administered the survey.

The survey consisted of 107 items which asked about furlough and job characteristics, commute and household travel, vacation travel, time spent on leisure and household production activities, food consumption and production, satisfaction within three major life domains (family, job, income), as well as general life satisfaction, general household expenditures, and personal and household demographic data. See Appendix for the survey and supplementary materials.

Personal and household characteristics of study participants

The survey response rate was 16%. The total sample size for data analysis was 1,452. Participants ranged from ages 23-74; the mean age was $M= 47$, $SD=10$. Fifty-eight percent of participants were male. The majority of participants (72%) cited married as their relationship status. Thirty-seven percent of participants resided in a 2-person household. The next most common household sizes were 3, 4 and single-person households, which accounted for 20%, 19% and 13% respectively. Forty-one percent of households reported the presence of children under the age of 18. Of those reporting the age of their youngest child, 42% had children under the age of six. The majority of respondents had completed some form of higher education; 40% completed college and 36% had completed a graduate or professional program. Twelve percent reported yearly household incomes of \$49,999 or less. About 50% of participants reported incomes between \$50,000 and \$99,999. Sixteen percent reported \$100,000-\$124,999 and 16% reported \$125,000 or more. White/Non-Hispanic employees made up 80.9% of the population, Asian and Asian Americans account for 6.7%, Black or African Americans for 4.5%, Hispanic/Latino/Latina for 3.2% and two or more races/multiracial for 2.3%. Other, Native American or Alaskan natives and native Hawaiians and Pacific Islanders accounted for the remaining 3%. See Appendix for demographic characteristics of participants.

Participation by state and job type

California had the most representatives in the survey population (n= 537), followed by Ohio (n= 515), Georgia (n= 318), Maine (n= 73) and Arizona (n=9). Eighty-two percent of participants worked in an environmental department, 17% in education, and 8% in treasury departments. The majority of survey participants identified their job category as professional (60.7%), followed by official/administrators (12.9%), office and clerical workers (7.6%), others (6.9%), technicians (5.3%) and protective service workers (4%). Paraprofessionals, service-maintenance workers, skilled craft workers and faculty made up the remaining 2.4%. Eighty-three percent of employees typically worked five days a week, 9% worked a four-day work week, and 6% a six-day week.

Furlough Characteristics

Table 1. Mean number of furlough days by state

State	Furlough Length	
	M (SD)	N
Arizona	12 (3)	9
California	68 (32)	469
Georgia	10 (5)	301
Maine	29 (5)	73
Ohio	28 (5)	506

Furlough time ranged from 1 to 108 days (See Table 1 for mean number of furlough days by state). Twenty-six percent of participants in the furlough group reported being furloughed for one fiscal year while the majority of participants (74%) were furloughed for two fiscal years. Participants in the Personal Leave program were under contract for one year. When asked how their furlough dates were chosen, 41% of respondents reported that they chose some dates and their employers chose some dates; 35% reported they chose their furlough dates and 25% reported their employer chose their furlough dates, n= 1361.

Research Questions

Advocates of work-time reduction propose that reducing the number of hours spent in paid labor will ease the environmental burden of household consumption as individuals have less income to spend on marketplace goods and services and instead substitute their own time for income to produce household goods and services with lower environmental impact. Within the realm of household food production, empirical evidence typically shows that working wives tend to spend more on meals away from home than non-working wives but that meal outsourcing and convenience food use by full and part-time workers, and those taking advantage of workplace flexibility policies, is less consistent. Time resources explain little about men's time spent on meal preparation. When time and income resources change during retirement and unemployment, time spent on meal preparation increases significantly, and may help offset expenditure and maintain consumption levels. Less information exists on food consumption behavior as a result of reduced work hours. Findings from previous studies suggest that increased time-availability via reduced work hours may not exert a strong effect on convenience food use. Habit may also play a significant role in meal consumption.

Within the transportation realm, individuals with higher personal time-costs are more likely to rely on a personal automobile for commute and household activities and to make fewer household trips, but questions about the interaction effect between work hours and income remain. Studies have examined change in travel mode choice and trip frequency following retirement, a withdrawal from the labor market, and other key events, but travel mode choice and trip frequency following a change in work hours has not been studied.

Question #1: How does a shock to time and income resources, in the form of regularly scheduled, temporary unpaid leave, affect household food and travel consumption behavior?

This study used empirical data to examine the effect of reduced work-hours on household food and travel consumption. I expected that as free-time increased and income decreased, individuals would consume fewer outsourced meals and convenience food items and would invest more time in household meal production and travel. Shorter-work hours reduce personal time-cost, which is theorized to have a negative relationship with time spent on household production. Additionally, as time-off becomes more frequent, individuals have more time to break consumption habits and develop new ones.

Mann-Whitney tests looked for significant relationships between furlough length and the frequency of personal automobile use, carpooling, public transportation and walking/and or biking for commute and household travel during furlough time. The survey asked “For the commute modes you've used over the past year, what percent of the time do you use them?” and the same for household travel mode. Asking participants to consider their travel modes over the past year accounted for seasonal variation in travel mode. The survey also asked “On average, how many trips per week do you make solely for household-related activities?” A continuous scale measured trip frequency. I expected that as furlough time increased, individuals would be more likely to use alternate transportation modes that are slower or require more effort and planning to use. Furlough length was a dummy variable; the division point between groups was somewhat arbitrary, as definitive information about the points at which income and time-availability begin to influence food consumption habits does not exist. Literature indicates that the time needed to break habits or form new ones can vary widely. I chose to use the most frequently reported furlough length, which was thirty days. Employees who were furloughed an average of one day a month may have had a significantly different experience than those who were furloughed an average of three days a month.

Pearson chi-square tests looked for significant associations between furlough length and meal type frequency during furlough time. Meal types included cooking from scratch, restaurant/sit-down cafes meals, convenience food (fast food, drive-thrus, street carts,

deli, instant or microwaveable meals) and delivery. The survey asked “How many of each meal type do you eat during a typical week? Include breakfast, lunch, and dinner.” Respondents placed themselves into a categorical group. I expected that as furlough time increased, consumption of home produced meals (meals from scratch) would increase and consumption of outsourced or convenience food (restaurant meals, convenience food and delivery) would decrease.

To assess change in household travel, Pearson chi-square tests looked for a significant association between furlough length and agreement to an impact to commute mode, household travel mode, number of household trips and whether household trips had increased or decreased. Participants were asked to rate their agreement with the statements “Overall, my furlough has impacted my choice of commute mode” and “Overall, my furlough has impacted my travel mode for household activities” using a 6-point scale where 1= Strongly disagree and 6= Strongly agree. Examples of household activities included shopping, running errands, or going out for fun, etc. The dependent variable was recoded to a dummy where 1= Agree to impact. Participants also rated their agreement with the statement “Overall, my furlough has impacted the number of trips I make for household activities.” For those who reported a change in frequency, a follow-up question asked “How has the number of trips for household activities changed because of your furlough?” where 1= Decreased greatly and 6= Increased greatly. The dependent variable was recoded to a dummy where 1= Increase in household trips.

Binary logistic regression models predicted agreement that furlough time had impacted commute mode, household travel mode, number of household trips, and if household trips had increased or decreased after controlling for gender, age, presence of a partner, number of children in the household and presence of a child under age six, weekly work hours and yearly household income. Findings from the literature review show that all independent variables, with the exception of presence of a child under age 6 which was not covered, have been found to have significant relationships with either travel mode or

trip frequency. Presence of a younger child may signify a need to travel to day-care centers before and after work.

Multiple regression models predicted how meal frequency changed as furlough length increased. I controlled for gender, age, presence of a partner, number of children in the household and presence of children under age six because previous studies have found that these demographic characteristics are frequently associated with time spent cooking and meal outsourcing. Change in meal type frequency was measured by asking “How has the frequency with which you’ve eaten the following meal types changed, if at all, during your furlough?” Responses were recorded using a 7-point scale, where 1= Decreased greatly and 7= Increased greatly.

Question #2: How do subjective valuations of time and income as drivers of change in household consumption predict change in life satisfaction during a period of reduced working hours?

The proposition behind work-time reduction is that individuals would have less income to spend on marketplace goods and services, but more time and energy to spend on household production and leisure activities. A shift from ‘fast’ consumption, where goods and services are consumed quickly, to slow consumption may occur, as might decreased reliance on convenience items to save time, mental, or physical energy. Individuals would cultivate an appreciation for time as it helps decrease consumption of market goods and is put towards time-intensive household production and leisure activities. Alternatively, individuals may spend more time on household management activities that may not be associated with higher levels of satisfaction when measured on an episodic level.

The studies that come closest to measuring how time/income trade-offs contribute to life satisfaction may be the ones that relate feelings of being rushed or busy to satisfaction with reduced work hours or a desire to work less. Currently, no studies have documented

how appreciation for time as a resource for shifting to slower consumption modes contributes to life satisfaction. My research question asks how subjective valuations of time and income as drivers of change in household consumption predict change in life satisfaction during a period in which consumption of outsourced goods and services is decreasing and individuals are using more of their discretionary time to consume food and transportation. I expect that individuals who appreciate their time-availability as a means to produce time-intensive household goods and services would be the most likely to adapt positively to a work-time reduction scenario.

Participants reported change in six household food consumption and travel behaviors. Food consumption covered home-produced meals (meals from scratch) and its market-based substitutions: restaurant/sit-down café meals, convenience food (fast-food, drive-thrus, street carts, deli, instant or microwaveable meals) and delivered meals. Participants were asked “How has the frequency with which you’ve eaten the following meal types changed, if at all, during your furlough?” An interval scale recorded responses, where 1= Decreased greatly and 7= Increased greatly. If change was reported, participants were asked “How important is income to this change?” and “How important is time-availability to this change?” Responses were recorded on a six-point scale, where 1= Not at all important and 6= Very important. The importance ratings for time and income to change in consumption behavior were used to develop the key indicator of appreciation for time as a resource for changing consumption habits. Its computation is discussed in detail later.

To assess change in travel consumption, participants rated their agreement with the following statements “Overall my furlough has impacted my choice of commute mode,” “Overall, my furlough has impacted my travel mode for household activities” and “Overall, my furlough has impacted the number of trips I make for household activities.” Responses were recorded on a six-point scale where 1= Strongly disagree and 6= Strongly agree. Participants who agreed that number of household trips had been impacted described the change in trip frequency using a scale where 1= Decreased

greatly and 6= Increased greatly and again rated the importance of time-availability and income.

The binary logistic regression model below predicted if life satisfaction stayed the same or increased as a result of mandatory time-off. Only those who reported a change in consumption behavior were included.

$$P(Y) = \frac{1}{1 + e^{- (b_0 + b_i + b_w + b_f + b_p + b_c + b_{fd} + b_{ti})}}$$

b_i = Household income

b_w = Weekly work hours

b_f = Female

b_p = Partner

b_c = Presence of children

b_{fd} = 30 days or more furlough

b_{ti} = Time/income valuation difference

Where $P(Y)$ = the probability that life satisfaction stayed the same or increased. The survey asked “How has your life satisfaction changed since your furlough began?” Responses were recorded on a 7-point scale where 1= Decreased significantly and 7= Increased significantly and recoded to a dummy variable, where 0= Life satisfaction decreased and 1= Life satisfaction stayed the same or increased.

There are two scientific approaches to measuring quality of life. The first approach measures “objective circumstances of living or social indicators”, such as literacy and suicide rates, life expectancy, material affluence or political freedom (Brajsa-Zganec, 2011). Veenhoven argues that many objective social indicators presume to measure quality of life because we are uncertain about the extent to which they satisfy human needs (Veenhoven, 2005). For example, a long life is not necessarily a life well-lived.

The second approach measures subjective well-being. Researchers define subjective well-being as a broad construct that encompasses cognitive and affective reactions to life as a whole (Brajsa-Zganec, 2011).” It is most commonly measured by asking “All things considered, how satisfied are you with your life as a whole these days?” Subjective well-being is also measured using the experience sampling method which asks people to report their feelings in real time (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2006; Krueger, 2009). It makes little difference whether happiness or life satisfaction is the measure of well-being; a 2007 European Quality of Life survey asked participants to rate happiness and life satisfaction and found that the mean ratings were similar (Blanchflower & Oswald, 2011).

Household income is a dummy variable where 1= \$100,000 or more. I predicted that household income would have a positive association with life satisfaction. Employees with higher household incomes may be more prepared to withstand income loss and maintain higher levels of consumption. Weekly work hours is a dummy variable where 1= 46 hours or more; I expected work hours to have a positive association with maintaining or increasing life satisfaction during furlough time. It is theorized that at a certain point, the utility gained from extra working hours diminishes and individuals would rather trade income for free-time. At some point, individuals need time to enjoy the goods and leisure activities that their income affords them.

Gender and the presence of children were included in consideration of previous studies, although I did not make a specific hypothesis about their effect. The literature on gender and satisfaction with reduced working hours presents conflicting information. Women were some of the staunchest supporters of Kellogg’s six hour work day. Women continue to carry the greater burden for household work, even when working similar hours in the marketplace to men, and may achieve greater levels of satisfaction during furlough time because it alleviates higher levels of pressure stemming from work-life balance. Alternatively, Hayden writes that men and women achieved similar levels of satisfaction with France’s 35-hour work week.

Children may be indicators of greater pressure to achieve work-life balance and furlough time may be more valuable to those with children. Cette, Dromel and Meda found that the use of free time for family, rest, household and leisure activities had a positive association with satisfaction with France's 35-hour work week. However, child care activities are not necessarily associated with higher levels of happiness. Those without children may spend their time engaged in activities associated with higher levels of happiness. Presence of a partner was included because of the finding that the divorced may be more likely to use time to manage household tasks and therefore may be more likely to feel that work/life balance has improved. Employees without a partner may appreciate the time to a greater degree than those who have partners with whom to share household responsibilities.

I control for furlough length, which is a dummy variable representing 30 days or more of furlough. I hypothesized that furlough length would have a negative relationship with change in life satisfaction, although I acknowledge that it is difficult to predict direction and effect size because there may be an interaction between the time and income resources inherently represented by furlough length. Shorter furloughs induce less income loss, but may not provide enough time to fully realize the benefits of having extra free-time. Longer furloughs induce deeper income cuts, but may give individuals more time to adjust to their new time and income constraints and figure out ways to maintain or increase satisfaction.

The time/income valuation difference measures the importance of time-availability to a change in consumption behavior relative to the importance of income. The difference was computed by subtracting the response to the question "How important is income to this change?" from the response to "How important is time-availability to this change?" Computed responses ranged from -5 (time not at all important/income very important) to 5 (time very important/income not at all important). A response of zero indicated that time and income mattered equally to the change. Responses were then recoded to a dummy variable where 0 = Income more important or time/income equally important and

1= Time-availability more important. I expected that the time/income valuation difference would have a positive effect on change in life satisfaction. Individuals who viewed time-availability as more important to change than income would be likely to report maintaining or increasing life satisfaction because they took advantage of the major benefit offered by furlough time: more free time.

There are a multitude of other indicators which could have been included in the model to predict life satisfaction; indicators of social status (educational attainment or occupation), preference for different consumption activities and specific measures of how time was spent, for example. I chose to focus on measures of income and time-availability, as represented by household income and weekly work hours, and to control for a select number of demographic variables (gender, presence of a partner and presence of a child(ren)) that consistently have been shown to affect amount of time spent in household production and leisure activities, which in turn may effect life satisfaction. The primary interest is the role that an appreciation for time, to the extent that it is valued more highly than income, plays in maintaining, or even increasing, positive levels of life satisfaction. In the bigger picture, subjective perceptions of time and income may be more important to predicting acceptance of work time reduction than would objective measures such as typical work hours and personal or household income.

IV. A. Frequency of reduced work hours and change in household travel and food consumption

Abstract

This study examines change in household food consumption and travel behavior as a result of regularly scheduled, temporary unpaid leave. A survey of furloughed state government employees provided empirical data from which to explore the research question. The average furlough length was 38 days over the course of 3 years and reached a maximum of 108 days. A moderate percentage (22%-60%) of employees reported change in consumption of home-produced or outsourced meals and fewer (19% and 29%) experienced an impact to commute and household travel mode, respectively. Furlough length had a smaller effect on predicting change in convenience food consumption than it did for other meal types. Future research could measure pre-furlough meal frequency to investigate the effect of habit on changing food consumption patterns. Longer furloughs were important to predicting an impact to commute mode and number of household trips, but were not significant to predicting an impact to household mode or an increase in household trips. It may take deeper income cuts and more time to develop new habits to spur change in commute mode. Controlling for access to alternative transportation modes and nonwork activity destinations would strengthen our understanding of the factors influencing change in transportation mode. Weekly work hours were significant in the model for impact to household travel mode, which suggests that the discretionary time offered by work-time reduction has the potential to play an important role in prompting the use of alternative travel modes. Work hours generally had larger significant effects on predicting impact to household travel mode or number of trips than did income. Household travel mode and trip frequency may be consumption areas where individuals are more amenable to using their discretionary time to use slower, or more planned, transportation modes.

Introduction

The theory of household production describes how individuals combine inputs of market goods and their own time to produce household goods and services. The price of the home-produced commodity equals the sum of the price of the commodity in the market and the price of invested time. Wages earned in paid labor dictate personal time cost, which is theorized to have a negative effect on time spent in household production. The substitution effect suggests that higher wages induce individuals to spend more time at work because each hour spent away from work represents greater income loss (Reynolds, 2005). An increase in earnings would cause the prices of home-produced commodities to increase with the cost of foregone earnings and induce a substitution away from home-production and increase hours worked in the market.

Many studies have looked for empirical evidence to support the idea that longer hours are connected to less time spent in household production and more expenditure on convenience goods and services. Other studies have used empirical data to understand household consumption and production as a result of dramatic change in time and income resources, such as in retirement and unemployment. Less information is available on how household consumption changes as individuals reduce their working hours. My research question asks how a combination of time and income shocks, in the form of reduced working hours, predicts change in household food and travel consumption habits. An online survey of furloughed state-government employees provided empirical data. I expected that as reduced work hours grew more frequent, individuals would reduce their consumption of outsourced meals and consume more home produced meals. I also expected individuals to be more likely to shift to slower forms of transportation for commuting and household travel and to make fewer household trips. While extended furlough time reduced household income to a greater extent, it also provided more time to break consumption habits. This study was inspired by the work-time reduction movement which aims to reduce working hours as a solution to unemployment, work-life conflict and overconsumption.

Literature Review

The theory of household production

At the crux of Becker's economic theory on household production is the idea that households are both producers and consumers. Households combine inputs of time and market goods to produce commodities according to the same cost-minimization rules followed by firms (Becker, 1965). Examples of household production include cooking a meal, growing food in a household garden, repairing a broken appliance or giving a haircut. The price of the home-produced commodity equals the sum of the price of the commodity in the market and the price of invested time (Davidov, 2007). The substitution effect suggests that higher wages induce individuals to spend more time at work because each hour spent away from work represents greater income loss (Reynolds, 2005). An increase in earnings would cause the prices of home-produced commodities to increase with the cost of foregone earnings and induce a substitution away from home-production and increase hours worked in the market.

Gender, hours of employment and time and expenditure on meal preparation

Women's entrance into the market labor force inspired many studies on the relationship between wives' employment status and time spent on household food production, with particular interest in whether there was a positive correlation between hours worked and expenditure on time-buying or time saving goods and services. Gender has significant correlations with time spent on household production. According to Bianchi et al. "all previous research shows that women spend more time in household labor than men (Bianchi, Milkie, & Sayer, 2000)." Several studies have found that working wife families purchase more meals away from home than families with non-working wives (Bellante & Foster, 1984; Darian & Cohen, 1995; Kim, 1989). Yang and Magrabi found that expenditures for meals in restaurants for full-time employed women were higher than for part time (Yang & Magrabi, 1989). In contrast, Nickols and Fox observed that wife's employment was not related to the purchase of meals in restaurants, but income, husband's employment in a high-status occupation and age of the younger child explained restaurant frequency (Nickols & Fox, 1983). Studies have found that that

working wives do not rely on convenience foods such as canned fruit, meat and vegetables, more than non-working wives (Kim, 1989; Darian & Cohen, 1995). Another found no significant differences in the strategies that working wives use to prepare meals, ie. using frozen meals, if income or family lifecycle was held constant (Strober & Weinberg, 1980). Overall, results from these studies are mixed; some found significant relationships between wives working hours, others not. A review of wife's employment status and expenditure on services states "Thus far, wife's employment has not been found to be a consistent, significant determinant of ...the purchase or ownership of labor-saving durables or foods (Heslop, Madill, Duxbury, & Dowdles, 2007)."

Mancino and Newman looked at time spent on food preparation as a function of working hours, income and other variables that represent time-resources, such as number of adults in the household, whether adults were healthy or unhealthy, time-availability of other adults for meal preparation. Few variables explained the differences in time spent on food preparation amongst men. Among women, being married and having children increased time spent on food preparation. Working full-time and being a single parent each had a greater impact on time spent on food preparation than individual or household income. Working women spent less time than those who did not work outside the home and single women spent less time than those with partners (Mancino & Newman, 2007). A study of household heads age 45-55 who were working full time, a doubling of income coincided with a 16% increase in restaurant meals with table service. Income also had a positive, though less elastic, effect on fast food (Aguiar & Hurst, 2005).

Work schedules and food consumption

De Ruijter & Van der Lippe emphasize that studies have repeatedly looked at the number of working hours as a variable affecting outsourcing of household meal production, but have failed to take into account which hours people work. When people work may play an important role in ability to manage domestic tasks. Some household jobs, such as home maintenance and house cleaning, are flexible because individuals have more

discretion over when to perform them. Other household tasks, such as cooking meals and childcare, are less flexible and must be completed at specific times. They found that men and women who were able to decide when their work day ended or who could easily take a day off if something unexpected happened were no different in their preferences for outsourcing meal preparation. Women with rotating work schedules outsourced more frequently; rotating schedules may have been indicative of working outside of normal hours or less predictable schedules. Men who worked at home increased their outsourcing, perhaps because the ability to work at home signals a job that is more busy and demanding. Couple whose schedules overlapped were no different than couples with non-overlapping schedules (De Ruijter, 2007).

