EXCHANGING CENTS FOR SECONDS: THE HAPPINESS BENEFITS OF CHOOSING

TIME OVER MONEY

by

Ashley Whillans

B.A., The University of British Columbia, 2012

M.A., The University of British Columbia, 2014

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Abstract

Most North Americans report feeling increasingly pressed for both time and money. When attempting to maximize well-being, what should people do: give up money to have more time or give up time to have more money? To answer this question, I assess whether and how trading discretionary income to have more free time promotes happiness. First, I develop a new measure (the Resource Orientation Measure) and use this measure to assess whether people's general orientations to value time over money are associated with greater happiness (Studies 1-5; $N = 7,196$). Across five studies, I find evidence that people's general orientation to prioritize time over money is associated with greater happiness, and that this finding holds controlling for materialism, current feelings of time and material affluence, financial security, and demographic characteristics such as income and marital status. Building on this work, I narrow my investigation to one specific instantiation of choosing time over money: using money to buy time by delegating disliked tasks. In Studies 6-11, I document a positive association between buying time and happiness ($N = 4,217$). Again, these links hold controlling for possible third variables such as discretionary income, the amount of money that people report spending on leisure activities, income, age, gender, and marital status. In Studies 9 to 12 I document a mechanism for these results: buying time protects people from the negative impact of time-stress on happiness. I then provide evidence that buying time causes happiness ($N = 60$; Study 13). Working adults report greater end-of-day happiness after spending \$40 on a time-saving purchase than after spending \$40 on a material purchase for themselves. The benefits of buying time are driven in part through reductions in perceived time pressure. Finally, I develop a novel paradigm to demonstrate a key factor that can undermine the benefits of buying time: guilt (Study 14). This work provides the first empirical evidence that buying time can promote subjective well-being.

Lay Abstract

Time and money are two of people's most scarce and precious resources. People report feeling increasingly pressed for time in their day-to-day lives, and having insufficient money to meet basic needs is a primary source of worry. Taking more time for oneself, however, often comes at the expense of less money and earning more money cuts into time. While the absolute amount of time and money people have can influence well-being, my dissertation provides the first research showing that the trade-offs people make between time and money shapes happiness. I show that people who value having more time over having more money report greater happiness. I also show that spending money to have more time—such as by purchasing housecleaning or meal delivery services—promotes daily happiness and life satisfaction. Overall, this research contributes knowledge about how to spend time and money to maximize happiness within and across days.

Preface

I am the primary author of the work presented in this dissertation. I was responsible for

designing the experiments, collecting the data, compiling the publically available data, and

analyzing these data. Additional contributions for each chapter are described below.

Chapter 1 – Introduction

I am the primary author of this chapter, with intellectual contributions from E. Dunn. A version

of this chapter is being prepared for submission: Whillans, A.V., Dunn, E.W. & Norton, M.I.

Does prioritizing time over money promote happiness? I wrote the manuscript and E. Dunn and

M. Norton provided intellectual contributions and edited the manuscript.

Chapter 2 – Does the tendency to value time over money promote happiness?

A version of this chapter has been published: Whillans, A.V., Weidman, A.C., & Dunn, E.W.

(2016). Valuing time over money is associated with greater happiness. *Social Psychological and*

Personality Science, *7*(3), 213-222. I designed the studies, collected the data, conducted the

analyses, and prepared the manuscript. A. Weidman provided data collection and analytic advice.

E. Dunn provided intellectual contributions and edited the manuscript.

Chapter 3 – Do people who buy time experience greater happiness?

A version of this chapter (along with Chapter 4) is being prepared for publication. Whillans,

A.V., Dunn, E.W., Norton, M.I. Buying time promotes happiness. I designed the surveys and the

experiment, supervised data collection, conducted the analyses, and prepared the manuscript. E.

Dunn and M. Norton provided intellectual contributions.

Chapter 4 – Can guilt undermine the benefits of buying time?

A version of this chapter is being prepared for publication (along with Chapter 3). Whillans, A.V., Dunn, E.W., Norton, M.I. Buying time promotes happiness. I designed the surveys, supervised data collection, conducted the analyses, and prepared the manuscript. E. Dunn and M. Norton provided intellectual contributions.

Chapter 5 – General Discussion

I am the primary author of this chapter, with intellectual contributions from E. Dunn.

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I would like to thank my committee members Mark Schaller and Anita DeLongis for their critical insights. I would also like to thank my co-advisor Frances Chen for her outstanding support, Eugene Caruso for his enthusiasm, insight, and instrumental advice, and Michael Souza for sharing my obsession with improving the undergraduate experience. I would like to thank my lab mates: Lara Aknin, Ryan Dwyer, Kostadin Kushlev, and Gillian Sandstrom who are smart, hard-working, and cool, and have been an endless source of inspiration (and commiseration). I am also grateful for my friends and students. I have been fortunate to be part of such a spirited, engaged, passionate, practical, and compassionate academic community. A specific thank-you to my occasional-co-advisor and soon-to-be colleague Michael Norton. I am not entirely sure how I have the good fortune of being your colleague (I won the collaborator and job market lottery?), but so long as luck is in my favor, I will live each day with an enormous sense of gratitude. Already you have taught me an immeasurable amount about science and life and you inspire me to wake up every day and dare to have more impact, to work harder, and to dream bigger.

I would also like to thank my family. Special thanks to my father—I always say that you are the true scientist in the family because you approach life with an incredible sense of wonder. Your weekly phone calls about the latest interesting thing on the internet or from one of my "academic magazines" reminds me to never stop looking around and being amazed. To my wonderful husband Paolo, thank you for your endless support, for being more practical than I could ever hope to be, and for going along with my crazy ideas (at least *some* of the time). You are the most wonderful and talented person that anyone could hope to have as a life partner.

As my time at UBC comes to an end, I feel incredibly lucky to have shared these formative years with some of the most interesting, funny, engaged, passionate, and hard-working people. The time that I have spent at Douglas College and at UBC has instilled in me a belief that anything is possible and that it has never been more important to conduct research with the potential to have far-reaching societal impact. Carl Sagan wrote that to make an apple pie, you first must understand the universe. And, the famous psychologist Kurt Lewin wrote, "There is nothing as practical as a good theory." Building from these two insights, I hope that in my next chapter as a faculty member I uncover insights that have both theoretical and practical impact.

Chapter 1: Introduction

In a typical day and across a lifetime, people face trade-offs related to time and money. These trade-offs influence many of our decisions, from the major—such as choosing between a higher paying career that demands longer work hours or a lower paying career that affords more free time—to the mundane—such as whether to spend a Saturday afternoon cleaning your gutters or paying someone else to do it. Although people are often faced with decisions about time and money, there is very little empirical research assessing the impact of these trade-offs on people's well-being, including their overall life satisfaction and how much positive and negative mood they experience on a daily basis. The specific aim of my dissertation is to examine whether, why, and when using money to have more free time might promote greater happiness.

Understanding whether, when, and how using money to buy time impacts happiness is important considering research showing that wealth does not always translate into well-being. Survey research suggests a diminishing marginal utility of income on experienced mood, such that once people's basic needs are met, the amount of money that people make no longer predicts the amount that they laugh or smile on a daily basis (Kahneman et al., 2010). Despite experiencing rising incomes, people today are experiencing more stress at work and even report experiencing more time stress during leisure activities (Hochild, 1997; Robinson & Godbey, 1997). Furthermore, large scale survey research suggests that wealthier individuals spend more time engaging in activities that are rated as *less* enjoyable, such as working, commuting, and shopping (Kahneman et al., 2006). Given that wealth does not always translate into better time-use or greater daily happiness, it is important to understand whether and how using money to buy time can shape happiness. In doing so, this research aims to sheds light on the broader and more fundamental question of whether and how increased wealth translates into greater well-being.

1.1 The Relationship between Wealth and Well-being

Economists, sociologists, and psychologists have documented a surprisingly small relationship between money and happiness. Evidence from the United States, several European countries, and Japan finds that as personal income and national Gross Domestic Product (GDP) have escalated, nearly doubling their size in the past several decades, citizens' happiness levels have remained nearly unchanged (Easterlin, 1995, Maddison, 2000). While some researchers have recently challenged this conclusion, pointing to new analyses suggesting that absolute income levels both within and across countries *are* associated with greater overall life satisfaction (e.g., Stevenson & Wolfers, 2008; Veenhoven, 1991), the most comprehensive studies to date suggest that the relationship between log income and overall life satisfaction is small, fluctuating around a correlation of $r = 0.20$ (Diener & Biswas-Diener, 2002, Diener, Ng, Harter & Arora, 2010; Lucas & Schimmack, 2009).

Collectively, this research suggests that the relationship between money and happiness is robust, yet weaker than many people assume. This research also leads to the question: why doesn't having more money make people happier? One answer to this question is that people often do not spend their discretionary income in ways that best promote happiness (Dunn, Gilbert, & Wilson, 2011; Dunn & Norton, 2010; Frank, 2004). For example, people often spend their money on objects rather than experiences, on themselves rather than on other people, and on big luxuries rather than on small pleasures (Dunn, Aknin & Norton, 2014). Therefore, improving how people spend their discretionary income is one route by which money can be used to improve happiness. In this dissertation, I argue that one overlooked way of spending money to maximize happiness is by spending disposable income to buy additional free time.

It is of course worth noting that people who lack discretionary income, and who are struggling to make ends meet, are unlikely to confront the question of whether and how to spend money to maximize happiness. Yet, a large proportion of people living in developed countries have a non-trivial amount of discretionary income with which they could buy time (OECD Economic Survey of Canada and the United States, 2016). In North America, the average household takes home about $30,000 of discretionary income each year (Statistics Canada, 2016; US Census Bureau; 2015). The question of whether using money to buy time can promote happiness is therefore likely to be relevant for a broad range of the population.

1.2.   Examining the Links between Time, Money, and Happiness

Money and time are valuable resources that most people believe will bring them greater happiness. Most people living in North America are feeling increasingly pressed for time (DeVoe & Pfeffer, 2011; Perlow, 1999). Most people living in North America also report that not having enough money is one of their primary sources of worry (Rheault, 2011). Although people report wanting to have both more time and more money, there are typically very few opportunities to gain both. People are instead often making trade-offs between time and money. Across each day and over the course of many years, the decisions that people make about having more time at the expense of having less money may hold important implications for happiness.

Both the amount of money and the amount of free time that people have matter for happiness. Past research suggests that having more money is associated with experiencing daily happiness up to approximately $75,000 of household income per year, with additional gains in life satisfaction beyond that amount (Kahneman & Deaton, 2010). Previous research also suggests that time affluence is associated with greater happiness and life satisfaction, even after controlling for how much money people make. This holds true even among people who say that

they like being busy (Kasser & Sheldon, 2009). While a great deal of research has examined how the absolute amount of time and money that people have impacts happiness, I will look beyond absolutes to examine the trade-offs that people make between time and money. I will first examine whether people who prioritize time over money experience the greatest happiness.

1.3.   Valuing Time over Money and Happiness

First, I will examine whether the broad tendency to prioritize time over money is linked to greater happiness. Based on previous literature, I expect that valuing time over money will be linked to greater happiness in part through the behaviors that this orientation promotes. Past research suggests that people who are led to focus on time are more likely to engage in happiness-producing activities (Mogilner, 2010). For example, after completing a scrambled-word task that implicitly activated the concept of time (vs. money), individuals reported more desire to socialize and less desire to work. In contrast, people who focus on money are more likely to focus on their own needs and goals at the expense of focusing on the needs and goals of others (Vohs, Mead & Good, 2006; 2008; Whillans, Caruso & Dunn, 2016; Whillans & Dunn, 2015). This self-focus occurs even though helping other people provides a reliable route to well-being (e.g., Dunn, Aknin & Norton, 2008; Whillans et al., 2016). Taken together, this research suggests that activating the concepts of time and money can have critical consequences for short-term decision making, with potential downstream consequences for subjective well-being, although this link has not yet been explored. Drawing on past research, I hypothesize that people with a stated proclivity to prioritize time over money should experience the greatest happiness.

1.4. Buying Free Time and Happiness

The benefits of prioritizing time over money likely impacts happiness through multiple routes, such as by encouraging people to structure their lives in a way that allows them to have more free time (e.g., choosing a lower paying job that requires fewer hours) and by encouraging people to more frequently engage in social and leisure activities (e.g., at the expense of working). Solely focusing on people's broad orientations to prioritize time over money overlooks the empirical examination of the exact pathways by which choosing time over money shapes happiness. To overcome this limitation, the second part of my dissertation will focus on one specific instantiation of choosing time over money: using money to buy free time. By narrowing the focus of this dissertation, I will be able to build a more rigorous conceptual model to better explore when, where, and how using money to shape time-use impacts well-being.

1.5. Why Buying Time Might Promote Happiness

Wealth offers the potential for people to spend their time in happier ways, such as by living in a more expensive apartment that is closer to the office or paying someone else to run errands on their behalf. Indeed, people may derive happiness from spending discretionary income in ways that result in having more time—such as delegating disliked tasks to other people. With the rise of the sharing economy, it is increasingly possible to outsource the tasks we dread, leaving time for more pleasurable activities. In 2011, *Time Magazine* rated the sharing economy as one of the top 10 ideas that would change the world. In 2015, the Pew Research Centre documented the growing popularity of the sharing economy—finding that seven-in-ten Americans (72%) had used some type of online or shared economy service. Today, the possibility of delegating anything from grocery shopping to resume editing is only a few clicks away. For example, a company called *TaskRabbit* enables people to outsource just about any

task, from taking garbage to the dump to mailing Christmas presents. By facilitating connections between people who need tasks done and people who have time to do them, companies such as *TaskRabbit* are poised to make outsourcing easy and affordable for a broad range of the population. Despite the growing body of work examining how spending decisions influence happiness no research to date has examined whether buying time promotes happiness.

The hypothesis that using money to buy time should be linked to greater happiness is well-grounded in literature demonstrating the existence of "a modern time famine" as well as research documenting the deleterious effects of time pressure on subjective well-being. Many North Americans report having too much to do and not enough time to do it in. In a 2004 survey, respondents were asked if they often had time to spare. As Brigid Schulte explains in her book *Overwhelmed*, "exactly zero percent of mothers with children under six said yes" (Brown & Perkins, 2010). Fathers and working adults without children also express similar concerns about the time famine of modern life. One representative survey found that over 80% of adults—both with and without children—reported wishing that they had more time to spend with their families (Duxbury & Higgins, 2001). In representative surveys, twice as many Americans report they would prefer two weeks of vacation over two weeks of additional pay (Honoré, 2009). These findings suggest that many people feel overwhelmed by the demands of work and life.

Although one source of time scarcity comes from the objective insufficiency of an individual to cope with multiple demands and expectations, another source of time scarcity arises when people feel like they lack sufficient time to do all the things that they want to do (Restegary & Landy, 1993). Prominent time researchers have argued that the problem of time scarcity is largely perceptual (Robinson & Godbey, 1997). Consistent with this idea, while the number of hours that people work has remained relatively constant over the last five decades (Aguiar &

Hurst, 2009), Americans report feeling that their time is scarcer than ever before (Carroll, 2008). Regardless of how these feelings of time scarcity arise, feelings of time stress and overwork are critically important to address. Perceived time pressure and subjective feelings of stress are linked to negative health outcomes including distress and depression (Roxburgh, 2004), sleep problems, health dissatisfaction (Zuzanek, 2004) and psychosomatic symptoms such as headaches, and digestive disturbances (Höge, 2009).

Subjective feelings of time scarcity also impact engagement in health behaviors. Chronic diseases are the leading cause of premature death in Western nations and behaviors that are known to prevent these diseases, such as healthy eating and physical activity, often require time (Roberts & Barnard, 2005). Insufficient time is the reason given most frequently for not exercising or preparing healthy food (Jabs et al., 2007). Some health experts have even gone as far as ranking time pressure as one of the two most important social trends that underlie the rising rates of obesity (Banwell et al., 2005). Buying time might therefore promote improved well-being by reducing people's subjective feelings of time stress.

1.5.1. Improving Time-Use

Buying time, such as by paying others to perform one's disliked tasks, might also promote happiness by reducing the amount of time spent engaging in unpleasant activities such as shopping, commuting, and cleaning (Kahneman et al., 2006). Simultaneously, buying time might promote happiness because it enables people to use time in more pleasant and relaxing ways (White & Dolan, 2009). Using money to buy time should be most effective when people spend their additional free time engaging in pleasurable leisure activities (e.g., Smeets, Whillans, Bekkers & Norton, 2017). Buying time may provide a pathway to enhanced happiness by (1)

removing the most dreaded minutes of people's day and (2) endowing people with the free time necessary to more frequently engage in enjoyable activities, such as exercising and socializing.

1.5.2   Reducing Time Stress

Beyond enabling people to spend more time engaging in activities that should promote happiness, such as leisure activities, buying time should promote happiness by reducing people's overall feelings of time stress. In particular, buying time should promote happiness by protecting people from the negative impact of time stress on happiness. Time pressure is detrimental for well-being (Kasser & Sheldon, 2009). However, receiving assistance from others can bolster well-being in part by protecting people from the negative impact of stress on happiness (e.g., Cohen & Wills, 1985; Raposa, Laws, Ansell, 2015; Schaefer, Coyne & Lazarus, 1981). Furthermore, people often complain of being in a time bind not only because they are objectively busy, but also because they do not feel in control of their busyness (Goodin, Rice & Parpo, 2009; Schor, 1993). Building on this work, buying time should reduce time stress and promote well-being in part by providing people with increased feelings of control over their lives.

1.6.   Can Guilt Suppress the Benefits of Buying Time?

Buying time might not always promote happiness. The benefits of buying time may be suppressed by feelings of guilt about asking other people to complete tasks that they could otherwise complete themselves. In a recent qualitative study, researchers found evidence that guilt plays a critical role in couples' decision making about whether to outsource to paid professionals (Epp & Velagaleti, 2014). Most relevant for the current investigation, these interviews revealed that feelings of guilt were a critical factor in predicting the amount of tension that families experienced leading up to and following their decision to hire a professional

childcare provider. Guilt might therefore undermine people's enjoyment of the free time that they have gained because of outsourcing their disliked tasks. There might also be individual differences in who experiences guilt. People from working-class backgrounds may experience greater guilt about paying someone else to do a task that they could otherwise do themselves (even if they are more pressed for time than money in the present). This proposition is consistent with qualitative work suggesting that individuals from working class backgrounds experience greater feelings of guilt when they are faced with decisions that are perceived as self-indulgent, such as attending college vs. working full-time to support their family (Johnson, 2001).

1.7.   Dissertation Overview

Past research has examined how the amount of money and time people have shapes happiness. The current dissertation extends research in this area by focusing on whether and how the trade-offs that people make between time and money are linked to greater happiness.

Overall, this dissertation aims to answer four guiding questions: First, are people's general tendencies to prioritize time over money linked to greater happiness? Second, is one specific instantiation of using money to buy time, spending money to delegate disliked tasks, linked to greater happiness? Third, do the happiness benefits of using money to buy time emerge because using money to buy time protects people from the negative impact of time pressure on happiness? Finally, can the happiness benefits of using money to buy time sometimes be undermined by feelings of guilt? And, are there individual differences in the extent to which individuals experience guilt as a function of using money to buy more free time?

To this end, this dissertation presents fourteen studies – organized into four manuscript-style research chapters – designed to examine whether and how spending money to buy free time

can promote happiness. I have conducted three sets of studies that aim to answer key questions

pertaining to time and money trade-offs and subjective well-being, as follows:

Studies 1-5 examine whether people's general tendencies to choose time over money

predict greater happiness (Chapter 2). To this end, I develop the Resource Orientation Measure

(ROM) to assess people's stable preferences to prioritize time over money when making daily

and major life decisions. Using data from students, adults recruited from the community, and two

nationally representative samples of employed Americans, I examine the links between the ROM

and self-reported happiness (Studies 1-5). In these studies, I examine demographic

characteristics that predict people's responses to the ROM, and I assess whether any associations

between valuing time over money and happiness hold controlling for variables that might

otherwise explain these associations such as income, age, marital status, gender, materialism, and

material striving. The findings from Studies 1-5 (Chapter 2) reveal consistent support for the

proposition that valuing time promotes happiness; people who report valuing time over money

also report greater happiness, and these results hold controlling for demographic characteristics

that could otherwise explain these results such as age, gender, and income.

Studies 6-9 examine a specific instantiation of choosing time over money: using money

to buy time by delegating disliked tasks (Chapter 3). Using data from a sample of Americans

recruited from Mechanical Turk (Study 6), a representative sample of employed adults living in

the United States (Study 7), and samples of working adults in Denmark (Study 8), Canada (Study

9), and the Netherlands (Study 10) as well as a large sample of Dutch millionaires (Study 11), I

explore the link between buying time and happiness. In these studies, I once again assess

whether these relationships hold controlling for possible third variables, such as discretionary

income, the amount of money that people spend on leisure activities, income, age, gender, and

marital status (DeLeire & Kalil, 2010; Ruberton, Gladstone & Lyubomirsky, 2016). I also examine whether these associations replicate in the broader population by examining whether respondents from in the American Time-use Survey (ATUS) report greater happiness on days where they use money to buy time (Study 12). These data support the notion that buying time promotes happiness: people who buy time report greater well-being. These studies also suggest that buying time promotes happiness by protecting people from time-stress (Studies 9-12).

The initial studies in Chapter 3 test whether buying time is associated with subjective well-being, yet these studies do not establish the direction of causality. It is possible that happier people are more likely to use money to buy time, even though I argue that buying time promotes happiness. In Study 13, I therefore seek to examine a *causal* link between buying time and well-being. To examine this possibility, I recruit working adults to complete a two-week within-subjects study. In this study, adults recruited from the community are assigned to spend a payment of $40 in a way that saves them time in one week; in another week, these same participants are assigned to spend a payment of $40 on a material purchase for themselves (which is unlikely to change the way that they spend their time). As predicted, participants report greater end-of-day happiness after spending on a time-saving purchase as compared to after spending on a material purchase. Consistent with the initial results presented in Chapter 3, buying time promotes happiness by reducing feelings of time pressure. Taken together, these findings provide the first evidence that buying time causally improves happiness.

Across Studies 6-13, I find only a small to moderate benefit of using money to save time on subjective well-being. It is therefore possible that not everyone derives benefits from buying time, potentially because individuals report experiencing guilt when delegating tasks that they could otherwise complete themselves. In Chapter 4, I design a novel paradigm to examine

whether feelings of guilt suppress the benefits of buying time. Using this paradigm, I find initial evidence that guilt undermines the benefits of buying time (Study 14). In doing so, this study provides insight into when the benefits of buying time are most likely to emerge.

In this dissertation, I focus on subjective well-being as the key outcome variable. Subjective well-being (SWB) refers to a person's subjective evaluation of how happy they are and includes both global cognitive assessments of the quality of one's life, as well as measures of emotional experiences (such as positive and negative affect; e.g., Diener, 1984). I chose to define SWB based on past research suggesting that SWB is often best defined as a combination of high positive affect (PA), low negative affect (NA), and high feelings of life satisfaction (SWL; Diener, 1994; Diener & Lucas, 1999; Sheldon, 2013). In this dissertation, it is worth noting that I use the terms happiness and well-being interchangeably, all referring to subjective well-being.

When examining the links between the general tendency to prioritize time or to buy time, I examine global assessments of life satisfaction. When I examine the links between daily instances of buying time (e.g., hiring a house cleaner *today*), I examine daily emotional experiences. This decision is theoretically sensible because people's general tendencies may not impact daily emotional experiences. Also, changes in daily time-use activities may not impact overall cognitive assessments of the quality of one's life (e.g., Kahneman et al., 2010).

Across all studies, I follow the standards proposed by Simmons, Nelson, and Simonsohn (2011) that were designed to maximize transparency: I report the decision rule regarding each sample size, all data exclusions, every condition that was run, and every measure that was given. To further reveal the consistency of my findings, I employ meta-analyses across the large-scale survey research that I present (e.g., Studies 1-5; Studies 6-11; Lipsey & Wilson, 2001).

The fourteen studies in this dissertation provide foundational knowledge about the relationship between time and money trade-offs and well-being. In the final chapter of this dissertation (Chapter 5), I summarize the research contained in Chapters 2-4 and I discuss the limitations and implications of this work as well as several potential avenues for future research.

Chapter 2: Does Valuing Time over Money Promote Happiness?[1]

2.1.   Synopsis

In Chapter 2, I examined whether people's general orientations to value time over money are associated with greater happiness. I developed a novel measure, the Resource Orientation Measure, to assess whether people who valued time over money reported greater subjective well-being (Study 1, 2a&b, and 3). I then examined the relationship between people's responses to the ROM and well-being in two studies of college students (Study 2b & 3b), a study of working adults recruited at a science museum (Study 3), a representative sample of employed Americans living in the United States (Study 4), and a nationally representative sample of Americans (Study 5). These studies allowed me to explore whether the general orientation to value time over money was associated with well-being, and whether these associations held controlling for other variables that could explain this relationship, such as income, age, gender, and materialism. In this chapter, I have reported all of the studies that I ever conducted to develop this measure.

2.2.   Introduction

Although time and money are largely interchangeable in the modern economy, a growing body of research suggests that people think about time and money in profoundly different ways (Mogilner, 2010; Zauberman & Lynch, 2005). Whereas thinking about money leads people to value productivity and independence, thinking about time leads people to prioritize social connection (Mogilner, 2010; Vohs, Mead & Goode, 2006). This research provides initial evidence that activating the concepts of time and money can have critical consequences for short-term decisions—with potential long-term consequences for well-being, although this link

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[1] A version of this chapter was published as "Valuing time over money is associated with greater happiness. *Social Psychological and Personality Science*, *7*(3), 213-222."

has not yet been tested. I therefore sought to provide the first examination of whether people who chronically prioritize time over money are happier than people who prioritize money over time.

From my perspective, the extent to which people prioritize time over money should be related to—but distinct from—materialism and material striving, which are both associated with lower well-being (Richins & Dawson, 1992; Kasser & Ryan, 1993). Materialism is defined as the general importance that individuals ascribe to the ownership and acquisition of material goods (Richins & Dawson, 1992). Material striving is defined as having a pre-occupation with accumulating wealth (Furnham, 1984). Whereas materialism and material striving measures broadly capture individuals' absolute levels of interest in material things and money respectively, these materialism measures were not designed to assess how individuals navigate trade-offs between time and money. Previous research has therefore largely overlooked the question of whether and how the trade-offs that people make between time and money can impact happiness.

2.2.1. Overview of the Studies

In the present work, I develop the Resource Orientation Measure (ROM) to examine stable individual differences in the proclivity to prioritize time over money. Next, I examine whether the ROM is associated with greater happiness. To develop and validate this measure, and to examine the relationship between prioritizing time over money and well-being, I conduct five studies ($N = 7,355$). In Studies 1, 2a&b, and 3b I examine stable individual differences in the proclivity to value time over money. In Studies 2b, 3a&b, and 4 I examine the relationship between SWB and prioritizing time over money as measured by the ROM. In Study 5, I replicate my key findings using a related yet distinct measure of time over money preference. Detailed demographic characteristics of participants from each study are presented in Table 1. In Table 1, I also report the percentage of people who report valuing time over money across studies.

Table 1

Participant demographic characteristics across studies

Study	2a	2b	3a[a]	3b[b]	4	5
N	260	518	242	2303	1265	2767
% Time Oriented on the ROM	61	69	52	61	46	47
% Female	78	59	74	76	48	52
Md, Age		37	21	20	45	46
Md, HH income		$100K-$149K	-	-	$75K-$85K	$75K-$99K
Md(range) # children[c]	-	0 (0-4)	-	-	1 (0-6+)[d]	1 (0-9)[d]
Md(range) # work[e] hours/week		40 (0-90)			40 (0-90)	-
% Married	-	66	-	-	68	54

Note [a]In Study 3a, participants answered the Resource Orientation Measure (ROM) about the year after graduation. [b]In Study 3b, participants completed the gender-neutral version of the ROM. [c]This variable represents responses to "*How many children are still living with you?*" [d]This variable is based on N = 921 respondents who reported having children. [e]This variable represents responses to "*How many hours do you work at your main job each week?*

2.2.2. Resource Orientation Measure

Across Studies 1-4, I assessed whether people prioritized having more time or having more money by presenting them with a binary choice. To help participants imagine these trade-offs concretely and to encourage honest responding (Fisher, 1993), I asked participants to read a short paragraph describing two people who prioritize money or time in their daily lives. The identities of the characters and pronouns used were matched to the participant's gender (Tina/Tom and Maggie/Michael). For participants who did not report identifying as either male or female the names and pronouns used in the vignettes were displayed as gender neutral (Madison/Taylor). The question wording was presented to participants exactly as follows:

Our lab is interested in views of time and money. Two people, Tina and Maggie, are described below. Are you more similar to Tina or Maggie? Please pick one person who you are most similar to below, even if you aren't exactly like either Tina or Maggie.

> **Tina** values her **time** more than her money. She is willing to sacrifice her money to have more time. For example, Tina would rather work fewer hours and make less money, than work more hours and make more money.

> **Maggie** values her **money** more than her time. She is willing to sacrifice her time to have more money. For example, Maggie would rather work more hours and make more money, than work fewer hours and have more time.

> I am most similar to:
> - ☐ Tina
> - ☐ Maggie

In Study 5, I once again assessed whether people prioritized having more time or having more money by presenting them with a binary choice. Yet, in Study 5, I assessed whether people reported prioritizing having more time or more money using a measure that was developed by an independent group of researchers, at a later date, after I had already published my initial paper validating the ROM (Herschfield, Mogilner, & Barnea, 2016). In this study, I asked participants to report on whether they would "Rather have more time or more money?" By examining the

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consistency of my results using a distinct measure that captures the same underlying construct, I

can ensure that the results that I have obtained are not a methodological artefact.

2.3. Study 1: ROM Test-Retest Reliability

2.3.1. Method

Participants and Procedure. First, I assessed the test-retest reliability of the ROM across a three-month time frame, in which relatively stable constructs should show no true change (Chmielewski & Watson, 2009). To recruit participants, I contacted all students at the University of British Columbia (UBC) that had completed the ROM during the past semester as part of several unrelated ongoing studies. Students participated in this study in exchange for the chance to win one of three prizes valued at $700. In this study, 102 students out of a possible 482 UBC students completed the ROM twice (21%), approximately three months apart.

2.3.2. Results and Discussion

At the three-month follow-up, most participants reported having the same orientation; the kappa coefficient was 0.63 and the percent agreement was 82%, which indicates substantial consistency (Landis & Koch, 1977). Study 1 provided initial evidence that the tendency to prioritize time over money is a relatively stable preference. Next, to establish construct validity, I tested whether the ROM was associated with major life decisions (Study 2a) and everyday decisions (Study 2b). Study 2a also included measures of materialism and material striving to examine the discriminant validity of the ROM. Although the primary purpose of Studies 2a&b was to establish construct and discriminant validity, Study 2b also included a brief measure of subjective well-being (SWB).

2.4. Study 2a: ROM Student Study

2.4.1. Method

Participants and Procedure. Two hundred and sixty UBC students participated in this study in exchange for an entry into a lottery or for course credit through the UBC Department of Psychology Human Subject Pool (78% female). I targeted a sample size of 200, and I collected data throughout the 2015-2016 summer semester. Because there is a limited subject pool at UBC during the summer, I supplemented this data collection by recruiting participants on campus in exchange for entry into a lottery for one of three prizes valued at approximately $700. I stopped collecting data at the end of the summer semester, resulting in a total of $N = 260$ participants.

First, participants read three scenarios that involved making trade-offs between time and money (see Appendix A for the exact scenarios used). In one scenario, participants were asked to imagine that they were renting their first apartment and had to decide between renting a cheaper apartment with a longer commute and renting a more expensive apartment with a shorter commute. In another scenario, participants were told that they had been admitted to two graduate programs and had to decide between a program that resulted in a higher starting salary and more work hours or a program that resulted in a lower starting salary and fewer work hours. After indicating their decision, participants reported their age, gender, and completed the ROM.

I also examined whether the ROM was distinct from related constructs, including materialism and material striving. All participants completed the 15-item Material Values Scale (Richins, 2004; $\alpha = 0.89$) and three items from the Obsession subscale of the Money Beliefs & Behavioral Scale (MMBS; Furnham, 1984; Piff et al., 2012; $\alpha = 0.81$). Each participant was then assigned to complete one of the following tertiary measures: a short-form measure of socially desirable responding (Strahan, & Gerbasi, 1972; $\alpha = 0.77$; $N = 87$), the conscientiousness

subscale of the BFI (John & Srivastava, 1999; α = .81; *N* = 81), or two items assessing current

feelings of time and material affluence on a scale ranging from -5=Very little time/money

available to +5=A lot of time/money available (Mogilner, Chance & Norton, 2012; *N* = 90).

2.4.2. Results and Discussion

To examine whether prioritizing time over money predicted decision making, I summed

the number of time-saving decisions that participants made in response to the three scenarios.

As predicted, participants who reported prioritizing time on the ROM chose a higher

number of time-saving options (*M* = 1.73, *SD* = 0.78) as compared to participants who reported

prioritizing money on the ROM (*M* = 1.28, *SD* = 0.87), *t*(258) = 4.30, *p* < 0.001, *d* = 0.55, 95%

CI = [0.30, 0.80]. See Table 2 for the results reported for each scenario separately.[2]

As expected, there was a moderate negative association between prioritizing time over

money and both materialism (*r* = -0.33, *p* < 0.001) and material striving (*r* = -0.33, *p* < 0.001).

Critically, these results suggest that, although the ROM shows some overlap with materialism

and material striving, it captures a largely distinct construct. There were no significant

associations between participants' responses to the ROM and social desirability (*r* = 0.02),

conscientiousness (*r* = 0.08), or current feelings of time and material affluence (*rs* ≤ 0.11),

suggesting that these variables did not play a major role in shaping participants' responses to the

ROM. See Table 3 for the correlations between all variables examined in this study.

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[2] The critical results are substantively unchanged controlling for materialism and material
striving, *F*(1, 257)=12.78, *p*<.001.

Table 2

ROM predicting major life decisions in Study 2a

	Time-vs.-money oriented	Money-vs.-time oriented	Statistics
Closer/More expensive apartment	46.9%	33.7%	$X^2(1, 261) = 4.44, p = .035$
Promotion/Fewer hours & less money	66.9%	51.5%	$X^2(1, 261) = 6.16, p = .013$
Future career/Fewer hours & less money	58.8%	41.6%	$X^2(1, 261) = 7.31, p = .007$

Table 3

Correlation table of all the variables examined in Study 2a ($N = 260$)

	1	2	3	4	5	6	7	8
1. ROM (1=Time Oriented)								
2. # of Time Choices	.26**							
3. Materialism (15-item)	-.33**	-.11†						
4. Material Striving (3-item)	-.33**	-.18**	.66**					
5. Social Desirability	.02	-.02	.10	-.02				
6. Conscientiousness	.08	-.10	-.23*	-.26*	-			
7. Time Affluence	.11	.04	-.007	-.02	-	-		
8. Material Affluence	.09	.07	-.15	-.11	-	-	-	
9. Gender (1=Female)	-.004	.10	-.03	-.001	.09	.08	.05	.17

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

Note. All participants completed both measures of materialism and material striving, but only completed one measure out of social desirability, conscientiousness, or time/material affluence. Thus, correlations could not be computed between these measures.

2.5. Study 2b: ROM Science Museum Study

2.5.1. Method

Participants and Procedure. In Study 2b, 518 adults were recruited from a science museum in Vancouver, Canada (59% female). Participants completed a two-item measure of subjective well-being (SWB). First, participants answered the question, "Taking all things together, how happy would you say you are?" on a scale from 0=*Not at all* to 10=*Extremely* (ESS, 2006). Next, participants completed the Cantril Ladder (Cantril, 1965). For this question, participants were asked to report where they currently stand in life on a ladder that spanned from the worst possible to the best possible life imaginable (0=*Bottom Rung* to 10=*Top Rung*). I selected these questions because they are brief measures that are used extensively in large scale survey research (e.g., Harter & Gurley, 2008; Deaton, 2008).

Participants then completed the ROM and read scenarios that involved making trade-offs between time and money (see Appendix B). For example, in one scenario, participants were told that they were trying to book flights for an upcoming trip and that they had to decide between a cheaper flight with a layover or a more expensive direct flight. To increase the generalizability of these results, I used three additional scenarios, in which participants were asked to choose between driving farther to pay less for gas, paying more for coffee at a friendlier café, or paying more to park at a closer parking lot; to minimize burden, each participant saw only two of the four possible scenarios. In this study, I counterbalanced the presentation of the ROM and the scenarios. Some participants first completed the ROM and then the scenarios (ROM 1st; $N =$ 324); other participants first completed the scenarios and then the ROM (ROM 2nd; $N = 194$).

Participants were then asked to report on their current feelings of time and material affluence and to provide information about their income, marital status, employment status

(whether they were employed and/or looking for work), the number of children that they currently had living at home, the number of hours that they worked on average each week and their age and gender. These demographic variables were chosen for their previously documented relationship with time-use and well-being (Mogilner, 2010; Mogilner, Chance & Norton, 2012). Lastly, participants were entered in to a lottery for completing the survey and they were asked to select their preferred prize. Specifically, participants were asked to choose between receiving a $50 cash prize or a $120 voucher for a time-saving service (housecleaning); these amounts were chosen based on a pilot study ($N = 40$) suggesting that people would be equally satisfied with receiving either prize at these dollar amounts (see also: Zauberman & Lynch, 2005).

2.5.2. Results

Scenarios. To examine whether prioritizing time over money predicted decision making, I once again summed the number of time-saving decisions that people made in response to the two scenarios. As predicted, participants who prioritized time over money made a greater number of decisions that resulted in having more time at the expense of having more money ($M = 1.25$, $SD = 0.66$) as compared to participants who prioritized money ($M = 1.05$, $SD = 0.73$), $t(509) = 3.08$, $p = 0.002$, $d = 0.29$, 95%CI = [0.10, 0.48]. See Table 4 for the results reported on each scenario separately. Order did not interact with participants' responses to the ROM to predict time-saving decisions, $p = 0.506$.

Prize Draw. As expected, participants who prioritized time over money were also more likely to choose the time-saving voucher (26.0%) as compared to participants who prioritized money over time (15.5%), $X^2 (1, 515) = 6.90$, $p = 0.009$. Order did not interact with participants' responses to the ROM to predict time-saving decisions, $p = 0.206$.

SWB. The two measures of SWB were significantly correlated, $r(518)=.59$, $p<.001$; thus, I averaged these two items to create an index of SWB. Preliminary analyses revealed an unpredicted effect of order, so I included the ROM, survey order, and a ROM X Order interaction in an ANOVA to predict subjective well-being. This analysis revealed a significant main effect of the ROM, $F(1, 515) = 4.49$, $p = 0.035$, $\eta^2 = 0.01$ that was qualified by a significant ROM X Order interaction, $F(1, 515) = 6.22$, $p = 0.013$, $\eta^2 = 0.01$. Decomposing this interaction, among participants who completed the ROM *before* the scenarios (ROM 1st), prioritizing time over money was associated with greater SWB, $F(1, 511) = 8.40$, $p = 0.004$, $\eta^2 = 0.02$. In contrast, among participants who completed the ROM *after* completing the scenarios (ROM 2nd), prioritizing time over money was not significantly associated with SWB, $p = 0.757$.

To examine the robustness of these effects, I repeated this analysis after adding my predetermined set of covariates (income, age, gender, number of children living at home, the number of hours that participants worked each week, participants' marital and employment status, and participants' current feelings of time and material affluence). With all of these variables included, the main effect of the ROM on SWB was marginally significant, $F(12, 426) = 3.53$, $p = 0.061$; $\eta^2 = 0.008$, while the ROM X Order interaction remained significant, $F(12, 426) = 4.11$, $p = 0.043$, $\eta^2 = 0.01$. See Table 5 for a correlation table of all variables examined.[3]

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[3] This analysis is based on $N = 426$ due to incomplete responses on all measures.

Table 4

ROM predicting daily decision making in Study 2b

	Time-vs.-money oriented	Money-vs.-time oriented	Statistics
Familiar/ more expensive coffee shop	67.4%	47.1%	$X^2(1, 265) = 10.09$, $p = .001$
Closer/more expensive gas station	51.7%	36.8%	$X^2(1, 263) = 5.20$, $p = .022$
Direct/more expensive flight	54.3%	50.0%	$X^2(1, 253) = .40$, $p = .528$
Closer/More expensive parking lot	76.6%	71.8%	$X^2(1, 253) = .66$, $p = .417$

Table 5

Correlation table of all the variables examined in Study 2b ($N = 518$)

	1	2	3	4	5	6	7	8	9	10	11
1. ROM (1=Time Oriented)											
2. # of Time Choices	.14**										
3. SWB	.07	.06									
4. Time Affluence[a]	.11*	-.005	.15**								
5. Material Affluence[b]	.009	.09†	.26**	.29**							
6. Household Income[c]	-.03	.17**	.23**	-.05	.26**						
7. Marital Status (1=Married)	-.09*	.04	.07	-.17**	-.04	.35**					
8. # of Children at Home	-.08†	.11*	-.12**	-.26**	-.10*	.22**	.43**				
9. # of Hours Worked/Week	-.10*	.10*	.04	-.27**	-.02	.28**	.07	-.01			
10. Employed (1=Looking)[c]	-.02	-.06	.03	.09†	-.02	-.18**	-.13**	-.08†	-23**		
11. Gender (1=Female)	-.07	-.03	.05	-.01	.11**	.18**	.06	-.05	.24**	-.11*	
12. Age	.03	.09†	.05	.08†	.10*	.18**	.31**	.27**	-.05	-.15**	.05

†$p \le .10$, *$p \le .05$, **$p \le .01$

Notes. [a]This variable represents responses to "*Thinking about right now, how much spare time do you have?*" from 5(*Very little available time*) to +5(*Lots of available time*). [b]This variable represents responses to "*Thinking about right now, how much spare money do you have?* [c]Annual household income was asked on a 19-point scale from "*Less than \$5,000*" to "*Over \$1 million,*" thus this scale was treated as a continuous measure (Rhemtulla, Brosseau-Liard & Savalei, 2012). [c]This variable represents responses to "*How would you describe your employment?*" Respondents who replied that they were working part-time *or* were unemployed *and* looking for work were classified as "looking" to represent self-reported underemployment.

2.5.3. Discussion for Studies 2a&b

Studies 2a&b suggest that the ROM is associated with major life decisions such as choosing what apartment to rent (Study 2a), daily decisions such as choosing where to purchase gas (Study 2b), and consequential in-the-moment decisions such as choosing what lottery prize to receive (Study 2b). These studies demonstrate that people who prioritize time over money express a greater willingness to use money to have more time when making decisions—from the major (Study 2a) to the mundane (Study 2b). Study 2a also shows that the ROM is a related but distinct construct from materialism and material striving, and that responses to the ROM were not driven by conscientiousness, socially desirable responding or current feelings of time affluence or material affluence. Study 2b provides tentative evidence that prioritizing time over money may be associated with greater well-being. To further explore the relationship between the ROM and well-being, I examined a more extensive set of SWB measures in two studies conducted with UBC students (Studies 3a&b, $N = 2,545$). To broaden the scope of this research beyond convenience samples, I then explored the relationship between the ROM and SWB in a diverse sample of employed Americans (Study 4, $N = 1,265$).

2.6. Studies 3a: ROM and Student Well-being

2.6.1. Method

Participants & Procedure. In Study 3a, 242 UBC students participated in exchange for course credit or candy (74% female). These data were collected during the first wave of an ongoing longitudinal study. I chose a target sample size of 200 participants for this initial survey, and I made the a priori decision to stop data collection at the end of the 2013-2014 year, resulting in 242 participants. Participants reported their general happiness on a single item (Abdel-Khalek, 2006). Participants then reported their SWB on an affective and cognitive measure; positive and

negative affect in the last four weeks was reported on the Schedule for Positive and Negative Affect (SPANE; Diener et al., 2009; α = 0.88), and overall cognitive evaluation of life was reported on the Satisfaction with Life Scale (SWLS; Diener, Emmons, Larson & Griffin, 1985; α = 0.88). Participants completed the ROM and several measures tangential to the current hypothesis (Appendix B). Participants completed the 15-item Material Values Scale (Richins, 2004; α = 0.86), three MMBS items (α = 0.73) and reported their age and gender.

2.6.2. Results and Discussion

As expected, the measures of SWB were significantly correlated, $rs \geq 0.52$, $ps < 0.001$ (Table 4). Thus, to maximize the breadth of measures and brevity of reporting, and in line with previous research using these measures (e.g., Aknin et al., 2013), I standardized and averaged these items to create a SWB composite. To maximize transparency, I report the results on each measure separately in Table 6. Consistent with my hypothesis, participants who prioritized time reported higher SWB compared to participants who prioritized money, $t(240) = 2.34$, $p = 0.020$, $d = 0.30$, 95%CI = [0.05, 0.55]. Reporting these results in the regression framework, prioritizing time over money was a significant predictor of SWB, $\beta = 0.15$, $p = 0.020$; these results remained unchanged upon including materialism and material striving into the model, $\beta = 0.15$, $p = 0.028$.[4] See Table 7 for the final regression model including covariates. To replicate the critical results of Study 3a, I conducted an additional study (Study 3b) with a much larger sample.

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[4] There was no interaction between the ROM and materialism to predict SWB, $\beta = -0.04$, $p = 0.728$; or between the ROM and material striving to predict SWB, $\beta = -0.04$, $p = 0.678$.

Table 6
Correlation table of all variables examined in 3a ($N = 242$)

	1	2	3	4	5	6	7	8	9
1. ROM (1=Time Oriented)									
2. SWB Composite	.15*								
3. Happy (1-item)	.14*	.87**							
4. SWLS (5-item)	.14*	.87**	.64**						
5. SPANE PA	.07	.81**	.65**	.59**					
6. SPANE NA	-.13*	-.73**	-.59**	-.52**	-.57**				
7. Materialism	-.39**	-.07	-.003	-.12†	-.06	.04			
8. Material Striving	-.17**	-.19**	-.18**	-.15*	-.19**	.09	.41**		
9. Gender (1=Female)	.001	.06	.05	.10	.03	.02	-.05	-.05	
10. Age	.14*	-.06	-.05	-.01	-.09	.06	-.11†	-.07	-.09

†$p \le .10$, *$p \le .05$, **$p \le .01$

Table 7
Regression model predicting SWB from ROM and covariates in Study 3a

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
ROM	.15*	.27	.12	.028				
Materialism	.06	.09	.10	.396				
Material Striving	-.19**	-.22	.08	.007				
Age	-.08	-.04	.03	.221				
Gender	.05	.09	.13	.461	$F(5, 241)$	3.04	.011	.060

Notes. Results are reported for the final stepwise regression with all covariates entered simultaneously into the model.