Noonan, Estes, and Glass conducted a longitudinal study to see how workplace flexibility policies affected husbands and wives time spent in housework (cooking, cleaning, shopping, etc.). None of the workplace flexibility policies affected fathers time spent on housework. Mothers who could set up their own work hours and days did less housework than those who could not. Flexible schedules may have been indicative of non-traditional hours worked outside of 9-5 and mothers weren't home to manage routine care. Mothers who worked reduced hours, defined as less than 35 hours or chose to work part time, spent more time on housework than those who work full-time. Fathers who worked reduced hours spent less (Noonan, Estes, & Glass, 2007)."

Attitudinal measures toward convenience food use

Brunner et al. studied attitudinal measures and their relationship with frequency of convenience food-use when the relationship between employment status and convenience food use was found to be unpredictable. Results showed that age was the strongest predictor for frequency of use. Other significant socio-demographic characteristics were gender, having children and working status. Women consumed less than men; having children and working full time decreased consumption. Concern with naturalness, concern for price and knowledge of nutrition had significant negative relationships. The desire to reduce time spent on cooking was not significant, nor were feelings of time

pressure or the desire to minimize mental effort, although wanting to save physical effort was significant. Time spent cooking did not predict convenience food use, which suggests that convenience food items are omnipresent; everyone uses them to some extent and not necessarily to save time (Brunner, van der Horst, & Siegrist, 2010). Darian and Cohen examined perception of time-availability as it related to purchasing frequency of three types of convenience foods. They hypothesized that time-shortage groups valued product characteristics differently. Instead, the two highest priorities for all time-shortage groups was that the product taste good and be healthy; there were no significant differences for any of the other product characteristics. However, the very time-poor considered 4 out of 6 convenience factors as significantly more important than other groups. The very time poor valued not having to plan ahead, little or no preparation, little or no clearing up and another household member usually prepares (Darian & Cohen, 1995).

Food consumption by the retired and unemployed

Aguiar and Hurst examined the relationship between time spent on meal preparation and time spent in paid employment by studying individuals who were either retired or unemployed. In retirement, we see how meal preparation changes given an anticipated, permanent withdrawal from the labor market. Retirees reduced expenditure by 17% at retirement, yet the quantity of food consumed remained the same. Evidence suggests that retirees substituted time for expenditure. Retirees spent 42% more time shopping and 54% more time cooking than non-retirees. The extra time spent on food production, when valued at half the sample's pre-retirement average wage, was enough to compensate for the decline in expenditure. Evidence suggests that it may take time for individuals to get in the habit of spending time on meal preparation. Men in pre-retirement years (60-62), and peak retirement years (63-65), spent similar amounts of time on food production, but those the post-retired (66-68) spent 21 percent more time than those age 60-62. Hurd and Rohwedder looked at time spent on activities with market counterparts, such as housecleaning, washing/ironing and yard work and gardening, by retirees and non-retirees and found that the extra time retirees spent on household production could offset

a decline in expenditure, although a decline in work-related expenses could also have explained 5-10% of the decline (Hurd & Rohwedder, 2003).

Examination of specific meal types leads Aguiar and Hurst to speculate that preferences for quality in meal types changes as retirement continues. While retirees made fewer visits to fast food restaurants and cafeterias, frequency of meals at restaurants with table service did not decrease. Data from the 1968 Panel Study of Income Dynamics found that retirees were 9.5% points less likely than non-retirees to reduce expenditure on food “by eating cheaper or lower-quality foods” and were slightly more inclined to report bargain-shopping, cooking their own meals and growing their own food in order to reduce food cost.

In unemployment, we see the effects of an unexpected, temporary withdrawal from the labor market. The unemployed experienced a 19% decline in total food expenditure and spent 28% more time on food production compared to employed individuals. Expenditures on food away from home dropped 40%. In contrast to retirement, unemployment resulted in a significant decline in quantity of food consumed (Aguiar & Hurst, 2005).

Income, hours of employment and transportation mode choice

Becker’s theory on the allocation of time implies that any difference in income per hour between different socio-demographic groups leads to different time costs which are responsible for different travel-mode choices (Becker, 1965). Davidov et al.’s study on travel-mode choice in Germany confirmed that time has a value. Individuals with higher incomes, and hence higher time costs, were more likely to use a personal vehicle than public transportation (Davidov, Schmidt, & Bamberg, 2003). Rajamani et al. found that for high income individuals, an additional minute of walk or bike time was slightly more costly than a minute driving or riding public transportation. Individuals in higher-income households also had a greater tendency to drive alone to non-work activity sites than did individuals in lower-income household, although middle-income individuals carpoled,

used public transportation and walked and biked more frequently relative to driving for non-work activities than the lower income category. More frequent multi-modal use amongst the middle-income category may reflect increased time-availability compared to that of the lower income category. Middle income individuals might have more time for leisurely activities such as a walk in the park or bike ride. Higher income households might have more restrictive schedules and want faster modes (Rajamani, Bhat, Handy, Knaap, & Song, 2003).

Demographic and transportation system characteristics affecting travel mode choice

While this study focuses on the effects of time and income on transportation mode choice, we acknowledge that many demographic and household characteristics have been found to have significant relationships with mode choice, including number of vehicles per adult, number of children or adults in the household, physical health, and race. The number of vehicles per adult in the household increased the likelihood of choosing to drive alone. A household with more children (below 16 years of age) was more likely to rideshare. The number of adults in a household indicated a lower propensity to walk. Physically handicapped individuals were more likely to travel with other people and Caucasians had a greater aversion to walking than did individuals from other ethnic backgrounds (Rajamani, Bhat, Handy, Knaap, & Song, 2003). One study found that education had no effect on choice of a travel mode, although it could have been reflected in different time costs between education classes. Younger and older people were less likely to use a car than people in the middle ages (Davidov, Schmidt, & Bamberg, 2003). Rajamani et al. found that age had a significant positive impact when predicting carpooling for nonwork trips relative to driving alone, taking public transportation, walking and biking. Older individuals may have fewer time constraints and prefer the social aspects of carpooling (Rajamani, Bhat, Handy, Knaap, & Song, 2003). Davidov et al. observed that the effect of demographic characteristics on travel-mode choice surpassed that of time-cost. Bridge assumptions may provide explanations beyond those of time and income that explain travel mode choice for different socio-demographic

groups. For example, there may be a difference in technical affinity for males and females that makes driving a personal vehicle more appealing to men. Married people tend to live in less urban areas, where there is less access to public transportation and parking is less of a problem.

Transportation system characteristics that represent convenience and comfort, such as time spent transferring buses and the ratio of walk time to wait time, have been found to significantly affect choice of a personal vehicle for work and shopping trips (Williams, 1978). Exogenous variables such as land use type and mix, accessibility of public transportation, residential and employment density and local street network are significant to the use of public transportation, walking and biking or driving (Saelens, Sallis, & Frank, 2003; Rajamani, Bhat, Handy, Knaap, & Song, 2003).

Factors influencing household trip frequency

Bawa and Ghosh found that employment status had a significant negative relationship with grocery trip frequency, where households with two working adults shopped less than households with no working adults and less than households with one working adult. They reasoned that household income would have a negative effect on number of shopping trips, because of high time-costs, but that the effect would be tempered by the demand-effect of income that would lead to higher consumption levels. Initially, income had the expected negative effects, but was not consistently significant. When they controlled for the number of wage earners, they found that those who earned more shopped less frequently. Retired individuals with high incomes shopped more than retirees with low incomes. Middle income households made fewer trips to the grocery store than higher and lower income categories, regardless of number of wage earners. Middle income households may be the most pressed for time (Bawa & Ghosh, 1999). Empirical data collected after France legalized the 35-hour work week showed that working less boosted short term travel; 28% of workers said that shorter hours allowed them to “travel more on weekends and take short trips.” However, marked distinctions

existed: fifty percent of managers reported traveling more frequently, compared to fifteen percent of unskilled workers (Hayden, 2006).

Family size, the presence of children under age sixteen, and age have all been found to have positive relationships with trip frequency. Kitamura, Mokhtarian & Laidet concluded that socio-demographic factors largely determined trip frequency, while neighborhood characteristics such as pleasant streets for walking and biking, good parking, problems with traffic congestion, etc., were more strongly associated with travel mode choice (Kitamura, Mokhtarian, & Laidet, 1997; Bawa & Ghosh, 1999). Bawa and Ghosh expected homeowners to make fewer trips because of increased capacity to hold inventory; home ownership had a negative, yet insignificant effect. Szplett and Kieck found that individuals who lived closer to the city center generated more vehicle trips than those living in the inner or far-suburban areas. Trip frequency was probably encouraged by a greater number of destinations in the city center and low disincentives to condense trips because short trips did not have a huge travel cost (Szplett & Kieck, 1995).

Travel mode choice for the retired and unemployed

Studies document how car ownership makes it easier to procure and hold onto employment (Lucas & Nicholson, 2003; Ong, 2002; Onesimo Sandoval, Cervero, & Landis, 2011), but less information exists on transportation mode choice and trip frequency following unemployment. Scheiner and Holz-Rau write that “travel behavior change has been (relatively) neglected in research” (Scheiner & Holz-Rau, 2013). A study using 1950’s household expenditure data from before and during unemployment for a primary worker found that consumption elasticity was the highest for ‘other’, clothing, medical and transportation. Elasticity for a secondary earner was higher in other areas, most likely because it made more sense for them to substitute their own time to make up for lost goods (Grossman, 1973). An Australian study used principle component analysis to classify the unemployed as likely to rely on others for transportation (Delbosc & Currie, 2011).

A German study that looked at change in travel mode use from year to year found that key events were loosely related to change in travel mode use. Starting a job was associated with more driving and less walking, but graduating from school, and starting or completing an apprenticeship had no significant effect on daily trip rates by any mode. Leaving the labor market without retiring was associated with more walking and less public transportation use. Retiring had no significant effect on mode-specific trip frequencies but non-motorized trips made up a larger percentage of mode use. They suggest that the loose connection between life events and change in mode use may be underscored because of a delay-effect, because of strong habits, or high levels of freedom of choice (Scheiner & Holz-Rau, 2013).

Habit formation

Individuals are likely to rely on habit to make everyday decisions regarding food consumption or travel mode choices because the decisions are recurring and made under stable circumstances. Arts et al. define habit as “the learning of sequences of acts that have become automatic responses to certain situations, which may be functional in order to achieve a given result, or to obtain specific goals (Aarts, Verplanken, & van Knippenberg, 1997).” When an individual first performs an action, he makes decisions about how to carry it out to achieve the desired result. As he repeats the action, decision making recedes and environmental cues trigger the action. Relying on habit reduces mental energy and time spent in reaching a decision. Environmental cues might be time of day, location, mood, presence of others, mood, etc. (Verplanken & Wood, 2006). Work time-reduction could be categorized as an upstream intervention aimed to stop habit development by developing social norms and environments that promote a desired action (Verplanken & Wood, 2006). It aims to reduce cues that may trigger convenience or ‘fast’ consumption, for example, coming home from work and not having the energy to cook and ordering delivery instead.

Research has shown that individuals with strong habits are less likely to seek out or consider new information when situations vary and the behavioral options remain the same. Aarts et al. found that when students were asked to make travel mode choices for hypothetical destinations, and were provided with information about weather conditions, distance, etc., students did not consistently use the information to evaluate the options. Those with weak habits used trip attributes more frequently than those with strong habits. Those with a strong habit of using a bicycle were more likely to choose a bicycle as their travel mode choice (Aarts, Verplanken, & van Knippenberg, 1997). Thogerson found that past behavior is a better predictor of the use of public transportation than attitude towards the use of public transportation (Thogerson, 2006).

In a longitudinal study on the effects of an intervention- a pre-paid bus pass- on student transportation mode choice, Bamberg, Ajzen and Schmidt learned that the intervention influenced attitudes, subjective norms and perceived behavioral control toward taking the bus, and increased bus-taking behavior. A measure of past behavior lost its predictive power after the intervention, which they interpreted as meaning that travel-mode choice is a reasoned decision and that interventions can destabilize situations enough so that past behavior is not a strong predictor (Bamberg, Ajzen, & Schmidt, Choice of Travel Mode in the Theory of Planned Behavior: The Roles of Past Behavior, Habit and Reasoned Action, 2003).

The amount of time it may take for individuals to adopt new food consumption habits may vary widely and depends upon the complexity of the task. Lally et. al asked study participants to adopt a daily eating, drinking or exercise behavior to be performed in conjunction with another activity and found that the average time for automaticity to plateau was 66 days, and ranged between 18 and 254 days. Even though the study encouraged participants to develop habits, roughly half of them did not perform the behaviors frequently enough for habit formation. Ronis, Yates and Kirscht (1988) argued that a behavior is habitual once it is performed at least twice a month for at least 10 times (Lally, Van Jaarsveld, Potts, & Wardle, 2010).

Methods

Advocates of work-time reduction propose that reducing the number of hours spent in paid labor will ease the environmental burden of household consumption as individuals have less income to spend and substitute their own time to produce household goods and services with lower environmental impact. Within the realm of household food production, empirical evidence typically shows that working wives tend to spend more on meals away from home than non-working wives but that meal outsourcing and convenience food use by full and part-time workers, and those taking advantage of workplace flexibility policies, is less consistent. Time resources explain little about men's time spent on meal preparation. When time and income resources change during retirement and unemployment, time spent on meal preparation increases significantly, and may help offset expenditure and maintain consumption levels. Less information exists on food consumption behavior as a result of reduced work hours. Findings from previous studies suggest that increased time-availability via reduced work hours may not exert a strong effect on convenience food use. Habit may also play a significant role in meal consumption.

Within the transportation realm, individuals with higher personal time-costs are more likely to rely on a personal automobile for commute and household activities and make fewer household trips, but questions about the interaction effect between work hours and income remain. Studies have examined change in travel mode choice and trip frequency following retirement, a withdrawal from the labor market, and other key events, but travel mode choice and trip frequency following a change in work hours has not been studied.

This study used empirical data to examine the effect of reduced work-hours on household food and travel consumption. I expected that as free-time increased and income decreased, individuals would consumer fewer outsourced goods and services and would invest more time to accomplish household tasks. Shorter-work hours reduce personal time-cost, which is theorized to have a negative relationship with time spent on

household production. Additionally, as time-off becomes more frequent, individuals have more time to break consumption habits and develop new ones.

Mandatory furloughs, in which employees are required to take time off without pay, provided the context in which to explore the research question. An online survey reached state-government employees who were subject to mandatory days off without pay. A stratified sampling frame provided a regional representation of the United States. States included were California (West/Rockies), Arizona (Southwest), Ohio (Midwest/Great Plains), Maine (Northeast/Mid-Atlantic), and Georgia (Southeast). The initial sampling frame included employees within the education, environmental and fiscal departments. Employees were eligible to participate if they had been required to take time off sometime between July 1, 2009 and June 30, 2011 and all were subject to furlough days at the time of taking the survey. See Appendix for the survey instrument and supplementary materials.

Mann-Whitney tests looked for significant relationships between furlough length and the frequency of personal automobile use, carpooling, public transportation and walking/and or biking for commute and household travel during furlough time. We asked “For the commute modes you've used over the past year, what percent of the time do you use them?” and the same for household travel mode. Asking participants to consider their travel modes over the past year accounted for seasonal variation in travel mode. We also asked “On average, how many trips per week do you make solely for household-related activities?” A continuous scale measured trip frequency. We expected that as furlough time increased, individuals would be more likely to use alternate transportation modes that are slower or require more effort and planning to use. Furlough length was a dummy variable; the division point between groups was somewhat arbitrary, as we do not have definitive information about the points at which income and time-availability begin to influence food consumption habits. Literature indicates that the time needed to break habits or form new ones can vary widely. We chose to use the most frequently reported furlough length, which was thirty days. Employees who were furloughed an average of

one day a month may have had a significantly different experience than those who were furloughed an average of three days a month.

Pearson chi-square tests looked for significant associations between furlough length and meal type frequency during furlough time. Meal types included cooking from scratch, restaurant/sit-down cafes meals, convenience food (fast food, drive-thrus, street carts, deli, instant or microwaveable meals) and delivery. We asked “How many of each meal type do you eat during a typical week? Include breakfast, lunch, and dinner.”

Respondents placed themselves into a categorical group. We expected that as furlough time increased, consumption of home produced meals (meals from scratch) would increase and consumption of outsourced or convenience food (restaurant meals, convenience food and delivery) would decrease.

Binary logistic regression models predicted agreement that furlough time had impacted commute mode, household travel mode, number of household trips, and if household trips had increased or decreased. We asked participants to rate their agreement with the statements “Overall, my furlough has impacted my choice of commute mode” and “Overall, my furlough has impacted my travel mode for household activities” using a 6-point scale where 1= Strongly disagree and 6= Strongly agree. The dependent variable was recoded to a dummy where 1= Agree to impact. Participants also rated their agreement with the statement “Overall, my furlough has impacted the number of trips I make for household activities.” For those who reported a change in frequency, we followed up by asking “How has the number of trips for household activities changed because of your furlough?” where 1= Decreased greatly and 6= Increased greatly. The dependent variable was recoded to a dummy where 1= Increase in household trips. We controlled for gender, age, relationship status, presence of children and presence of children under age six.

Multiple regression models predicted how meal frequency changed as furlough length increased. We controlled for gender, age, relationship status, presence of children and presence of children under age six because previous studies have found that these

demographic characteristics are frequently associated with time spent cooking and meal outsourcing. We measured change in meal type frequency by asking “How has the frequency with which you’ve eaten the following meal types changed, if at all, during your furlough?” Responses were recorded using a 7-point scale, where 1= Decreased greatly and 7= Increased greatly.

Characteristics of participants

The survey response rate was 16%. The total sample size for data analysis was 1,452. Participants ranged from ages 23-74; the mean age was $M= 47$ ($SD=10$). Fifty-eight percent of participants were male. The majority of participants (72%) cited married as their relationship status. Thirty-seven percent of participants resided in a 2-person household. The next most common household sizes were 3, 4 and single-person households, which accounted for 20%, 19% and 13% respectively. Forty-one percent of households reported the presence of children under the age of 18. Of those reporting the age of their youngest child, 42% had children under the age of six. The majority of respondents had completed some form of higher education; 40% completed college and 36% had completed a graduate or professional program. Twelve percent reported yearly household incomes of \$49,999 or less. About 50% of participants reported incomes between \$50,000 and \$99,999. Sixteen percent reported \$100,000- \$124,999 and 16% reported \$125,000 or more. Furlough time ranged from 1 to 108 days. The mean number of furlough days was $M= 37.5$, $SD= 29.8$.

Results

Typical travel mode and household trip frequency by demographic group and furlough length

We asked participants to report the percent of time they used a personal automobile, carpooled, used public transportation and walked/and or biked over the past year for commute and household travel. For all respondents, a personal automobile was used on average 67.4% of the time for commuting, (SD= 41.9, n= 1318), and 88.7% of the time, (SD= 21.1, n= 1426), for household activities. A different picture emerged when we compared mode frequency for groups with short and long furloughs. Furlough length had a significant association with all mode frequencies for commuting. Mean frequency of use of a personal automobile for commuting by those with 30 days or less furlough, M= 72.7 (SD= 40.5), was significantly different from those with 30 days or more, M= 55.3 (SD = 42.5). Furlough length had a medium sized effect on frequency of use of public transportation use for commuting, which averaged M = 8.4 (SD = 24.9), and M= 34.8 (SD = 40.4) for those with short and long furloughs, respectively. Mean personal automobile use for household activities by those with short furloughs, M= 92.4 (SD= 16.7), was significantly different than use by those with long furloughs, M= 81.7 (SD= 25.2). Household trip frequency for the short furlough group, M= 5.0 (SD= 7.6, n= 893), was significantly different from the long furlough group, M= 5.7, (SD= 9.1, 372), $U(1) = 15693.00$, $r = -.05$, $p \leq .10$.

Table 1. Mann Whitney test for typical commute and household mode frequency by furlough length

Dependent variable	Mann-Whitney U	r	Furlough ≤ 30 days	Furlough > 30 days	Furlough ≤ 30 days	Furlough > 30 days	n
			M (SD)	M (SD)	(Mdn)	(Mdn)	
<i>Commute mode</i>							
Personal automobile	121532.50***	-0.20	72.7 (40.5)	55.3 (42.5)	100	70	1234
Carpool	64329.50**	-0.11	8.8 (25.1)	14.1 (30.4)	0	0	843
Public transportation	46293.50***	-0.47	8.4 (24.9)	34.8 (40.4)	0	10	888
Walk and/or bike	44477.00***	-0.33	1.8 (10.6)	16.2 (32.4)	0	0	770
<i>Household mode</i>							
Personal automobile	126603.00***	-0.28	92.4 (16.7)	81.7 (25.2)	100	90	1337
Carpool	67152.00	-0.14	4.0 (12.8)	7.9 (18.6)	0	0	859
Public transportation	57620.50	-0.28	1.5 (8.6)	4.8 (14.2)	0	0	845
Walk and/or bike	46775.00***	-0.38	3.3 (8.0)	12.5 (17.6)	0	0	873

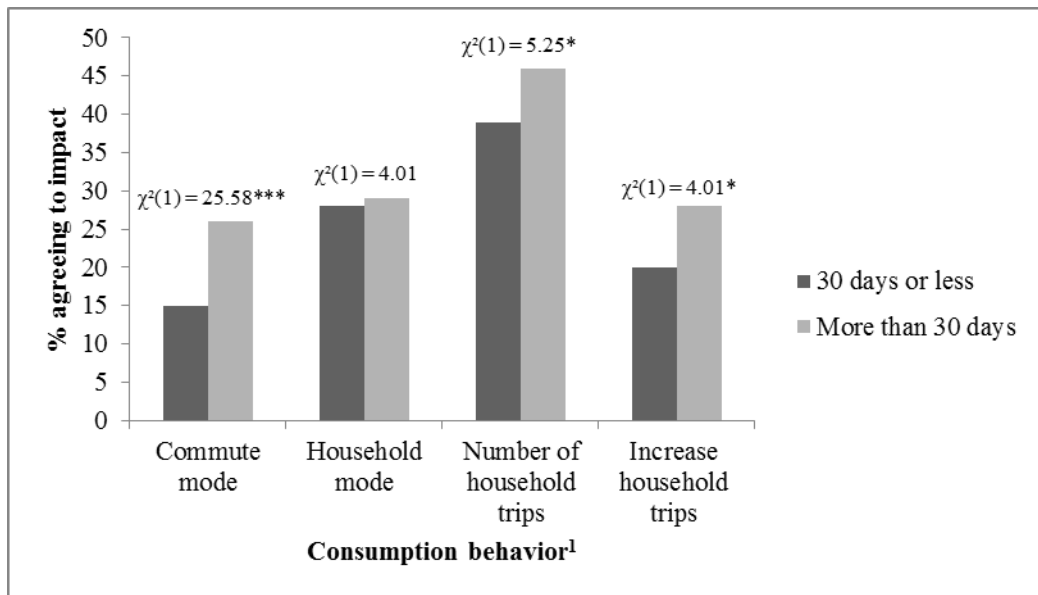
† p ≤ .10, *p ≤ .05, **p ≤ .01, *** p ≤ .001.

Nineteen percent of respondents agreed (n= 1437) that their commute mode had been impacted. Of those who reported that they switched to another commute mode (n=275), 43% reported they switched to a personal automobile, 29% switched to public transportation, 17% to a carpool, 6% to biking, 6% to a motorcycle or scooter and 6% to walking. Employees who reported switching to a personal automobile may have interpreted the question as inquiring how they made decisions about commute travel beyond commute mode. Of the 35 people who reported that they switched to an “other” commute mode, a couple people wrote they had switched to a cheaper parking garage or cheaper parking and work-drop off site. Another two mentioned that they either needed a new car but could not afford one or had decided not to purchase a second vehicle and instead carpooled. Two people mentioned that they were moving or trying to move to a 4-day, 10 hour per day, work week. Five people cited telecommuting as an alternative commute mode.

Furlough time impacted household travel modes more greatly than commute travel mode; 29% of respondents (n= 1442) agreed with the statement “Overall, my furlough has impacted my travel mode for household activities.” Household travel mode may be easier

to change because of greater flexibility to decide when, or how, they are accomplished. Of those who responded that their household travel mode had been affected (n=422), 53% reported they switched to a personal automobile, 26% switched to walking, 18% switched to carpooling, 16% to biking, 10% to public transportation and 7% to a motorcycle or scooter. Respondents who elaborated on which mode they switched to generally described methods they used to reduce the number of household trips. Of the 48 people who cited “other,” 11 described some variation on combining errands to reduce the number of trips. Others cited traveling less and staying at home. One person reported being “less likely to consider distant travel.” We asked employees to agree or disagree if their furlough had impacted the number of trips they made for household activities. Fifty-eight percent agreed that there had been an impact, and 42% disagreed, n= 1446. Of those who described the impact, 24% took more trips and 76% took fewer trips n= 606.

Figure 1. Percentage of employees agreeing to impact to travel mode and trip frequency by furlough length



¹Impact to commute mode, household travel mode and number of household trips was measured by asking participants to rate their agreement that an impact had occurred using a 6-point scale where 1= Strongly disagree and 6=Strongly agree. Change in frequency of trips was measured using a 6-point scale where 1= Decreased significantly and 6= Increased significantly. Responses were recoded to dummies.

Furlough length and impact to travel mode and household trip frequency

There was a significant association between furlough length and agreement to an impact in commute mode, $\chi^2 (1) = 25.58, p \leq .001$. Fifteen percent of respondents with less than 30 days or 30 days furlough agreed that their commute mode had been impacted, while 26% of respondents with more than 30 days agreed to an impact. There was no significant association between furlough length and agreement to impact in household travel mode, $\chi^2 (1) = 4.01, p > .05$. Furlough length had a weaker association with impact to number of household trips, $\chi^2 (1) = 5.25, p \leq .05$, where employees with long furloughs were slightly more likely to say there had been an impact and with an increase in household trips, $\chi^2 (1) = 4.93, p \leq .05$. Twenty percent of individuals with 30 days or fewer furlough increased their number of household trips and 28% of those with longer furloughs increased household trips.

Table 2. Odds ratios from binary logistic regression models predicting change in travel mode and trip frequency as a result of furlough time

Independent variable	Impact to commute mode	Impact to household mode	Impact # of household trips	Increase household trips
Constant	0.19	0.52	1.74	0.85
Female	1.22	0.83	1.08	0.83
Age	1.00	1.00	0.98	1.02
Partner	0.77	0.75	1.16	0.27**
# of children	1.36*	1.12	1.05	0.82
Child ≤ 6	0.33***	0.71	0.49**	1.16
Household income				
\$49,999 or less	1.71	1.66	2.28*	0.62
\$75,000-\$99,999	0.52 ^ψ	1.04	0.79	1.04
\$100,000-\$124,999	0.58	0.60	0.63	0.67
\$125,000 or more	0.53	0.35**	0.28***	4.21***
Weekly work hours				
32 hours or less	0.48	3.04*	4.63**	0.27
41-50 hours	0.92	1.52 ^ψ	1.71*	0.78
51 hours or more	0.95	3.38**	2.36 ^ψ	0.52
Furlough > 30 days	2.90***	1.42	1.76*	0.94

^ψ p ≤ .10, *p ≤ .05, **p ≤ .01, *** p ≤ .001.

The reference category for household income is \$50,000- \$74,999.

The reference category for weekly work hours is 33-40 hours.

Impact to commute mode: R² = .14 (Nagelkerke). Model $\chi^2 = 35.84$, p ≤ .001, n= 389.

Impact to household mode: R² = .12 (Nagelkerke). Model $\chi^2 = 35.36$, p ≤ .001, n= 390.

Impact to number of household trips: R² = .15 (Nagelkerke). Model $\chi^2 = 47.86$, p ≤ .001, n= 392.

Increase in number of household trips: R² = .14 (Nagelkerke). Model $\chi^2 = 19.42$, p ≤ .10, n= 195.

Binary logistic regression predicted the odds of agreeing that commute or household travel mode had been impacted during their furlough time. As number of children in the household increased, individuals were more likely to agree to an impact, $Exp \beta = 1.36$, $p \leq .05$. Presence of a younger child decreased the likelihood of a change in mode; one possible explanation may be that younger children inhibit flexibility when choosing travel mode choices. Those earning \$75,000-\$99,999 were less likely to agree to an impact when compared to the reference group below them, although the odds were slightly less significant, $Exp \beta = .52$, $p \leq .10$. Work hours had no significant effect, nor did gender, age or presence of a partner. A furlough length of more than 30 days made employees significantly more likely to report an impact, $Exp \beta = 2.90$, $p \leq .001$.

Neither gender, age, presence of a partner, number of children nor presence of a younger child had a significant effect on predicting impact to household mode. The highest income earners (\$125,000 or more) were less likely to agree that their household travel mode had been affected, $Exp \beta = .35$, $p \leq .01$. Working 32 hours or less and 51 hours or more had similar effects; both groups were about three times as likely to agree to an impact. The odds ratio was smaller for those working 41-50 hours, $Exp \beta = 1.52$, $p \leq .10$. While furlough length had a strong significant effect on commute mode, it had no significant effect on predicting impact to household mode.

The presence of a younger child was associated with being less likely to report an impact to household trips, $Exp \beta = .49$, $p \leq .01$. Those with longer furloughs were more likely to report an impact. Income and work hours generally had larger effects than did furlough length. Employees with household incomes of \$49,999 or less were twice as likely to report an impact, while the highest income group was less likely to report an impact, $Exp \beta = .28$, $p \leq .001$. Being in a middle-income household did not have a significant effect on number of trips. Working 32 hours or less increased the odds by four times, $p \leq .01$, and those working the longest hours were twice as likely, although the effect was not as significant, $p \leq .10$. Furlough length had no significant effect on predicting an increase in

number of household trips, although being in the highest income bracket was associated with a substantial increase in odds, $Exp \beta = 4.21$, $p \leq .001$. Having a partner decreased the odds of making more household trips, perhaps because partners ease the burden of household travel.

Change in meal frequency during furlough time

Fifty percent of individuals reported no significant change in consuming meals from scratch during their furlough time. Of the remaining fifty percent who did see a change, 4% decreased their meals from scratch and 46% increased, $n = 1420$. Forty percent saw no significant change in their visits to restaurants or sit-down cafes, 57% saw a decrease in restaurant meals and 3% an increase, $n = 1421$. Fifty-five percent reported no significant change in convenience food, followed by 37% who decreased and 8% who increased, $n = 1409$. The least amount of change occurred within delivered food, where 78% experienced no significant change, 21% decreased frequency and 1% increased, $n = 1359$.

Pearson chi-square tests looked for significant associations between demographic characteristics, furlough length and typical meal frequency. As expected, gender, presence of a partner and presence of a child under age 18 had frequent significant association with frequency. Presence of a child under age six was only slightly significant to change in delivery meals, $p < .10$, and weekly work hours was only significant to frequency of meals from scratch. There were significant associations between furlough time and meals from scratch and convenience food but not for restaurant/sit-down café meals or delivery food. The association with meals from scratch, $\chi^2 (6) = 32.38$, $p \leq .001$, was stronger than that for convenience food, $\chi^2 (3) = 13.93$, $p \leq .001$.

Figure 2.

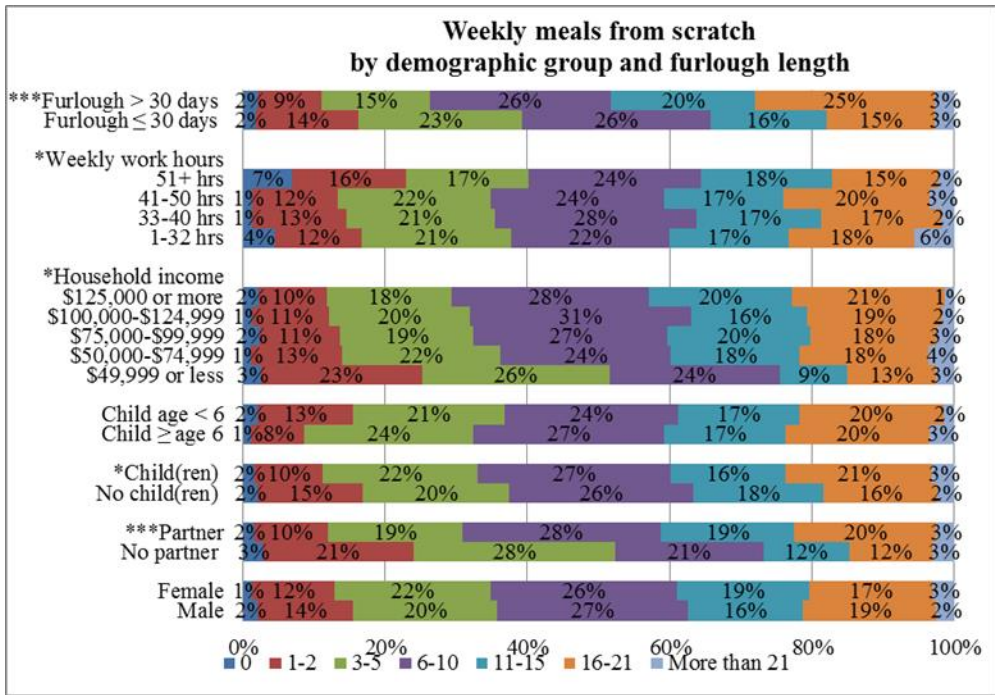


Figure 3.

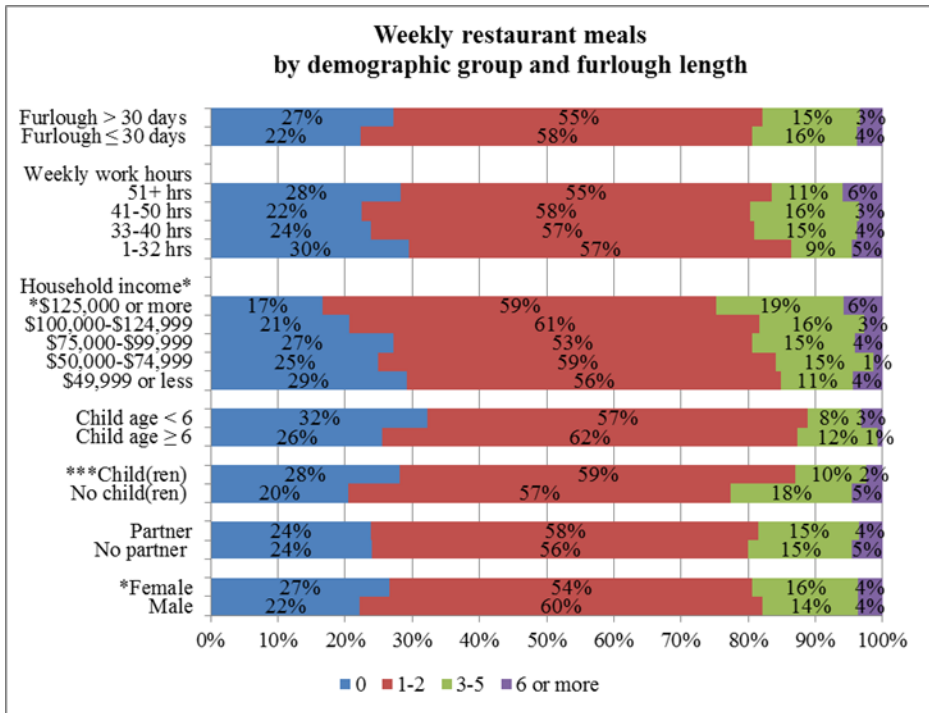


Figure 4.

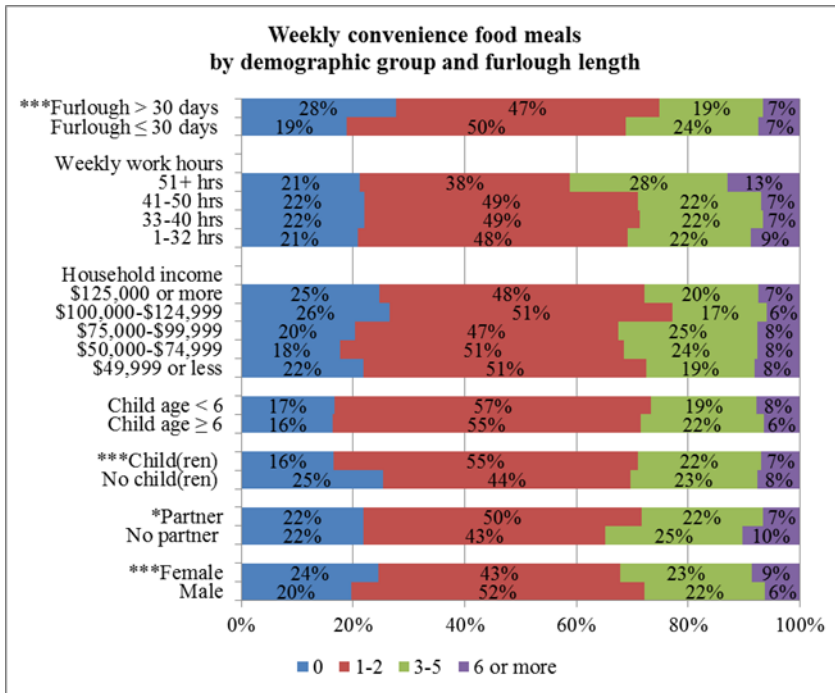


Figure 5.

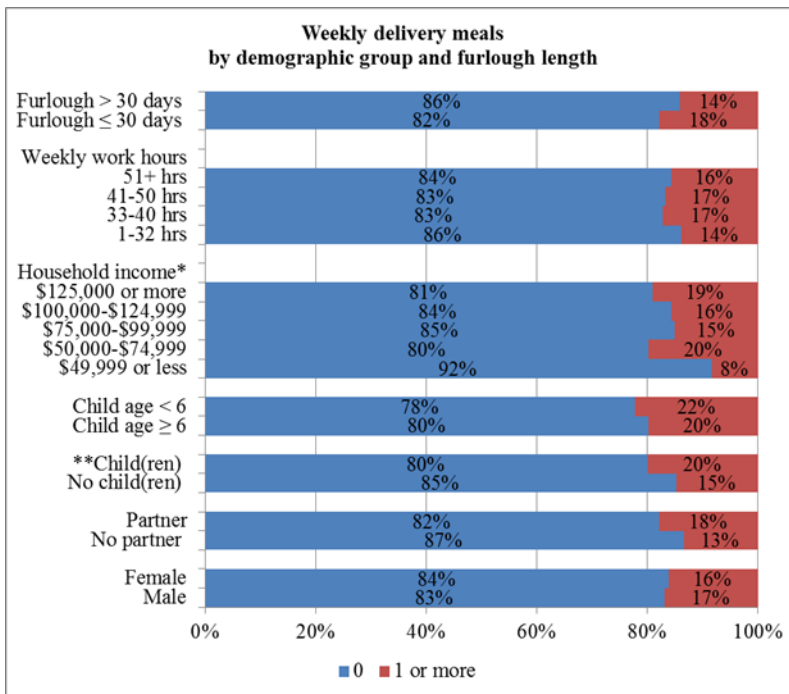


Table 3. Standardized beta values from regression models predicting change in meal type frequency

Independent variable	Meal from scratch	Restaurant/sit down café	Convenience food	Delivery
Female	0.19***	-0.22***	-0.09 ^ψ	-0.08
Age	-0.02	-0.02	-0.04	0.04
Partner	0.02	-0.05	-0.08	-0.02
# of children	-0.05	0.02	-0.01	0.04
Child age < 6	0.03	0.00	0.01	0.07
Household income				
\$49,999 or less	-0.13*	-0.05	-0.12*	0.03
\$75,000-\$99,999	-0.08	0.05	-0.05	0.13*
\$100,000-\$124,999	-0.13*	0.01	-0.04	0.11 ^ψ
\$125,000 or more	-0.22***	0.23***	0.11 ^ψ	0.21***
Weekly work hours				
32 hours or less	0.02	0.05	-0.01	0.06
41-50 hours	0.00	-0.09 ^ψ	0.00	-0.03
51 hours or more	-0.10*	-0.14**	0.06	-0.03
Furlough > 30 days	0.25***	-0.24***	-0.09 ^ψ	-0.20***

Reference group for income is \$50,000-\$74,999.

Reference group for weekly work hours is 33-40 hours.

Reference group for relationship status is married or living with significant other.

^ψ $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Meal from scratch: $R^2 = .13$, $p \leq .001$, $n = 389$.

Restaurant/sit-down cafe: $R^2 = .14$, $p \leq .001$, $n = 389$.

Convenience food: $R^2 = .04$, $p > .10$, $n = 387$.

Delivery: $R^2 = .06$, $p \leq .05$, $n = 378$.

Age, presence of a partner or child, and presence of a younger child did not significantly contribute to any of the models predicting change in meal frequency. Gender had a significant effect on change in frequency of meals from scratch, restaurant meals and convenience food. Being female had a positive effect on change in meals from scratch and a negative effect on restaurant and convenience food; the effect of gender on convenience food was extremely slight. Household incomes that were lower and higher than the reference group's exerted a significant negative influence on change in meals from scratch. A household income of \$125,000 or more was the only income level to have a significant effect on restaurant meals, $\beta = .23$, $p \leq .001$. Working 51 hours or more had significant negative effect on change in convenience meals, $\beta = -.14$, $p \leq .01$; working 41-50 hours had an extremely slight, and less significant, negative effect. Earning \$49,999 or less level exerted a significant negative effect on change in convenience food, $\beta = -.12$, $p \leq .05$; earning \$125,000 or more had a positive, though less significant effect, $\beta = .11$, $p \leq .10$. Being in a higher income bracket had a significant positive effect on change in frequency of delivery food, where being in the highest income bracket had the strongest effect. Furlough length had the expected positive effect on change in meals from scratch, and the expected negative effect on restaurant, convenience food and delivery meals. The effect of furlough length was smallest on convenience food, $\beta = -.09$, $p \leq .10$.

Discussion

An important finding about change in food and travel consumption habits as a result of furlough frequency was that a moderate percentage of employees reported significant change in consumption behavior. Nineteen percent and 29% of employees reported an impact to commute or household travel mode, respectively. The most frequently reported change across the travel and food consumption categories was impact to number of household trips, where 58% of respondents reported an impact; three quarters of which described a decrease in trips. Between 22% and 60% saw a change in consumption of home produced or outsourced meals. Given that the average furlough length was 38 days,

or about one day per month over the previous three years, it makes sense that the mean change in different meal type frequencies was slight.

Individuals with short and long furloughs demonstrated an appreciable difference in personal automobile use for commuting and household activities. Mean personal automobile use for commuting was about 17 percentage points lower for those with long furloughs and mean personal automobile use for household activities was 10 percentage points lower. Public transportation and walking were likely alternatives; mean public transportation use for commuting was 27 percentage points higher for those with long furloughs. One explanation for the discrepancy in automobile use between furlough groups may be that the majority of employees with longer furloughs were living in California where access to alternative transportation modes may have been better. Future research should control for exogenous variables such as access to public transportation, land use mix and connectivity. For example, one method to measure access to public transportation is to ask about the number of bus stops within walking distance. Land use maps provide information about access to nonwork activity destinations and ease of walking and biking.

At the univariate level, furlough length had significant associations with impact to commute mode, general agreement that number of household trips had changed, and more specifically, with an increase in household trips. There was no significant association between furlough length and impact to household mode. After controlling for demographic characteristics, furlough length increased the odds of an impact to commute mode and number of household trips, but was not significant to predicting an impact to household travel mode or an increase in household trips. It may take deeper income cuts and more time to develop new habits to spur change in commute mode. Weekly work hours were significant in the model for impact to household travel mode, which suggests that the discretionary time offered by work-time reduction has the potential to play an important role in prompting the use of alternative travel modes.