2.7. Study 3b: ROM and Student Well-being Replication

2.7.1. Method

Participants and Procedure. By including the key measures in a department-wide online survey at the beginning of the semester, I recruited a very large sample of UBC students who participated for course credit ($N = 2303$; 76% female). Because of this data collection strategy, participants also completed demographic items and several measures submitted by other labs as part of the same survey, and I was only able to include a limited number of items. Specifically, participants completed the identical SWB items from Study 2a, and they reported on their positive and negative affect in the last four weeks on 6 items from the SPANE. I chose the three highest loading positive items and the three highest loading negative items from Study 3a (Diener et al., 2010; $\alpha = 0.86$). Participants then completed the ROM and three items from the MVS. I chose the three highest loading MVS items from Study 3a. Specifically, respondents reported their agreement with the statements: "I admire people who own expensive homes, cars, and clothes," "I like a lot of luxury in my life," and "I'd be happier if I could afford to buy more things" on a scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*); Richins, 2004; $\alpha = 0.75$. Approximately two weeks later, I also recruited a subset of these participants ($N = 640$) to complete the ROM again, allowing me to further assess test-retest reliability over a short period in which no meaningful change should be expected (Chmielewski & Watson, 2009).

2.7.2. Results and Discussion

As expected, the measures of SWB were significantly correlated, rs (2297) ≥ 0.53, $p < 0.001$; thus, I standardized and averaged these measures to create an index of SWB (See Table 8 for correlations between all variables in this study). Consistent with my hypothesis, participants who reported prioritizing time reported higher SWB as compared to participants who reported

prioritizing money, $t(2297) = 2.41$, $p = 0.016$, $d = 0.10$, 95%CI = [0.02, 0.18]. Reported in the regression framework, prioritizing time over money was a significant predictor of SWB, $\beta = 0.05$, $p = 0.016$; these results were largely unchanged upon including materialism in the model, $\beta = 0.05$, $p = 0.030$.[5] See Tables 9 and 10. Test-retest analyses indicated that most participants reported having the same orientation at the 2-week follow-up; the kappa coefficient was 0.72 and the percent agreement was 88%, which indicates excellent consistency (Landis & Koch, 1977).

2.7.3. Discussion

In Studies 3a&b, I found evidence that prioritizing time over money was associated with greater well-being after controlling for other variables known to affect SWB including material striving (Study 3a) and materialism (Studies 3a&b). An important limitation of Studies 2b and 3a&b is that these studies were conducted with convenience samples that consisted mostly of students, who may face less consequential trade-offs between time and money as compared to working adults. I therefore sought to examine the relationship between prioritizing time over money and SWB in a diverse sample of employed adults living in the United States (Study 4).

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[5] The ROM did not interact with materialism to predict SWB, $\beta = 0.02$, $p = 0.488$.

Table 8

Correlation table of all the variables examined in Study 3b ($N = 2303$)

	1	2	3	4	5	6	7
1. ROM (1=Time Oriented)							
2. SWB Composite	.05*						
3. SWB (2-item measure)	.05*	.90**					
4. SPANE PA	.04*	.90**	.62**				
5. SPANE NA	-.03	-.63**	-.53**	-.61**			
6. Materialism	-.22**	-.03	-.04*	-.004	.06**		
7. Gender (1=Female)	.02	.03	.02	.02	.04*	.002	
8. Age	.04†	-.01	-.001	-.02	.02	-.10**	-.04*

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

Table 9

Regression predicting SWB from ROM and materialism in Study 3b

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
ROM	.05*	.17	.08	.030				
Materialism	-.02	-.03	.04	.480	$F(4, 2297)$	3.10	.045	.003

Table 10

Regression predicting SWB from ROM and covariates in Study 3b

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
ROM	.05*	.17	.08	.030				
Materialism	-.02	-.03	.04	.444				
Age	-.01	-.008	.01	.570				
Gender	.02	.10	.09	.271	$F(4, 2294)$	1.96	.098	.003

2.8.   Study 4: ROM and SWB among Working Americans

2.8.1.   Method

Participants and Procedure. I recruited the sample for Study 4 through the GfK Knowledge Networks Survey panel. Over an 11-day fielding period, 1275 respondents completed my survey. Ten respondents did not complete my key variables of interest; thus, my primary analyses are based on 1265 respondents. Panel members respond to an average of two online surveys per month and receive small cash rewards and prizes for survey completion (www.gfk.com). GfK uses equal probability sampling to recruit potential panel members by mail and phone and provides participants in non-internet households with free internet access. This allows GfK to recruit a statistically representative sample of the American population. Because I collected these data as part of a larger study examining time-use and well-being, I selectively recruited GfK panel respondents who reported being employed and who were 18 years of age or older at the time of completing the initial GfK demographic profile. Because of this data collection method, my participants should approximate a representative sample of employed adults over 18 in the United States. Although I refer to these participants as a representative sample of Americans, it is worth noting that some participants may not have had US citizenship and the study did not include younger individuals or unemployed individuals (i.e., individuals who did not report working for pay). One additional limitation of conducting this research with a representative sample of working Americans is that I was limited in the number of measures that I could implement. Thus, in Study 4, I implemented the identical measure of SWB from Study 2b as compared to capturing a broader index of SWB. After participants completed this measure as well as measures tangential to the present hypothesis, participants completed the ROM.

2.8.2. Results

The two measures of SWB were significantly correlated, $r(1263) = 0.73$, $p < 0.001$; thus, I averaged these two items to create an index of SWB. See Table 11 for the correlations between all variables. Consistent with my hypothesis, participants who prioritized time over money reported higher SWB as compared to participants who prioritized money, $t(1263) = 3.19$, $p = 0.001$, $d = 0.18$, 95%CI = [0.07, 0.29]. Reported in the regression framework, prioritizing time over money was a significant predictor of SWB, $\beta = 0.09$, $p = 0.001$.

Based on prior work examining time-use and well-being (Mogilner, 2010), I conducted these analyses controlling for age, gender, education, income, number of hours worked each week, marital status, and number of children living at home; the key results remained significant, $\beta = 0.06$, $p = 0.032$. See Table 12 for the full regression model with covariates. There was no interaction between the ROM and income to predict SWB, $\beta = 0.01$, $p = 0.704$ suggesting that the relationship between valuing time and SWB did not vary depending on respondents' wealth.

2.8.3 Discussion

After controlling for a broad range of demographic characteristics, valuing time over money remained positively associated with SWB in a representative sample of working adults living in the US. An important limitation of Studies 2b, 3a&b, and 4 is that these studies used the identical measure of time vs. money trade-offs. Given this limitation, it is not possible to rule out the possibility that the results that I observed across these studies were due to a methodological artefact. I therefore examined the relationship between prioritizing time over money and SWB using a different measure that was developed by independent researchers (Study 5).

Another limitation of these studies is that I did not control for any subjective measures of financial security. Emerging research suggests that objective as well as subjective feelings of

financial security are critical predictors of subjective well-being (Anderson, John & Keltner, 2012; Anderson, Kraus & Galinsky, 2012). Furthermore, objective and subjective feelings of wealth and financial confidence do not always predict well-being in the same way (e.g., Dubois, Rucker & Galinsky, 2015; Whillans, Caruso & Dunn, 2016). It is therefore important to rule out the possibility that the relationship between valuing time and SWB is explained by the fact that people with a stated proclivity to prioritize time over money also report greater feelings of financial security. This is particularly important to consider in light of research showing that financial constraint can lead people to focus on acquiring material goods over experiences (Tully, Hershfield & Carter, 2015). Financial confidence is negatively associated with well-being. Low levels of financial confidence also encourage people to focus on material goods over experiences. Thus, it is important to rule out the possibility that the links I have observed between valuing time and SWB are explained by increased feelings of financial security.

Table 11
Correlation between all relevant variables in Study 4 ($N = 1265$)

	1	2	3	4	5	6	7	8
1. ROM (1=Time Oriented)								
2. SWB Composite	.09**							
3. Household Income	.04	.24**						
4. Marital Status (1=Married)	.04	.22**	.30**					
5. # of Children at Home	-.04	-.09**	-.03	.25**				
6. # of Hours Worked/Week	-.17**	.04	.13**	.12**	.02			
7. Education (1=University)	.10**	.12**	.34**	.05†	.08**	.12**		
8. Gender (1=Female)	.07*	.003	-.04	-.11**	-.01	-.20**	.03	
9. Age	.07*	.19**	.11**	.18**	-.40**	.04	-.04	-.02

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

Note. Income was reported on the identical scale from Study 2b. I recoded the education variable; "1" = bachelor degree or higher.

Table 12
Regression predicting SWB from time orientation and covariates in Study 4

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
ROM (1=Time Oriented)	.06*	.20	.09	.029				
Household Income	.16**	.07	.01	.000				
Marital Status (1=Married)	.14**	.52	.11	.000				
# of Children at Home	.01	.005	.02	.776				
# of Hours Worked/Week	-.004	-.001	.004	.881				
Level of Education	.06*	.21	.10	.037				
Gender (1=Female)	.02	.07	.09	.431				
Age	.15**	.02	.004	.000	$F(8, 1255)$	19.24	<.001	.11

2.9. Study 5: ROM and SWB Controlling for Financial Confidence

2.9.1. Method

Participants and Procedure. In Study 5, I recruited a representative sample of Americans through *ResearchNow*, a private survey company in the United States. Over a 3-day fielding period, 2,767 respondents completed my questions of interest. Like GfK, *ResearchNow* uses equal probability sampling to recruit panel members by mail and phone, and provides participants in non-internet households with free internet access. This allows *ResearchNow* to recruit representative samples of the US population. These data were collected as part of a larger study examining financial well-being and only participants who were 18 years of age or older were selected to participate in this survey-based research. The participants in this study approximated a nationally representative sample of adults over 18 living in the United States.

Through this data collection opportunity, I collected additional measures of SWB, thereby extending the results of Study 4. In addition to completing the identical measure of SWB from Studies 2b and Study 4, participants also completed the identical positive and negative affect from Study 3b (Diener et al., 2009; $\alpha = 0.90$). After participants completed these measures, participants were then asked to report whether they valued having more time or whether they valued having more money. Participants responded to the following 1-item measure, "Which do you want more of, time or money?" This measure has been developed independently by other researchers to examine time and money trade-offs (Herschfield, Mogilner & Barnea, 2016). By assessing people's time vs. money preference using a distinct 1-item measure, I could rule out the possibility that the results I obtained depended on the question wording of the ROM.

After completing this measure, participants completed demographic measures and a 1-item measure of financial security. To assess financial confidence, participants were asked to

report where they stand regarding their financial confidence on a ladder spanning from the lowest possible to the best possible financial confidence (0 = *Bottom Rung* to 10 = *Top Rung*). I selected this question because it is a brief measure that is used extensively in large scale research (Harter & Gurley, 2008; Deaton, 2008). I could therefore examine whether the relationship between valuing time over money and SWB held controlling for perceived financial security.

2.9.2. Results and Discussion

As expected, the measures of SWB were significantly correlated, *rs* (2297) = 0.34*, p <* 0.001; thus, I standardized and averaged these measures to create an index of SWB. See Table 13 for correlations between all variables in this study. Consistent with my hypothesis, participants who reported prioritizing time reported higher SWB as compared to participants who reported prioritizing money, $t(2765) = 8.05$, $p < 0.001$, $d = 0.31$, 95%CI = [0.39, 0.64]. Reported in the regression framework, prioritizing time was a significant predictor of SWB, $\beta = 0.15$, $p < 0.001$. These results were largely unchanged when controlling for the identical covariates from Study 4 (age, gender, education, income, number of hours worked on average each week, marital status, and number of children living at home) and when controlling for respondents' self-reported feelings of financial confidence, $\beta = 0.10$, $p < 0.001$ (See Table 14). The results of Study 5 thereby provide further evidence that valuing time over money predicts SWB, and that these results are not explained by other wealth-relevant variables such as financial confidence.

Consistent with Study 4, there was no interaction between the abbreviated version of the ROM and income to predict SWB, $\beta = -0.03$, $p = 0.295$. These results further suggest that the relationship between valuing time over money is not dependent on respondents' levels of wealth. Interestingly, however, there was a significant interaction between the abbreviated version of the ROM and feelings of financial confidence to predict SWB, $\beta = 0.07$, $p = 0.002$. At the lowest

levels of financial confidence, respondents who valued time over money reported greater SWB. In contrast, at the highest levels of financial confidence, valuing time over money no longer predicted happiness. These results suggest that valuing time over money may help to protect survey respondents from the negative impact of financial stress on well-being (Figure 1).

In this study, I used an alternative measure of time and money trade-offs used in recently published research. After controlling for a broad range of demographics, such as people's feelings of economic certainty and objective wealth, valuing time over money remained positively associated with SWB. Initial results from this study suggest that valuing time over money also protected respondents from the negative impact of financial insecurity on SWB.

Table 13

Correlation table of all the variables examined in Study 5 ($N = 2,767$)

	1	2	3	4	5	6	7	8	9	10	11
1. ROM 2 (1=Time Oriented)											
2. SWB Composite	.15**										
3. SWB (2-item measure)	.20**	.76**									
4. SPANE PA	.18**	.80**	.71**								
5. SPANE NA	-.16**	.06**	-.44**	-.36**							
6. Financial Confidence (1-item)	-.10**	-.28**	-.31**	-.29**	.15**						
7. Household Income	.17**	.16**	.24**	.17**	-.15**	-.08**					
8. Marital Status (1=Married)	.13**	.16**	.23**	.16**	-.13**	.01	.34**				
9. # of Children at Home	-.04*	.03	-.005	-.03	.08**	.0001	.04*	.03			
10. Education (1=University)	.11**	.06**	.11**	.07**	-.08**	-.05*	.30**	.10**	-.07**		
11. Gender (1=Female)	-.02	.08**	.02	.06**	.10**	.06**	-.12**	-.05**	.02	-.05*	
12. Age	.09**	.05	.15**	.04†	-.26**	.14**	.18**	.32**	-.01	.06**	.004

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

Table 14

Regression predicting SWB from time orientation and covariates in Study 5

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
ROM 2 (1=Time Oriented)	.10**	.34	.06	.000				
Household Income	.09**	.07	.02	.000				
Financial Confidence	-.26**	-.76	.05	.000				
Marital Status (1=Married)	.14**	.46	.07	.000				
# of Children at Home	.02	.04	.04	.289				
Level of Education	.01	.02	.07	.756				
Gender (1=Female)	.12	.40	.06	.000				
Age	-.04†	.004	.002	.057	$F(8, 2766)$	52.97	<.001	.13

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

40

Figure 1
Interaction between time vs. money orientation and financial confidence to predict SWB
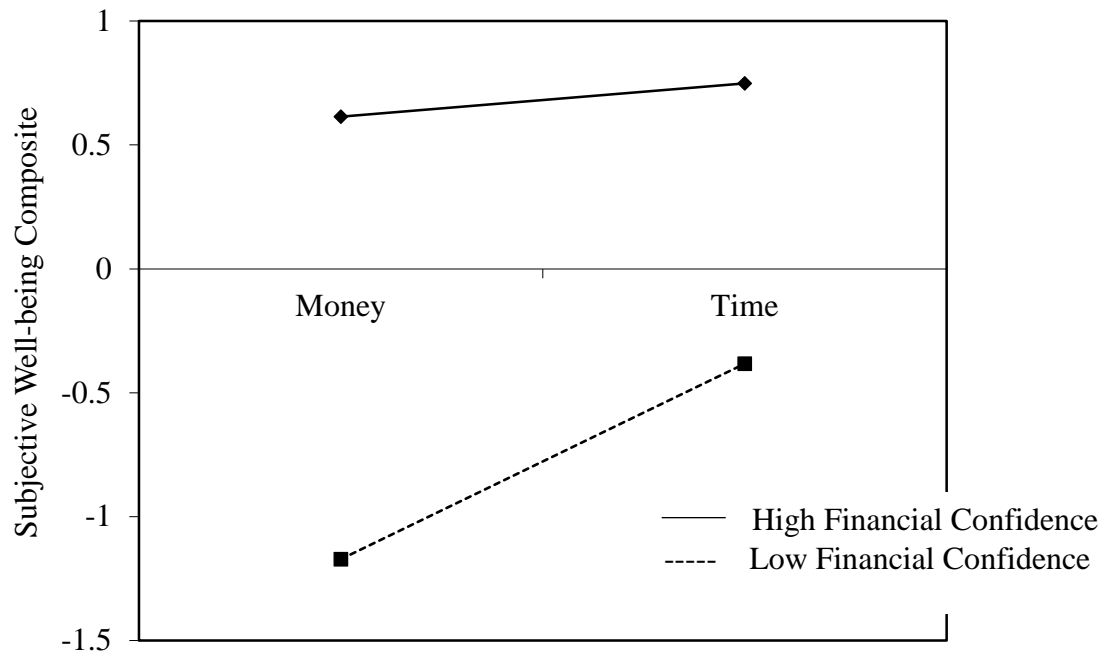
Note. Financial confidence is plotted at $\pm$ 1 SD.

2.9.3. Studies 2b-5 Meta-Analyzed

Next, I meta-analyzed the results of Studies 2b, 3a&b, 4, and 5 ($N = 7,094$). Following the recommendations of Lipsey and Wilson (2001), individual standardized effect sizes from each study were weighted by the inverse of their variance, and were then aggregated to arrive at a meta-analytic effect size across studies. In this analysis, prioritizing time over money was associated with greater SWB, $d = 0.20$, $p < 0.001$, 95%CI [0.16, 0.25]. I did not have *a priori* hypotheses about the components of SWB (PA, NA, SWL) that would most strongly correlate with prioritizing time over money. On an exploratory basis, I examined the associations between each component of SWB and valuing time over money separately using data from Studies 3a&b and Study 5—the three data sets in which three measures of SWB were collected simultaneously ($N = 5,312$). Overall, the preference to prioritize time over money was significantly associated with greater SWL, $d = 0.31$, $p < 0.001$, 95%CI [0.25, 0.36], greater PA, $d = 0.24$, $p < 0.001$, 95% CI = [0.18, 0.29] and lower NA, $d = 0.21$, $p < 0.001$, 95%CI = [0.16, 0.27]. The consistency of these findings is supported by research showing that SWB is often best defined as a combination of high positive affect, low negative affect and high feelings of life satisfaction (Diener, 1994; Diener & Lucas, 1999; Sheldon, 2013). These analyses reveal the consistency of the results across studies, participants, and measures (Lipsey & Wilson, 2001).

2.9.4. General Discussion

I examined people's preferences to prioritize time over money. Across four studies ($N = 4,690$), I used the ROM to provide the first evidence that prioritizing time over money is a stable preference that is associated with day-to-day decisions, major life decisions, and subjective well-being. In a fifth study, I used an adapted version of the ROM to provide further evidence that prioritizing time over money is positively associated with well-being ($N = 2,733$). This

association was relatively small but robust and it held controlling for materialism, material striving, current feelings of time and material affluence, and relevant demographic characteristics such as income, employment, marital status, gender, age, and feelings of financial security.

It is important to note that the relationship between the ROM and subjective well-being was small (Cohen, 1992). The magnitude of this effect is consistent with a great deal of existing research, which typically reveals rather diminutive relationships between individual psychological variables and the broad and multiply-determined construct of subjective well-being (e.g., Lyubomirsky, Sheldon & Schkade, 2005). However, it is notable that in a diverse sample of employed Americans (Study 4), the association between the single-item measure of time-money trade-offs and SWB was nearly half the size of other well-established demographic factors, such as marital status (Helliwell & Putnman, 2004) and household income (Stevenson & Wolfers, 2013). Furthermore, in a diverse sample of Americans aged 19 years of age and older (Study 5), the association between the modified version of the ROM and self-reported SWB was similar in magnitude to other important demographic factors, such as marital status and income. Critically, I found reliable associations between prioritizing time over money and SWB among a diverse sample of individuals including students, community members in Canada, employed Americans, and a nationally representative survey of Americans aged 18 years of age and older.

How and why might prioritizing time over money shape happiness? Across these studies, I found evidence that the ROM was associated with beneficial time-use decisions. Students who prioritized time over money on the ROM reported a preference for career paths that would give them more free time (Study 2a). Adults who prioritized time over money on the ROM reported working fewer hours on average each week (Studies 2b & 4). In turn, these decisions might allow people to spend more time engaging in enjoyable activities such as socializing and

exercising (e.g., Kahneman et al., 2006). These orientations also appear to influence people's decisions about spending money. For example, people who reported prioritizing time over money were willing to pay more money to live closer to work (rather than spending their time commuting). That said, the goal of the current work was to validate the ROM and assess its relationship with well-being, rather than to delineate the complex causal processes that might underlie this relationship. It is certainly plausible that happier people may be better able to derive happiness from free time, and therefore might be more likely to prioritize time over money (Frederickson, 2001). Additional longitudinal research is needed to understand the causal processes by which the tendency to prioritize time over money shapes well-being, and vice versa.

Additional research should also explore whether the happiness benefits of prioritizing time over money emerge primarily after one's financial needs are met (Kahneman & Deaton, 2010). In this research, I did not find evidence for a moderating effect of income (Studies 4 & 5). Interestingly, however, I found a moderating effect of financial security, such that people who felt more economically insecure, and who prioritized time over money, reported greater SWB. Following from these findings, additional research should examine the specific economic conditions under which valuing time over money can have the greatest benefits for SWB.

Building on these initial findings, future research should also examine whether time vs. money orientations fluctuate over the course of one's lifetime. In Study 4, older people were more likely to prioritize time over money, compared to younger people. These findings are consistent with research showing that age changes people's priorities (Carstensen, Isaacowitz & Charles, 1999). It would also be interesting to explore whether time-money preferences shift in response to major life changes, such as after changing careers, after having children, after a traumatic life event, or after retirement. Because psychological flexibility substantively

contributes to well-being (Kashdan & Rottenberg, 2010), these studies would allow for the examination of the novel hypothesis that flexibly changing one's time-vs.-money orientations to match the needs of the current situation might result in the greatest well-being benefits.

Collectively, these findings provide initial evidence that people's general tendencies to prioritize time over money are associated with greater happiness. These findings underscore the importance of considering the trade-offs that people make between time and money in understanding SWB. While causality cannot be inferred, these data point to the possibility that valuing time over money is a stable preference that may provide one path to greater happiness.

Chapter 3: Does Buying Time Promote Happiness?

3.1.   Synopsis

In Chapter 2, I focused on people's broad orientations to choose time over money. In Chapter 3, I focused on one specific instantiation of choosing time over money: using money to buy free time. In Chapter 3 I focused on the benefits of delegating disliked tasks (Studies 6-11). More broadly, I examined the benefits of making time-saving purchases (Studies 12 & 13). I also examined the relationship between daily happiness and time-saving services by analyzing data from the American Time-use Survey (ATUS; Study 12). In Studies 9-12, I examined whether buying time improved happiness in part by protecting people from the negative impact of time stress on subjective well-being. In Study 13, I provided the first experimental evidence that using money to buy time *causally* promotes happiness. Together, Studies 6-13 provide the first empirical evidence that buying time promotes happiness.

3.2.   Introduction

Many adults living in industrialized countries around the world report having too much to do and not enough time to do it (e.g., Carroll, 2008; Hamermesh & Lee, 2007). Trying to keep up with the tasks of daily life, such as shopping for food and doing the laundry, can chip away at the time that we might otherwise spend engaging in activities that endow our life with purpose and meaning. With the rise of the sharing economy, it is increasingly possible to outsource the tasks we dread, leaving time for more meaningful activities. However, little rigorous research has examined the potential benefits of outsourcing—which I define as paying someone else to complete tasks that would otherwise require one's own time. Because outsourcing saves time, it could enable people to pursue more satisfying activities. Past research on time-use has shown that people find activities such as volunteering, meditating, and spending time with their children

more worthwhile and satisfying than tasks such as shopping and housework (e.g., Kahneman et al., 2009; White & Dolan, 2009). Spending money to outsource daily mundane tasks may therefore provide a pathway to happiness by endowing people with the free time that they need to engage in more satisfying, purposeful, and meaningful activities.

3.2.1. Why Buying Time Might Promote Happiness

Buying time, such as paying others to perform disliked tasks, should promote happiness by reducing the amount of time that people spend engaging in unpleasant activities (Kahneman et al., 2006). Simultaneously, buying time should promote happiness by enabling people to have more time to spend in more pleasant, enjoyable, and relaxing ways (White & Dolan, 2009).

Another means through which buying time should promote happiness is by protecting people from the negative impact of time stress on happiness. People often complain of being in a time bind not only because they are objectively busy, but also because they do not feel in control of their busyness (Goodin, Rice & Parpo, 2009; Schor, 1993). To the extent that buying time provides people with a sense of control, prioritizing time might promote happiness by minimizing the negative impact of time stress on happiness. Feeling pressed for time can undermine well-being even for people who say that they like being busy (Kasser & Sheldon, 2009). Consequently, buying time may promote happiness by (1) reducing feelings of time stress and (2) protecting people from the negative impact of time stress on subjective well-being.

In this chapter, I will argue that buying time should promote happiness by (1) reducing the amount of time that people spend engaging in unpleasant activities and (2) protecting people from the negative impact of time stress on happiness. There are alternative plausible explanations for why buying time may promote happiness. For example, buying time might promote happiness because time-saving purchases are more unusual, helpful, fun or higher in social status

compared to other types of purchases, such as material purchases. In this chapter, I will attempt

to rule out these alternative explanations (described in detail below). By examining these

potential alternative explanations, I will be better able to understand how the benefits of time-

saving purchases emerge as well as how these purchases may differ from material purchases.

3.2.2. Alternative Explanations for the Link between Buying Time and Happiness

Uniqueness. Purchases can differ on many characteristics, including how ordinary or

extraordinary they are. Ordinary purchases are frequent, common, and within the realm of

everyday life. In contrast, extraordinary purchases are uncommon, infrequent, and often beyond

the realm of everyday life (Sussman & Alter, 2012). Most people, and especially younger

individuals, derive greater happiness from extraordinary purchases than from ordinary purchases

(Bhattacharjee & Mogilner, 2014). For example, younger people derive greater satisfaction from

purchases that reflect life milestones such as travel and cultural endeavors. It is possible that

time-saving purchases such as hiring a housecleaner could be perceived as more extraordinary or

exceptional as compared to material purchases. In Study 13, I will therefore examine whether the

benefits of time-saving purchases are due in part to their exceptionality.

Enhanced Social Status. Another factor that might account for the happiness benefits of

time-saving purchases is enhanced social status. People often look to their actions to assess how

they feel about themselves (Swann & Read, 1981; Swann, 2011). To the extent that buying time

signals that one's time is more valuable that other people's, time-saving services could enhance

feelings of social status. Indeed, recent research suggests that, in North America, busyness is

perceived as a status symbol (Bellezza, Paharia & Keinan, 2016). Thus, to the extent that time-

saving purchases signal busyness, buying time should enhance perceived social status. While

changes in status do not always yield emotional benefits, buying time might result in greater

happiness due to the interpersonal nature of the status-enhancing activity (Anderson, John & Keltner, 2012; Anderson, Kraus & Galinksy, 2012). To explore this possibility, in Study 13, I will therefore examine whether the benefits of time-saving purchases are explained in part because these purchases increase people's subjective feelings of social status.

Other alternatives. It is also possible that time-saving purchases might differ in other ways that promote happiness. For example, typical time-saving purchases such as hiring a housecleaner might be perceived as more practical and less fun than typical material purchases such as buying cool new sneakers. In Study 13, I will further examine whether the benefits of time-saving purchases are explained in part by differences in their perceived utility or fun.

3.3.   Studies 6-12: Initial Correlational Studies

As an initial test of the association between buying time and happiness, I conducted seven studies with respondents from the US, Denmark, Canada, and the Netherlands ($N = 4,571$). In these studies, I recruited a diverse group of adult participants from across the socioeconomic spectrum, including a representative sample of employed Americans and a large sample of Dutch millionaires. See Table 15 for the demographic characteristics of each study. I chose these samples deliberately because I reasoned that buying time should be the most relevant for people with multiple competing demands on their time and at least some discretionary income.

3.3.1. Method
Primary Measures

Satisfaction with Life (SWL). In each study, respondents were first asked to rate their life satisfaction. Across studies, participants completed the identical measures of life satisfaction. First, participants answered the following question, "Taking all things together, how happy

would you say that you are?" Participants were asked to report their agreement on this measure

on a scale from 0 (*not at all*) to 10 (*extremely*). Next, participants completed the Cantril Ladder.

Participants were asked to report where they currently stand in life on a ladder spanning from the

worst possible to the best possible life imaginable ranging from 0 (*bottom rung*) to 10 (*top rung*).

I chose these questions because they are brief measures used extensively in large survey research

(e.g., Deaton, 2008). Across all studies, these measures were significantly correlated; thus, I

averaged these items to create a SWL index for each study. See Appendix F for the scale

reliability information and the results reported on this measure separately for each study.

Buying Time. After reporting their life satisfaction, participants completed two questions

related to buying time. These items were worded using the identical language across studies as

follows: 1) "In a typical month, do you spend any money to outsource tasks (for example,

household chores, shopping) that you dislike spending time doing?" 2) "In a typical month, how

much money do you spend to outsource tasks (for example, household chores, shopping) that

you dislike doing?" In these studies, I chose to constrain my conceptual definition of buying time

to the decision to spend money to outsource disliked tasks. This choice was based on my initial

theorizing that people should derive the greatest benefits from buying free time when doing so

allows them to remove the most dreaded moments of their day (Kaheneman et al., 2010).

Demographics. Lastly, participants were asked to report on their annual household

income, and to report on basic demographic characteristics including age, employment status,

marital status, and the number of children they had living at home. This identical set of

covariates has been used in previous research examining the relationship between time affluence

and well-being (Mogilner, Chance & Norton, 2012; Whillans, Weidman & Dunn, 2016).

Secondary Measures

      Time Pressure. In the surveys that I implemented in Canada and in the Netherlands ($N =$ 2,421), participants were also asked to complete a short validated measure of perceived time stress (Kasser & Sheldon, 2009). By including this measure, I could examine whether buying time promoted happiness by protecting people from the impact of time stress on well-being.

3.3.2. Results and Discussion

Primary Measures

      Buying Time (Yes or No). Across studies ($N =$ 4,570), 28% of the respondents spent money to outsource their disliked tasks ($M_{amount} =$ \$185.08 USD). In Appendix F and in Figure 2, I report the results for each study separately. In text, I report the meta-analytic effects across studies (Lipsey & Wilson, 2001). In these analyses, participants who spent money to outsource their disliked tasks reported greater life satisfaction ($N =$ 4,570), $d = 0.24$, $p < 0.001$, 95%CI [0.17, 0.31]. Critically, these meta-analytic results held controlling for income, age, gender, marital status, employment status, and the number of children reported living at home ($N =$ 3,988), $d = 0.19$, $p < 0.001$, 95%CI [0.11, 0.26]. Buying time was not associated with life satisfaction for the Americans that I recruited through Mechanical Turk (Figure 2). Recent reviews suggest that Mechanical Turk workers are more likely to be underemployed as compared to broader population samples (e.g., Paolacci & Chandler, 2014). Thus, the finding that Mturkers did not benefit from buying time is consistent with my initial argument that buying time should be the most relevant for individuals with some discretionary income and multiple competing demands on their time. There were no reliable interactions between outsourcing disliked tasks and household income to predict life satisfaction. These findings suggest that respondents from across the socioeconomic spectrum benefitted equally from buying time.

Buying Time (Amount). Meta-analyzing the results across studies ($N = 4{,}570$), the amount of money that people spent to outsource their disliked tasks each month did not predict life satisfaction, $Z = 1.01$, $p = 0.313$. Given the recent call in psychology to examine non-linear effects, I also examined whether there was a non-linear relationship between amount and life satisfaction (e.g., Grant & Schwartz, 2011; Human, Whillans, Hoppman, Klumb, & Dunn, 2015).

In this analysis, I entered each relevant predictor into a regression model to predict life satisfaction. I entered a linear term that represented the amount of money that people spent each month to outsource their disliked tasks. I also entered a squared term of this predictor into the regression model. This squared term represents the non-linear effect of amount spent outsourcing. In Appendix F, I report the results for each study separately. In text, I report the meta-analytic effects. Across studies, the squared term in this regression model was a significant predictor of life satisfaction, $Z = 7.88$, $p < 0.001$. These findings suggest that there was a significant non-linear effect of amount spent outsourcing on life satisfaction. Upon examining a plot of these results (Figure 3), participants who spent a moderate amount of money each month to outsource their disliked tasks reported the greatest overall life satisfaction. Once again, these results held controlling for my key demographic covariates, $Z = 6.97$, $p < 0.001$.

Secondary Measures

Time Stress. Next, I examined whether outsourcing promoted well-being through reductions in perceived time pressure. In contrast to this proposition, time pressure did not mediate the relationship between outsourcing and life satisfaction. Another way to examine whether outsourcing is an effective strategy for managing time pressure is by examining whether the negative impact of time stress on well-being is reduced by outsourcing. I therefore also examined whether outsourcing *moderated* the relationship between time pressure and well-being.

Consistent with this proposition, upon meta-analyzing the results across studies, there was a significant interaction between outsourcing and life satisfaction, $Z = 3.87$, $p < 0.001$. Decomposing this interaction, for people who did not spend money to outsource ($N = 1,504$), time stress was associated with lower levels of life satisfaction, $B = -0.18$, $Z = 9.12$, $p < 0.001$, 95%CI [-0.22, -0.14]. For individuals who did spend money to outsource their disliked tasks each month ($N = 804$) this association was attenuated, $B = -0.04$, $Z = 1.69$, $p = 0.091$, 95CI [-0.08, 0.01]. Follow up analyses revealed that these associations were statistically different from one another, $Z = 3.24$, $p < 0.001$. Together, these findings suggest that buying time promotes happiness by protecting people from the negative impact of time stress on life satisfaction.

3.3.3. Discussion

In Studies 6-11, buying time was associated with greater life satisfaction. These studies demonstrate the robustness of these effects across diverse samples, ranging from representative samples of employed adults living in the US (Study 7) to a large sample of millionaires living in the Netherlands (Study 11). This association was robust controlling for other variables that could have explained this relationship such as income and marital status. People who spent a moderate amount of money outsourcing their disliked tasks each month also reported the greatest life satisfaction. While these initial survey studies focused on overall well-being, buying time should also promote greater *daily* happiness. To explore this possibility, I analyzed data from a publically available data set: the American Time-use Survey.

Table 15

An overview of the participant demographic characteristics across the initial correlational studies reported in Chapter 3

Study	6 US Mturk	7 US Representative	8 Denmark Adults	9 Canadian Adults	10 Netherlands Representative	11 Netherlands Millionaires
N	366	1265	565	325	1231	818
Md (range), Life Satisfaction	6.00 (0-10)	7.00 (0-10)	8.00 (2-10)	7.50 (1.50-10)	8.00 (1-10)	8.00 (1-10)
% Buying Time (1=Yes)	15.8	22.0	23.0	26.6	21.2	60.3
$ Amount Spent/Month[a]	US $61-80	US $81-100	US $252.8	US $61-80	US $278.4	US $347.8
% Female	-	48	61	58	48	16
Md, Age	30	45	50	38	51	68
Md, HH income	US $30-$34K	US $75-85K	US $71K	US $45-57K	US $80K	US $M2.46
Md(range) # children[b]	1 (1-6)	1 (1-6+)	-	1 (1-3)	0 (0-3)	0 (0-11)
Md(range) # hrs. work[c]	40 (0-100)	40 (0-90)	-	40 (0-100)	37 (0-40+)	-
% Married[d]	51	68	62	55	53	76

Note. All dollar amounts have been converted to USD for ease of comparison across samples. [a]This variable is based on the participants who reported using money to buy time. [b]This variable represents participant responses to "*How many children are still living with you?*" [c]This variable represents responses to "*How many hours do you work at your main job each week? [d]*This variable represents the percentage of individuals who say that they are married or in a marriage-like relationship.

Figure 2

The effect of spending money to outsource disliked tasks (1 = yes) on life satisfaction across studies
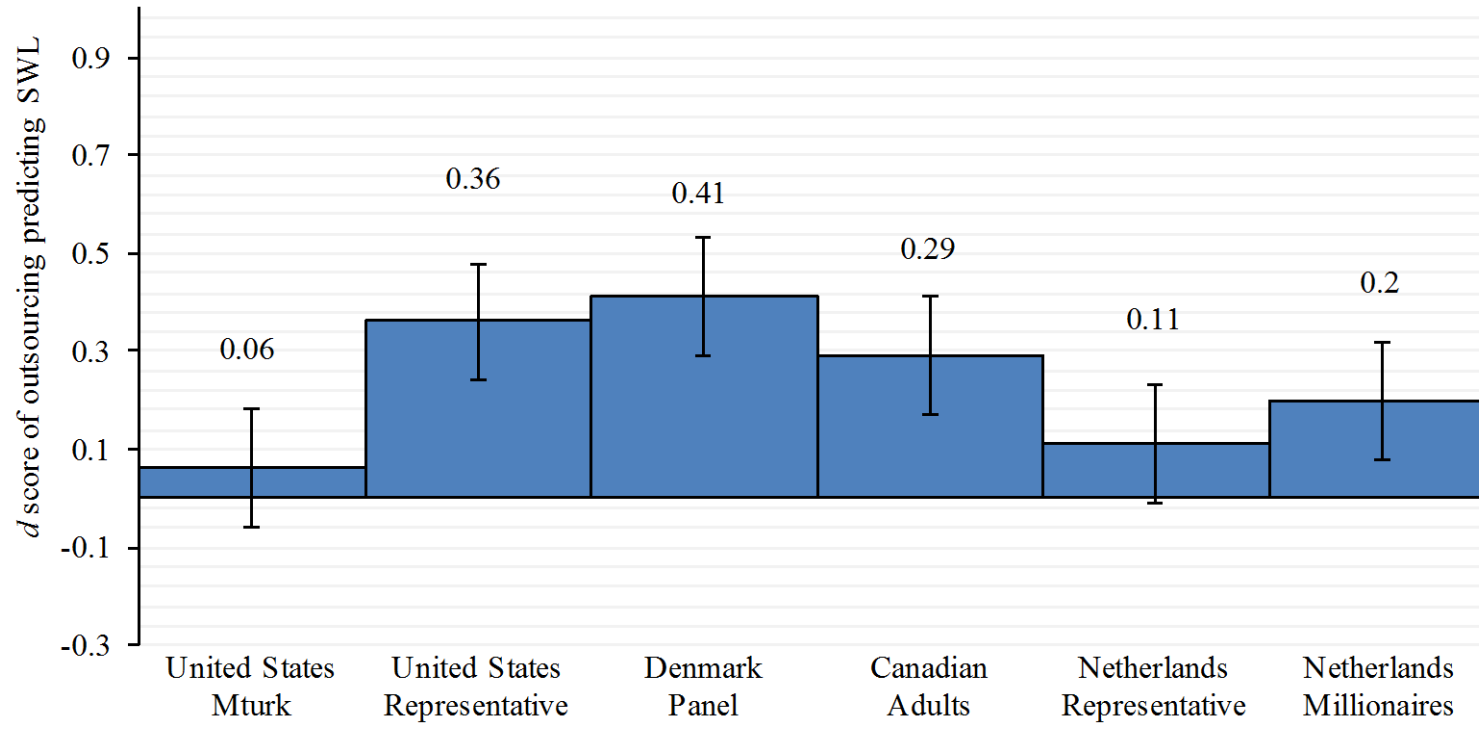
Figure 3

The meta-analytic quadratic effect of amount spent outsourcing each month on life satisfaction across studies
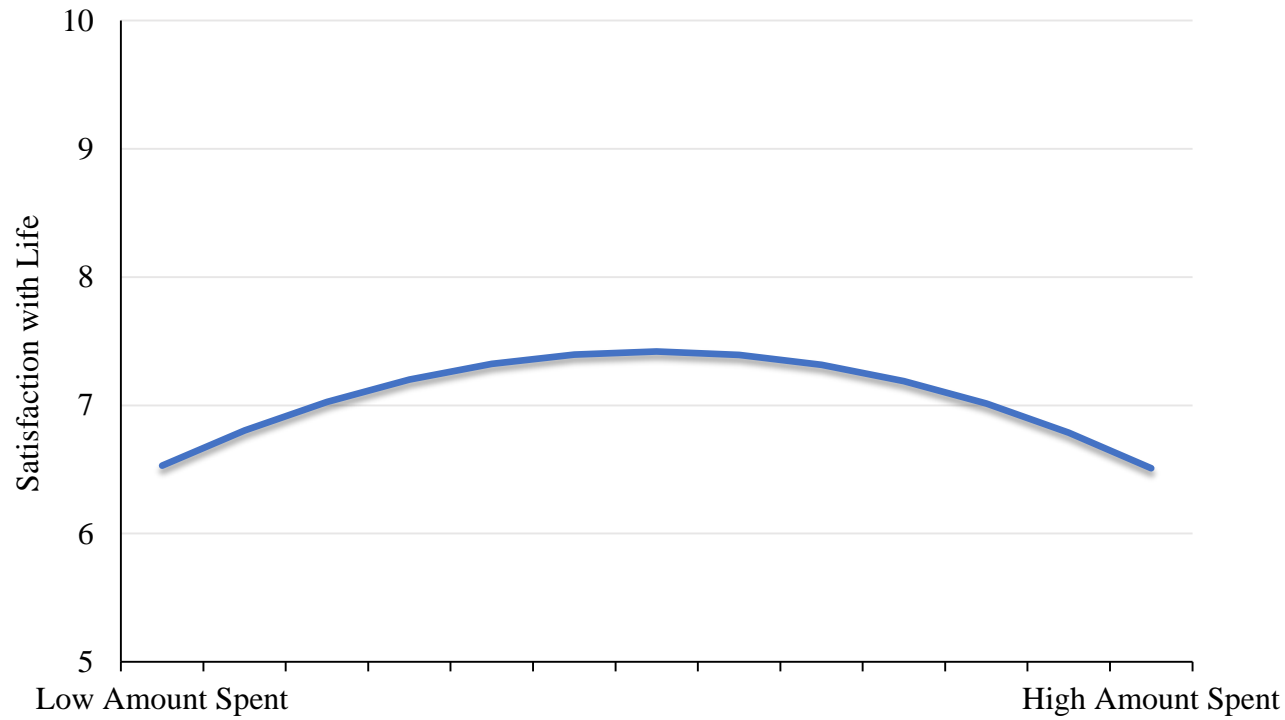
Note. The midpoint of this graph corresponds to spending approx. $101 to $200 USD to outsource disliked tasks per month. The endpoints depict ±1SD = $21-40 USD spent to outsource per month.

3.4.   Study 12: American Time-use Survey

3.4.1.   Method

In Study 12, I examined the relationship between buying time and daily happiness using a publically available data set: the American Time-use Survey (ATUS). See Table 16 for the demographic characteristics of the participants in this study. The ATUS uses a simplified version of the Day Reconstruction Method (DRM) to allow for the measurement of daily happiness and time-use in a cross section of the US population. The US Census Bureau conducts the ATUS by selecting a large and diverse set of US households which approximates a representative sample of Americans. For each household, an individual who is 15 years or older is randomly selected to participate. For full details of the methodology see: http://www.bls.gov/tus/home.htm.

I chose to analyze data from the 2010, 2012 and 2013 waves of the ATUS; these years of the ATUS contained my key questions of interest. Over the phone, participants are asked detailed questions about a day in their lives. As in the original DRM, respondents are asked to reconstruct what they did on a previous day episode by episode. Overall, 50% of respondents are assigned to construct a weekend day and the other 50% are assigned to reconstruct a weekday.

Most critically for the current research, the ATUS records whether participants have spent money on time-saving services in the last 24 hours, such as lawn care or housecleaning services. See Appendix C for the items that were coded as part of this study. Whether participants reported purchasing time-saving services was the key predictor of interest in this study. After reconstructing their day, participants also rated how happy, in pain, sad, stressed out, and tired they felt during each of three randomly selected activities that occurred during the last 24 hours (0 = *not at all* and 6 = *very*). Because the main goal of this study was to examine the relationship between buying time and daily happiness, I calculated each respondents' average

score for each well-being item (happiness and sadness) across the three randomly selected activities. I then used these two measures and a measure of affect balance that I created by subtracting participants' sadness measure from participants' happiness as my three key dependent measures of interest. Following from the results of Studies 9-11, I conducted moderation analyses using the daily stress item as my key moderator variable of interest.

As part of this survey, participants were also asked to describe the activities that they completed over the last 24 hours, episode by episode. These additional time-use reports allowed me to explore whether the benefits of buying time in this sample were driven in part by the activities that individuals reported engaging in with their additional free time.

Table 16
Demographic characteristics of respondents from Study 12 ($N = 37,088$)

	Mean (SD)	Range
Outsource (% Yes)	2.2 ($N = 545$)	
Responded on the weekend (% Yes)	50.4	
Subjective Happiness	3.00 (1.41)	1.00 to 5.00
Subjective Stress	2.99 (1.42)	1.00 to 5.00
Subjective Tiredness	3.00 (1.42)	1.00 to 5.00
Subjective Sadness	3.01 (1.41)	1.00 to 5.00
Subjective Pain	3.00 (1.41)	1.00 to 5.00
Age	47.65 (17.82)	15.00 to 85.00
Gender (% Female)	55.7	
# of kids living at home	0.84 (1.14)	0.00 to 12.00
Earnings Per Week	$619.27 ($685.13)	$0.00 to $2,884.61
Marital Status (% Married)	51.4[a]	
Retired (% Yes)	16.9	
Highest Educational Degree		
Less than high school (%)	14.8	
High school, no college	25.6	
Some college, but no degree	17.7	
Associate degree (vocational)	4.1	
Associate degree (academic)	5.3	
Bachelor's Degree	20.1	
Master's Degree	8.9	
Doctorate Degree	3.3	

[a]This value represents the number of participants who say they are married or in a marriage-like relationship.

3.4.2. Results

Buying Time & Well-being (Overall Sample). Unexpectedly, in the overall sample, participants who spent money on time-saving services ($N = 550$) did not report greater daily happiness, greater affect balance, lower sadness or lower stress, pain or tiredness as compared to participants who did not spend money on time-saving services, $ps \geq 0.211$ (Table 17). I then conducted exploratory analyses to examine whether time-saving services differentially predicted SWB depending on whether they were purchased on the weekday or on the weekend.

Weekdays. Participants who bought time-saving services on the weekdays reported lower levels of happiness, marginally higher levels of stress, and marginally lower affect balance as compared to participants who did not use time-saving services during weekdays (Table 18). After adjusting for multiple comparisons using the Bonferroni correction (adjusted significance level, $p = 0.01$) these differences were no longer statistically significant.