Furlough length was significantly associated with frequency of meals from scratch and convenience food at the univariate level, but not with restaurant meals or delivery. Regression models that predicted change in meal frequency while controlling for demographic and furlough characteristics found that furlough length predicted an increase in household meal production and a decrease in meal outsourcing. The coefficient size for furlough length was similar for all meal types except for convenience food, where it had an extremely slight negative effect. It may take more time or deeper, more permanent income cuts before individuals change convenience food habits. Brunner et al. suggest looking at convenience food use following a change in life circumstances such as moving households or starting a new job to examine the role that habit plays in convenience food use (Brunner, van der Horst, & Siegrist, 2010). Future research could account for strength of the food consumption habit prior to the change in time and income resources and may wish to gather information on environmental or emotional cues associated with meal type choices or preferences for different meal types.

Conclusion

This study examined household food consumption and travel behavior as individuals spent less time in paid labor via regularly scheduled, temporary, unpaid leave. A survey of furloughed government employees provided empirical data in which to explore the research question. The average furlough length was 38 days over the course of 3 years. A moderate percentage (22%-60%) reported change in consumption of home-produced or outsourced meals and fewer (19% and 29%) experienced an impact to commute and household travel mode, respectively. Household trip frequency was more accessible to change; 58% reported an impact to number of trips. Furlough length had an extremely slight effect when predicting change in convenience food consumption and no effect on household travel mode. Future research may want to examine how convenience food consumption and household travel mode choice act as reduced work time becomes more frequent and permanent in order to better understand time and income as drivers of these behaviors. Work hours, where significant, generally had larger effects on predicting

impact to household travel mode or number of trips than did income. Household travel mode may be a consumption area where individuals are more amenable to using their discretionary time to use slower, or more planned, transportation modes. For impact to commute mode, income was only slightly significant at one income level, but number of children and presence of a younger child exerted significant effects. Furlough length increased the odds of an impact to commute mode. Reduced work hours may have to become more frequent before individuals consider making a change to their commute mode. Deeper income cuts or more time to break travel habits may be needed to spur change. Commuting has been described as one of the least enjoyable uses of time; individuals may be extremely reluctant to change commute habits if they conceive their travel mode as making their daily routine easier. It is also possible that those with longer furloughs were living in areas with better access to alternative commute modes. I recommend future research control for access to alternative transportation modes and nonwork activity destinations.

References

- Aguiar, M., & Hurst, E. (2005). Consumption versus Expenditure. *The Journal of Political Economy*, 919-948.
- Bawa, K., & Ghosh, A. (1999). A Model of Household Grocery Shopping Behavior. *Marketing Letters*, 149-160.
- Becker, G. S. (1965). A Theory of the Allocation of Time. *The Economic Journal*, 493-517.
- Bellante, D., & Foster, A. C. (1984). Working Wives and Expenditure on Services. *Journal of Consumer Research*, 700-707.
- Bianchi, S. M., Milkie, M. A., & Sayer, L. C. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, 191-228.
- Brunner, T. A., van der Horst, K., & Siegrist, M. (2010). Convenience food products. Drivers for consumption. *Appetite*, 498-506.
- Darian, J. C., & Cohen, J. (1995). Segmenting by consumer time shortage. *Journal of Consumer Marketing*, 32-44.
- Davidov, E., Schmidt, P., & Bamberg, S. (2003). Time and Money: An Empirical Explanation of Behavior in the Context of Travel Mode Choice with the German Microcensus. *European Sociological Review*, 267-280.
- Delbosc, A., & Currie, G. (2011). Journal of Transport Geography. *Transport Problems that matter- social and psychological links to transport disadvantage*, 170-178.
- Grossman, M. (1973). Unemployment and Consumption: Note. *The American Economic Review*, 208-213.
- Hayden, A. (2006). France's 35-Hour Week: Attack on Business? Win-Win Reform? Or Betrayal of Disadvantaged Workers? *Politics and Society*, 503-542.
- Heslop, L. A., Madill, J., Duxbury, L., & Dowdles, M. (2007). Doing what has to be done: Strategies and orientations of married and single working mothers for food tasks. *Journal of Consumer Behavior*, 75-93.
- Hurd, M., & Rohwedder, S. (2003). *The Retirement Consumption Puzzle: Anticipated and Actual Declines in Spending at Retirement*. Cambridge: National Bureau of Economic Research.
- Kim, C. (1989). Working Wives' Time-Saving Tendencies: Durable Ownership, Convenience Food Consumption, and Meal Purchases. *Journal of Economic Psychology*, 391-409.

- Kitamura, R., Mokhtarian, P. L., & Laidet, L. (1997). A micro-analysis of land use and travel in five neighborhoods in the San Francisco Bay Area . *Transportation* , 125-158.
- Lucas, M. T., & Nicholson, C. F. (2003). Subsidized vehicle acquisition and earned income in the transition to welfare to work. *Transportation*, 483-501.
- Mancino, L., & Newman, C. (2007, May). *Who Has Time to Cook? How Family Resources Influences Food Preparation*. Retrieved December 18, 2011, from United States Department of Agriculture: <http://www.ers.usda.gov/publications/err40/err40.pdf>
- Pollak, R. A., & Wachter, M. L. (1975). The Relevance of the Household Production Function and Its Implications for the Allocation of Time. *Journal of Political Economy*, 255-278.
- Rajamani, J., Bhat, C. R., Handy, S., Knaap, G., & Song, Y. (2003). Assessing Impact of Urban Form Measures on Nonwork Trip Mode Choice After Controlling for Demographic and Level-of-Service Effects. *Transportation Research Record*, 158-165.
- Reynolds, J. (2005). In the Face of Conflict: Work-Life Conflict and Desired Work Hour Adjustments. *Journal of Marriage and Family*, 1313-1331.
- Saelens, B. E., Sallis, J. F., & Frank, L. D. (2003). Environmental Correlates of Walking and Cycling: Findings From the Transportation, Urban Design, and Planning Literatures. *The Society of Behavioral Medicine*, 80-91.
- Strober, M. H., & Weinberg, C. B. (1980). Strategies Used by Working and Nonworking Wives to Reduce Time Pressures. *Journal of Consumer Research* , 338-348.
- Szplett, D., & Kieck, L. T. (1995). Variations of Trip Generation and Trip Distance Within the Urban Area. *Compendium of Technical Papers* (pp. 422-426). Denver: Institute of Transportation Engineers .
- Williams, M. (1978). Factors Affecting Modal Choice Decisions in Urban Travel Some Further Evidence. *Transportation Research* , 91-96.
- Yang, S.-J., & Magrabi, F. M. (1989). Expenditure for Services, Wife's Employment, and Other Household Characteristics. *Home Economics Research Journal*, 133-147.

IV. B. Time and income valuations as moderators of change in life satisfaction when shifting toward slow consumption

Abstract

Proponents of work-time reduction argue that decreased reliance on marketplace goods and services and increased appreciation for time-intensive, home-produced goods and services and leisure activities is essential to enjoying a lifestyle that revolves around less time spent in paid labor. The income-time trade-off at the heart of work-time reduction naturally leads to questions regarding the role that income and time-availability play in life satisfaction. Many studies offer competing insights into how they may influence preferences for and satisfaction with reduced hours. However, none of these studies consider how the appreciation for time as a resource, relative to income, is likely to influence life satisfaction within the context of reduced working hours and a shift toward slow consumption. I expected that individuals who appreciate their time-availability as a means to produce time-intensive household goods and services would be the most likely to adapt positively to a work-time reduction scenario. In a survey of furloughed state-government employees, participants rated the importance of time and income to change in six household food and travel consumption behaviors. Using binary logistic regression models that controlled for demographic characteristics and length of furlough, I found that individuals who rated time as more important than income to change in consumption behavior were significantly more likely to report that they had maintained or increased their life satisfaction during furlough time. The effect of the time/income valuation difference was much larger than those of household income and weekly work hours and suggests that feelings of self-sufficiency are essential to a successful shift to reduced hours.

Introduction

Proponents of work-time reduction argue that decreased reliance on marketplace goods and services and increased appreciation for time-intensive, home-produced good and services and leisure activities is essential to enjoying a lifestyle that revolves around less time spent in paid labor. Work-time reduction is intended to cause a shift toward slow-consumption or slow-living, where fewer material goods are consumed over time and increased time-availability lends itself to “mindful practices which make us consider the pleasure, or at least the purpose of each task to which we give our time.” Growing food in a household garden instead of purchasing it at the grocery store and walking and biking instead of driving are examples of slow-living practices (Parkins, 2004). Monetary gain and material acquisition would slow as work hours were reduced and time-affluence would be valued more as a means to produce household goods and services, to pursue leisure activities and to invest in social capital. The income-time trade-off at the heart of work-time reduction naturally leads to questions regarding the role that income and time-availability play in life satisfaction. The relationship between income and life satisfaction at the individual and national levels has been studied extensively. Time-use accounting has been proposed as an alternative indicator as the relationship between income and life satisfaction remains complex. Studies on work-life balance document demographic and job characteristics which are likely to predict a desire for, or satisfaction with, reduced work hours. However, none of these studies consider how appreciation for time as a resource, relative to income, is likely to influence life satisfaction within the context of a shift toward slow-consumption. Work time reduction is predicted to promote time spent on household production, for which individuals may have different preferences. I expect that individuals who appreciate their time-availability as a means to produce time-intensive household goods and services would be the most likely to adapt positively to a work-time reduction scenario. Including a measurement that accounts for subjective valuations of the time/income trade-off may add explanatory power to models that predict change in life satisfaction and may illuminate how cultivating an appreciation for time contributes to life satisfaction.

First, key findings from the literature on work hours and time spent on household production are briefly discussed, followed by findings on the relationship between life satisfaction and income, time-use, and workplace flexibility studies. Second, I describe methods for collecting empirical data using an online survey of furloughed state-government employees and explain the model for predicting change in life satisfaction for those who reported change within six household food and travel consumption behaviors as a result of reduced work-hours. Third, results are presented. Lastly, I discuss how study findings contribute to the larger discussion on time and income trade-offs within the context of a shift toward slower consumption.

Literature Review

Reduced work hours, work-time flexibility and a shift toward home production

Some of the earliest documentation on the effects of shorter work-days on work/life balance comes from Kellogg's six-hour work day. Workers describe using the extra free-time for activities such as gardening, canning, visiting, sports and family projects. Hunicutt writes that the shortened work day offered a margin of free-time for leisure that was not "resting to do more work" or for passive "amusement" or mindless consumption (Hunnicut, 1996)." Modern day proponents of work-time reduction envision a shift away from a work to spend lifestyle toward a lifestyle that offers diverse ways to meet one's needs, such as self-provisioning, co-ops, and bartering (New Economic Foundation, 2010; Schor, 2010).

Interest in work hours and their relationship with time spent on household production increased as women entered the market labor force. Several studies have found that working wife families purchase more meals away from home than families with non-working wives (Bellante & Foster, 1984; Darian & Cohen , 1995; Kim, 1989), but results from studies on hours of employment and expenditure on convenience food items are mixed; some found significant relationships, others not (Heslop, Madill, Duxbury, & Dowdles, 2007). Time spent on household production increases greatly when

involvement in the labor market changes dramatically, such as in retirement and unemployment (Aguilar & Hurst, 2005; Hurd & Rohwedder, 2003). Studies have looked at how work-time flexibility policies contribute to the gender gap in household work and compared the amount of time that flextime and standard time workers spend on family chores and outsourcing of household meals (Noonan, Estes, & Glass, 2007; De Ruijter, 2007). Work-time flexibility refers to the ability of workers to alter the start and end-times of their work days and is intended to increase employees' time and energy available for family care. Bohlen and Viveros-Long found that schedule flexibility increased time on family chores only for single mothers and that there was no significant difference in time spent on chores for any other subgroups on flextime (Bohlen & Viveros-Long, 1981).

Income and life satisfaction

The effect of income on life satisfaction should be factored in when examining change in life satisfaction during a period of work-time reduction. At the individual level, the correlation between household income and reported general life happiness on a numeric scale (distinct from experienced happiness over time) in U.S. samples typically ranges from $r = 0.15$ to $r = 0.30$. Data from the 2004 General Social Survey revealed that income has a considerable effect on reported happiness. Individuals "with incomes over \$90,000 were nearly twice as likely to report being 'very happy' as those with incomes below \$20,000. There was hardly any difference between the highest income group (\$90,000 and over) and those in the next highest group (\$50,000-\$89,000) (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2006)."

When subjective well-being is measured on a real-time basis, the correlation between experienced happiness averaged over the course of the day and income is not as strong. As income rises, people tend to spend more time on work, mandatory non-work activities, such as shopping and childcare, and active leisure. The activities that higher-income individuals spend relatively more of their time engaged in are associated with no greater happiness, on average, but with slightly higher tension and stress, which might help explain why income is more highly correlated with general life satisfaction than with

experienced happiness. Tension and stress may accompany goal attainment, which in turn contributes to judgments of life satisfaction more than it does to experienced happiness (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004). A RAND study found that of the four most important contributors to life satisfaction (job or daily activities, social contacts and family, health and income), income had the lowest impact (RAND Corporation, 2009).

Large income effects are particular to general individual life satisfaction and seem to disappear when looking at trends in income/happiness over time. The Easterlin Paradox describes the phenomena where, at the national level, we see relatively stable levels of happiness despite large increase in income (Easterlin R., 1995). Country-level data has not demonstrated that large increases in income over time are associated with increases in average subjective well-being (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004). At low or moderate levels of consumption, rising income is correlated with a significant improvement in welfare. However, beyond a certain point, the marginal utility of consumption slows and the pursuit of additional income can even diminish quality of life (Costanza, 2007). At the national level “average life satisfaction tends to rise with gross domestic product per capita at low levels of income, there is little or no further increases in life satisfaction once GDP per capita exceeds \$12,000.”

Relative affluence, where individuals constantly compare themselves to their peers, is one explanation for why we do not see income effects on life satisfaction over time. If everybody is getting richer and staying in the same place relative to one's peers, then the effect of income over time would be stable (Brooks, 2008). One study found support for the theory when two-thirds of participants thought they would be happier at a job where they earned more than their co-workers than at a job where they reached their personal salary maximum, but made less than their coworkers (Solnick & Hemenway, 1998). DiTella and MacCulloch support the idea that relative income has a positive effect on income but reject the idea that it has a more important effect on happiness (Di Tella & MacCulloch, 2008).

Another explanation for the Easterlin Paradox is the “hedonic treadmill” whereby individuals grow accustomed to their current level of income and continually desire more. A 1978 study presented participants with a list of 24 major items, such as a house, international travel and swimming pool, and asked which items they owned and which they felt they needed for the good life they’d like to have. They asked the same participants the same question 16 years later and found that while they had accrued more of the items on the list, their list of items necessary for the good life had also grown (Easterlin R. A., 2003). The Leyden approach measures “the principal of adaptation” by asking individuals what income level they require. In general, studies show that the amount is 40% of the current amount. The required amount will jump up even after a raise (Brooks, 2008). Judgment for what constitutes a sufficient income is informed not only by individual circumstances, such as family size, but current income and past and expected income (van Praag & Frijters, 1999). Effects of the hedonic treadmill and relative affluence may always be present and exerting on life satisfaction; if work-time reduction cannot stop the treadmill, it attempts to slow it down.

Time use and life satisfaction

The United Nation’s Human Development Index, the Genuine Progress Indicator, etc. are recognized as valuable non-economic indicators of national well-being (Vemuri & Costanza, 2006). To the effect that the amount of time spent doing enjoyable activities indicates well-being, Krueger et al. proposed a national time-accounting system. Their day reconstruction method classified time-use activities by whether or not the most intense feeling experienced at the time was negative. They found that time spent on religious activities, sports and exercise, eating and drinking, leisure and socializing had lower levels of negative affect. The correlation between reported life satisfaction and net affect in the PATS was $r = .35$ (Krueger, 2009), which is higher than the typical range for correlations between general life happiness and income for American samples (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2006). Asking for generic, belief-based judgments about time-use activities versus capturing emotions during specific

episodic events produces different classifications. Juster measured activity benefits by asking participants to rate how much they enjoy a given activity and observed that interacting with one's children topped the list of enjoyable activities, followed by going on trips with one's friends and working at one's job. In Krueger et al.'s study, taking care of one's children ranked just above some of the least enjoyable activities, such as spending time on the computer, housework, working and commuting. While overall, individuals may get enjoyment out of an activity, the day reconstruction reflects the variety of emotions experienced during specific episodes

Evidence of the effect of work time on life satisfaction can be duplicitous. DiTella and MacCulloch found that hours worked had a significant negative effect on happiness of 350,000 individuals in OECD countries. They estimated that a 1% increase in working hours would have to be compensated with a 2.4% rise in GDP in order to see an increase in happiness (Di Tella & MacCulloch, 2008). In a study by Kasser and Brown, being time affluent seemed to support happiness; the correlation between work hours and happiness was $r = -.14$, $p < .05$. They stress that correlation does not imply causation; for example, unhappy people might work more to escape problems and we do not know if working fewer hours really makes people happier (Kasser & Warren Brown, 2003). One study found that time pressure at work was unrelated to enjoyment of home situations, even though it had a significant negative effect on enjoyment at work (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2004). Brooks argues that work in and of itself brings a lot of happiness and meaning to Americans' lives. In 2002, Americans were asked if they would stop working if they were given enough money to live comfortably for the rest of their lives. Only 39% said they would stop working and 69% said they would continue working. People who work more are likelier to report higher levels of happiness and it is only when working hours exceed the average range do we see negative effects. Having more hours to relax is not related to higher happiness (Brooks, 2008).

Trading time for income

If the previous studies tell us anything, it is that it may be extremely hard to predict how different combinations of income and work-time contribute to life satisfaction and to predict preferences for time spent in paid labor and free-time. Theorists have proposed that at a certain point, the utility of any additional income will be less valuable than free-time, but the ways in which time and income trade-offs are made are highly speculative. Juliet Schor writes that while individuals often say they would trade income for free-time in the future, they rarely do (New Economic Foundation, 2010). In the 2008 American General Social Survey, 11% of workers said they wished they could spend less time in paid labor and 12% said they wished they could spend more time (Brooks, 2008).

Studies have investigated whether certain demographic groups are more willing to trade income for free-time, ie. men and women (Reynolds, 2005; Moen & Dempster-McClain, 1987) or those with children and those without (Reynolds, 2005; Clarkberg & Phyllis, 2001; Jacobs & Gerson, 2000). Reynolds found that women were more likely to want reduced work hours, regardless of whether work/life conflict sprang from work or family life, while men were likely to want reduced hours only if their work life interfered with their personal or family life (Reynolds, 2005). Mothers working full-time or more were more likely to work reduced hours, but preferences amongst men working part, full-time or more were similar (Moen & Dempster-McClain, 1987). Noonan, Estes & Glass write that men and women show equally high levels of interest in work-time flexibility and employers tend to offer it to high-level employees, the majority of which are men. The odds of preferring fewer work hours only slightly increased for women according to number of school or pre-school age children, but not for men (Clarkberg & Phyllis, 2001). The effects of age of the youngest child and number of children were insignificant in another model predicting preferences for reduced hours (Moen & Dempster-McClain, 1987) Those with higher incomes have been found more willing to reduce their work hours (Reynolds, 2005; Clarkberg & Phyllis, 2001) Clarkberg and Phyllis observed that financial obligations such as presence of credit card debt predicted a desire for wives to work less and presence of a mortgage predicted that husbands or both spouses would say

they want to work less (Clarkberg & Phyllis, 2001). Reynolds saw that economic rewards were good predictors of work hour preferences. Part-time employees were more often interested in working more and employees who were paid overtime were less interested in reduced hours (Reynolds, 2005). Acknowledgement of work-life conflict had the strongest effect on preference for reduced hours after controlling for effect of gender (Moen & Dempster-McClain, 1987).

Less common are studies on the subsequent effects of work-time reduction on general life satisfaction, and on life satisfaction within different demographic groups. Historical documentation of Kellogg's 6-hour day tells us that women were the last hold-outs for continuing the shortened day. Hayden writes that men and women achieved similar levels of satisfaction with France's 35-hour work week (Hayden, 2006). Parents with younger children were the most positive about the 35-hour week. Fifty-eight percent of parents with a child under age six agreed that the law had made it easier to combine family and work life (Fagnani & Letablier, 2004). Cette, Dromel and Meda found that the use of time made by the shorter working week significantly effected satisfaction. Time use included time for family, rest, household and leisure activities. Citing a lack of time before the shorter work week had a significant positive effect on satisfaction (Cette, Dromel, & Meda, 2004). Work-place flexibility studies may tell us more about how different work schedules affect life satisfaction via work-life balance. One study looked at perceived workplace flexibility as indicated by ability of the employee to select the work location, work hour schedule and what work they do and found that paid hours had a negative effect on work life balance and explained the most variance. Occupational level explained the most variance of the demographic variables and had a negative effect. Presence of preschoolers had a very slight negative effect, as did time spent in unpaid domestic labor (Hill, Hawkins, Ferris, & Weitzman, 2001).

How and when work-hours are scheduled have been shown to have a significant effect on employee satisfaction (Cette, Dromel, & Meda, 2004). Two years after France instituted a 35-hour work week, 55% of employees on permanent contract felt positively about the

law and 50% of those on fixed-term contract felt positively. Parents who had been able to negotiate their work hours viewed work time reduction as having a positive effect on family life. Those working non-standard working hours did not have as positive an experience (Fagnani & Letablier, 2004). The way in which work is organized has been found to be more important to determining views on the effect of work-time reduction than personal characteristics of employees (Doiseneau 2000).

Most of the literature on work-time reduction has focused on salaried professionals. Professionals are more likely to have long work weeks, which are associated with the desire to work less, than are workers with lower skill-levels in other occupations. Lautsch and Scully write “Thirty-seven percent of workers overall express a desire to reduce their work hours, but salaried professionals are more likely to express a desire for reduced hours than are other groups,” probably because they do not face the same repercussions as hourly workers (Lautsch & Scully 2007).

The benefits of time-affluence have been found to be equally available to individuals who have a high need to achieve, who are sensation-seeking or desirous of keeping busy because it is enjoyable, challenging or valued. Time affluence may mediate subjective well-being via mindfulness, which is described as not feeling concerned or distracted about the future or past but able to stay “in the present.” More time affluence was associated with enhanced states of mindfulness, which has been demonstrated to enhance well-being. People with higher time affluence also reported experiencing “more autonomy, competence, and feelings of intimacy with others” and spent more time on activities that satisfied psychological needs and therefore well-being (Kasser & Sheldon, Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence for Four Studies, 2008).