Weekends. In contrast, participants who used time-saving services on the weekends reported greater happiness, lower sadness, and greater affect balance as compared to participants who did not use time-saving services (Table 19). Critically, these results held after using the Bonferroni correction for multiple comparisons (adjusted significance level, $p = 0.01$).

Reported in the regression framing, using time-saving services was a significant predictor of daily happiness, $\beta = 0.05$, $p < 0.001$. I then conducted these analyses controlling for age, gender, weekly earnings, education, marital status, and the number of children living at home. Controlling for these variables, the key result remained significant, $\beta = 0.05$, $p < 0.001$. See Table 20 for the regression model with all variable entered simultaneously into the model.

Additionally, using time-saving services was a significant predictor of daily sadness, $\beta = -0.04$, $p = 0.009$. Controlling for the above covariates, this result was marginal, $\beta = -0.03$, $p =$

0.063 and the overall model was not significant; thus, these results should be interpreted with caution. See Table 21 for the full regression models.

Using time-saving services was a significant predictor of daily affect balance, $\beta = 0.04$, $p < 0.001$. Controlling for the predetermined set of covariates, this result was statistically significant, $\beta = 0.04$, $p < 0.001$. See Table 22. Once again, the full regression model with covariates was not statistically significant; thus, these results should be interpreted with caution.

Table 17

Daily mood for participants who bought time-saving services vs. those who did not (*Overall Sample*)

Daily Mood	Time-saving Purchases (Yes)	Time-saving Purchases (No)	t-value	p-value	Cohen's d
Happiness	3.06 (1.47)	3.00 (1.41)	$t(547.75) = 0.93$[a]	0.355	0.04
Pain	2.96 (1.36)	3.00 (1.41)	$t(549.73) = 0.56$[a]	0.576	-0.03
Stress	3.10 (1.43)	2.99 (1.42)	$t(23,981) = 1.68$	0.092	0.08
Sadness	2.93 (1.40)	3.01 (1.41)	$t(23,979) = 1.25$	0.211	-0.06
Tiredness	2.95 (1.42)	3.00 (1.42)	$t(23,979) = 0.82$	0.412	-0.04
Affect Balance (Happiness-Sadness)	0.10 (2.33)	-0.01 (2.22)	$t(545.59) = 1.12$[a]	0.262	0.04

[a] In all analyses marked with an [a] the homogeneity of variances assumption was violated; thus, I have reported this analysis using the Levene's correction—which reduces the available degrees of freedom.

Table 18

Daily mood for participants who bought time-saving services vs. those who did not (*Weekday Only*)

Daily Mood	Time-saving Purchases (Yes)	Time-saving Purchases (No)	t-value	p-value	Cohen's d
Happiness	2.92 (1.47)	3.01 (1.40)	$t(348.23) = 2.24$[a]	0.018	0.06
Pain	3.00 (1.33)	3.00 (1.42)	$t(6573) = 0.04$	0.966	0.00
Stress	3.14 (1.43)	2.99 (1.41)	$t(6573) = 1.88$	0.060	0.11
Sadness	3.05 (1.40)	3.02 (1.40)	$t(6573) = 0.39$	0.699	0.02
Tiredness	2.99 (1.43)	2.99 (1.44)	$t(6573) = 0.02$	0.984	0.00
Affect Balance (Happiness-Sadness)	-0.23 (2.26)	-0.01 (2.20)	$t(6573) = 1.74$	0.091	0.10

[a] In the analysis marked with an [a] the homogeneity of variances assumption was violated; thus, I have reported this analysis using the Levene's correction—which reduces the available degrees of freedom.

Table 19
Daily mood for participants who bought time-saving services vs. those who did not (*Weekend Only*)

Daily Mood	Time-saving Purchases (Yes)	Time-saving Purchases (No)	t-value	p-value	Cohen's d
Happiness	3.42 (1.41)	2.99 (1.41)	$t(17,406) = 4.34$	< 0.001	0.30
Pain	2.91 (1.40)	3.00 (1.41)	$t(17,406) = 0.91$	0.363	-0.06
Stress	3.04 (1.45)	3.00 (1.42)	$t(17,406) = 0.42$	0.678	0.03
Sadness	2.74 (1.39)	3.00 (1.42)	$t(17,404) = 2.62$	0.009	-0.19
Tiredness	2.89 (1.39)	3.01 (1.42)	$t(17,404) = 0.92$	0.363	-0.09
Affect Balance (Happiness-Sadness)	0.62 (2.34)	-0.01 (2.23)	$t(17,404) = 4.04$	< 0.001	0.28

Table 20
Regression model predicting happiness from time-saving services (1 = Yes) with all covariates entered simultaneously (*Weekend*)

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Time-saving Services (1=Yes)	.05	.51	.12	< .001				
Weekly Earnings	.001	.001	.001	.995				
Educational Status	.002	.001	.01	.887				
Age	.004	.001	.001	.716				
Gender (1=Female)	.002	.01	.03	.829				
Marital Status (1=Married)	.01	.02	.03	.488				
# of Kids at Home	.002	.002	.02	.878	$F(8, 8,850)$	2.46	0.012	0.05

Table 21

Regression model predicting sadness from time-saving services (1 = Yes) with all covariates entered simultaneously (*Weekend Only*)

Predictor	*β*	*B*	*(SE)*	*P value for predictor*	*F value for model*		*P value*	*R-square*
Time-saving Services (1=Yes)	-.03	-.22	.12	.063				
Weekly Earnings	.002	.001	.001	.834				
Educational Status	.01	.01	.01	.423				
Age	-.003	.001	.001	.782				
Gender (1=Female)	.002	.01	.03	.839				
Marital Status (1=Married)	.001	.03	.03	.974				
# of Kids at Home	-.01	-.01	.02	.656	$F(8, 8,849)$	0.587	0.789	0.02

Table 22

Regression model predicting affect balance from outsourcing (1 = Yes) with all covariates entered simultaneously (*Weekend Only)*

Predictor	*β*	*B*	*(SE)*	*P value for predictor*	*F value for model*		*P value*	*R-square*
Time-saving Services (1=Yes)	.04	.66	.19	.001				
Weekly Earnings	-.001	.001	.001	.921				
Educational Status	-.01	.004	.01	.689				
Age	.01	.001	.002	.667				
Gender (1=Female)	-.001	-.001	.05	.984				
Marital Status (1=Married)	.01	.02	.05	.680				
# of Kids at Home	.01	.01	.02	.687	$F(8, 8849)$	1.59	0.123	0.04

Overview of Additional Analyses. Exploratory analyses revealed an interesting pattern whereby time-saving purchases promoted greater daily happiness and lower negative affect (i.e., sadness) when people purchased time-saving services on the weekend. I therefore examined two potential explanations for the benefits of using time-saving services on the weekend: (1) time-saving services protected people from the negative impact of stress (2) time-saving services enabled people to spend more time in happier ways, such as by spending more time socializing.

Feelings of stress. I first examined the use of time-saving services as a moderator of the relationship between daily stress and daily happiness on the weekends. Consistent with my correlational survey results, there was a significant interaction between time-saving services and feelings of stress to predict daily happiness. Decomposing this interaction, for individuals who did not spend money on time-saving services on the weekend, feelings of stress were associated with lower levels of daily happiness, $B = -0.55$, $p = 0.001$, 95%CI [-0.82, -0.27]. For individuals who spent money on time-saving services on the weekend, this association was significantly attenuated, $B = -0.20$, $p = 0.163$, 95% CI [-0.46, 0.05]. Follow-up analyses revealed that these two coefficients were significantly different from one another, $Z = 9.28$, $p < 0.001$. These findings suggest that using time-saving services promoted greater daily happiness on the weekend in part by protecting people from the negative impact of stress.

Daily Activities. I also examined whether the activities that people engaged in predicted the benefits of using time-saving services on the weekends. Specifically, I examined whether individuals who used time-saving services spent more time socializing with friends and family when they used time-saving services as compared to individuals who did not use time-saving services. As evidenced in Table 23, participants who used time-saving services on the weekend spent significantly more time socializing with friends as compared to those who did not use time-

saving services on the weekend. These results remained significant when using the Bonferroni

adjustment for multiple comparisons (adjusted significance level, $p = 0.01$). There were no other

documented differences in time-use.

Table 23
Assessing time-use differences for people who used time-saving services on the weekend

Minutes spent:	Time-saving Purchases (Yes)	Time-saving Purchases (No)	t-value	p-value	Cohen's d
Children	195.55 (249.19)	213.56 (279.34)	$t(212.93) = 1.04^a$	0.302	-0.07
Family members	357.83 (302.09)	373.62 (315.16)	$t(18,581) = 0.75$	0.455	-0.05
Friends	112.59 (195.19)	72.32 (166.09)	$t(210.41) = 2.96^a$	0.003	0.22
Spouse Only	95.17 (164.98)	93.85 (188.46)	$t(18,581) = 0.10$	0.920	0.01
Spouse (+ Others Present)	212.55 (268.93)	201.72 (282.86)	$t(18,581) = 0.58$	0.564	0.04

[a] In all analyses marked with an [a] the homogeneity of variances assumption was violated; thus, I have reported this analysis using the Levene's correction.

Upon observing this significant difference, I examined time spent socializing as a

potential mediator of the relationship between using time-saving services and greater daily

happiness and lower daily sadness. In these mediation analyses, I found no evidence that time-

saving services promoted happiness, reduced sadness, or promoted greater affect balance (all

confidence intervals crossed 0 suggesting no significant mediation). However, I did find

evidence that spending time with friends was a moderator of the benefits of time-saving services.

The interaction between time-saving services and time spent socializing with friends was

significant. Upon decomposing this interaction, there was a significant and positive association

between time spent socializing with friends and happiness for participants who used time-saving

services on the weekend, $b = 0.57$, $p < 0.001$, 95% CI [0.34, 0.80]. For participants who did not

use time-saving services on the weekend this association was attenuated, $b = 0.31$, $p = 0.006$,

95% CI [0.09, 0.53]. Follow up analyses revealed that these associations were significantly

different from one another, $Z = 2.13$, $p = 0.033$. These analyses suggest that using time-saving

services promoted happiness because purchasing time-saving services helped people derive

greater happiness from socializing on the weekend. These results were not consistent for sadness or affect balance. These exploratory analyses suggest that purchasing time-saving services on the weekend may enable people to derive more satisfaction from time spent socializing with friends.

3.4.3. Discussion

Study 12 provides evidence that buying time is linked both to greater overall life satisfaction and daily happiness. The ATUS data also provides initial evidence that people may derive greater happiness from buying time when they spend this time in ways that are associated with greater happiness such as socializing with friends. These data further suggest that time-saving services may help people reap the greatest happiness dividends from their leisure time.

These studies provide initial evidence that buying time is linked to greater life satisfaction and daily happiness. Yet, these data preclude causal inferences—it is also possible that happier people are also more likely to buy time (see also: Hershfield, Mogilner, Barnea, 2016). Thus, in Study 13, I sought to examine whether buying time causally promotes happiness.

3.5.   Study 13: Science World Buying Time Experiment

3.5.1. Overview

In Study 13, I recruited a sample of working adults from Vancouver, Canada ($N = 60$) and examined whether time-saving services causally improved daily happiness. I pre-registered my data collection stopping rule, methods, and a priori predictions through the Open Science Framework. See https://osf.io/amdbdk/. During one week of the study, participants were instructed to spend a $40 payment on a material purchase for themselves. During another week of the study, participants were instructed to spend a $40 payment on a purchase that would save them time. I counterbalanced the order of the spending weeks; results did not differ by order.

After making each purchase, participants received a phone call at 5:00pm and they were asked to report on their feelings of positive affect, negative affect, and time-stress. As a manipulation check, I asked participants to report how much time that they had saved by making each purchase. Participants then completed several questions about their purchase experience.

3.5.2. Participants and Procedure

In this experiment, I recruited participants from Science World, a local science museum in Vancouver, Canada. I also recruited participants from online advertisements on Craigslist. Interested individuals completed an initial eligibility survey. Individuals were eligible to participate if they lived in Vancouver, were interested and able to spend two payments of $40 on two consecutive weekends, were employed at least part-time, and were over the age of 19 (the legal age of consent in Canada). To ensure that participants could make appropriate purchases in both conditions, I asked participants to report exactly what they intended to purchase in each of the spending weeks. Only participants who could correctly report on two purchases that they would make during the study were eligible to complete the study (See Appendix D for the eligibility survey implemented in this study). As evidenced from Table 24, participants were predominately female, married or in a marriage-like relationship, and relatively affluent.

Table 24
Detailed characteristics of participants from Study 13 ($N = 60$)

	Mean (SD)	*Range*
Gender (% Female)	64.4%	
# of hours worked/week	35.65 (10.50)	6.00 to 60.00
# of kids living at home	1.00 (1.04)	0.00 to 3.00
Annual Household Income[a]	7.67 (3.26)	1.00 to 12.00
Marital Status (% Married)[b]	66%	

[a]This mean corresponds to $70,000-$79,999. The range of this variable represents the categories "$10,000-$19,999" to "$250,000-$499,999." This category reflects people who responded to being married or in a marriage-like relationship.

Eligible participants were asked to spend a payment of $40 on either Saturday or Sunday during two consecutive weekends. Participants were asked to spend $40 on a material purchase for themselves. Participants were also asked to spend $40 on a purchase that saved time.

To help participants follow through with their spending instructions, participants were asked to decide exactly how they would spend each study payment. They were also instructed to write down these decisions on a personalized study calendar. At 9am on their scheduled spending day, participants received an e-transfer from the graduate student in charge of the study. At 5pm, a trained research assistant called the participant and asked them several questions about their positive and negative affect, their current feelings of time affluence, and their spending experience. I also asked participants to email their receipts to our study team to confirm that they had spent in a way consistent with the spending guidelines. Participants were not allowed to complete Week 2 of the study if they did not correctly follow the Week 1 instructions: eight participants spent incorrectly in Week 1 of the study and were excluded. Out of these eight participants, six participants failed to spend any money on their scheduled spending day (four of the six participants were assigned to the time-saving purchase) and two participants spent incorrectly (one in the time-saving and one in the material purchase condition).

3.5.3. Sample Size Considerations

Due to budgetary constraints, I could only collect a maximum of 90 completed observations. This sample size would provide 95% power to detect a small effect ($d = 0.30$) of purchase type on well-being. Because of the high cost of this research ($80 per participant), I performed sequential analyses. This procedure is common in medical research and allows researchers to examine the data as it is being collected, without inflating Type-1 error (Wald, 1973) I performed a one-sided interim analysis after collecting 60 and 90 participants. Using this

approach, I collected 60 participants and assessed whether the key analyses fell below my pre-registered boundary conditions of 0.0465/1.6794. My interim analyses met this pre-determined threshold. I therefore terminated data collection at $N = 60$, as per my pre-registered analytic plan.

3.5.4. Measures

In this study, I assessed well-being by asking participants to complete the 12-item Scale of Positive and Negative Experience after making their purchase each week (Material Purchase Week PA: $\alpha = 0.88$, Material Purchase Week NA: $\alpha = 0.88$; Time Purchase Week PA: $\alpha = 0.86$, Time Purchase Week NA: $\alpha = 0.77$). To assess participants' feelings of time affluence, I asked participants to complete four items from the MATAS (Material Purchase Week: $\alpha = 0.88$, Time Purchase Week: $\alpha = 0.87$). As a manipulation check, I asked participants to report how many minutes their purchases saved. I also asked participants to report whether they felt as if their purchase had cost or saved time using 1-item measure with end-markers ranging from $-3 = $ *Cost a lot of time overall* to $3 = $ *Saved a lot of time overall*. Finally, I asked participants to complete a set of questions about the purchases that they had made each week (taken from VanBoven & Gilovich, 2003). These questions allowed me to examine potential alternative explanations, such as whether any of the benefits of buying time were driven in part because the time-saving purchases were perceived as more helpful, fun, or led to higher feelings of social status as compared to the material purchases. See Appendix E for the full post-spending questionnaire.

3.5.5. Results

Purchases. During the Time Purchase Week, the majority of participants spent money to buy themselves out of cooking (42%), shopping (18%), and household chores (14%). During the Material Purchase Week, the majority of participants spent money on clothes (42%), cosmetics

or personal care items (28%), and household goods (13%). Full purchase data for each participant is available through the Open Science Framework (https://osf.io/amdbdk/).

Manipulation Check. As expected, participants reported that the time-saving purchases saved a moderate amount of time ($M = 2.10$, $SD = 1.27$) whereas the material purchases neither cost or saved time ($M = -0.52$, $SD = 1.32$), $t(59) = 11.60$, $p < 0.001$, $d = 3.02$.

Pre-registered well-being analyses. First, I conducted my pre-registered within-subjects analyses. In these analyses, I examined whether end-of-day happiness differed as a function of purchase type. Consistent with my pre-registered hypotheses, participants reported greater end of day positive affect after making a time-saving purchase ($M = 4.00$, $SD = 0.64$) than after making a material purchase ($M = 3.71$, $SD = 0.81$), $t(59) = 2.57$, $p = 0.007$, 95%CI [0.10, 0.48], $d = 0.67$; one-tailed test. Participants also reported lower negative affect, greater affect balance, and reduced feelings of time pressure after making a time-saving vs. a material purchase, $ps \leq 0.01$. See Table 25 for the descriptive and inferential statistics for these results.

Table 25

Differences in end of day affect and mood between time-saving and material purchases

Affect Measure	Time-Saving	Material	Paired t-test	p-value	Cohen's d
Negative Affect	1.38 (0.43)	1.65 (0.75)	$t(59) = 2.45$	0.009	0.64
Affect Balance	2.62 (0.96)	2.06 (1.47)	$t(59) = 2.63$	0.006	0.68
Perceived Time Pressure	3.49 (1.64)	4.22 (1.72)	$t(59) = 2.76$	0.004	0.72

Note. As per my pre-registered analytic plan, all p-values are reported as one-tailed tests.

Mediation analyses. Next, I conducted my pre-registered within-subjects mediational analyses. To examine whether the benefits of time-saving purchases were explained through reductions in perceived time pressure, I conducted within-subject mediation analyses and tested the significance of the indirect effects using the MEMORE macro (Montoya & Hayes, 2016).

As Figure 4 illustrates, participants reported significantly higher positive affect after making time-saving purchases as compared to material purchases, $B = 0.29$, $SE = 0.11$, $p =$

0.013, 95%CI [0.06, 0.52]. Participants also reported significantly lower feelings of time

pressure after making time-saving purchases as compared to material purchases, $B = -0.74$, $SE =$

0.27, $p = 0.008$, 95%CI [-1.27, -0.20]. The indirect effect analyses supported the mediational

hypothesis. After controlling for perceived time pressure, time-saving purchases were no longer

a significant predictor of positive affect, $B = 0.18$, $SE = 0.11$, $p = 0.108$, 95%CI [-0.04, 0.41].

Upon testing the significance of the indirect effect using bootstrap estimation with 10,000

samples, the indirect coefficient was significant, $B = 0.11$, $SE = 0.06$, 95%CI [0.02, 0.24]. Time-

saving purchases increased positive affect by reducing people's feelings of time pressure. The

same pattern of results held for negative affect and affect balance. See Figures 5 and 6.

 Amount of Time Saved. The indirect effect CIs crossed 0 in the models predicting

positive affect, negative affect, and affect balance. Thus, there was no evidence that the amount

of time that the purchases objectively saved explained the benefits of time-saving purchases.

Figure 4
The effect of time-saving purchases on positive affect through time pressure

Indirect Effect: 0.11(0.06) [0.02, 0.24]
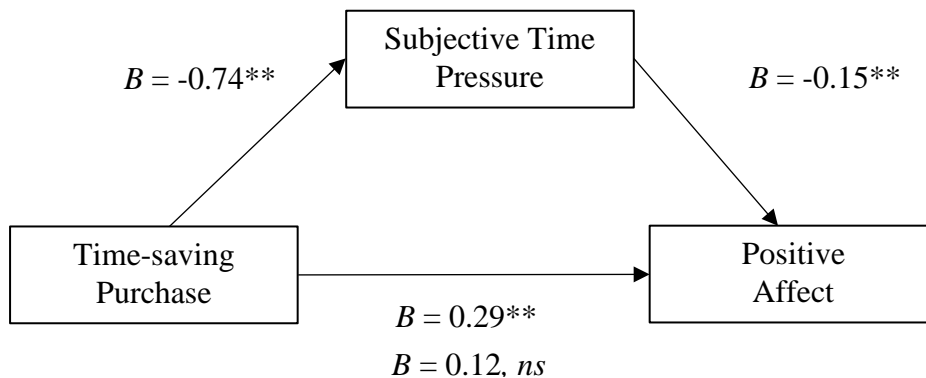
Notes. All *B*'s represent unstandardized regression coefficients obtained through bootstrapping
using 10,000 resamples. The range in brackets represents the 95% confidence interval of the
indirect effect.

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

Figure 5

The effect of time-saving purchases on negative affect through time pressure

Indirect Effect: - 0.10 (0.05) [-0.22, -0.02]

Notes. All *B*'s represent unstandardized regression coefficients obtained through bootstrapping using 10,000 resamples. The range in brackets represents the 95% confidence interval of the indirect effect.

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

Figure 6

The effect of time-saving purchases on affect balance through time pressure
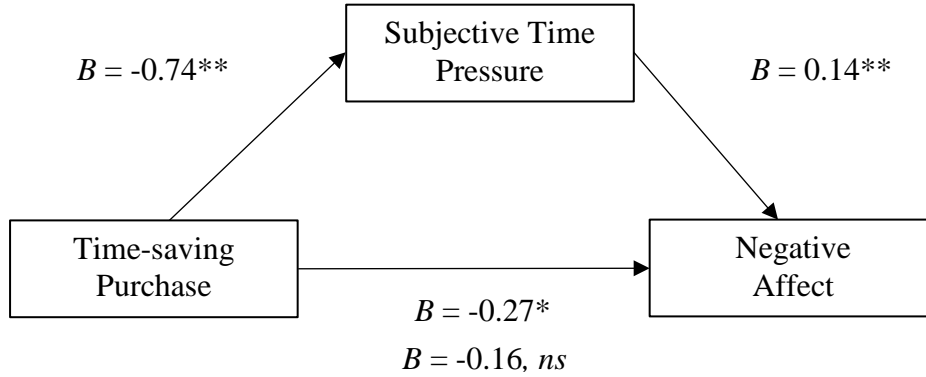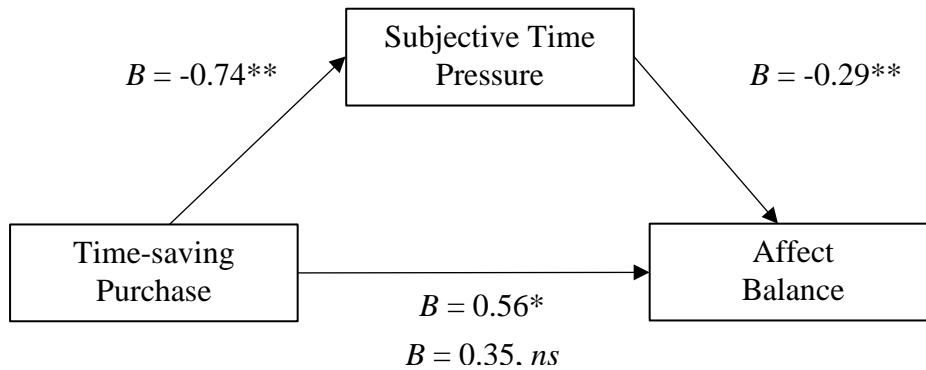
Indirect Effect: 0.21 (0.11) [0.04, 0.46]

Notes. All *B*'s represent unstandardized regression coefficients obtained through bootstrapping using 10,000 resamples. The range in brackets represents the 95% confidence interval of the indirect effect.

†$p \leq .10$, *$p \leq .05$, **$p \leq .01$

3.5.6. Ruling Out Alternative Explanations

Could the time-saving purchases have differed from material purchases in other ways that might have explained these results? To explore this possibility, I examined whether time-saving purchases were rated as more exceptional, useful, fun, or higher in social status as compared to material purchases. In contrast to the idea that time-saving purchases resulted in greater happiness because these purchases were rated as more exceptional, participants reported that the material purchases were more exceptional than the time-saving purchases (See Table 26). Participants did rate the time-saving purchases as more helpful than the material purchases (Table 26). However, follow-up within-subject mediation analyses showed that perceived helpfulness did not explain why time-saving purchases resulted in greater end-of-day happiness. The time-saving and material purchases did not differ on any other dimensions.

3.5.7. Discussion

In a within-subjects study conducted with working adults recruited from the community, I found evidence that time-saving services causally promoted end-of day happiness. Participants reported significantly greater feelings of happiness, greater affect balance, and lower negative affect after making a time-saving purchase as compared to a material purchase. As predicted, the benefits of time-saving services were explained in part by the fact that time-saving purchases reduced people's subjective feelings of time stress. Furthermore, the benefits of time-saving purchases could not be explained by differences between time-saving and material purchases in usefulness, fun, social status, or other characteristics that might have otherwise explained these results. These findings provide the first empirical evidence that buying time promotes happiness.

Table 26

Differences in purchase characteristics between time-saving and material purchases

Purchase Characteristic	Time-Saving	Material	Paired t-test	p-value	Cohen's d
To what extent was the purchase you made today a one-time expense?	4.18 (2.80)	5.30 (2.99)	$t(59) = 2.30$	0.025	0.60
To what extent would this money have been better spent on something else?	3.32 (2.40)	3.78 (2.55)	$t(59) = 0.97$	0.338	0.25
To what extent was this money well spent?	7.25 (2.01)	7.13 (1.89)	$t(59) = 0.31$	0.755	0.08
To what extent was this purchase helpful?	6.38 (0.67)	5.73 (1.29)	$t(59) = 3.91$	< 0.001	1.02
To what extent was this purchase fun?	3.15 (1.65)	3.02 (1.61)	$t(59) = 0.55$	0.585	0.14
To what extent was this purchase high in social status?	3.68 (1.27)	3.63 (1.69)	$t(59) = 0.20$	0.842	0.05
Where would you place yourself on this ladder (0=Lowest, 10=Highest)	6.36 (1.56)	6.35 (1.54)	$t(59) = 0.07$	0.948	0.02

3.6.   Discussion

The data that I have presented thus far paints a relatively consistent picture – buying time promotes happiness and protects people from the negative impact of time stress on life satisfaction. In Studies 6-12, I found consistent evidence that people who reported spending money to outsource disliked tasks reported greater overall life satisfaction. These results held controlling for other variables that could have otherwise explained these results such as income, age, marital status, and the number of children people had living at home.

In these initial correlational studies, I did not observe significant associations between buying time and life satisfaction among a sample of Mturkers recruited from Amazon's Mechanical Turk Marketplace. Mturkers are more likely to be underemployed. These findings support my proposition that buying time should be the most likely to have well-being benefits for busy individuals with some discretionary income. However, more research is needed to substantiate this claim. My findings also point to the possibility that high levels of outsourcing might undermine well-being. Across studies, I observed a significant quadratic effect of amount spent on life satisfaction. People who outsourced too much reported the lowest levels of life satisfaction. These findings point to the possibility that outsourcing too much undermines well-being, potentially by undermining autonomy, self-efficacy, and control. Future research should further investigate how much money people should spend to maximize well-being.

In these studies, there was no evidence that spending money to outsource disliked tasks reduced feelings of time pressure. Stated differently, reductions in time pressure did not mediate the relationship between outsourcing and life satisfaction. Interestingly, however, I found consistent evidence that outsourcing moderated the relationship between time pressure and

happiness. Individuals who spent at least some of their money each month to outsource their disliked tasks were less negatively affected by subjective feelings of time pressure.

I also observed similar findings when I examined the association between using time-saving services and daily happiness. Using publically available data from the ATUS, people reported greater happiness and greater positive to negative affect balance on days when they reported using time-saving services. Interestingly, people only reaped the well-being benefits of time-saving services when they used these time-saving services on the weekend. In these data, I observed a similar pattern of results, such that the relationship between daily stress and daily happiness was significantly attenuated among individuals who reported using time-saving services on the weekend. For people who did not use time-saving services on the weekend, there was a stronger negative association between self-reported stress and self-reported happiness.

Exploratory follow-up analyses revealed that people who used time-saving services on the weekend spent more time socializing with friends as compared to people who did not use time-saving services on the weekend. While the amount of time that people spent socializing with friends did not mediate the relationship between time-saving services and daily happiness, there was evidence for moderation. Individuals who used time-saving services on the weekend derived greater happiness from their social interactions. These findings dovetail with recent research suggesting that goal conflict can undermine the benefits of leisure activities (Etkin, Evangelidis & Aaker, 2015). Following from these results, it is possible that individuals who used time-saving services on the weekend enjoyed their social interactions more because they were not as worried about cleaning the house or preparing for the upcoming week. In contrast, people who did not use time-saving services on the weekend might have derived less satisfaction from their social interactions on the weekend in part because they were also considering how

their socializing time was cutting into time that they should be spending preparing for the upcoming work week, running errands, or cleaning their house. Additional research should further investigate the mechanisms underlying this documented pattern of results.

Lastly, I conducted an experimental study where I examined the causal benefits of time-saving as compared to material purchases. Using a within-subjects design, I found a significant benefit of time-saving purchases. Participants in my experiment reported greater end of day positive affect, lower end of day negative affect, and greater positive to negative affect balance after making a time-saving purchase than after making a material purchase. Furthermore, these results were explained through reductions in perceived time pressure. After making a time-saving purchase, participants reported lower feelings of time pressure. Thus, they experienced greater happiness, lower negative affect, and greater positive to negative affect balance.

In this experimental study, I observed significant mediation: time-saving services promoted happiness by reducing time pressure. It is worth noting that in my correlational studies, people who were more pressed for time were also more likely to outsource. Thus, in these correlational studies it was not possible to observe the links between buying time, reduced time pressure, and enhanced happiness. In the experimental study, however, I randomly assigned participants to make a time-saving purchase. Random assignment enabled me to hold constant people's initial feelings of time stress (which often motivates individuals to outsource). When controlling for the positive association between outsourcing and time pressure, I was able to observe a significant negative association between outsourcing and time pressure. These findings speak to the importance of employing both correlational and experimental designs.

Despite the documented benefits of buying time, only a small minority of participants spent discretionary income to buy time. In my representative sample of employed Americans,

17% of respondents reported buying time; whereas 99% could generate a task they wanted to pay to outsource. An obvious explanation for the discrepancy between people's desires and actions is that respondents could not afford outsourcing. Yet, I found low rates of buying time even among the very wealthy—just less than half of the 850 millionaires that I surveyed did not spend any money to outsource disliked tasks. Among adults living in Canada, individuals in the lowest income quartile reported spending $80-99 per month on entertainment on average. The average housecleaning service from *TaskRabbit* costs only around $40 on average. Across studies, I did not find any evidence that the benefits of time-saving services were moderated by income. These findings point to the possibility that adults from across the income spectrum would benefit from reallocating at least some of their discretionary income toward buying time.

Chapter 4: Can Guilt Undermine the Benefits of Buying Time?

4.1.   Synopsis

In Chapter 3, I examined whether delegating disliked tasks (Studies 6-11) and using time-saving services (Studies 12 & 13) promoted well-being. In Chapter 3, I provided the first evidence that time-saving services causally improved positive affect, reduced negative affect, and promoted greater affect balance as compared to material purchases. In Chapter 4, I developed a novel paradigm to examine a suppressor of these benefits: feelings of guilt.

4.2.   Overall aim and research question

In the studies that I have conducted thus far, using money to buy time had only small associations with happiness. Given the modest links between buying time and happiness, it is critical to understand *when* the benefits are most likely to emerge. Thus, in Study 12, I examined an additional boundary condition of the benefits of using money to buy time: feelings of guilt.

One reason that people may not always reap the rewards of using money to buy time is because they experience guilt when delegating tasks to other people that they could otherwise complete themselves. In a recent qualitative study, researchers found evidence that guilt plays a role in couples' decision making about whether to outsource childcare to paid professionals. Most relevant for the current investigation, these interviews revealed that guilt plays an important role in the amount of tension that families experience leading up to and following their decision to hire professional childcare providers (Epp & Velagaleti, 2014). This study suggests that guilt might not only contribute to people's reluctance toward using money to buy time (a topic which is outside the scope of the current work), but also that guilt might contribute to people's enjoyment of the free time that they have gained because of using money to buy time.

4.3. Methods

4.3.1. Overview

To explore the role of guilt in suppressing the benefits of using money to buy time, I invited students to participate in a 45-minute online study. First, participants completed a paradigm that allowed them to earn "lab dollars" by completing a terrible task. Participants were then provided with the opportunity to trade these lab dollars for a 30-minute windfall of free time or to keep the lab dollars that they had earned as part of the study. Participants who made the decision to trade the lab dollars for a windfall of free time were then randomly assigned to one of two conditions. In the delegate-to-others condition, participants were asked to delegate the terrible task to another student before they received the free time. In the control condition, participants did not receive information about how the task would be completed before they received the free time. This study then tested whether the benefits of using money to buy time were undermined by feelings of guilt that arise when delegating disliked tasks to others.

The real-world analog to this research question is whether people derive greater satisfaction from purchasing a housecleaning service vs. a pre-cooked meal that only involves reheating the meal—both purchases might save approximately the same amount of time, but only the housecleaning service involves delegating a disliked task to another person. In this study, I also examined whether demographic characteristics (i.e., being from a working-class background) predicted the guilt that people reported feeling when they spent money to buy time.

4.3.2. Sample Size Considerations

Because this research has real world implications, I was mainly interested in detecting effects that were at least a medium size ($d = 0.50$). Consequently, in Study 14, I used G*Power 3 to calculate the sample size needed to detect a minimum effect of $d = 0.50$ with 80% power

(Cohen, 1988, GPower, 2013). This resulted in a stopping rule of 210 participants for the current research design (described in detail below). After stopping at 210 participants, I noticed that the conditions were unbalanced. I therefore decided to continue to run the study until the end of the semester. This updated decision resulted in collecting $N = 322$ participants. Prior to conducting the study, I pre-registered my a priori predictions and study materials through the Open Science Framework (https://osf.io/hu6cr/).

4.3.3. Original Paradigm

The goal of this paradigm is to mirror real-world dilemmas in which people must decide whether to spend disposable income to have more free time. In the first part of this paradigm, participants are asked to complete an "e-task" in which they copy letter strings that contain the letter *e* into a new browser window. This task is meant to mimic the boring, mundane chores that chip away at free time in daily life. In the original version of this paradigm, which I have modified for the current study (see Section 4.3.4. "Adapted Paradigm" below), participants are provided with $5 for completing this initial e-task that they were not expecting to receive, thereby providing participants with disposable income. Participants are then faced with a choice: they can continue to complete the boring e-task for another 30 minutes, or they can pay the $5 they just earned to buy themselves out of this task (leaving them with 30 minutes of free time). At the end of 30 minutes, all participants answer several brief questions via text message about how they felt during the last 30 minutes. By administering this study online, participants are truly able to have 30 minutes of free time, thus mirroring the real-world situation of using discretionary income to have free time that you can then spend in any way that you would like.

Pilot testing with this original paradigm suggests that people feel happier when they choose the time over the cash, but that a substantial proportion of students choose the cash,

therefore mirroring my observations in the real world using self-report data. For example, in a pilot study that I conducted with $N = 60$ students, students were slightly but not significantly more likely to keep the cash (54%) vs. choosing the time-off (46%), X^2 (N=1, 59) = 0.76, $p = 0.383$. Students who chose to take the time-off also reported significantly higher levels of happiness at the end of the 30 minutes ($M = 77.07$, $SD = 18.40$) as compared to students who chose to complete the task and keep the $5 ($M = 56.33$, $SD = 19.52$), $F(1, 58) = 17.61$, $p < 0.001$.

4.3.4. Adapted Paradigm

In the current study, I used a modified version of this original paradigm to examine whether the benefits of using money to buy time were undermined by feelings of guilt. To provide an empirical test of this question, I modified my original paradigm to ensure that most individuals in this study would choose the free time as opposed to the cash. In this modified paradigm, I substituted the $5 that people typically make for completing the initial "e-task" for "lab dollars" that have no monetary value. Because of this protocol change, participants were still earning currency; however, participants were not incentivized to keep the lab dollars because these lab dollars had no monetary value outside of the experiment. Thus, when making the decision between keeping their earned lab dollars—which participants are explicitly told have no monetary value and will not be useful later in the study—participants should be strongly encouraged to choose the free time. Consistent with this proposition, in a pilot test I conducted using this modified lab paradigm ($N = 60$), 85% of participants chose to exchange their lab dollars for 30 minutes of free time, which was significantly higher than the proportion of participants who chose to exchange the cash for 30 minutes of free time in my initial pilot testing described in detail above 46% ($p < 0.001$). These results suggest that this modified paradigm was successful at encouraging people to choose free time as opposed to keeping the lab dollars.

4.3.5. Manipulation

Participants who chose to exchange their lab dollars for 30 minutes of free time were then randomly assigned to one of two conditions: the control condition or the delegate-to-others condition. In the delegate-to-others condition, participants were told that the e-task would be completed by another student. To ensure that participants knew that they would be delegating this task to another student, participants were asked to send a text message to the other student with a unique code that allowed this student to complete the task on their behalf. This protocol did not involve deception. Student RAs were instructed to complete some of the task on behalf of the student participants in this study. In the control condition, participants received the free time with no mention of delegating the disliked e-counting task to another student.

4.3.6. Measures

At the end of the 30 minutes, participants reported how happy they felt "right now" on a scale from (0 = *Not Happy* to 100 = *Happy*). Participants also reported how happy they felt during the last 30 minutes (0 = *Not Happy* to 100 = *Happy*) and how much guilt they felt during the last 30 minutes (0 = *Not Guilty* to *100 = Guilty*). These measures were adapted from previous research that has used brief measures to assess momentary mood (e.g., Killingsworth & Gilbert, 2010). Participants who were assigned to the *delegate-to-others* condition were also asked to report whether they felt like they were burdening the other student vs. helping the other student on a scale from 0 = *Burdening the other student* to 100 = *Helping the other student*.

Lastly, participants completed a 1-item measure assessing their parents' highest level of education. Even though family socioeconomic status (SES) can be measured in a variety of ways, the decision to use education was made based on research showing that students' self-reports of parents' education tends to be a more reliable indicator of family SES as compared to

students' reports of their parents' income or occupational status (Kayser & Summers, 1973). I used this measure to examine whether individual differences (i.e., whether participants are from a working-class background) predicted the guilt that people felt when using money to buy time.

I hypothesized that students from a working class background would experience greater feelings of guilt in response to delegating to a specific person as compared to students from a higher social status background. This prediction is based on research suggesting that lower income individuals prefer to make decisions that reflect communal values and that emphasize their similarity to others, whereas higher income individuals prefer to make decisions that reflect agentic values and that emphasize personal differences from others (Stephens et al., 2007). To the extent that working class individuals have been socialized to make communal choices that allow them to fit in, they should feel greater guilt from making agentic decisions that allow them to stand-out, such as asking another student (a peer) to complete a disliked task on their behalf.

4.3.7. Pre-Registered Predictions

Based on the results of my pilot data, I predicted that participants who chose to have free time would experience greater happiness as compared to participants who chose to keep the lab dollars and complete the e-task. Furthermore, among individuals who chose the free time, I predicted that participants who were randomly assigned to the control condition would report experiencing the greatest happiness during their free time as compared to students who were randomly assigned to the delegate-to-others condition. I predicted that these findings would occur in part because participants assigned to the control condition would experience less guilt during their free time as compared to participants assigned to the delegate-to-others condition.

I also explored whether participants who viewed delegating the disliked task to others as a helpful act would experience less guilt as compared to participants who viewed delegating the

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disliked task as a burden to the other participant. These exploratory analyses could therefore help to suggest potential framing strategies designed to mitigate the guilt associated with outsourcing tasks to others. On an exploratory basis, I also examined whether individuals from working class backgrounds whose parents had lower levels of education reported higher levels of guilt. I pre-registered these confirmatory and exploratory hypotheses through the Open Science Framework.

4.4. Results

Happiness. The two happiness items were significantly correlated, $r(321) = 0.76$, $p < 0.001$; thus I created a post-task happiness composite and used this composite as the dependent variable of interest. In contrast to my a priori predictions, participants who were randomly assigned to the *delegate-to-others* condition did not report lower levels of happiness during the last 30 minutes ($M = 68.15$, $SD = 16.19$) as compared to participants who were assigned to the control condition ($M = 67.54$, $SD = 18.40$), $F(1, 321) = 0.10$, $p = 0.753$.

Guilt. As predicted, participants who chose the free time and who were randomly assigned to the delegate-to-others condition reported greater feelings of guilt during the last 30-minutes ($M = 34.40$, $SD = 30.44$) as compared to participants who chose the free time and who were assigned to the control condition ($M = 24.01$, $SD = 27.49$), $F(1, 321) = 10.21$, $p = 0.002$.

Indirect Effects. Given that condition assignment did not directly impact happiness, I examined whether there was a significant indirect effect, such that the extent to which condition assignment influenced guilt, guilt in turn would undermine post-task happiness. Consistent with this hypothesis, to the extent that participants felt higher levels of guilt in the delegate-to-others condition than in the control condition, choosing the free time had significant indirect effects on happiness, *indirect effect* = -1.07 (0.52), 95%CI [-2.43, -0.29]. These results provide initial

empirical evidence that delegating tasks to others can enhance feelings of guilt which, in turn may prevent people from reaping the happiness benefits of using money to buy free time.

4.4.1. Additional Analyses

Delegating as a burden. I then examined whether participants in the delegate-to-others condition, who viewed delegating the task to another student as helpful vs. burdensome to the other student, would experience less guilt during their free time. Consistent with this a priori hypothesis, participants in the delegate-to-others condition who reported feeling that the task was more helpful for the other student reported lower feelings of guilt, $r(171) = 0.31, p < 0.001$.

Working class background. I also explored whether participants in the delegate-to-others condition from a lower SES background reported higher levels of guilt. As predicted, participants from lower social class backgrounds, who were randomly assigned to the delegate-to-others condition, reported higher feelings of guilt after delegating the task to another student, $r(172) = -0.21, p = 0.007$. There was no association between working class background and guilt for participants who were assigned to the control condition, $r(148) = -0.01, p = 0.941$.

4.5. Study Summary

This study used a novel paradigm to examine whether delegating disliked tasks to others increased guilt and undermined the benefits of buying time. In this study, participants who used their lab income to buy free time by delegating a disliked task to another student experienced significantly higher levels of guilt as compared to participants who used their lab income to buy free time without having to delegate a disliked task to a specific other student. The guilt that students experienced in the delegate-to-others condition undermined students' happiness. Looking within the delegate-to-others condition, I found initial evidence that students who saw

the delegating of the task as helpful to the other student reported lower feelings of guilt. I also found initial evidence that students from lower social class backgrounds felt guiltier when delegating tasks to another student as compared to students from higher class backgrounds.

These results suggest potential framing strategies that could mitigate the guilt associated with delegating disliked tasks (e.g., by framing the outsourcing as a benefit vs. burden). These results also suggest that such interventions might be particularly effective for individuals from working class backgrounds, who might be more prone to experiencing guilt when delegating disliked tasks to other people. Future research should also examine whether the guilt that arises when people delegate their disliked tasks to others can be reduced when people feel as if they have spent their time in productive ways. When delegating a disliked task to another person (i.e., hiring a housecleaner), people may experience less guilt when they feel as if they have used this windfall of time productively as opposed to when they have engaged in leisure. Another interesting future direction would be to examine whether working mothers experience greater guilt when delegating disliked tasks to others and how to intervene on these feelings of guilt.

4.6. Discussion

In this experimental study, I developed a novel paradigm to examine a potential suppressor of the benefits of buying time: feelings of guilt. In a sufficiently powered study with three hundred participants, I used this paradigm to provide the first empirical evidence that guilt can undermine the emotional benefits of buying time. I also documented two individual differences that predicted whether people experienced guilt after delegating a disliked task: whether people were from a working-class background and whether people felt as if paying another student to complete the task on their behalf was burdensome or helpful for this student.

As a next step, it would be worthwhile to examine whether guilt undermines people's willingness to delegate disliked tasks. Guilt can lead people to take on additional tasks in the workplace (Flynn & Schaumberg, 2012). Interestingly, however, this research has found evidence that taking on more tasks at work can have benefits for workplace engagement. In the context of home life, however, forgoing the chance to pay to delegate tasks could undermine well-being, enhance stress, and intensify family conflict. It would be useful to examine whether feelings of guilt at the thought of paying to delegate disliked tasks to others might prevent people from paying to outsource household chores and undermine individual and family well-being.

Future work should explore the efficacy of interventions designed to encourage people to pay to delegate tasks, particularly when they are feeling overwhelmed. This is a critical question to address in part because busier people often take on more tasks (e.g., Stephen et al., 2017), with possible negative consequences for well-being. Building on the insights from this chapter, future work could assess the efficacy of highlighting the value of outsourcing for the employee (in terms of financial benefit or meaning). Future work could also examine whether targeted interventions are the most effective for people from working class backgrounds who are prone to feelings of guilt when faced with the decision to pay to outsource disliked tasks to others.

It would also be useful to examine other person-level factors that could influence the proclivity to experience guilt from paying to delegate disliked tasks, such as changes in social status, age, and whether the decision to outsource is voluntary or involuntary. In the current experiment, I recruited college students with limited employment experience. As a result, students' working class backgrounds might have been particularly relevant to feelings of guilt after delegating a disliked task to another student. However, as students graduate and accept higher paying jobs, their perceived social standing could start to depend more on their current

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employment situation. In particular, as people begin to earn more money, they might also begin to recognize how much money their time is worth. Following from this proposition, once people enter in to the workforce, their perceived social standing might become a *stronger* predictor of the guilt that they feel upon hiring paid help than their family wealth background. Examining this possibility could potentially help to shed light on whether and how people's emotional responses and behaviors change in conjunction with changes to their socioeconomic standing.

Furthermore as people age, they may need to hire paid help—such as hiring help to cook meals, clean, or do the laundry. Given that hiring help could undermine feelings of efficacy and personal control, older adults might be particularly likely to experience guilt when paying someone to complete tasks that they used to be able to complete themselves. Because perceived control is especially important for the health and well-being of older adults (Rodin & Langer, 1977), intervening on feelings of guilt in this population could be particularly worthwhile.

In sum, these findings provide initial evidence that guilt can undermine the benefits of buying time. These findings also point to fruitful avenues for additional research, such as the development of framing interventions that could mitigate feelings of guilt that coincide with purchasing (paid) help, and the examination of other person-level variables that may influence the experience of guilt: such as changes in status, age and perceived autonomy over the outsourcing decision.

Chapter 5: General Discussion

Time and money are two of people's most scarce and precious resources. People report increasingly pressed for time and money in their daily lives (Perlow, 1999, Rheault, 2011). Taking more time for oneself, however, often comes at the expense of having less money and earning more money often cuts into free time. Past research has focused predominately on how the absolute amount of time and money that people have affects well-being (Kasser & Ryan, 1993; Kasser & Sheldon, 2009). In this dissertation, I have extended previous research in this area by examining how the tradeoffs that people make between time and money shape happiness.