Methods

Research Question

The proposition behind work-time reduction is that individuals would have less income to spend on marketplace goods and services, but more time and energy to spend on household production and leisure activities. A shift from ‘fast’ consumption, where goods and services are consumed quickly, to slow consumption may occur, as might decreased reliance on convenience items to save time, mental or physical energy. Individuals may spend more time on household management activities that may not be associated with higher levels of satisfaction when measured on an episodic level, in addition to having more time for leisure activities. Individuals would cultivate an appreciation for time as it helps decrease consumption of market goods and is put toward time-intensive household production and leisure activities. The studies that may come closest to measuring how time/income trade-offs contribute to life satisfaction may be the ones that relate feelings of being rushed or busy to satisfaction with reduced work hours or a desire to work less. Currently, no studies have documented how appreciation for time as a resource for shifting to slower consumption modes contributes to life satisfaction. I propose that appreciation for time as an input to household and leisure activities is an important determinant of life satisfaction when working less. My research question asks how subjective valuations of time and income as drivers of change in household consumption predict change in life satisfaction during a period of reduced working hours. I expect that individuals who appreciate their time-availability as a means to produce time-intensive household goods and services would be the most likely to adapt positively to a work-time reduction scenario.

Sampling

Mandatory furloughs, in which employees are required to take time off without pay, provided the context in which to explore the research question. An online survey reached state-government employees who were subject to furlough days. A stratified sampling frame provided a regional representation of the United States. States included were California (West/Rockies), Arizona (Southwest), Ohio (Midwest/Great Plains), Maine

(Northeast/Mid-Atlantic), and Georgia (Southeast). The initial sampling frame included employees within the education, environmental and fiscal departments. Employees were eligible to participate if they had been required to take time off sometime between July 1, 2009 and June 30, 2011 and all were subject to mandatory days-off at the time of taking the survey. I examine the importance of income and time-availability to change in frequency of household meal production (meals from scratch) and outsourcing (restaurant, convenience and delivery meals), transportation mode choice for household travel and frequency of household trips. See Appendix for the survey instrument and supplementary materials.

Survey response rate and characteristics of study participants

The survey response rate was 16%. The total sample size for data analysis was 1,452. Participants ranged from ages 23-74; the mean age was $M= 47$ ($SD=10$). Fifty-eight percent of participants were male. The majority of participants (72%) cited married as their relationship status. Thirty-seven percent of participants resided in a 2-person household. The next most common household sizes were 3, 4 and single-person households, which accounted for 20%, 19% and 13% respectively. Forty-one percent of households reported the presence of children under the age of 18. Of those reporting the age of their youngest child, 42% had children under the age of six. The majority of respondents had completed some form of higher education; 40% completed college and 36% had completed a graduate or professional program. Twelve percent reported yearly household incomes of \$49,999 or less. About 50% of participants reported incomes between \$50,000 and \$99,999. Sixteen percent reported \$100,000-\$124,999 and 16% reported \$125,000 or more. Furlough time ranged from 1 to 108 days. The average number of furlough days was 38 days ($SD= 30$).

A model of life satisfaction for those shifting towards slow consumption

Participants reported change in six household food consumption and travel behaviors. Food consumption covered home-produced meals (meals from scratch) and its market-based substitutions: restaurant/sit-down café meals, convenience food (fast-food, drive-thrus, street carts, deli, instant or microwaveable meals) and delivered meals. Participants were asked “How has the frequency with which you’ve eaten the following meal types changed, if at all, during your furlough?” An interval scale recorded responses, where 1= Decreased greatly and 7= Increased greatly. If change was reported, participants were asked “How important is income to this change?” and “How important is time-availability to this change?” Responses were recorded on a six-point scale, where 1= Not at all important and 6= Very important. The importance ratings for time and income to change in consumption behavior were used to develop the key indicator of appreciation for time as a resource for changing consumption habits. Its computation is discussed in detail later.

To assess change in travel consumption, participants rated their agreement with the following statement “Overall, my furlough has impacted my travel mode for household activities.” Examples of household activities included shopping, running errands, or going out for fun, etc. Responses were recorded on a six-point scale where 1= Strongly disagree and 6= Strongly agree. If participants agreed to an impact, they were asked to rate the importance of income and time-availability. Participants also recorded how the number of trips for household activities changed because of their furlough using a scale where 1= Decreased greatly and 6= Increased greatly and again rated the importance of time-availability and income.

The binary logistic regression model below predicted if life satisfaction stayed the same or increased as a result of mandatory time-off. Only those who reported a change in consumption behavior were included.

$$P(Y) = \frac{1}{1 + e^{- (b_0 + b_i + b_w + b_f + b_p + b_c + b_{fd} + b_{ti})}}$$

b_i = Household income

b_w = Weekly work hours

b_f = Female

b_p = Partner

b_c = Presence of children

b_{fd} = 30 days or more furlough

b_{ti} = Time/income valuation difference

Where $P(Y)$ = the probability that life satisfaction stayed the same or increased. We asked “How has your life satisfaction changed since your furlough began?” Responses were recorded on a 7-point scale where 1= Decreased significantly and 7= Increased significantly and recoded to a dummy variable, where 0= Life satisfaction decreased and 1= Life satisfaction stayed the same or increased.

There are two scientific approaches to measuring quality of life. The first approach measures “objective circumstances of living or social indicators,” such as literacy and suicide rates, life expectancy, material affluence or political freedom (Brajsa-Zganec, 2011). Veenhoven argues that many objective social indicators presume to measure quality of life because we are uncertain about the extent to which they satisfy human needs (Veenhoven, 2005). For example, a long life is not necessarily a life well-lived. The second approach measures subjective well-being. Researchers define subjective well-being as a broad construct that encompasses cognitive and affective reactions to life as a whole (Brajsa-Zganec, 2011).” It is most commonly measured by asking “All things

considered, how satisfied are you with your life as a whole these days?" Subjective well-being is also measured using the experience sampling method which asks people to report their feelings in real time (Kahneman, Krueger, Schkade, Schwartz, & Stone, 2006; Krueger, 2009). It makes little difference whether happiness or life satisfaction is the measure of well-being; a 2007 European Quality of Life survey asked participants to rate happiness and life satisfaction and found that the mean ratings were similar (Blanchflower & Oswald, 2011).

Household income is a dummy variable where 1= \$100,000 or more. I predicted that household income would have a positive association with life satisfaction. Employees with higher household incomes may be more prepared to withstand income loss and maintain higher levels of consumption. Weekly work hours is a dummy variable where 1= 46 hours or more; I expected work hours to have a positive association with maintaining or increasing life satisfaction during furlough time. It is theorized that at a certain point, the utility gained from extra working hours diminishes and individuals would rather trade income for free-time. At some point, individuals need time to enjoy the goods, services and leisure activities that their income affords them.

Gender and the presence of children were included in consideration of previous studies, although I did not make a specific hypothesis about their effect. The literature on gender and satisfaction with reduced working hours presents conflicting information. Women were some of the staunchest supporters of Kellogg's six hour work day. Women continue to carry the greater burden of household work, even when working similar hours in the marketplace to men, and may achieve greater levels of satisfaction during furlough time because it alleviates higher levels of pressure stemming from work-life balance. Alternatively, Hayden writes that men and women achieved similar levels of satisfaction with France's 35-hour work week.

Children may be indicators of greater pressure to achieve work-life balance and furlough time may be more valuable to those with children. Cette, Dromel and Meda found that

the use of free time for family, rest, household and leisure activities had a positive association with satisfaction with France's 35-hour work week. However, child care activities are not associated with higher levels of happiness. Those without children may spend their time engaged in activities associated with higher levels of happiness. Presence of a partner was included because of the finding that single mothers took advantage of flextime to manage household chores. Employees without a partner may appreciate the time to a greater degree than those who have partners with whom to share household responsibilities.

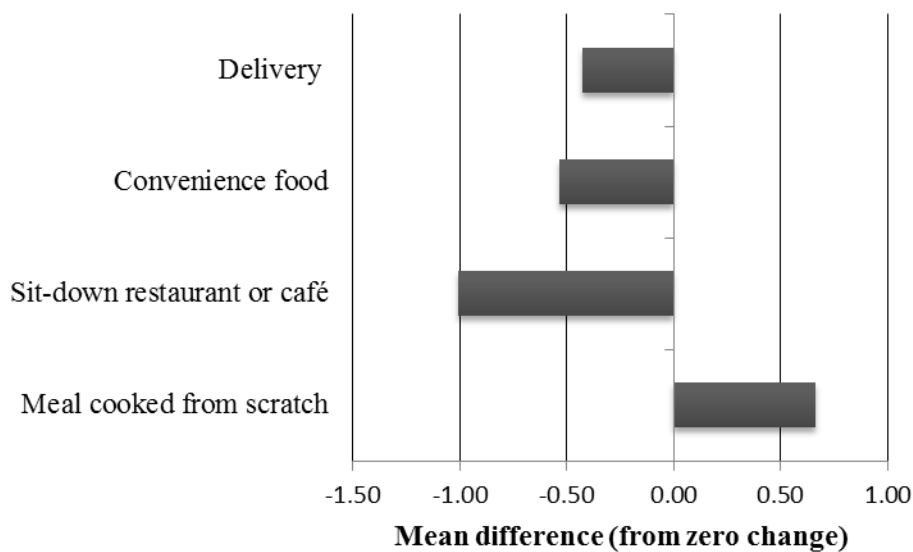
I control for furlough length, which is a dummy variable representing 30 days or more of furlough. I hypothesized that furlough length would have a negative relationship with change in life satisfaction although I acknowledge that it is difficult to separate the effects of income loss and increased time-availability that may be competing with one another. Shorter furloughs induce less income loss, but may not provide enough time to fully realize the benefits of having extra free-time. Longer furloughs induce deeper income cuts, but may give individuals more time to adjust to their new time and income constraints and figure out ways to maintain or increase satisfaction.

The time/income valuation difference measures the importance of time-availability to a change in consumption behavior relative to the importance of income. The difference was computed by subtracting the response to the question "How important is income to this change?" from the response to "How important is time-availability to this change?" Computed responses ranged from -5 (time not at all important/income very important) to 5 (time very important/income not at all important). A response of zero indicated that time and income mattered equally to the change. Responses were then recoded to a dummy variable where 0 = Income more important or time/income equally important and 1 = Time-availability more important. I expected that the time/income valuation difference would have a positive effect on change in life satisfaction. Individuals who viewed time-availability as more important to change than income would be likely to

report an increase in life satisfaction because they took advantage of the major benefit offered by furlough time: more free time.

There are a multitude of other indicators that could have been included in the model to predict life satisfaction; indicators of social status (educational attainment or occupation) and specific measures of how time was spent, for example. I chose to focus on measures of income and time-availability, as represented by household income and weekly work hours, and to control for a select number of demographic variables (gender, presence of a partner and presence of a child(ren)) that consistently have been shown to affect amount of time spent in household production and leisure activities, which in turn may effect life satisfaction. The primary interest is the role that an appreciation for time, to the extent that it is valued more highly than income, plays in maintaining, or even increasing, positive levels of life satisfaction. In the bigger picture, subjective perceptions of time and income may be more important to predicting acceptance of work time reduction than would objective measures such as typical work hours and personal or household income.

Figure 6. Mean change in meal frequency



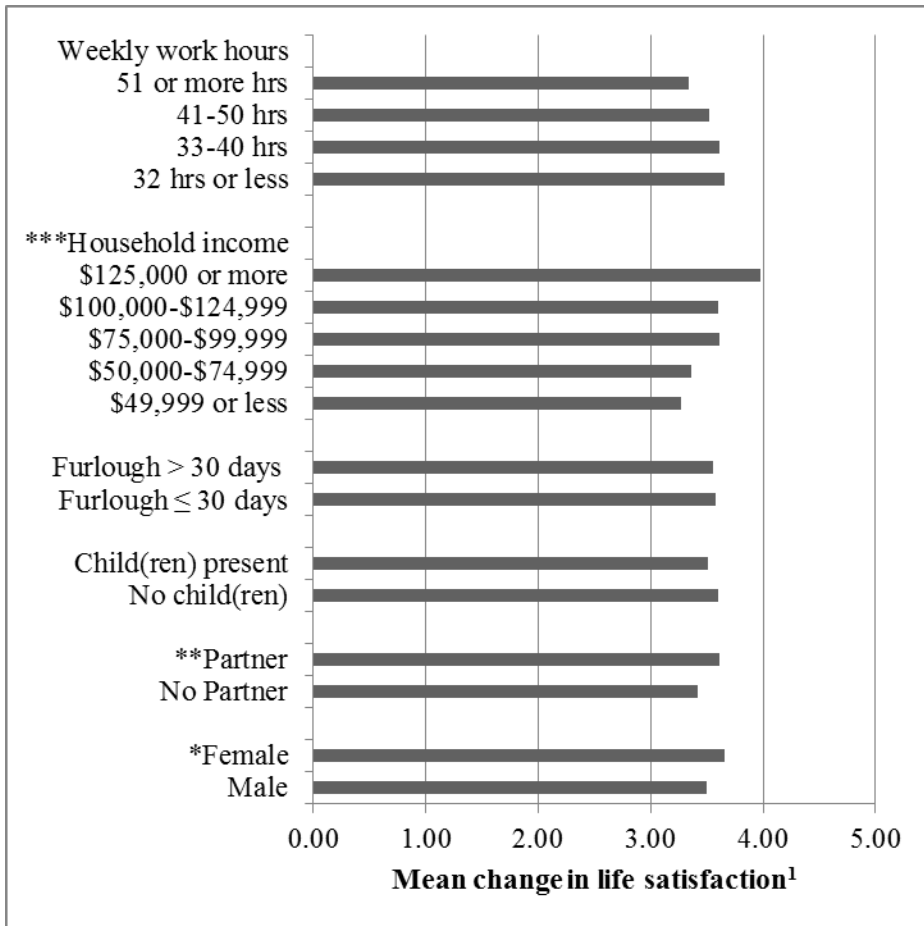
Results

Change in consumption behavior as a result of furlough time

Overall, frequency of outsourced meals via restaurant, convenience, and delivery food decreased and consumption of home-produced meals increased. The biggest change occurred within meals at sit-down restaurants/cafes where the mean difference from zero change was $M = -1.01$, 95% CI $[-1.07, -.94]$ followed by an increase in meals cooked from scratch, $M = .66$, 95% CI $[.60, .72]$, and a decrease in convenience food, $M = -.53$, 95% CI $[-.59, -.48]$, and delivery, $M = -.43$, CI $[-.48, -.37]$.

Fifty-eight percent agreed that there had been an impact to the number of trips they made for household activities and 42% disagreed ($n = 1446$). Of those who described the impact, 24% took more trips and 76% took fewer trips ($n = 606$). Twenty-nine percent of respondents ($n = 1442$) agreed with the statement “Overall, my furlough has impacted my travel mode for household activities.” Of those whose household travel mode had been impacted ($n = 422$), 53% reported they switched to a personal automobile, 26% switched to walking, 18% switched to carpooling, 16% to biking, 10% to public transportation and 7% to a motorcycle or scooter. Elaboration on the impact to household travel mode generally described methods used to reduce the number of household trips. Of the 48 people who cited “other,” 11 described some variation on combining errands to reduce the number of trips. Others cited traveling less and staying at home. One person reported being “less likely to consider distant travel.”

Figure 7. Mean change in life satisfaction since furlough began



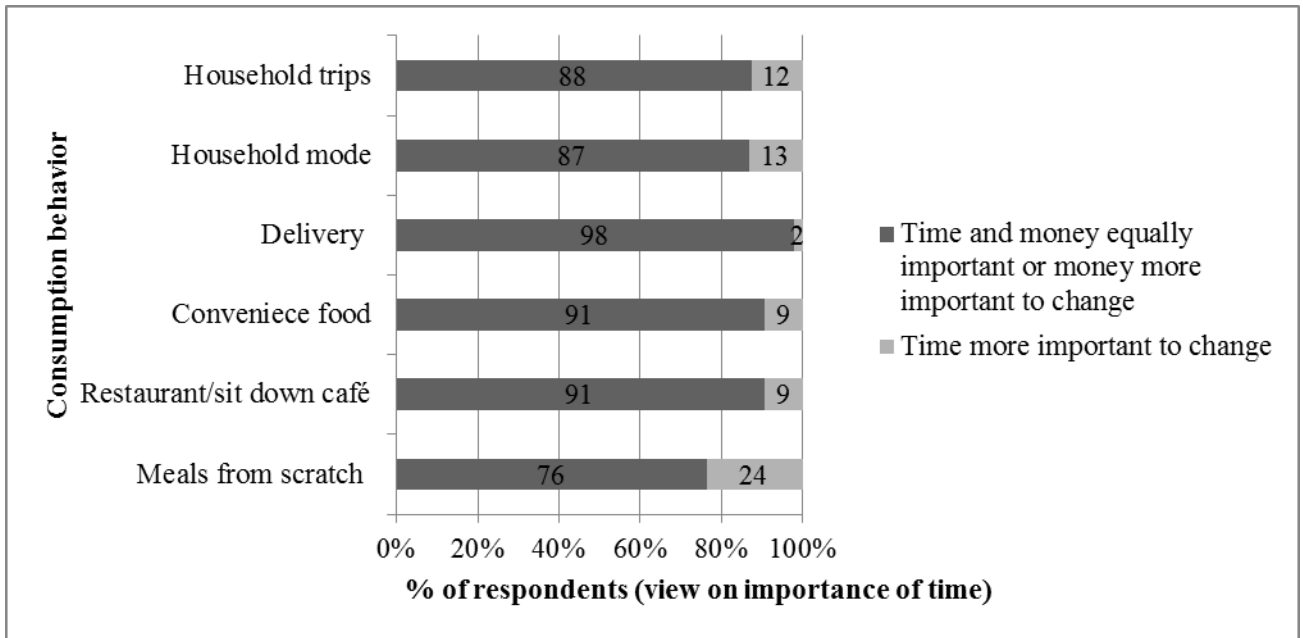
Change in life satisfaction as a result of furlough time

Average life satisfaction was measured using a 7-point scale where 1= Very dissatisfied and 7= Very satisfied and was M= 5.59 (SD= 1.52), n= 1440. Participants rated how their satisfaction had changed since their furlough began using a 7-point scale where 1= Decreased significantly and 7= Increased significantly. Mean change in life satisfaction

¹Change in life satisfaction was measured on a 7-point scale where 1=Decreased significantly and 7=Increased significantly. Asterisks denote that ANOVA or independent t-tests found that group means were significantly different, *p ≤ .05, **p ≤ .01, *** p ≤ .001.

was $M= 3.56$ ($SD=1.18$), $n= 1440$, which is equivalent to a slight decrease. One way analysis of variance found that income groups reported significantly different changes in life satisfaction as a result of their furlough, where income had a positive effect on satisfaction, $F(4, 1337) = 12.94$, $p \leq .001$. Post-hoc tests revealed that income was significant when comparing those in the lowest income bracket to the two highest income brackets, and those earning \$50,000-\$74,999 to those in the second highest income bracket. Weekly work hours had no significant effect, $F(3, 1396) = 1.92$, $p > .10$. The average change in men's satisfaction ($M= 3.50$, $SD= 1.50$) was slightly greater than women's ($M= 3.66$, $SD= 1.32$), $p \leq .05$. Mean change in satisfaction for individuals without partners ($M= 3.42$, $SD=1.26$) was also slightly greater than it was for those with partners ($M=3.61$, $SD=1.16$), $p \leq .01$. There was no significant difference between households with and without children present nor did furlough length have a significant effect on change in life satisfaction. See Appendix for independent t-test results.

Figure 8. Percentage of respondents valuing time as more important to change in behavior



Predicting life satisfaction using subjective time and income valuations

It is important to recognize that time was rarely valued as more important to change in consumption. Time-availability aided change in meals from scratch the most; 24% of respondents rated time as more important than income to their change in consumption. Household travel fared the next best from time-availability; 12% and 13% of employees rated time as more important to impact to household mode and change in household trip frequency, respectively. Participants viewed the effect of time and money on restaurant meals and convenience food similarly and change in delivery benefited the least from increased free-time.

Table 4. Odds ratios for binary logistic regression models predicting life satisfaction stayed the same or increased

	Meal from scratch	Sit-down restaurant/café meal	Convenience food	Delivery meal	Household mode	Household trips
Constant	0.53*	0.88	0.72	1.81***	0.63	0.92
Female	0.73	1.14	1.02	1.00	1.14	1.03
Partner	0.94	0.92	1.05	0.93	0.92	0.77
Child(ren) present	0.99	1.01	1.13	0.78*	1.40	1.04
Weekly work hrs \geq 46 hrs	0.56	0.53**	0.44**	0.52***	0.41*	0.58 ^v
Household income \geq \$100,000	1.48	1.43 ^v	1.45	1.75***	1.12	1.10
Furlough > 30 days	0.49**	0.49***	0.44***	0.51***	0.74	0.59 ^v
Time/income valuation difference	5.15***	5.85***	3.64***	n/a	3.62**	2.63**

Meal from scratch: $R^2 = .18$ (Nagelkerke). Model $\chi^2 = 51.65$, $p \leq .001$.

Sit-down restaurant/café meal: $R^2 = .08$ (Nagelkerke). Model $\chi^2 = 32.83$, $p \leq .001$.

Convenience food: $R^2 = .10$ (Nagelkerke). Model $\chi^2 = 29.44$, $p \leq .001$.

Delivery meal: $R^2 = .06$ (Nagelkerke). Model $\chi^2 = 52.98$, $p \leq .001$.

Household travel mode: $R^2 = .10$ (Nagelkerke). Model $\chi^2 = 15.03$, $p \leq .05$.

Household trips: $R^2 = .05$ (Nagelkerke). Model $\chi^2 = 12.34$, $p \leq .10$.

n/a We excluded the time/income valuation difference for delivery meals because of low frequency counts.