5.1.   Summary of the Current Work

Overall, I sought to answer three guiding questions. First, are people's general tendencies to prioritize time over money linked to greater happiness? Second, is one specific instantiation of valuing time over money – spending money to delegate disliked tasks to others – linked to greater happiness? Third, can feelings of guilt undermine the benefits of buying time? In this dissertation, I have provided evidence in support of each of these propositions. I found evidence that people's broad orientation to prioritize time over money was associated with greater happiness (Chapter 2). Narrowing my investigation, buying time causally promoted happiness, in part by protecting people from the negative impact of time-stress on happiness (Chapter 3). I also found evidence that guilt undermined the benefits of buying time (Chapter 4). Collectively, these findings provide evidence that choosing time over money promotes well-being.

5.2.   Chapter 3 Summary and Potential Alternative Explanations

In Chapter 3 of this dissertation, I examined whether people with a stated proclivity to value time over money reported greater well-being. Across six studies with more than four-

thousand participants, I developed a new measure to examine time and money trade-offs (the

Resource Orientation Measure; ROM). Using this measure, I found reliable evidence that valuing

time over money was associated with greater life satisfaction, greater positive affect, and lower

negative affect. I documented reliable associations between the ROM and well-being using

representative samples, including two representative samples of employed Americans. Critically,

these results held controlling for variables that could otherwise explain these results, such as

respondents' current feelings of time and material affluence, how much people prioritized

owning stuff (materialism), income, age, gender, marital status, and feelings of financial security.

Although I ruled out several alternative explanations, it is possible that other third

variables may have accounted for these findings. For example, people who value time over

money could have reported greater happiness because they are also more likely to prioritize

positivity in the context of their daily lives. Recent research suggests that people who prioritize

positivity report greater happiness and experience fewer depressive symptoms (Catalino, Algoe

& Fredrickson, 2014). In this research, the authors captured the construct of prioritizing

positivity by asking participants to report on their agreement with statements such as, "A priority

for me is experiencing happiness in everyday life," "I look for and nurture my positive

emotions," and "I structure my day to maximize my happiness." Following from this definition,

it is possible that choosing time over money is one way that individuals who prioritize positivity

structure their days to maximize happiness. Future research should therefore disentangle the

relative contributions of prioritizing positivity and valuing time over money on well-being.

5.2.1. Examining the Pathways Whereby Valuing Time Promotes Happiness

Future research could also examine the specific pathways by which people's broad

orientations to value time over money shape happiness. One potentially generative pathway to

explore is the extent to which prioritizing time over money shapes how much time people spend socializing as well as how much satisfaction they derive from their social interactions.

Previous research suggests that thinking about time can lead people to socialize more and work less. In contrast, thinking about money can lead people to work more and socialize less (Mogilner, 2010; Vohs, Mead & Goode, 2006; 2008, Vohs, 2015). These patterns are evident even among young children. When children are led to think about money, they are significantly less likely to help an experimenter and they engage in fewer social and prosocial actions (Gasiorowska, Zaleskiewicz & Wygrab, 2012). Reminders of wealth can also decrease how much people derive meaning from and savor daily experiences (Kushlev, Dunn & Ashton-James, 2012; Quoidbach, Dunn, Petrides, & Mikolaczak, 2010). These findings suggest that broadly valuing time over money might promote happiness by helping people (1) prioritize socializing over working and (2) derive greater enjoyment from various social and leisure activities.

The data that I have collected thus far provides initial support for both propositions. In Study 4 (Chapter 2), respondents who reported valuing time over money on the ROM spent more time volunteering and less time working. In a recent study that I conducted with three hundred undergraduates, students who reported valuing time over money on the ROM reported spending more time socializing with new peers each week and less time working (Whillans & Dunn, 2017). Following up on these results, I conducted a tightly controlled lab study. As part of this study, I measured four hundred students' responses on the ROM at the beginning of the year. I then invited students to the lab to complete various tasks. After completing these tasks, students were provided with the opportunity to interact with a new student (who was a trained research assistant in the lab). In this study, I informed students that they could spend as much time as they wanted getting to know this other student, and that they could leave the experiment as soon as

they were done. Students who valued money over time on the ROM spent less time interacting with this student and derived less satisfaction from this interaction. The research assistants also reported enjoying the interaction less and the research assistants reported less interest in being friends with these participants once the experiment had ended. These results held controlling for other factors that could have explained these results, such as feelings of belonging and extraversion. These findings dovetail with recent experimental research showing that thinking about the economic value of time can undermine people's enjoyment of leisure activities such as listening to music (DeVoe & House, 2012. However, see Connors et al., 2016 for a counter example). These results suggest that valuing time over money might promote well-being by encouraging people to spend more time socializing and by enabling people to derive greater satisfaction from the time that they spend engaging in everyday social interactions.

These findings also point to additional areas of future research. For example, additional research could examine *why* people who value money over time derive less satisfaction from social interactions with new people. For example, it could be interesting to examine whether people who value money over time on the ROM expect to enjoy these social interactions less than people who value time over money. This affective forecasting error could help to explain why people who value money over time experience less satisfaction from interacting with a new peer. People who value money more than time may create a self-fulfilling prophecy whereby their social expectations shape their reality. People who value money more than time may expect to enjoy the interaction less. In turn, they may show cues of disinterest or impatience, resulting in a less satisfying interaction. Future work is needed to substantiate this claim and more broadly to examine why people who value money over time derive less satisfaction from social activities.

5.2.2. Can We Shift People's In-The-Moment Values?

Because valuing money more than time has negative implications for well-being, it would also be useful to examine whether it is possible to shift people's in-the-moment orientations. Research suggests that in-the-moment reminders of money can lead people to act in unethical ways, such as by encouraging cheating and even encouraging participants to steal money from experimenters (Gino & Pierce, 2009; Gino & Mogilner, 2014). In contrast, in-the-moment reminders of time reverse these deleterious effects by reminding people of their core values. These findings suggest that it is possible to shift people's attention toward time or money with potential implications for their behavior. These results also suggest that people who value money more than time might derive the greatest benefit from situational reminders of time.

For example, when contemplating the decision to rent a cheaper apartment that is further from work or a more expensive apartment that is closer to work, individuals with a chronic orientation to prioritize time over money might be more likely to spontaneously consider how this decision impacts their time-use. In contrast, individuals with a chronic orientation to prioritize money over time might be less likely to spontaneously consider how this decision shapes their time-use. Thus, individuals who value money over time might be more likely to be persuaded by appeals that focus on the time-saving nature of the decision (see Whillans & Dunn, 2015 for a similar discussion). Of course, it is also possible that reminders of time would not have any impact for individuals who are chronically focused on money. More research is needed to delineate how people's general preferences to prioritize time or money interact with features of the choice context to shape in-the-moment and long-term decisions. This additional research would be particularly informative in light of classic research in social psychology suggesting that

the extent to which people's orientations predict behavior often depends critically on their situational circumstances (Ajzen & Fishbein, 1973; Kenrick & Funder, 1988; Funder, 2006).

5.2.3. Can Time-vs-Money Thinking Shape Long-term Decision-making?

One limitation of the research that I have conducted so far is that I have relied predominately on cross-sectional surveys. My initial studies on this topic therefore cannot rule out the existence of bidirectional effects: happier people might also be more likely to choose time over money. To better understand the causal processes by which valuing time over money shapes well-being, I am currently conducting a longitudinal study with one-thousand graduating college students. Prior to graduation, students are asked to complete the ROM. Six months after graduation, students are once again asked to complete the ROM, to report on their well-being, to provide information on their current primary activity (e.g., part-time work), and to report on their motivations for engaging in this primary activity (Sheldon, Ryan, Deci & Kasser, 2004).

My preliminary results suggest that students who value time over money at T1 report greater life satisfaction at T2. Students who value time over money are happier at T2 because they have made career choices more for intrinsic than for extrinsic reasons. These results hold controlling for materialism. Although data collection is ongoing, these initial results suggest that prioritizing time over money can shape major life decisions with consequences for happiness. Building on these results, it would also be worthwhile to examine the etiology of these orientations, such as by examining whether parents or peers shape people's orientations.

5.2.4. Long-term Stability of Time-vs-Money Values

Throughout this dissertation, I have argued that people's proclivity to value time over money is a stable orientation. Following from this argument, people's responses to the ROM

show stability over 2-week and 3-month testing intervals. Furthermore, in my ongoing project with graduating college students, students' responses to the ROM are stable over a one-year period. Yet, based on these data, I cannot rule out the possibility that people's orientations shift over longer periods. In Chapter 3, older individuals were more likely to value time over money. These findings are consistent with the Socioemotional Selectivity Theory, which asserts that when people see their time as limited they are more likely to focus on emotional goals (Carstensen, Isaccowitz & Charles, 1999). These findings are also consistent with research showing that when people are at the end of an experience, they become more engaged in their daily lives and experience greater happiness (Kurtz, 2008; Bhattacharjee & Mogilner, 2014). Building on these results, future work should delineate the specific developmental periods where it is most adaptive to prioritize time. It would also be worthwhile to examine whether people's ability to flexibility shift time vs. money orientations in response to major life events, such as marriage, children, or retirement, positively impacts well-being (Kashdan & Rottenberg, 2010).

5.2.5. Other Potential Moderators of the Benefits of Valuing Time

In Study 5, respondents who were less financially secure benefitted most from valuing time over money. Stated differently, valuing time over money protected people from the negative impact of financial uncertainty on well-being. Building on these results, future research should examine how financial well-being interacts with time vs. money orientation to shape SWB.

New research suggests that people who base their self-esteem on how well they are doing financially ("financial contingent self-worth") experience more financial strain and lower well-being (Park, Ward & Naragon-Gainey, 2017). It is possible that valuing time over money might protect people from the negative outcomes associated with financial contingent self-worth. Of course, it is reasonable to assume that people who value time over money would be less likely to

say that their self-worth is based on their finances. People who base their self-esteem on their finances might be more likely to give up time to have more money, with consequences for well-being. For example, people who report that their self-esteem is based on financial success might be more likely to make decisions that enable them to have more money (working more hours) at the cost of having less free time (instead of socializing). In the moment, these individuals may derive greater well-being, in part because they are acting in ways that bolster their self-esteem (Baumeister & Leary, 1995). Over time, however, the well-being of these individuals may suffer because they too often forgo time to have more money. Future research should further examine how financial contingent self-worth interacts with time and money trade-offs to shape happiness.

More broadly, additional research should examine how personality factors such as consciensciousness and self-control predict whether people make decisions to prioritize time over money, as well as how these decisions shape well-being. For example, recent research suggests that people with high self-control do not choose to enjoy life as much as people with lower self-control (Keinan & Kivetz, 2008). Consequently, people who score higher in self-control might be more likely to choose work over leisure. In light of an emerging body of research suggesting that personality shapes people's financial decisions as well as their responses to financial situations (e.g., Boyce, Wood, & Brown, 2010; Boyce & Wood, 2011; Boyce, Wood & Ferguson, 2016; Matz, Gladstone & Stillwell, 2016), investigating the various personality factors involved in time and money trade-offs is an important area for future research.

5.3. A Summary of Chapters 4 and 5

Chapter 3 provided an initial empirical test of the question of whether broadly valuing time over money was linked to greater well-being. Given the nature of these studies, it was not possible to delineate the specific pathways by which choosing time over money promoted

happiness. Thus, in Chapter 4, I narrowed my examination of time and money trade-offs to focus on one specific instance of choosing time over money: using money to buy free time. Across seven studies, including a representative sample of Americans and a large sample of millionaires, I documented a reliable association between buying time and life satisfaction. Across studies, buying time protected people from the negative impact of time stress on well-being.

In Chapter 4, I also conducted an experimental study where I provided the first evidence that people derived greater end-of-day satisfaction from spending $40 on a time-saving purchase vs. on a material purchase for themselves. In this study, I found evidence that time-saving services promoted happiness because they reduced people's feelings of time stress. By focusing on one instance of choosing time over money—purchasing time-saving services—I documented a psychological mechanism by which these benefits emerge: by reducing time stress (Chapter 4). Collectively, these empirical findings point to several directions for additional research, including the further examination of the moderators and boundary conditions of these results.

5.3.1. The Role of Time Pressure

In the correlational studies that I presented in Chapter 4, outsourcing moderated the association between time stress and life satisfaction. In the experimental study, the benefits of time-saving purchases emerged because time-saving purchases reduced feelings of time stress. These findings point to reduced time stress as a key factor explaining how buying time promotes happiness. Interestingly, in my experiment, the amount of time that people saved did not mediate the benefits of time-saving purchases. It is possible that people simply were not able to accurately report on how much time their purchases saved, or that people felt compelled to report that they felt less time-stressed due to experimental demand. Another possibility is that people's perceptions of time affluence matters most for happiness. This idea is consistent with time diary

research showing that people's subjective feelings of time pressure matter more for well-being than their objective busyness (e.g., Schor, 2007). These results also highlight an area for future research: Can reminding people that common purchases save time promote well-being?

Each day, people make purchases that save time. People order take-out instead of cooking, they choose parking garages that are more expensive and closer to their offices, and they pay more to take direct flights. If subjective feelings of time-pressure matter most for happiness, I should find that people report feeling less pressed for time when they are reminded that their common purchases have saved them time. To test this question, I could ask a group of participants to make a common time-saving purchase such as ordering take-out. I could then randomly assign some of my participants to focus on how much time this purchase saved. Other participants could be asked to focus on another positive dimension of the purchase unrelated to saving time. I would predict that participants who were asked to focus on the time-saving rewards would reap the greatest benefits. This research could help to clarify whether the benefits of time-saving purchases are due to objective time-savings or perceptions of time affluence.

5.3.2. The Role of Perceived Control

In the correlational data that I have collected thus far, I have observed a consistent quadratic effect, such that people who spend a moderate amount of money outsourcing their disliked tasks report the highest levels of life satisfaction. These results contrast with standard economic models, which would predict diminishing marginal utility of amount spent on outsourcing for happiness. These findings therefore point to the role of psychological mediators. For example, following from this pattern of findings, buying time might be the most likely to promote happiness when buying time provides people with an increased sense of control over their daily lives (Rodin & Langer, 1997). When people spend a lot of money delegating their

disliked tasks to others, this consumer behavior may undermine people's feelings of perceived control. Delegating too many tasks may also result in people spending very little time engaging in activities that they derive at least some satisfaction from such as cooking or cleaning. Future research is needed to further examine the psychological factors that may help to explain why outsourcing too much can sometimes undermine people's life satisfaction.

5.3.3. The Role of Opportunity Cost Salience

Buying time might also promote happiness by reducing the perceived opportunity costs of leisure activities. This proposition is consistent with the results that I observed in the ATUS data. In these data, respondents who spent money on time-saving services derived greater happiness from their leisure activities (i.e., from the time that they spent socializing with their friends). These results suggest that time-saving services might reduce the opportunity costs of engaging in leisure activities. For example, people who purchase time-saving services might be less preoccupied with thinking about other tasks around the house that they should be doing, thereby enabling them to more fully engage in the activities they are currently doing (see Kushlev, Dunn & Ashton-James, 2012 for a similar discussion). Opportunity cost salience might also account for why I observed the benefits of time-saving services only on the weekend in the ATUS data. People might be more likely to consider the opportunity costs of leisure activities on the weekend. On the weekend, people have tasks they should complete, such as work and chores. However, people also have more opportunity to complete enjoyable leisure activities. To the extent that the opportunity costs of completing disliked tasks are the highest on the weekends vs. the weekdays, buying time should be the most likely to promote happiness on the weekends.

Another potential explanation for the weekend-specific benefits of time-saving services is because time is a social network good. That is, the value of time depends primarily on the

number of other people who have the same schedule of free time available (Young & Lim, 2014). Therefore, outsourcing may promote well-being on the weekends because outsourcing affords people the possibility of coordinating their social schedules with friends and family. Consistent with this possibility, in the ATUS data, people who spent money on time-saving services on the weekend also spent more time with friends and family. Additional research is needed to understand the specific mechanisms of the documented weekend-related benefits.

5.3.4. The Role of Perceived Status

In the experimental study that I conducted, participants did not report feeling higher in social status after making a time-saving purchase as compared to a material purchase. These findings stand in contrast to recent research showing that busyness can signal higher social status (Belleza, Paharia & Keinan, 2016). However, it is possible that in the context of my experiment that people were attributing their purchase decision to their study participation and did not internalize the status-enhancing potential of time-saving purchases. Following from these results, it would be interesting to understand *when* buying time may enhance vs. undermine social status.

For example, in the context of work, people might be especially motivated to signal their status and competence to colleagues. At work, individuals might be more likely to talk about using time-saving services, such as hiring a housecleaner, and they might be more likely to gain status benefits from sharing this information. Indeed, colleagues may perceive these individuals as more valuable and competent because they are so busy that they cannot complete daily tasks themselves. In contrast, in the context of daily social interactions, the use of time-saving services might signal *incompetence*—namely, the inability to cope with the demands of both work and life. With friends, family members, and acquaintances outside of work, people might be less willing to disclose information about using time-saving services, especially to the extent that

using these time-saving services signals an inability to fulfill basic responsibilities at home. Following from this idea, a worthwhile avenue for future work is to understand when the use of time-saving services signals competence and enhances social status (such as in workplace conversations) and when the use of time-saving services signals incompetence and decreases social status (such as in conversations with friends and family). It would also be interesting to investigate whether women are particularly likely to be perceived as incompetent by their colleagues, friends, and family upon disclosing information that they use time-saving services, especially because women are often expected to complete most of the domestic chores at home, even when they work outside of the home ("second-shift"; Croft, Block & Schmader, 2015).

5.3.5. How Should People Spend their Free time?

In addition to understanding when and how buying time promotes happiness, it is also useful to consider what people should do with their newly gained free time. Previous research provides initial evidence for how people should spend their time to maximize happiness, such as spending time engaged in enjoyable activities like socializing (see Aaker, Rudd & Mogilner, 2011 for a review). Newer research adds nuance to this argument by suggesting that some activities that are low in pleasure (work) are thought of as rewarding and can contribute to greater subjective well-being despite their lack of pleasantness (White & Dolan, 2009). More broadly, people may use their discretionary time to satisfy different components of well-being (they may obtain pleasure from watching TV and meaning from volunteering). Thus, an interesting question to explore is whether people derive greater satisfaction from buying time when they use this new free time to maximize momentary happiness, meaning, both, or neither.

It is possible that buying time may benefit happiness most when people engage in productive or meaningful tasks with their new free time, because such activities could help

people feel less guilty about paying others to complete tasks on their behalf. It is also possible that people may derive greater satisfaction from engaging in immediately pleasurable activities. As the experiment that I conducted was not designed to test moderators, more work is needed to understand how people should best spend their newly bought free time to maximize happiness.

Relatedly, more research is needed to understand the well-being benefits of regularly scheduled time-saving purchases, such as hiring a weekly housecleaning service. It is possible that when people buy time on a regular basis, the benefits of time-saving services might be subject to hedonic adaptation (Alba & Williams, 2013). To promote long-term shifts in well-being, it might be necessary for people to replace the time they have purchased with a regularly scheduled activity (Mochon, Norton & Ariely, 2008). People could pair the free time they have received from hiring a housecleaner with an activity that accumulates benefits, such as learning a new language, going to a cross-fit class, or learning how to play guitar. Future research should also examine whether and how the long-term benefits of using time-saving purchases emerge.

5.3.6. Barriers to Buying Time

Not everyone who can afford to buy time spends money in this way. In the survey that my colleagues and I conducted with millionaires, just under half of this sample spent money to delegate disliked tasks. These results are consistent with the fact that people have an irrational tendency to work too much, even when they have earned beyond their means and will not be able to enjoy all the rewards that they have earned (Hsee, Yang & Wang, 2010, Hsee, Zhang, Cai & Zhang, 2013). These results are also consistent with research suggesting people are especially risk-averse when making decisions about time (vs. money; Leclerc, Schmitt & Dube, 1995).

Given that buying time involves multiple risks, including uncertainty about the quality of services that will be provided, and uncertainty about the hedonic benefits of the free time that

will be purchased, risk aversion might be an especially critical factor preventing people from buying time. Thus, communicating certainty about the quality of the service as well as the quality of the free time could encourage people to spend money on time-saving services. For example, asking people to pre-commit how they might spend the free-time that they will gain might be a particularly useful way of encouraging time-saving purchases. This is because pre-commitment could help this additional free-time feel more concrete and tangible, and thereby reduce the risk or uncertainty associated with buying "unscheduled" free time in the future.

Additionally, most people believe that they will have more time tomorrow than they do in the present (Zauberman & Lynch, 2005). This bias may reduce people's willingness to invest in time-saving services. In a field experiment that I recently conducted with 80,000 respondents on the *TaskRabbit* mailing-list, reminding people that the future would be as busy as the present encouraged people to consider making time-saving purchases (Whillans, Dunn & Norton, 2017). These findings suggest that reminding people that they will be as busy tomorrow as they are today might be another effective way of encouraging people to use money to buy time.

Finally, people think about time more abstractly than they think about money (Leclerc, Schmitt & Dube, 1995). Thus, by asking people to spend money on time-saving purchases, there might be a fundamental mismatch between the concreteness of money and the abstractness of time-saving purchases. In turn, this mismatch may prevent people from using money to buy time. Following from this logic, changing the perception of money from a concrete good to an abstract good may encourage consumers to make time-saving purchases. For example, recent research suggests that when consumers are led to think about money in an abundant way, money is no longer perceived more concretely than time (Macdonnell & White, 2015). To the extent that time-saving services are perceived as relatively abstract, appeals that help people to think about

money as an abstract good should be especially effective at encouraging consumers to make time-saving purchases. Additional research should examine these and other factors that may prevent people from making time-saving purchases, such as underestimating the quality of task completion, guilt, and the stigma that can sometimes arise when asking (or paying) for help.

5.3.7. A New Path from Discretionary Income to Happiness

The research that I have conducted thus far adds to a growing body of literature that examines how people should spend their discretionary income to maximize happiness (e.g., Dunn, Aknin & Norton, 2014). Past research has predominately focused on how spending money with the intention of acquiring a life experience (experiential purchases) promotes happiness (Van Boven & Gilovich, 2003). In this dissertation, moving beyond this previous research, I have argued that buying ourselves out of the most dreaded moments of our day can also promote happiness. I have also documented a unique mechanism for these results: Time-saving purchases promote happiness by reducing people's feelings of time stress. I have further differentiated my findings from previous research. In a recent study that I conducted with over 1,500 employed Americans, the benefits that people derived from spending money on time-saving services were independent of the benefits derived from spending money on experiences. These results suggest that spending money to add positive experiences (Van Boven & Gilovich, 2003) and spending money to remove negative experiences provide two distinct pathways from wealth to well-being.

5.3.8. Does Buying Time Only Benefit the Rich?

In the context of this dissertation, I have focused on the well-being benefits of trading discretionary income for more free time among relatively affluent individuals. However, psychologists have recently started to advocate for the use of more diverse samples to better understand how research findings generalize across contexts (Henrich, Heine & Norenzayan,

2010). An important next direction for this program of research is to better understand whether and how time-saving services causally benefit individuals with varying levels of wealth.