The independent time/income valuation was computed by subtracting the response to the question

"How important is income to this change?" from the response to

the question "How important is time-availability to this change?"

Computed responses ranged from -5 (time not at all important/income very important) to

5 (time very important/income not at all important) and were collapsed to a dummy variable

where 1= Time more important.

Change in life satisfaction is a dummy variable where 1= Life satisfaction stayed the same or increased.

^v $p \leq .10$, * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

Participants who did not report a change in consumption behavior were excluded from the regression models. Descriptive statistics tell us that on average, participants decreased meal outsourcing and increased the frequency with which they ate meals from scratch. The majority of participants made fewer household trips and only those who reported an impact to household travel mode were included. While this study examines the cultivation of an appreciation for time as it relates to promoting life satisfaction via more time-intensive activities, such as cooking a meal from scratch or using a bike to run errands, it is important to acknowledge that in some instances, participants in the model

may have increased their consumption of convenience goods or consumed more quickly; perhaps they took advantage of furlough time to take a weekend trip and ate out more frequently, or maybe they made more household trips. However, the general trend of the data is toward slowing consumption.

I controlled for the effects of gender, presence of a partner and presence of a child(ren) but did not hypothesize particular relationships. Neither gender nor presence of a partner made a significant contribution. Presence of a child(ren) was significant only in the model where the time/income valuation difference was excluded due to low cell counts (delivery meals). In that model, presence of a child decreased the odds of maintaining or increasing life satisfaction, $Exp \beta = .78$, $p \leq .05$. Working 46 hours or more decreased the odds of maintaining or increasing life satisfaction in all of the models except for meals from scratch. Odds ratios for the effect of working hours ranged from $Exp \beta = .41$, $p \leq .05$ for household mode to $Exp \beta = .58$, $p \leq .10$ for household trips. A household income of \$100,000 or more increased the odds of maintaining or increasing life satisfaction for individuals who reported a change in sit-down restaurant/café meals and delivery meals, $Exp \beta = 1.42$, $p \leq .10$ and $Exp \beta = 1.75$, $p \leq .001$, respectively. A furlough length of more than 30 days decreased the odds of maintaining or increasing life satisfaction for those who changed frequency of meals from scratch, sit-down restaurant/café meals, and convenience food, and for those who changed household trip frequency. The effect size of furlough length was similar to that of weekly hours. Lastly, the time/income valuation difference was significant for all models in which it was included. Where time was more important to a change, the odds of maintaining or increasing life satisfaction greatly increased. The time/income valuation had the largest effect on life satisfaction for individuals who reported a change in frequency of restaurant meals and meals from scratch, $Exp \beta = 5.85$ and $Exp \beta = 5.15$, $p \leq .001$, respectively. The time/income valuation had similar effects for those who changed the frequency with which they ate convenience food or reported an impact to household travel mode, $Exp \beta = 3.64$, $p \leq .001$, and $Exp \beta = 3.62$, $p \leq .01$, respectively, and the smallest effect on life satisfaction for those who reported a change in number of household trips, $Exp \beta = 2.63$, $p \leq .01$.

Discussion

Neither gender nor presence of a partner were significant predictors of change in life satisfaction as a result of furlough time. Presence of a child was significant only in the model where the time/income valuation difference for delivery meals was excluded. It is possible that interaction effects between demographic characteristics and time/income valuations existed. I expected individuals working longer hours to be more willing to trade time-availability for income and to maintain or increase their satisfaction. Instead, those working longer hours were less likely to maintain or increase satisfaction. Working longer hours may indicate greater pressure to meet financial or career goals, individuals may get higher levels of satisfaction from working or their identity may be strongly tied to their work. Participants working longer hours may have relied more heavily on outsourcing via restaurant and convenience food meals pre-furlough time, and may have been less happy to change consumption habits. Household income of \$100,000 or more predicted an increase in odds that life satisfaction would increase for those reporting change in restaurant and delivery meals. Income may have provided a buffer so that household outsourcing did not decline as much. Furlough length decreased the odds of maintaining or increasing life satisfaction for those who made changes to meals from scratch, restaurant/sit-down café meals and convenience food. I questioned how longer furloughs would contribute to life satisfaction because of the combined effects of greater income loss and increased time-availability. After controlling for work hours and income, a longer furlough decreased the odds of maintaining or increasing satisfaction. A subjective measure of the importance of time-availability to change, relative to the importance of income, had the largest effect on increasing the odds of maintaining or increasing satisfaction for individuals who changed a consumption habit. The time/income difference may indicate willingness to trade time for income. Employees may have valued time as an aid to doing the activities they enjoy more often, or as an aid to reducing the opportunity costs of activities they enjoy less. For example, additional free-time may have made it easier to plan errands so household trips could be combined

and unnecessary trips avoided. Free-time may have helped individuals rely less on convenience foods that are easy to procure and prepare, but less enjoyable to eat. Individual preferences for consumption behaviors were not included in the models. Accounting for individual preference may have increased the explanatory power of the models, but at this point it is possible to speculate that even if an individual was not particularly fond of the change in consumption, such as eating at restaurants less often, if time was recognized as more important to the change, life satisfaction was more likely to have stayed the same or increased. The effect of the time/income valuation difference on predicting life satisfaction supports the argument that cultivation for the appreciation of time as a resource in household consumption can maintain satisfaction levels when shifting from outsourcing and fast consumption to home-production and slow consumption. This appreciation may be a more reliable indicator of willingness to accept reduced working hours than either household income or typical working hours. Since so few employees valued time as more important than income as a driver of change, and because valuing time is integral to promoting life satisfaction during work-time reduction, it is essential that individuals feel capable of using time to their advantage to adjust to their new incomes. Employers could facilitate the transition to reduced working hours by connecting employees with opportunities to procure goods and services via collective or individual action with a de-emphasis on expenditure.

Conclusion

One of the goals of the work-time reduction movement is to slow consumption and reduce the burden of household environmental impact. Many studies offer competing insights into how work hours and income may influence preferences for and satisfaction with reduced hours. However, none of these studies consider how the appreciation for time as a resource, relative to income, is likely to influence life satisfaction within the context of a shift toward slow consumption. I expected that individuals who appreciate their time-availability as a means to produce time-intensive household goods and services would be the most likely to adapt positively to a work-time reduction scenario. In a survey of furloughed state-government employees, participants reported change in six

household food and travel consumption behaviors and rated the importance of time and income to each change. Overall, consumption of outsourced meals decreased slightly and consumption of home-produced meals increased slightly. Twenty-nine percent of participants reported an impact to household travel mode and more than half reported an impact to household trip frequency; three quarters of whom made fewer trips. Of those who made changes in household food and travel consumption, the vast majority rated income as a more important driver to the change than time-availability.

Binary logistic regression models that controlled for demographic characteristics and length of furlough showed that individuals who rated time as more important than income to change in consumption behavior were significantly more likely to report that they had maintained or increased their life satisfaction during furlough time. The effect of the time/income valuation difference was much larger than those of household income and weekly work hours and suggests that feelings of self-sufficiency are essential to a successful shift to reduced hours. That so few individuals found time to be more important to change in consumption highlights the need to find added-value in spending time on slower consumption activities and an opportunity for employers to connect employees with resources to aid in the adjustment to shorter work hours.

References

- Aguiar, M., & Hurst, E. (2005). Consumption versus Expenditure. *The Journal of Political Economy*, 919-948.
- Bellante, D., & Foster, A. C. (1984). Working Wives and Expenditure on Services. *Journal of Consumer Research*, 700-707.
- Brooks, A. C. (2008). *Gross National Happiness: Why Happiness Matters for America- and How We Can Get More of It*. New York: Basic Books .
- Cette, G., Dromel, N., & Meda, D. (2004). The Determinants Behind Employees' Attitudes to the Shorter Working Week. *Économie et Statistique*.
- Clarkberg, M., & Phyllis, M. (2001). Understanding the Time Squeeze: Married Couples' Preferred and Actual Work-Hour Strategies. *American Behavioral Scientist*, 1115-1136.
- Darian, J. C., & Cohen, J. (1995). Segmenting by consumer time shortage. *Journal of Consumer Marketing*, 32-44.
- Easterlin, R. (1995). Will raising the incomes of increase the happiness of all? . *Journal of Economic Behavior and Organization*, 35-47.
- Easterlin, R. A. (2003). Explaining Happiness. *Proceedings of the National Academy of Sciences*, 11176-11183.
- Hayden, A. (2006). France's 35-Hour Week: Attack on Business? Win-Win Reform? Or Betrayal of Disadvantaged Workers? *Politics and Society*, 503-542.
- Heslop, L. A., Madill, J., Duxbury, L., & Dowdles, M. (2007). Doing what has to be done: Strategies and orientations of married and single working mothers for food tasks. *Journal of Consumer Behavior*, 75-93.
- Hunnicut, B. K. (1996). *Kellogg's Six Hour Day*. Philadelphia: Temple University Press.
- Hurd, M., & Rohwedder, S. (2003). *The Retirement Consumption Puzzle: Anticipated and Actual Declines in Spending at Retirement*. Cambridge: National Bureau of Economic Research.
- Jacobs, J., & Gerson, K. (2000). Do Americans Feel Overworked? Comparing Ideal and Actual Working Time. In T. Parcel, & D. B. Cornfield, *Work and Family: research informing policy* (pp. 71-95). Thousand Oaks, CA: Sage Publications.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwartz, N., & Stone, A. A. (2004). A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method. *Science*, 1776-1780.

- Kahneman, D., Krueger, A. B., Schkade, D., Schwartz, N., & Stone, A. A. (2006). Would You Be Happier If You Were Richer? A Focusing Illusion. *Science*, 1908-1910.
- Kasser, T., & Sheldon, K. M. (2008). Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence for Four Studies. *Journal of Business Ethics*, 243-255.
- Kasser, T., & Warren Brown, K. (2003). On Time, Happiness and Ecological Footprints. In J. de Graaf, *Take Back Your Time: Fighting Overwork and Time Poverty in America* (pp. 107-). San Francisco : Berrett-Koehler Publishers, Inc. .
- Kim, C. (1989). Working Wives' Time-Saving Tendencies: Durable Ownership, Convenience Food Consumption, and Meal Purchases. *Journal of Economic Psychology*, 391-409.
- Krueger, A. B. (2009). *Measuring the Subjective Well-Being of Nations*. Chicago: University of Chicago Press.
- Moen, P., & Dempster-McClain, D. I. (1987). Role Strain, Work Time, and Preferences for Working Less. *Journal of Marriage and Family*, 579-590.
- New Economic Foundation. (2010, February 13). *21 hours: Why a shorter working week can help us all to flourish in the 21st century*. Retrieved January 2011, from New Economic Foundation: http://www.neweconomics.org/sites/neweconomics.org/files/21_Hours.pdf
- Nickols, S. Y., & Fox, K. D. (1983). Buying Time and Saving Time: Strategies for Managing Household Production . *Journal of Consumer Research* , 197-208.
- Noonan, M. c., Estes, S. B., & Glass, J. L. (2007). Do Workplace Flexibility Policies Influence Time Spent in Domestic Labor? . *Journal of Family Issues*, 263-288.
- Parkins, W. (2004). Out of Time: Fast Subjects and Slow Living . *Time & Society*, 363-382.
- Reynolds, J. (2005). In the Face of Conflict: Work-Life Conflict and Desired Work Hour Adjustments. *Journal of Marriage and Family*, 1313-1331.
- Schor, J. (2010). *Plenitude: the new economics of true wealth* . New York : Penguin Press .
- Solnick, S. J., & Hemenway, D. (1998). Is more always better? A survey on positional concerns. *Journal of Economic Behavior and Organization*, 373-383.
- Strober, M. H., & Weinberg, C. B. (1980). Strategies Used by Working and Nonworking Wives to Reduce Time Pressures. *Journal of Consumer Research* , 338-348.
- van Praag, B. M., & Frijters, P. (1999). The Measurement of Welfare and Well-Being: The Leyden Approach. In D. Kahneman, E. Diener, & N. Schwartz, *Well-Being: The Foundations of Hedonic Psychology* (pp. 413-433). New York: Russel Sage Foundation.

Vemuri, A., & Costanza, R. (2006). The role of human, social, built, and natural capital in explaining life satisfaction at the country level: Toward a National Well-Being Index (NWI). *Ecological Economics*, 119-133.

Yang, S.-J., & Magrabi, F. M. (1989). Expenditure for Services, Wife's Employment, and Other Household Characteristics. *Home Economics Research Journal*, 133-147.

V. Conclusion

This thesis presents findings from two-interrelated studies inspired by the work-time reduction movement and its goals to reduce household consumption and improve work-life balance. The first study examines change in household food consumption and travel behavior as a result of regularly scheduled unpaid days-off from work. The second examines how appreciation for the value of time as a driver in household consumption, relative to income, moderates life satisfaction during a period of reduced working hours.

It has been noted that empirical observations of the relationship between convenience food use and time spent in paid employment do not consistently support the theory that those working longer hours have stronger preferences for convenience food. Brunner et al. suggest looking at convenience food use following a change in life circumstances such as moving households or starting a new job to examine the role that habit plays in convenience food use. I found that participants who were subjected to reduced work-hours and incomes changed their consumption of convenience food slightly less than they did consumption of meals from scratch and meals at sit-down restaurants/cafes. Additionally, furlough length had a smaller effect in multiple regression models that predicted change in convenience food use than it did for other meal types. Habit may exert a stronger effect on convenience food use than it does on other meal types. The study did not measure consumption frequency pre-furlough time and therefore, the strength of different meal consumption habits pre-furlough time is unknown. Future research could account for use before a shift to reduced work hours for a more accurate picture of the relationship between habit and convenience food consumption.

Change within transportation mode and trip frequency was less elastic than change in food consumption categories. Furlough length was a significant predictor in logistic regression models that predicted an impact to commute mode, but was insignificant to predicting an impact to household travel mode. It may take deeper income cuts or more permanent change in reduced hours to spur change in commute mode. It would be

worthwhile to further study household travel mode following a shift to more frequent or permanent reduced work hours to see if it continues to respond differently than commute mode. Individuals with longer furloughs used alternative commute and household travel modes more frequently than did those with shorter furloughs. Controlling for exogenous factors such as accessibility to public transportation and neighborhood conditions conducive to biking and walking may have explained more about who changed. In view of the short-term travel boom that corresponded with France's shift to a 35-hour work week, I questioned how household trip frequency would act as a result of reduced work hours. Individuals with longer furloughs made an average of one trip more per week. However, after controlling for household characteristics such as income and presence of children, furlough length was not a significant predictor of an increase in household trips.

Overall, it was uncommon for individuals to rate time-availability as more important than income to change in behavior. This speaks to the role that time-availability plays in household outsourcing in general, but also to how approaches for increasing life satisfaction during a shift to reduce work hours might work. For example, time-availability may not be that important to eating in restaurants. It has been suggested that dining out is a form of entertainment and is unrelated to a desire to save time or physical or energy. If this is the case, an approach to increasing satisfaction during work-time reduction may involve finding appealing, less-income intensive entertainment alternatives.

Time may not have been more important to change in behavior because individuals simply did not have enough time to explore alternative behaviors that involved substituting time for income. For example, it may have been a quick and easy decision to eat out less often to adjust to the new household budget; it is another thing to have used the time-off to learn bread-making or take up gardening and to have developed a preference for using your own time to produce those goods and services. Quality of life data gathered after the institution of the 35-hour work week found that the French devoted time to existing activities rather than trying new activities. Furloughed workers

may have acted similarly; the survey did not collect information about participation in new activities. Aguiar and Hurst note that the effect of retirement on time spent in household meal production may have been delayed as it took a couple years to see a more dramatic increase in time spent on meal preparation. At the same time, preferences for quality of meal types may have changed, as retirees were still as likely to eat at restaurants with table service but decreased fast food consumption. Similarly, the furlough population may not have had enough time to develop preferences for time-intensive activities.

Those in the higher household income bracket seemed to weather work time reduction better, as indicated by the effect on change in life satisfaction. What was unexpected was that those working longer hours (46 hours or more) were less likely to maintain or increase their life satisfaction. Future research could look specifically at this group to understand impediments to increasing life satisfaction and what conditions might have to be met in order for them to experience more benefits. Because time was so frequently less important than income in changing behavior, and because people who value time more than money stand to benefit the most from work-time reduction, it is important that people feel empowered to use their time to make meaningful changes to consumption habits. Finding other means to procure goods, services and leisure activities may smooth consumption and positively affect life satisfaction. Appreciating time-availability as a means to fore-go the opportunity costs of less enjoyable activities would also increase satisfaction.

References

- Aarts, H., Verplanken, B., & van Knippenberg, A. (1997). Habit and information use in travel mode choices. *Acta psychologica*, 1-14.
- Aguiar, M., & Hurst, E. (2005). Consumption versus Expenditure. *The Journal of Political Economy*, 919-948.
- Ashkanasy, N. M. (2011). International Happiness: A Multilevel Perspective. *The Academy of Management* , 23-29.
- Bamberg, S., Ajzen, I., & Schmidt, P. (2003). Choice of Travel Mode in the Theory of Planned Behavior. *Basic and Applied Social Psychology* , 175-187.
- Bawa, K., & Ghosh, A. (1999). A Model of Household Grocery Shopping Behavior. *Marketing Letters*, 149-160.
- Becker, G. S. (1965). A Theory of the Allocation of Time. *The Economic Journal*, 493-517.
- Bellante, D., & Foster, A. C. (1984). Working Wives and Expenditure on Services. *Journal of Consumer Research*, 700-707.
- Bianchi, S. M., Milkie, M. A., & Sayer, L. C. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces*, 191-228.
- Blanchflower, D. G., & Oswald, A. J. (2011). International Happiness: A New View on the Measure of Performance . *Academy of Management Perspectives*, 6-22.
- Bohen, H. H., & Viveros-Long, A. (1981). *Balancing jobs and family life: do flexible work schedules help?* Philadelphia: Temple University Press.
- Bonheim, R., & Taylor, M. P. (2004). Actual and Preferred Working Hours. *British Journal of Industrial Relations*, 149-166.
- Brajsa-Zganec, A. (2011). Quality of Life and Leisure Activities: How do Leisure Activities Contribute to Subjective Well-Being? . *Social Indicators Research*, 81-91.
- Brooks, A. C. (2008). *Gross National Happiness: Why Happiness Matters for America- and How We Can Get More of It*. New York: Basic Books .

- Brunner, T. A., van der Horst, K., & Siegrist, M. (2010). Convenience food products. Drivers for consumption. *Appetite*, 498-506.
- Cette, G., Dromel, N., & Meda, D. (2004). The Determinants Behind Employees' Attitudes to the Shorter Working Week. *Économie et Statistique*.
- Clarkberg, M., & Phyllis, M. (2001). Understanding the Time Squeeze: Married Couples' Preferred and Actual Work-Hour Strategies. *American Behavioral Scientist*, 1115-1136.
- Costanza, R. (2007). Quality of Life: An Approach Integrating Opportunities, Human Needs, and Subjective Well-Being. *Ecological Economics*, 267-276.
- Cotte, J., & Ratneshwar, S. (2000). Timestyle and Consuming Time: Why we do what we do with our time. In R. S., D. G. Mick, & C. Huffaman, *The Why of Consumption, Contemporary perspectives on consumer motives, goals and desires*. Routledge.
- Darian, J. C., & Cohen, J. (1995). Segmenting by consumer time shortage. *Journal of Consumer Marketing*, 32-44.
- Darygay, J., & Hanly, M. (2007). Volatility of car ownership, commuting and time in the UK. *Transportation Research Part A*, 934-948.
- Davidov, E., Schmidt, P., & Bamberg, S. (2003). Time and Money: An Empirical Explanation of Behavior in the Context of Travel Mode Choice with the German Microcensus. *European Sociological Review*, 267-280.
- Delbosc, A., & Currie, G. (2011). Journal of Transport Geography. *Transport Problems that matter- social and psychological links to transport disadvantage*, 170-178.
- Di Tella, R., & MacCulloch, R. (2008). Gross national happiness as an answer to the Easterlin Paradox. *Journal of Development Economics*, 22-42.
- Easterlin, R. (1995). Will raising the incomes of increase the happiness of all? . *Journal of Economic Behavior and Organization*, 35-47.
- Easterlin, R. A. (2003). Explaining Happiness. *Proceedings of the National Academy of Sciences*, 11176-11183.
- Ewing, R., & Cervero, R. (2010). Travel and the Build Environment A Meta-Analysis. *Journal of the American Planning Association*, 265-294.
- Grossman, M. (1973). Unemployment and Consumption: Note. *The American Economic Review*, 208-213.

- Gwozdz, W., Reisch, L., & Sousa-Poza, A. (2010). Time Allocation, Consumption and Consumer Policy. *Journal of Consumer Policy*, 115-118.
- Hayden, A. (2006). France's 35-Hour Week: Attack on Business? Win-Win Reform? Or Betrayal of Disadvantaged Workers? *Politics and Society*, 503-542.
- Hayden, A., & Shandra, J. M. (2009). Hours of work and the ecological footprint of nations: an exploratory analysis. *Local Environment*, 575-600.
- Heath, Y., & Gifford, R. (2002). Extending the Theory of Planned Behavior: Predicting the Use of Public Transportation. *Journal of Applied Psychology*, 2154-2189.
- Hertwich. (2006). Accounting for Sustainable Consumption: A Review of Studies of the Environmental Impacts of Households. In T. Jackson, *The Earthscan Reader in Sustainable Consumption* (pp. 88-108). London: James and James Ltd. .
- Heslop, L. A., Madill, J., Duxbury, L., & Dowdles, M. (2007). Doing what has to be done: Strategies and orientations of married and single working mothers for food tasks. *Journal of Consumer Behavior*, 75-93.
- Hill, J. E., Hawkins, A. J., Ferris, M., & Weitzman, M. (2001). Finding an Extra Day a Week: The Positive Influence of Perceived Job Flexibility on Work and Family Balance. *Family Relations*, 49-58.
- Hubbard, R. (1978). A Review of Selected Factors Conditioning Consumer Travel Behavior. *Journal of Consumer Research*, 1-21.
- Hunnicut, B. K. (1996). *Kellogg's Six Hour Day*. Philadelphia: Temple University Press.
- Hurd, M., & Rohwedder, S. (2003). *The Retirement Consumption Puzzle: Anticipated and Actual Declines in Spending at Retirement*. Cambridge: National Bureau of Economic Research.
- Jabs, J., & Devine, C. M. (2006). Time scarcity and food choices: An overview. *Appetite*, 196-204.
- Kahneman, D., Krueger, A. B., Schkade, D. A., Schwartz, N., & Stone, A. A. (2004). A Survey Method for Characterizing Daily Life Experience: The Day Reconstruction Method. *Science*, 1776-1780.
- Kahneman, D., Krueger, A. B., Schkade, D., Schwartz, N., & Stone, A. A. (2006). Would You Be Happier If You Were Richer? A Focusing Illusion. *Science*, 1908-1910.

- Kasser, T., & Sheldon, K. M. (2008). Time Affluence as a Path toward Personal Happiness and Ethical Business Practice: Empirical Evidence for Four Studies. *Journal of Business Ethics*, 243-255.
- Kasser, T., & Warren Brown, K. (2003). On Time, Happiness and Ecological Footprints. In J. de Graaf, *Take Back Your Time: Fighting Overwork and Time Poverty in America* (pp. 107-). San Francisco : Berrett-Koehler Publishers, Inc. .
- Kim, C. (1989). Working Wives' Time-Saving Tendencies: Durable Ownership, Convenience Food Consumption, and Meal Purchases. *Journal of Economic Psychology*, 391-409.
- Kitamura, R., Mokhtarian, P. L., & Laidet, L. (1997). A micro-analysis of land use and travel in five neighborhoods in the San Francisco Bay Area . *Transportation* , 125-158.
- Krueger, A. B. (2009). *Measuring the Subjective Well-Being of Nations*. Chicago: University of Chicago Press.
- Lally, P., Van Jaarsveld, C. H., Potts, H. W., & Wardle, J. (2010). How are habits formed: Modelling habit formation in the real world. *European Journal of Social Psychology*, 998-1009.
- Lucas, M. T., & Nicholson, C. F. (2003). Subsidized vehicle acquisition and earned income in the transition to welfare to work. *Transportation*, 483-501.
- Mancino, L., & Newman, C. (2007, May). *Who Has Time to Cook? How Family Resources Influences Food Preparation*. Retrieved December 18, 2011, from United States Department of Agriculture: <http://www.ers.usda.gov/publications/err40/err40.pdf>
- Moen, P., & Dempster-McClain, D. I. (1987). Role Strain, Work Time, and Preferences for Working Less. *Journal of Marriage and Family*, 579-590.
- Moll, H., Noorman, K., Kok, R., Engstrom, R., Throne-Holst, H., & Clark, C. (2006). Pursuing More Sustainable Consumption by Analysing Household Consumption in European Countries and Cities. In T. Jackson, *The Earthscan Reader in Sustainable Consumption* (pp. 67-87). London: James and James Ltd.
- Moller, B., & Thogerson, J. (2008). Car Use Habits: An Obstacle to the Use of Public Transportation? In C. J. Butler, B. Sloth, M. M. Larsen, B. Madsen, & O. A. Nielsen, *Road Pricing, the Economy and the Environment* (pp. 301-313). Springer.

- New Economic Foundation. (2010, February 13). *21 hours: Why a shorter working week can help us all to flourish in the 21st century*. Retrieved January 2011, from New Economic Foundation:
http://www.neweconomics.org/sites/neweconomics.org/files/21_Hours.pdf
- Nickols, S. Y., & Fox, K. D. (1983). Buying Time and Saving Time: Strategies for Managing Household Production . *Journal of Consumer Research* , 197-208.
- Noonan, M. c., Estes, S. B., & Glass, J. L. (2007). Do Workplace Flexibility Policies Influence Time Spent in Domestic Labor? . *Journal of Family Issues*, 263-288.
- Onesimo Sandoval, J., Cervero, R., & Landis, J. (2011). The transition from welfare-to-work: How cars and human capital facilitate employment for welfare recipients. *Applied Geography*, 352-362.
- Ong, P. M. (2002). Car Ownership and Welfare to Work. *Journal of Policy Analysis and Management*, 239-252.
- Parkins, W. (2004). Out of Time: Fast Subjects and Slow Living . *Time & Society*, 363-382.
- Rajamani, J., Bhat, C. R., Handy, S., Knaap, G., & Song, Y. (2003). Assessing Impact of Urban Form Measures on Nonwork Trip Mode Choice After Controlling for Demographic and Level-of-Service Effects. *Transportation Research Record*, 158-165.
- RAND Corporation . (2009, October). Retrieved October 21, 2010, from Working Paper: Comparing Life Satisfaction :
http://www.cgi.rand.org/pubs/working_papers/WR623-1/
- Reynolds, J. (2005). In the Face of Conflict: Work-Life Conflict and Desired Work Hour Adjustments. *Journal of Marriage and Family*, 1313-1331.
- Rosnick, D., & Weisbrot, M. (2006, December). *Are Shorter Work Hours Good for the Environment? A Comparison of U.S. and European Energy Consumption* . Retrieved October 2011, from Center for Economic and Policy Research:
http://www.cepr.net/documents/publications/energy_2006_12.pdf
- Saelens, B. E., Sallis, J. F., & Frank, L. D. (2003). Environmental Correlates of Walking and Cycling: Findings From the Transportation, Urban Design, and Planning Literatures. *The Society of Behavioral Medicine*, 80-91.

- Scheiner, J., & Holz-Rau, C. (2013). A comprehensive study of life course, cohort, and period effects on changes in travel mode use. *Transportation Research Part A: Policy and Practice*, 167-181.
- Schor, J. (1998). Work, Free Time and Consumption: Guest Editor's Introduction. *Time and Society*, 119-127.
- Schor, J. (2010). *Plenitude: the new economics of true wealth*. New York : Penguin Press .
- Schor, J. B. (2005). Sustainable Consumption and Worktime Reduction. *Journal of Industrial Ecology*, 37-50 .
- Solnick, S. J., & Hemenway, D. (1998). Is more always better? A survey on positional concerns. *Journal of Economic Behavior and Organization*, 373-383.
- Strober, M. H., & Weinberg, C. B. (1980). Strategies Used by Working and Nonworking Wives to Reduce Time Pressures. *Journal of Consumer Research* , 338-348.
- Szplett, D., & Kieck, L. T. (1995). Variations of Trip Generation and Trip Distance Within the Urban Area. *Compendium of Technical Papers* (pp. 422-426). Denver: Institute of Transportation Engineers .
- Thogerson, J. (2006). Understanding travel mode choices in a stable context: A panel study approach. *Transportation Research Part A: Policy and Practice*, 621-638.
- van Praag, B. M., & Frijters, P. (1999). The Measurement of Welfare and Well-Being: The Leyden Approach. In D. Kahneman, E. Diener, & N. Schwartz, *Well-Being: The Foundations of Hedonic Psychology* (pp. 413-433). New York: Russel Sage Foundation.
- Veenhoven, R. (2005). Apparent Quality-Of-Life In Nations: How Long and Happy People Live. *Social Indicators Research Group* , 61-86.
- Vemuri, A., & Costanza, R. (2006). The role of human, social, built, and natural capital in explaining life satisfaction at the country level: Toward a National Well-Being Index (NWI). *Ecological Economics*, 119-133.
- Verplanken, B., & Wood, W. (2006). Interventions to Break and Create Consumer Habits . *Journal of Public Policy & Marketing*, 90-103.
- Williams, M. (1978). Factors Affecting Modal Choice Decisions in Urban Travel Some Further Evidence. *Transportation Research* , 91-96.

Yang, S.-J., & Magrabi, F. M. (1989). Expenditure for Services, Wife's Employment, and Other Household Characteristics. *Home Economics Research Journal*, 133-147. **VI.**

Appendix

Advanced Survey Notice Letter

Dear [First Name] [Last Name],

A few days from now you will receive an e-mail invitation to complete a survey for an important study being conducted at the University of Minnesota. We would like to learn how mandatory furlough days, instituted between 2009 and 2011, affected you.

I am writing in advance because we have found that many people like to know ahead of time that they will be contacted. The survey is part of a nation-wide study. We are studying how furlough days for state-government employees affect quality of life, household consumption and the environment. The research will provide important information to help inform future policies on work-time reduction.

Thank you for your time and consideration. It is only with the help of generous people like you that our research can be successful.

Sincerely,
Jennifer Theodore

Graduate Student and Principal Investigator
University of Minnesota
Institute on the Environment
Phone: (612) 625- 8216
theo0053@umn.edu

Survey Invitation

Dear [First Name] [Last Name],

The University of Minnesota's Institute on the Environment is conducting a survey of individuals who have been furloughed by the state of [state]. We've learned that your department was furloughed during [furlough year] and would like you to be part of our study. There are limited studies on the effects of furloughs on employees. Through this survey, we aim to learn how furloughs impact employees' lives at home. This study could help inform future policies on work-time reduction.

The link below will direct you to the survey. We realize it may not be possible for you to complete the survey during the work day; if you would like us to send the survey to an alternate address, please reply to this e-mail with your request.

The survey should take approximately twenty minutes to complete and will ask about furlough and job-characteristics, your time-use, household consumption, and life satisfaction. You are free to skip any question. We are surveying government employees in five states. Your input will contribute to a larger, nationwide picture of the impact of furloughs.

Data will be collected by the University of Minnesota's Office of Measurement Services, will be stored on secure servers, and will be de-identified before being analyzed in order to ensure confidentiality. At no time will your responses and identifying information be linked, made public or released.

All survey participants will be eligible to win one of twenty \$25 gift certificates to Amazon.com. If you wish to enter, please provide an e-mail address at the end of the survey. In the event that you win, we will send the certificate to this address.

Thank you for taking the time to complete our survey!

Sincerely,
Jennifer Theodore

Graduate Student and Principal Investigator
University of Minnesota
Institute on the Environment
theo0053@umn.edu
(612) 625-8216

If you would like to be removed from our contact list, please [click here](#).

First Reminder Letter

Dear [First Name] [Last Name],

This is a friendly reminder that we would like you to participate in an important study being conducted at the University of Minnesota on furloughs and how they impact employees' lives at home.

For the study to be successful we need to hear from all types of people, from those who feel that their furlough has had a small or insignificant impact, to those who have been greatly affected. There are limited studies on the effects of furloughs on employees and your input is valuable.

The link below will direct you to the survey. We realize it may not be possible for you to complete the survey during the work day; if you would like us to send the survey to an alternate address, please respond to this e-mail with your request.

The survey should take approximately twenty minutes to complete and will ask about furlough and job-characteristics, your time-use, household consumption, and life satisfaction. You are free to skip any question. We are surveying government employees in five states. Your input will contribute to a larger, nationwide picture of the impact of furloughs.

Data will be collected by the University of Minnesota's Office of Measurement Services, will be stored on secure servers, and will be de-identified before being analyzed in order to ensure confidentiality. At no time will your responses and identifying information be linked, made public or released.

All survey participants will be eligible to win one of twenty \$25 gift certificates to Amazon.com. If you wish to enter, please provide an e-mail address at the end of the survey. In the event that you win, we will send the certificate to this address.

Thank you in advance for taking the time and effort to complete our survey!

Sincerely,
Jennifer Theodore

Graduate Student and Principal Investigator
University of Minnesota
Institute on the Environment
theo0053@umn.edu
(612) 625-8216

Final Reminder Letter

Dear [First Name] [Last Name],

This is a final reminder that we would value your participation in a University of Minnesota study on furloughs and how they affect employees' lives at home. There are limited studies on the effects of furloughs on employees. This study may inform future policies on work-time reduction programs. The more people we hear from, the stronger the study will be.

The survey will close on Monday, June 27, 2011. We hope you will find some time to take it over the next few days. If you have any questions, I encourage you to contact me using the contact information below.

The link below will direct you to the survey. We realize it may not be possible for you to complete the survey during the work day; if you would like us to send the survey to an alternate address, please respond to this e-mail with your request.

The survey should take approximately twenty minutes to complete and will ask about furlough and job characteristics, your time-use, household consumption, and life satisfaction. You are free to skip any question. We are surveying government employees in five states. Your input will contribute to a larger, nationwide picture of the impact of furloughs.

Data will be collected by the University of Minnesota's Office of Measurement Services, will be stored on secure servers, and will be de-identified before being analyzed in order to ensure confidentiality. At no time will your responses and identifying information be linked, made public or released.

All survey participants will be eligible to win one of twenty \$25 gift certificates to Amazon.com. If you wish to enter, please provide an e-mail address at the end of the survey. In the event that you win, we will send the certificate to this address.

Thank you in advance for taking the time and effort to complete our survey!

Sincerely,
Jennifer Theodore

Graduate Student and Principal Investigator
University of Minnesota
Institute on the Environment
theo0053@umn.edu
(612) 625-8216

Consent Form

Matter of Time Study

You are invited to be in a research study on furloughs and how they affect household consumption and quality of life. You were selected as a possible participant because we have verified that your department has recently undergone, or is currently undergoing, a mandatory furlough period. We ask that you read this form and ask any questions you may have before agreeing to complete the survey.

This study is being conducted by Jennifer Theodore at the University of Minnesota's Institute on the Environment.

Background Information:

The administration of this survey is important for learning about the impacts of furloughs on employees. Our survey asks about time-use, household consumption, and life satisfaction during, and outside of, your mandatory furlough period. Additionally the survey asks about job, household, and income characteristics. This is a national study. We are surveying state-government employees from selected departments within six states.

Procedures:

If you agree to participate, you will be asked to complete a short online survey. The survey should take about 15 minutes. You may return to the survey if you need to finish completing it at another time. You may also opt out of the survey at any time.

Risks and Benefits of Being in the Study:

Your participation in our study should not expose you to anything more than minimal risk, expected in the course of everyday life. You may skip questions you do not want to answer. There are also no immediate or expected benefits for you for participating in the study. Your participation will allow the researchers to learn about the impacts of furloughs on household consumption and quality of life. Data from this study may help to inform future policies on work-time reduction.

Confidentiality:

The records of this study will be kept private. In any sort of report we might publish, we will not include any information that will make it possible to identify a subject. Data will be collected by the University of Minnesota's Office of Measurement Services, will be stored on secure servers, and will be de-identified before being analyzed in order to ensure confidentiality. Only researchers will have access to the records.

Voluntary Nature of the Study:

Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota or your employer. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

Contacts and Questions:

The researcher conducting this study is Jennifer Theodore. If you have questions now or later, **you are encouraged** to contact her at the University of Minnesota, (612) 625-8216 or *theo0053@umn.edu*. You may also contact her advisor, Timothy Smith, at (612) 624-2648 or *smith463@umn.edu*.

If you have any questions or concerns regarding the study and would like to talk to someone other than the researchers, contact Research Subjects' Advocate line, D528 Mayo, 420 Delaware Street S.E., Minneapolis, Minnesota 55455; (612) 625-1650.

Statement of Consent:

By checking yes, you agree that you have read the above information and consent to participate in the study. You may print out a copy of this form to keep for your records.

Survey

Q. #		Question	Response Options	Response Format	Maps back to...
	Survey Invitation				
	Letter of Consent				
	Transition	First, we would like to learn about your furlough schedule.			
1		What is the total time of your furlough for fiscal year 2010-2011 (number of days per year)?	Open (text) ____ days	Drop down menu	A.1 Furlough Information
2		How many furlough days have you already taken for fiscal year 2010-2011?	Open (text) ____ days	Edit text box	A.1 Furlough Information
3		Were you furloughed in fiscal year 2009-10?	Yes No	Radio Button	A.1 Furlough Information
4		How many days were you furloughed in fiscal year 2009-10?	Open (text) ____ days	Drop down menu Branched from Q14	A.1 Furlough Information
5		Who decides which dates will be furlough days?	My employer chooses which dates will be my furlough days I choose which dates will be my furlough days A combination; my employer chooses some furlough dates and I choose some furlough dates	Radio button	A.1 Furlough Information
	Transition	We would like to learn about the type of job you have.			
6		Which classification	Official/Administrator	Pull down	B.1 Job

		best describes your job?	Faculty Professional Technician Office and Clerical Worker Skilled Craft Worker Protective Service Worker Service-Maintenance Worker Paraprofessional	menu	Characteristics
7		Are you an hourly or salaried employee?	Hourly Salaried	Radio button	B.1 Job Characteristics
8		Do you, personally, work more than one wage-earning job?	Yes No	If yes, branching to Q. 9.	B.1 Job Characteristics
9		How many days a week do you work during a typical week, not including furlough days? If you have more than one wage-earning job, include all days worked here.	1 – 7	Pull down menu	B.1 Job Characteristics
10		How many hours do you work during a typical week (not including breaks)? If you have more than one wage-earning job, include all hours worked here.	1-9 hrs 10-24 hrs 25-32 hrs 33-40 hrs 41-45 hrs 46-50 hrs 51-60 hrs 60+ hrs	Pull down menu	B.1 Job Characteristics
11		At what time do you usually arrive at work?	List 24 hours in half hour increments.	Drop down	B.1 Job Characteristics
12		At what time do you usually leave work?	List 24 hours in half hour increments.	Drop down	B.1 Job Characteristics
13		Do you receive paid vacation days, either automatic or accrued?	Yes No	Radio button If yes, branch to	B.1 Job Characteristics

				find out how many in last year.	
14		Do you receive sick days, either automatic or accrued?	Yes No	Radio button If yes, branch to find out how many in last year.	B.2 Job Characteristics
	Transition	We would like to learn about how you travel to work.			
15		Do you telecommute? Telecommuting refers to an arrangement with your employer where you work entirely offsite for the day.	Yes No	Radio	C.1a Commute Travel Baseline
16		On average, how many days <i>a month</i> do you telecommute?	_____ days/month	Branching from Q. if answer yes. Open text.	C.1a Commute Travel Baseline
17		For the commute modes you've used over the past year, what percent of the time do you use them? Enter 0 for the modes you never use.	On y-axis: Personal automobile Carpool Taxi Public transportation (bus, lightrail, train, subway) Walk Bike Motorcycle or scooter Other, please specify: On x-axis: Percentage of time, open text box	Branch from Q17.	C.1a Commute Travel Baseline
18		On average, how many miles is your	_____ miles	Open text for miles.	C.1a Commute

		daily round-trip commute?			Travel Baseline
19		On average, how much time (in minutes) does your <i>daily</i> round-trip commute with each mode take? Please enter 0 for the commute modes you never use.	On y-axis: Personal automobile Carpool Taxi Public transportation Walk Bike Motorcycle or scooter Other, please specify:	Open text	C.1a Commute Travel Baseline
20		How important, if at all, are the following factors in your choice of how to get to work?	On y-axis: Accessibility (dedicated bike lane, near mass transit, etc.) Cost Time Flexibility Safety Comfort Health and Fitness Environmental Concerns Convenient with a household member's, friend's or coworker's schedule Other, please specify. On x-axis: 6 pt. Likert Scale 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branch from Q17. Radio button	C.1a Commute Travel Baseline
21		Please rate your agreement or	6 pt. Likert scale 1= Strongly disagree	Radio button	C.1b Commute

		disagreement with the following statement, where 1= Strongly Disagree, 6 = Strongly Agree: Overall, my furlough has impacted my choice of commute mode.	2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree		Travel Change
22		How important is income to this change?	6 pt. Likert scale 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching from Q.22 if answered 4 or above. Radio button	C.1b Commute Travel Change
23		Which commute mode(s) have you switched to? Check all that apply, regardless of the frequency with which you used them.	Personal automobile Carpool Taxi Public Transportation (bus, light rail, train, subway) Walk Bike Motorcycle or scooter Other- please specify.	Branching from Q. 22 if they answered 4 or above.	C.1b Commute Travel Change
Transition	Transition	Now we would like to ask you some questions about how you travel for household activities. Examples of household activities include shopping, running errands, or going out for fun, etc.			
24		For the household travel modes you've used over the past	Personal automobile Carpool Taxi	Drop box	C.2a Household Travel

		year, what percent of the time do you use them? Enter 0 for the modes you never use.	Public Transportation (bus, light rail, train, subway) Walk Bike Motorcycle or scooter Other- please specify.		Baseline
25		Please rate your agreement or disagreement with the following statement, where 1= Strongly Disagree, 6 = Strongly Agree: Overall, my furlough has impacted my travel mode for household activities.	6 pt. Likert 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button	C.2b Household Travel Mode Change
26		How important is income to this change?	6 pt. Likert scale 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching if answered 4 or above for Q. 26 Radio button	C.2b Household Travel Mode Change
27		How important is time-availability to this change?	6 pt. Likert scale 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	If answered 4 or above for Q.26 branching. Radio button	C.2b Household Travel Mode Change
28		Which mode(s) have you switched to for household	Personal automobile Carpool Taxi	Branching from Q.26 if	

		activities? Check all that apply, regardless of the frequency with which you used them.	Public Transportation (bus, light rail, train, subway) Walk Bike Motorcycle or scooter Other- please describe	answered 4 or above. from 6 pt. Likert scale Check box	
29		On average, how many trips per week do you make solely for household-related activities?	_____ trips/week	Open text	C.2a Household Travel Mode Baseline
30		What is the average round- trip length, in miles, for your household-related trips?	Less than 1 mile 1-4 miles 5-10 miles 11-15 miles More than 15 miles	Radio button	C.2a Household Travel Mode Baseline
31		Please rate your agreement or disagreement with the following statement, where 1= Strongly Disagree, 6 = Strongly Agree. Overall, my furlough has impacted the number of trips I make for household activities.	6 pt. Likert 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button	C.2c Household Travel, Time Spent, Change
32		How has the number of trips for household activities changed because of your furlough? (1= Decreased greatly, 6= Increased greatly)	6 pt. Likert 1= Decreased greatly 2=Decreased moderately 3= Decreased slightly 4= Increased slightly 5= Increased moderately 6 = Increased greatly	Branching from Q. 32 if answered 4 or above. Radio button	C.2c Household Travel, Time Spent, Change
33		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately	Branching from Q. 32 if answered	C.2c Household Travel, Time Spent, Change

			unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	4 or above. Radio button	
34		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching from Q. 32 if answered 3 or above. Radio button	C.2c Household Travel, Time Spent, Change
Transition		Now we would like to ask about your transportation expenses for work <i>and</i> household-related travel.			
35		Thinking about the past year, how much does your household spend <i>per month</i> , on work- and household-related travel?	Gas Mass transit fare Parking Vehicle insurance Car loan or lease payment Car maintenance R: \$0 \$1-\$50 \$51-\$100 \$101- \$200 \$201-\$300 \$301-\$400 \$401-\$500 More than \$500 Prefer not to answer	Drop down for each expense category	C.1+2a Household and Commute Travel Baseline
Transition		In the following section, we would like to learn about			

		the types of household activities you spend time on and how you have spent your furlough days.			
36		<p>During a typical week, how many hours do you spend on the following activities?</p> <p>Shopping or running errands (not including travel time), Childcare/adult care, cooking household meals, gardening/lawn care/snow removal, laundry, cleaning, household administration (paying bills, scheduling doctor appointments, etc.), maintenance/repairs around the house, Time with family, Time with friends, Time on hobbies, Watching TV or on the computer for fun, Volunteering, Educational classes/school work Other, please describe:</p>	None Less than 2 hrs 2-5 hrs 6-10 hrs 11-20 hrs 21-30 hrs 30+ hrs	Chart with check boxes.	D.1a Household Activities, Baseline
37		In general, how do you feel about the amount of time you have to do the things you have to do, where 1= Never rushed and 5=	1= Never rushed 2= A little rushed 3= Sometimes rushed 4= Often rushed 5= Always rushed	Radio button	D.1a Household Activities, Time at home, Change

		Always rushed?			
38		How has the time you've spent on the following activities changed, if at all, as a result of your furlough? Please rate where 1 = Decreased greatly and 7= Increased greatly	<p>On y-axis: Shopping or running errands (include your traveling time), Childcare/adult care, cooking household meals, gardening/lawn care/snow removal, laundry, cleaning, household administration (paying bills, scheduling doctor appointments, etc.), maintenance/repairs around the house, Time with family, Time with friends, Time on hobbies, Watching TV or on the computer for fun, Volunteering, Educational classes/ school work Other, please describe: On x-axis: 7 pt. Likert Scale 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly</p>	Chart with text boxes.	D.1b Household Activities, Change
		You reported a change in your time spent on a certain activity. We would like to ask how income and time-			

		availability have influenced this change.			
39		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching from activities that either increased or decreased. Radio button	D.1b Household Activities, Change
40		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching from activities that either increased or decreased.	D.1b Household Activities, Change
41		Please rate your agreement or disagreement with the following statement: My furlough time has given me more time to do the things I have to do.	6 pt Likert scale 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button	D.1a Household Activities, Time at home, Change
42		Has your furlough afforded you the time to participate in any new activities (for example, take a class, volunteer at a child's school, learn a new skill?)	Yes No	Radio button	D.1b Household Activities, Change
43		If you answered yes, please describe.	Open text.	Open text	D.1b Household

					Activities, Change
44		How much time do you spend at home on a typical <i>non</i> -work day, not including sleeping hours?	_____ hrs at home per non-work day	Open text box	D.1a Household Activities, Time at home, Baseline
45		How has your time spent at home been impacted by your furlough, where 1= Decreased greatly and 7= Increased greatly?	7 pt. Likert, 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No significant change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button	D.1a Household Activities, Time at home, Change
	Direction	Please rate the importance of income and time-availability to this change, where 1 = Not at all important and 6 = Very important.			
46		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching from Q. 53 from any response except the middle point (point 4) Radio button	D.1a Household Activities, Time at home, Change
47		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly	Branching from Q. 53 from any response except the middle	D.1a Household Activities, Time at home, Change

			unimportant 4=Slightly important 5= Moderately important 6= Very important	point (point 4) Radio button	
	Transition	The next few questions ask about vacation travel. Consider any overnight trips away from your city of residence where the primary reason was for fun or pleasure.			D.1a Vacation Travel Baseline
48		How many vacation trips do you take a year, on average?	0,1,2.....More than 12	Edit text box	D.1a Vacation Travel Baseline
49		Please select the usual mode(s) of travel for your vacation trip(s). Check all that apply.	Personal automobile Airplane Train Bus Walk Bike Other, please specify.	Branch from Q. If answer is 1 or more. Radio button	D.1a Vacation Travel Baseline
50		Please rate your agreement or disagreement with the following statement, where 1=Strongly disagree and 6= Strongly agree. I have taken <i>more</i> vacation trips than usual because of my furlough time.	6 pt. scale 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button Branch to Q. 53/54/55 if respond 4 or above	A.2b Vacation Travel, Change
51		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly	Radio button, branch from Q. 52 if respond 4 or above	A.2a Vacation Travel, Change

			unimportant 4=Slightly important 5= Moderately important 6= Very important		
52		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Radio button, branch from Q. 52 if respond 4 or above	A.2a Vacation Travel, Change
53		Approximately how many more trips has your furlough time allowed you to take? R: 0,1,2,...More than 12	Text box	Edit text box Branch from Q.52 if respond 4 or above.	A.2b Vacation Travel, Change
54		How did you travel for each trip you took during your furlough time? Please select all that apply.	Qs: Personal automobile Airplane Train Bus Walk Bike Other mode of transport 'Check one for each trip'	Table Branch from Q.52 if respond 4 or above.	A.2a Vacation Travel, Change
55		Rate your agreement or disagreement with the following statement, where 1= Strongly disagree and 6=Strongly agree. I have taken <i>fewer</i> vacation trips than usual because of my	6 pt. scale 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Branch to Q. 58/59/60 if respond 4 or above.	A.2a Vacation Travel, Change

		furlough time.			
56		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branch from Q. 57 if respond 4 or above	A.2a Vacation Travel, Change
57		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branch from Q. 57 if respond 4 or above	A.2a Vacation Travel, Change
58		Approximately how many trips have you forgone because of your furlough?	Branch from Q.41 0,1,2,3...More than 12, Uncertain	Branch from Q. 57 if respond 4 or above	A.2a Vacation Travel, Change
Transition		The next few questions ask about what you spend on hired service providers.			
59		During a typical month, how much do you spend for others to provide these services?	Child care/adult care Gardening/lawn care/snow removal Housecleaning Other, please describe: R: \$0 \$1- \$50 \$51- \$100 \$101 - \$200 \$201 - \$400	Drop down	D.2c Household Services Baseline

			\$401 - \$600 \$601 - \$1000 More than \$1000 Prefer not to answer		
60		How has your spending on services changed, if at all, since your furlough was implemented? (1= Decreased greatly and 7= Increased greatly)	On y-axis: Child care/adult care Gardening/lawn care/snow removal Housecleaning On x-axis: 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No significant change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button Chart with 7 pt. Likert scale.	D.2d Household Services Change
Transition		You reported a change in spending on services. We would like to ask how income and time-availability have influenced this change.			
61		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Branching from each service where there is a change. (any option except the middle-no noticeable difference)	D.2d Household Services Change
62		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant	Branching from each service where there is a	D.2d Household Services Change

			3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	change	
Transition		We would like to ask you about your eating, cooking, food purchasing and food growing habits.			
63		How many of each meal type do you eat during a typical week? Include breakfast, lunch, and dinner.	Meal cooked from scratch (you or a household member assembles and prepares the ingredients) Eat at home Sit-down restaurant or café Convenience food (fast food, drive-thrus, street carts, deli, instant or microwaveable meals) Delivery R: 1-2 3-5 6-10 11-15 16-21 More than 21	Open text box for each meal type.	E.1ab Food and Eating Habits, Baseline
64		How has the frequency with which you've eaten the following meal types changed, if at all, during your furlough?	On y-axis: Meal cooked from scratch Eat at home Sit-down restaurant or café Convenience food Delivery On x-axis: 1= Decreased greatly 2= Decreased	Chart with radio buttons. Branch to Q. 60/61 for all responses expect 'no change'	E.1b Food and Eating Habits, Change

			<p>moderately</p> <p>3= Decreased slightly</p> <p>4= No significant change</p> <p>5= Increased slightly</p> <p>6= Increased moderately</p> <p>7= Increased greatly</p>		
Transition		<p>You reported a change in how frequently you eat a certain meal type. We would like to ask how income and time-availability have influenced this change.</p>			
65		<p>How important is income to this change?</p>	<p>6 pt. Likert</p> <p>1= Not at all important</p> <p>2=Moderately unimportant</p> <p>3= Slightly unimportant</p> <p>4=Slightly important</p> <p>5= Moderately important</p> <p>6= Very important</p>	<p>Radio button</p> <p>Branch from Q. 59 if marked any response other than 'no significant change'</p>	<p>E.1b Food and Eating Habits, Change</p>
66		<p>How important is time-availability to this change?</p>	<p>6 pt. Likert</p> <p>1= Not at all important</p> <p>2=Moderately unimportant</p> <p>3= Slightly unimportant</p> <p>4=Slightly important</p> <p>5= Moderately important</p> <p>6= Very important</p>	<p>Radio button</p> <p>Branch from Q. 59 if marked any response other than 'no significant change'</p>	<p>E.1 Food and Eating Habits, Change</p>
67		<p>Do you grow any of your food in a household or neighborhood / community garden?</p>	<p>Yes</p> <p>No</p>	<p>Radio button, BRANCH TO Q66</p>	<p>E.2a Food and Eating Habits, Growing Food, Baseline</p>
68		<p>Has this started or</p>	<p>Yes</p>	<p>Radio</p>	<p>E.2b Food and</p>

		increased since your furlough was implemented?	No	button BRANCHED FROM Q65 if answer yes. Branch to Q. 67 if answer yes.	Eating Habits, Growing Food, Change
69		How important is income to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Radio button BRANCH FROM Q 66, if answer "yes", it's started or increased since their furlough began	
70		How important is time-availability to this change?	6 pt. Likert 1= Not at all important 2=Moderately unimportant 3= Slightly unimportant 4=Slightly important 5= Moderately important 6= Very important	Radio button BRANCHED FROM Q66, if answer "yes"	
71		How frequently do you purchase the following foods? Premium meat (non-poultry), Mid-grade meat (non-poultry), Ground meat, Organic food, Food from a farm share	Always Most of the time Sometimes Rarely Never	Radio button	E.2a Food and Eating Habits, Growing Food, Baseline
72		How, if at all, has the frequency with which you've	On y-axis: Premium meat (non-poultry), Mid-grade	Radio button	E.2b Food and Eating Habits, Growing Food,

		purchased the following changed since you've been furloughed?	meat (non-poultry), Organic food, Food from a farm share On x-axis: 7 pt. Likert scale 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly		Change
Transition		Next we would like to ask you a few questions about spending in general during your furlough period.			
73		Overall, how has your spending been affected by your furlough? Please rank, where 1= Decreased greatly and 7= Increased greatly.	7 pt. scale 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button	E.3 Household Spending
74		If you have spent less, please indicate which categories:	Food and Drink Housekeeping Supplies Fuel for vehicles Utilities Furniture Household Appliances Clothing Toys Entertainment Other- please describe	Check all that apply* Branch from Q71– (only those who selected 1-3, or saw a decrease in spending,	E.3 Household Spending

				will see this question)	
75		If you have spent more, please indicate which categories:	Food and Drink Housekeeping Supplies Fuel for vehicles Utilities Furniture Household Appliances Clothing Toys Entertainment Other, please describe	Check all that apply *Branch from Q71– (only those who select 5-7, or saw an increase in spending, will see this question)	E.3 Household Spending
76		Is there an item in this category that you decided to delay purchasing?	Yes No	Radio button Branch from Q71- categories in which people spent less	E.3 Household Spending
77		Is there an item in this category that you decided was not necessary to purchase at all?	Yes No	Radio button Branch from Q71- categories in which people spent less	E.3 Household Spending
78		When your furlough is over, will you continue to spend less than you did before, spend more than you did before, or spend about as much as you did before?	Spend less Spend more About the same Don't know	Radio button	E.3 Household Spending
Direction		Please rate your agreement or disagreement with			E.3 Household Spending

		the following statements where 1= Strongly disagree and 6= Strongly agree			
79		I've relied on savings to make purchases because my furlough has reduced my income.	6 pt Likert 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button	E.3 Household Spending
80		I've borrowed money to make purchases because my furlough has reduced my income.	6 pt Likert 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button	E.3 Household Spending
81		I've relied more on my credit card to make purchases because my furlough has reduced my income.	6 pt Likert 1= Strongly disagree 2= Moderately disagree 3= Slightly disagree 4= Slightly agree 5= Moderately agree 6 = Strongly agree	Radio button	E.3 Household Spending
Transition	Transition	We are interested in learning about your quality of life and if it changed during your furlough period.			
82		How satisfied are you with your life in general?	7 pt. Likert 1= Very dissatisfied 2= Moderately dissatisfied 3= Slightly dissatisfied 4= Neither dissatisfied nor satisfied 5= Slightly satisfied 6= Moderately satisfied	Radio button	F.1a Life Satisfaction, Baseline

			7= Very satisfied		
83		How has your life satisfaction changed since your furlough began?	7 pt. Likert 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button	F.1b Life Satisfaction, Change
84		How satisfied are you with the total income of your household?	7 pt. Likert 1= Very dissatisfied 2= Moderately dissatisfied 3= Slightly dissatisfied 4= Neither dissatisfied nor satisfied 5= Slightly satisfied 6= Moderately satisfied 7= Very satisfied	Radio button	F.1a Life Satisfaction, Baseline
85		How has your income satisfaction changed since your furlough began?	7 pt. Likert 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button	F.1b Life Satisfaction, Change
86		How satisfied are you with your job?	7 pt. Likert 1= Very dissatisfied 2= Moderately dissatisfied 3= Slightly dissatisfied 4= Neither dissatisfied nor satisfied 5= Slightly satisfied	Radio button	F.1a Life Satisfaction, Baseline

			6= Moderately satisfied 7= Very satisfied		
87		How has your job satisfaction changed since your furlough began?	7 pt. Likert 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button	B F.1b Life Satisfaction, Change
88		How satisfied are you with your social contacts and family life?	7 pt. Likert 1= Very dissatisfied 2= Moderately dissatisfied 3= Slightly dissatisfied 4= Neither dissatisfied or satisfied 5= Slightly satisfied 6= Moderately satisfied 7= Very satisfied	Radio button	F.1a Life Satisfaction, Baseline
89		How has your social contacts and family life satisfaction changed since your furlough began?	7 pt. Likert 1= Decreased greatly 2= Decreased moderately 3= Decreased slightly 4= No noticeable change 5= Increased slightly 6= Increased moderately 7= Increased greatly	Radio button	F.1a Life Satisfaction, Change
90		If your employer were to repeat your furlough schedule in the future, how would you rate your approval or disapproval?	1= Greatly disapprove 2= Moderately disapprove 3= Slightly disapprove 4= Neither disapprove or approve 5= Slightly approve 6= Moderately	Check one.	Life Satisfaction

			approve 7= Greatly approve		
91		Over the course of the next year, how do you expect your financial situation to change, if at all?	Greatly worsen Moderately worsen Slightly worsen No noticeable change Slightly improve Moderately improve Greatly improve Don't know	Radio button	G.1 Anxiety around the Economy
92		What impact, if any, has the national economic recession had on the way you live?	Major impact Moderate impact Minor impact No noticeable impact Don't know	Radio button	G.1 Anxiety around the Economy
Transition	Transition	We would like to ask a few final questions about your background.			
93		Do you consider yourself: <i>Please check all that apply.</i>	Asian or Asian American Black or African American Hispanic/Latino/Latina Native American or Alaska Native Native Hawaiian or Pacific Islander White/Non-Hispanic Two or more races/Multiracial Other, please specify.	Drop down menu	H.1 Personal Characteristics
94		Which of the following gender identities do you best identify with?	Male Female Transgender Other	Radio button	H.1 Personal Characteristics
95		What is your current age?	_____ years	Open text box	H.1 Personal Characteristics
96		What is your relationship status?	Single Separated or divorced Widowed Married Domestic partnership or living with significant other	Radio button	H.1 Personal Characteristics

97		What is the current number of persons living in your household (including yourself)?	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 10+	Drop down menu	H.1 Personal Characteristics
98		How many children under the age of 18 are currently living with you?	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 10+	Drop down menu	H.1 Personal Characteristics
99		What is the age of the youngest child living in your home?	Less than 1 year old, 1,2,3,5,6,....18	Branch from Q. 99	H.1 Personal Characteristics
100		What is the primary work status of each adult in your household? Please check the option that best applies for each adult. Do not include yourself.	On y-axis: Adult 1 Adult 2 Adult 3 Adult 4 Adult 5 On x-axis: Working at home Working outside the home Home-maker Retired Unemployed Student	Chart	H.1 Personal Characteristics
101		Do you own or rent/lease your home?	Own Rent / Lease Other arrangement	Radio button	H.1 Personal Characteristics
102		If you added together the yearly incomes, before taxes, of all the members of your household for last year, would it total: Please check one.	Less than \$15,000 \$15,000-\$24,999 \$25,000-\$34,999 \$35,000-\$49,999 \$50,000-\$74,999 \$75,000-\$99,999 \$100,000-\$124,999 \$125,000-\$149,999 \$150,000-\$174,999 \$175,000 or more Prefer not to answer	Radio button	H.1 Personal Characteristics
103		What is the highest	Some high school	Radio	H.1 Personal

		level of education you've completed?	High school graduate Vocational / Technical Training Some college College graduate Some graduate school/ professional program Completed graduate / professional program	button	Characteristics
104		What is the zip code where you work?	Open text response	Edit numerical text field	H.1 Personal Characteristics
105		Is there anything else you would like to share with us regarding your experience with furloughs?	Open text box.		
106		May we contact you with follow-up question on this topic?	Yes No	Radio button	H.1 Personal Characteristics
107		Name Email Phone	Open text responses	Edit text boxes	H.1 Personal Characteristics
108		If you would like to enter the drawing for the gift card, please enter your preferred email address for delivery here.	Open text response	Edit	Raffle info
	On Exit Page:	Thank you very much for your time! Your input will help us understand how furloughs affect employees, quality of life, and the environment.			

Demographic characteristics of participants (N= 1452)

Age (Mean, SD) 47 (10)

Household size (Mean, SD) 3 (1)

Characteristic	n	%
Gender		
Male	830	58
Female	606	42
Relationship status		
Married	1025	72
Single	192	13
Separated/divorced	132	9
Widowed	16	1
Domestic partnership/living with significant other	67	5
Children age 18 and under in household		
Child(ren) Present	587	41
No child(ren) present	832	59
Children under age six in household		
Children age 6 and older	269	58
Children under age 6	196	42
Highest level of education completed		
Some high school	2	0
High school graduate	43	3
Vocational/technical training	26	2
Some college	143	10
College graduate	569	40
Some graduate school/professional program	141	10
Completed graduate/professional program	517	36
Household income		
15,000-24,999	6	0
25,000-34,999	28	2
35,000-49,999	130	9
50,000-74,999	373	26
75,000-99,999	352	25
100,000-124,999	226	16
125,000-149,999	121	9
150,000-174,999	53	4
175,000 or more	58	4
Prefer not to answer	75	5

Demographic characteristics of participants (N= 1452)

Characteristic	n	%
Job Classification		
Official/Administrator	186	13
Faculty	3	0
Professional	875	61
Technician	77	5
Office and Clerical Worker	110	8
Skilled Craft Worker	6	0
Protective Service Worker	58	4
Service-Maintenance Worker	10	1
Paraprofessional	16	1
Other	100	7
Race		
White/Non-Hispanic	1174	80.9
Asian or Asian-American	98	6.7
Black or African-American	66	4.5
Hispanic/Latino/Latina	47	3.2
Two or more races/multi-racial	33	2.3
Other	25	1.7
Native American or Alaska Native	13	0.9
Native Hawaiian or Pacific Islander	6	0.4

Pearson chi-square tests for weekly meals from scratch by demographic group and furlough length

Independent Variable	χ^2 (df)
Female	5.10 (6)
Partner	56.30 (6)***
Child(ren) present	13.43 (6)*
Child age < 6	6.57 (6)
Work hours	29.94 (18)*
Household income	41.44 (24)*
Furlough > 30 days	32.38 (6)***

Pearson chi-square tests for weekly restaurant meals by demographic group and furlough length

Independent Variable	χ^2 (df)
Female	5.29 (3)*
Partner	.94 (3)
Child(ren) present	25.57(3)***
Child age < 6	7.47 (3) ^ψ
Work hours	7.17 (9)
Household income	24.75 (12)*
Furlough > 30 days	3.72 (3)

Pearson chi-square tests for weekly convenience food meals by demographic group and furlough group

Independent Variable	χ^2 (df)
Female	12.48 (3) ***
Partner	7.78(3)*
Child(ren) present	19.82 (3)***
Child age < 6	.93 (3)
Work hours	8.18 (9)
Household income	13.03 (12)
Furlough > 30 days	13.93 (3)***

Chi square tests for weekly delivery meals by demographic group and furlough length

Independent Variable	χ^2 (df)
Female	0.15 (1)
Partner	3.33 (1) ^ψ
Child(ren) present	6.17 (1) **
Child age < 6	.35 (1)
Work hours	.72 (3)
Household income	11.73 (4)*
Furlough > 30 days	2.52 (1)

Independent t-test for change in life satisfaction by demographic group and furlough length

Group	t	df	N
Female	-2.48	1111.87*	1429
Partner	-2.45	524.18**	1425
Child(ren) present	1.38	1411.00	1413
Furlough > 30 days	0.37	582.37	1347

Means and standard deviations for change in life satisfaction by demographic group and furlough length

Group	<u>M</u>	<u>SD</u>	<u>N</u>
Male	3.50	1.05	826
Female*	3.66	1.32	603
No Partner	3.42	1.26	337
Partner**	3.61	1.16	1088
No child(ren)	3.60	1.17	828
Child(ren) present	3.51	1.17	585
Furlough ≤ 30 days	3.58	1.01	942
Furlough > 30 days	3.55	1.44	405

^ψ p ≤ .10, *p ≤ .05, **p ≤ .01, *** p ≤ .001.