It is possible that wealthier individuals might be more likely to causally benefit from time-saving purchases. Wealthy individuals say that they feel more rushed and perceive more time stress for the same amount of time working as compared to less wealthy individuals (Hamermesh & Lee, 2005). Making people feel wealthy also leads people to feel more pressed for time (DeVoe & Pfeffer, 2011). Looking at data from the Gallup World Poll, wealthier individuals are more likely to say that they have felt stressed in the past 24 hours (Ng, Diener, Aurora & Harter, 2009). To the extent that they report greater time pressure, wealthier individuals may derive the greatest causal benefit from making time-saving purchases.

In contrast, it is possible that less wealthy individuals might be most likely to benefit from time-saving purchases. Less wealthy individuals often experience multiple competing demands on their time. Poorer individuals often commute further each day to work, they are less likely to have consistent access to childcare, and they often work more than one job to pay rent and other bills (Desmond, 2016). To the extent that people who are living at or below the poverty line report experiencing multiple competing demands on their time and endure more daily hassles, they may benefit most from allocating discretionary income to time-saving services.

Lower income individuals would also likely benefit most from various initiatives that allow them to save time. For example, lower income individuals would likely reap greater benefits from workplace incentives that enable them to rent closer to work. Such workplace initiatives could help lower income employees work more consistently (if they rely on transit that might sometimes breakdown). These vouchers might also enable lower income individuals to spend more time cooking food at home (vs. ordering take-out which is convenient but less

healthy). These vouchers might also encourage lower income individuals to spend more time with their families, thereby ensuring that their children are receiving adequate levels of support.

These benefits might be particularly pronounced in developing countries where infrastructure such as roads and highways are less developed and where running simple errands could take many hours. Because the working poor in developing countries cannot pay others to complete errands on their behalf, they might be able to work fewer hours which in turn, could reinforce poverty (Knowles, 2017). Buying time could therefore have the most impact for poor people in developing countries for whom daily tasks have substantial time and productivity costs.

5.3.9. Are the Benefits of Buying Time Universal?

It would also be useful to examine cross-cultural differences in the benefits of buying time. In individualistic countries, such as in the US and in Canada, buying time might result in greater guilt—especially if the use of time-saving services signals to other people that you cannot cope with your daily demands. It is also plausible that people living in individualistic cultures may benefit more from time-saving services because these services might provide a form of social support that people living in individualistic cultures may have less consistent access to.

For example, across my studies, I have found that time-saving services promote happiness by protecting people from the negative impact of time stress. These findings dovetail with foundational research in the social support literature. This past research shows that social support can buffer people from the negative impact of daily hassles on mood, life satisfaction, and physical health (Cohen & Wills, 1985, DeLongis, Folkman & Lazarus, 1988; DeLongis, Coyne, Dakof & Folkman, 1982; Schaefer, Coyne & Lazarus, 1981). These findings suggest that buying time provides one form of "social support," with comparable benefits for feelings of time stress and well-being. It is possible that in more interdependent countries, where individuals

often have more support, individuals might benefit less from making time-saving purchases. It is also possible that individuals who live in interdependent cultures might be less likely to make time-saving purchases. Additional cross-cultural research is needed to substantiate these claims.

5.3.10. The Relationship Between the ROM and Buying Time

In this dissertation, I have argued that people's general orientations to prioritize time over money shapes day-to-day decision making, with downstream consequences for happiness. Consistent with this argument, across studies, I have found evidence that people who report valuing time over money are more likely to buy time. In Study 3, among a sample of working adults recruited at Science World, people who valued time over money were more likely to choose an outsourcing service as compared to a cash prize in a lottery. In Study 10, among a nationally representative sample of Americans, people who valued time over money were more likely to report using money to buy time by outsourcing their disliked tasks. Furthermore, in both studies, the happiness benefits of prioritizing time were partially explained by participants' willingness to use money to buy time (i.e., by delegating their disliked tasks to other people). These findings provide evidence that people's general orientations predict their daily decision making, with potential implications for happiness. It is worth noting that the associations between buying time and the ROM were small, suggesting that people's general orientations do not completely explain people's decisions to use money to change the way that they spend their time. These findings are consistent with the research that I have already cited suggesting that the extent to which people's intentions and orientations predict their behavior often depends on situational circumstances (Ajzen & Fishbein, 1973; Kenrick & Funder, 1988; Funder, 2006).

5.3.11. Future Directions

In the studies that I have presented in this dissertation, I have focused on the well-being of individuals as the unit of analysis. Moving beyond this focus, research should also consider the effects of valuing time over money for the well-being of employees and organizations. Even though North Americans feel increasingly pressed for time, they are also the most unlikely to take their vacation days. In 2009, half of the employees who were surveyed by the Families & Work Institute—a US non-partisan research organization—reported feeling that there too many tasks to complete in a typical workweek. However, many of these employees said that they worked on vacation, or failed to take any vacation at all. Companies might want to consider offering time-saving incentives and services to employees as a form of compensation.

For example, a pilot program out of Stanford University shows that by offering flex-time incentives and time-saving rewards to employees who work long hours—such as doctors—employees become healthier and importantly, are less likely to quit (Schulte, 2015). Future work should also consider the effects of time-saving services for the happiness of couples and families.

Moving beyond encouraging people to save up for big-ticket "experiences" such as Hawaiian vacations and five star hotels, my dissertation research suggests that psychologists should consider the unique role of spending money to buy ourselves out of smaller unpleasant experiences such as organizing our offices and scrubbing our toilets bowls. In doing so, this research could help people transform their cents into more enjoyable seconds, every day.

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Appendix A:
Study 2A Scenarios

Imagine that you are making the decision to rent your first apartment. You have narrowed down your decision to two apartments that are virtually identical in every way, except for the location and the price. If you choose Apartment A, your daily commute to work will be 10 minutes each way. If you choose Apartment B, your daily commute to work will be 60 minutes each way. However, Apartment A costs an additional $350 each month. Which apartment would you choose to rent?

- ☐ I would choose Apartment A: the more expensive apartment with the shorter commute
- ☐ I would choose Apartment B: the less expensive apartment with the longer commute

Imagine that you have been working for a company and your boss offers you the chance to apply to one of two new positions. Both of these positions are similarly prestigious, and you have an equal chance of securing either position given your skills and experience. In Position A, you would receive $50,000 after taxes and would be asked to work 35-40 hours each week. In Position B, you would receive $75,000 after taxes and you would be asked to work 60-65 hours each week. The two jobs are similar in every other respect. What position would you apply for?

- ☐ I would choose to apply for Position A: making $50,000 and working 35-40 hours/week
- ☐ I would choose to apply for Position B: making $75,000 and working 60-65 hours/week

Imagine that you have just been admitted to two different graduate programs that lead to different career outcomes. Both programs take about the same amount of time to complete, cost about the same amount of money, and are very similar in every other respect, including prestige. Graduates of both programs typically work full-time during the week. Students who graduate from Program A tend to secure careers with higher starting salaries than students who graduate from Program B. However, graduates of Program A also work many evenings and weekends. Graduates of Program B never work evenings or weekends. Which program would you choose?

- ☐ I would choose Career A: with a higher starting salary and more work hours/week
- ☐ I would choose Career B: with a lower starting salary and fewer work hours/

Appendix B
Study 2b: Scenarios

Imagine that you are trying to book flights for an upcoming solo trip to attend a friend's wedding. You are trying to decide between two flights. Flight A flies directly to your destination. Flight B requires a 3-hour lay over each way. However, Flight A costs $200 more than Flight B. The two flights are similar in every other way. Which flight would you choose?

- ☐ I would choose Flight A, which costs $200 more and flies directly
- ☐ I would choose Flight B, which costs $200 less and has a layover

Imagine that you are trying to find parking downtown to attend dinner at a restaurant with friends. You are driving straight from work to the dinner, and you are already running several minutes late for your friend's reservation. You are looking for parking and you have the choice between two familiar parking lots. Parking Lot A is next door to the restaurant and costs $8.00/hour. Parking Lot B is a 10 minute walk from the restaurant and costs $5.00/hour. The lots are similar in every other respect. Which parking lot would you choose to park at?
- ☐ I would choose Parking Lot A: the parking lot next door to the restaurant that costs $8.00/hour
- ☐ I would choose Parking Lot B: the parking lot 10 minutes from the restaurant that costs $5.00/hour

Imagine that you are making the decision to spend the morning leisurely working at one of your two favourite coffee shops. At Coffee Shop A, you never see anyone you know, and you aren't familiar with the serving staff. At Coffee Shop B, you enjoy chatting with the staff and customers while being served your coffee. However, the prices at Coffee Shop B are nearly twice as much. Which coffee shop would you choose to go to?

- ☐ I would choose Coffee Shop A: the cheaper coffee shop with the less familiar staff and customers
- ☐ I would choose Coffee Shop B: the more expensive coffee shop with the more familiar staff and customers

Imagine that you are on the way home from work. You hear an announcement on the radio about cheap gas at a station that is an extra 10 minutes out of your way. You are planning to fill up your tank and it is pretty close to empty. Do you drive 10 minutes out of your way to buy the cheaper gas that will save you $20 (Station A), or do you pay more at a local pump to save time (Station B)?

- ☐ I would choose Station A: the station with cheaper gas that is farther away
- ☐ I would choose Station B: the station with more expensive gas that is closer

Appendix C:
American Time-use Survey Questions

ATUS Category	Variable #	Variable Name
Household Services (Not done by self)	090101	Using interior cleaning services
	090102	Using meal preparation services
	090103	Using clothing repair and cleaning services
	090199	Using household services (not otherwise classified)
Home Maintenance/Repair (Not done by self)	090201	Using home maintenance/repair/décor/construction services
	090202	Using home maintenance services (not otherwise classified)
Pet Services (Not done by self or vet)	090301	Using pet services
	090399	Using pet services (not otherwise classified)
Lawn & Garden Services (Not done by self)	090401	Using lawn and garden services
	090402	Using lawn and garden services (not otherwise classified)
Vehicle Maintenance & Repair Services (Not done by self)	090501	Using vehicle maintenance or repair services
	090502	Using vehicle maintenance or repair services (not otherwise classified)

Note. Each category has a corresponding "time spent waiting" variable that will allow us to assess the benefits of these time-saving services holding constant time spent waiting.

Appendix D:
Eligibility Survey

Thank you for participating in our study on everyday decision making. First, you will read and answer some questions about yourself. Then you will then answer questions about two scenarios. Your honest responses are greatly appreciated.

Imagine that you are provided with the opportunity to participate in a 2-part study about consumer decision making.

[Page Break]

Please think about the following hypothetical study. In this study, you will be provided with the opportunity to spend a payment of $40 on a material purchase for yourself. You will be provided with no other instructions except that you must spend $40 on a material purchase for yourself on one weekend day in the next two weeks. You will also have to tell us in advance what you plan to purchase. For example, you could use this payment to buy yourself clothes or accessories (such as running shoes or a backpack), household items (such as a coffee maker or kitchen knives) or cosmetics and personal care items (such as shampoo, face cream or jewelry).
We would now like to solicit your thoughts about this part of the study. What would you commit to buying with your payment of $40? Please answer with as much detail as possible, in at least 2-3 sentences, describing the exact purchase(s) that you would make. Remember: you have to spend this $40 on a material purchase for yourself.

[Page Break]

Please think about the following hypothetical study. In this study, you will be provided with the opportunity to spend a payment of $40 on a purchase that provides you with free time. You will be provided with no other instructions except that you must spend a payment of $40 in a way that saves you time on one weekend day in the next two weeks. You will also have to tell us in advance what you plan to purchase. For example, you could use this payment to take a taxi instead of the bus, to purchase household services (such as lawn-mowing, laundry, grocery delivery, or housecleaning services), or to use online services (such as online accounting software and research services).

We would now like to solicit your thoughts about this part of the study.   What would you commit to buying with your payment of $40? Please answer with as much detail as possible, in at least 2-3 sentences, describing the exact purchases(s) that you would make. Remember: you have to spend this $40 on a purchase that saves you time.
[Page Break]

Today, would you be interested in participating in the study that you just read about? As a reminder, for participation in this study, you would receive two $40 payments ($80).
You would be asked to spend one payment of $40 on a material purchase for yourself on one weekend day. You would be asked to spend the other payment of $40 on a purchase that saves you time on another weekend day.

❍ Yes, I would be interested in participating in this study
❍ No, I would not be interested in participating in this study

IF YES:
Thank you for your interest in participating in our study today. To assess whether you are eligible for this study, we have a few additional questions for you to answer.
Do you live in Vancouver or the Greater Vancouver area or the neighboring suburbs (e.g., Coquitlam, Surrey, etc.)?

❍ Yes
❍ No

Are you able to spend 2 payments of $40 on two consecutive weekend days in the next month? On these days you will also receive a 5-10 minute phone call from the graduate student in charge of the study.

❍ Yes
❍ No

Are you able and willing to receive these $40 payments via an e-transfer?
❍ Yes
❍ No

What is your employment status?
❍ Employed full time
❍ Employed part time
❍ Unemployed looking for work
❍ Unemployed not looking for work
❍ Retired
❍ Student

What is your age?
- ○ Under 18
- ○ 18 - 24
- ○ 25 - 34
- ○ 35 - 44
- ○ 45 - 54
- ○ 55 - 64
- ○ 65 - 74
- ○ 75 - 84
- ○ 85 or older

Thank you for your time today! Based on your responses, you ARE eligible to participate in this study to receive $80. Please show the Research Assistant this page to schedule your spending calls and receive more information.

 "Hello *(their name)*. This is *(your name)* from the **UBC Daily Experiences Study**."

"Today you will be completing your follow-up phone call. This phone call will take about 10 minutes. During the call, I will be asking you a few purchase-related questions as well as answering any questions that you may have about the study."

Is now a good time for you to complete this call? *(If NO, arrange a time to call back <u>on the same day</u>.)*

Before we begin, I would to confirm that you have completed your required study task from today. Later we will talk more about your experience with the study task, but for now simple answer with a YES or NO.

"Did you spend your $40 today?"
         YES   NO

IF YES: Continue on to **Page 2**.

IF NO: Continue with the following script:

"Why were you unable to complete the study task today?" *(RA record answer given.)*

_____

_____

"Please complete your study task as soon as possible. Keep in mind that because you missed the study task today **(the closest weekend date)** would be ideal for you to complete this spending task."

"What day would you like to complete your required study task"?
(*Schedule a day for the participant to complete the study and notify the PhD student in charge of the study. During the first spending week ONLY: Make sure the participant knows that their 2nd spending week will start the week after participants spend their first study payment*).

"Would you like a **reminder phone call** *(on the morning of your scheduled spending day)*?"

         YES   NO

Great. First of all, to complete this call, we will be going through a number of questions *(Ask participants to get a piece of paper and a pen if possible and if this is possible, prompt participants to write down the scale end markers for each questionnaire).*

First of all, we will be going through a number of questions. Several of these questions will ask you to provide answers with numerical responses.

Please indicate **how frequently today** you have experienced each feeling that I will list in a moment, using the following scale *(As per the instructions above, if convenient, ask the participant to write down end markers before responding).*

1 = very rarely or never, 2 = rarely, 3= sometimes, 4 = often, 5 = very often or always

How frequently today have you felt:

1. Positive ___	7. Happy ___	
2. Negative ___	8. Sad ___	
3. Good ___	9. Afraid ___	
4. Bad ___	10. Joyful ___	
5. Pleasant ___	11. Angry ___	
6. Unpleasant ___	12. Contented ___	

Now I will read you six statements to which you may **agree or disagree**. Please indicate your agreement for each item thinking about **TODAY**.

The 7-point scale is as follows:
1 = strongly disagree
2 = disagree
3 = slightly disagree
4 = neither agree nor disagree
5 = slightly agree
6 = agree
7 = strongly agree

Today, I have felt like there have not been enough minutes in the day.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

Today, I have felt like things have been really hectic.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

My life has been too rushed today.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

I have had plenty of spare time today.

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

Now I am going to ask you a few spending-related questions. How did you spend your $40 study payment today and what did you spend it on? Please answer with as much detail as possible, in at least 2-3 sentences.

- How much did you spend?
- What exactly did you purchase?
- Who did you spend your spending payment on?

_____

If you made multiple purchases, please note how much they spent per item:

Item _____Cost _____
Item _____Cost _____
Item _____Cost _____
Item _____Cost _____
Item _____Cost _____

Sometimes we purchase items outside of the normal course of everyday events. These are often one-time expenses that are not expected to recur, or that occur only infrequently. For example, the cost of going to a nice restaurant to celebrate a special occasion or replacing a broken TV would be considered this type of time. To what extent would you say that the purchase/purchases you made today should be considered a one-time expense that is unlikely to recur?

1	2	3	4	5	6	7	8	9
Not at all				Moderately				Very much

To what extent do you think the money spent on this purchase would have been better spent on something else—some other type of purchase that would have made you happier?

1	2	3	4	5	6	7	8	9
Not at all				Moderately				Very much

To what extent would you say that this purchase was money well spent?

1	2	3	4	5	6	7	8	9
Not well spent				Moderately well spent				Very well spent

To what extent would you say that this purchase/these purchases were:
Helpful:
- ☐ Extremely helpful
- ☐ Quite helpful
- ☐ Slightly helpful
- ☐ Neither helpful or unhelpful
- ☐ Slightly unhelpful
- ☐ Quite unhelpful
- ☐ Extremely unhelpful

Fun:
- ☐ Extremely fun
- ☐ Quite fun
- ☐ Slightly fun
- ☐ Neither fun or not fun
- ☐ Slightly not fun
- ☐ Quite not fun
- ☐ Extremely not fun

High in Social Status
- ☐ Extremely high in social status
- ☐ Quite high in social status
- ☐ Slightly high in social status
- ☐ Neither high in social status or low in social status
- ☐ Slightly low in social status
- ☐ Quite low in social status
- ☐ Extremely low in social status

Overall, thinking about the purchase/purchases that you made today, to what extent would you say that this purchase/these purchases cost or saved you time?

-3	-2	-1	0	1	2	3
Cost a lot of time overall	Cost a moderate amount of time overall	Cost a bit of time overall	Did not cost or save time overall	Saved a bit of time overall	Saved a moderate amount of time overall	Saved a lot of time overall

How much time **today** did this *purchase* save you today? (*RA people ask open ended first and prompt with the categorical responses, if necessary*).

☐ 0 minutes	☐ 10-12 hours
☐ 1-4 minutes	☐ 13-15 hours
☐ 5-9 minutes	☐ 16-18 hours
☐ 10-19 minutes	☐ 19-21 hours
☐ 20-39 minutes	☐ 22-29 hours
☐ 40-59 minutes	☐ 30-39 hours
☐ 1-3 hours	☐ 40-49 hours
☐ 4-6 hours	☐ 50 hours or more
☐ 7-9 hours	

What did you do with this additional time?

_____
_____

For the research assistant only!
Please select the <u>one category</u> that best represents the response that the participant just provided.

☐ Not Applicable – the participant said it did not save time
☐ Socializing
☐ Relaxing
☐ Hobbies
☐ Praying/Workshop/Meditation
☐ Eating
☐ Exercising
☐ Watching TV
☐ Sleeping
☐ Shopping
☐ Preparing Food
☐ Housework
☐ Working
☐ Commuting
☐ Nothing

Finally, I would like to ask you a few questions about yourself. You will only answer these questions *this week* – we will not ask you to answer these questions next week.

I would like you to imagine a ladder. Please think of this ladder as representing where people stand in Canada. At the top of the ladder are people who are the best off – those who have the most money, the most education, and the most respected jobs. At the bottom are the people who are the worst off—who have the least money, least education, and the lead respected jobs or no jobs. The higher you are on this ladder, the closer you are to the people at the very top the lower you are, the closer you are to the people at the very bottom.

Where would you place yourself on this ladder on a scale from 0 (lowest rung) to 10 (highest rung). _____

What is your family's total annual household income?
- ☐ Less than $10,000
- ☐ $10,000-$19,999
- ☐ $20,000-$29,999
- ☐ $30,000-$39,999
- ☐ $40,000-$49,999
- ☐ $50,000-$59,999
- ☐ $60,000-$69,999
- ☐ $70,000-$79,999
- ☐ $80,000-$89,999
- ☐ $90,000-$99,999
- ☐ $100,000-$149,999
- ☐ $150,000 - $249,999
- ☐ $249,999 - $499,999
- ☐ $500,000 - $1 million

Are you currently married or in a marriage-like relationship? (Please select one)
- ☐ Yes, I am currently married
- ☐ Yes, I am currently in a marriage-like relationship
- ☐ No, I am not currently married or in a marriage-like relationship

How many children are living with you?   0   1   2   3   4   5   6+

How many hours per week do you usually work at your main job? By **main job**, we mean the job at which you usually work the most hours. _____

What is your gender?
- ☐ Female
- ☐ Male
- ☐ Other/Non-binary

Just as a reminder: you need to send us an email to the lab with a photo of the receipt and/or relevant documentation of your purchase.
Have you done this already?
- ☐ Yes
- ☐ No: If "No" can you send us an email photo right now: please send to
  ubcspendingstudy@gmail.com

That is all the questions I have for you today. Do you have any further questions about the study

Thank you for your time! Bye!

RA Comments:

Appendix F:
More Results for Chapter 3

Overview

Can buying time promote happiness? To provide an initial test of this question, I conducted six correlational studies with diverse samples including Americans recruited from Amazon's Mechanical Turk (Study 6), a representative sample of employed Americans living in the US (Study 7), adults living in Denmark (Study 8), adults living in Canada (Study 9), a representative sample of adults living in the Netherlands (Study 10), and a large sample of millionaires recruited through a Dutch bank (Study 11). Below, I provide additional details about each sample. See Table A1 for the reliabilities of each measure for each sample separately. See Table A2 for the regression results for each of the key analyses in each sample separately.

Study 6: US Respondents from Mechanical Turk

I first conducted an initial exploratory study assessing the relationship between outsourcing and SWL with Americans recruited from Amazon's Mechanical Turk. I targeted 300 participants and slightly over recruited because I ran two additional batches more than intended ($N = 326$). Participants completed two life satisfaction items (See Table A1 for reliabilities). Participants also completed tertiary measures and the two buying time questions of interest. Participants then completed the demographic covariate questions of interest. See Table A1.

Study 7: US Representative

I also examined the relationship between buying time and SWL in a representative sample of employed Americans living in the US. I recruited these participants through the GfK Knowledge Networks Panel. Over an 11-day fielding period, 1275 respondents completed my survey. Ten respondents did not complete my key variables of interest; thus, my primary analyses are based on 1265 respondents. See Study 4 for a description of the study methods.

Participants first reported their SWL using the identical items from Study 6 (See Table A1). Participants also completed several measures that were outside the scope of the current investigation and then they completed the two key buying time questions of interest. Participants also completed measures pertaining to key demographic covariates of interest (See Table A1).

Study 8: Dutch Panel

I further examined the relationship between buying time and SWL in a sample of Dutch adults. These data were collected by the Happiness Research Institute in Copenhagen, Denmark. In this survey, participants reported their SWL using the identical items from Studies 6 and 7. Participants then completed several measures that were tangential to the current investigation. Next, participants completed the key buying time questions. Participants then completed measures the key demographic covariates of interest (See Table A1).

Study 9: Canadian Sample

In Study 9, I examined the relationship between buying time and SWL among a sample of working adults from Vancouver, Canada. I recruited participants from public places including train stations and public parks. Consistent with Sample 1, I targeted 300 participants, and recruited more participants than planned because the RAs worked set data collection schedules. In this study, I also examined whether buying time helped to protect people from the negative impact of time stress on SWL. Participants completed the identical SWL items from Studies 6-9. Next, participants reported on their feelings of time pressure using the nine highest loading items from the Material Affluence & Time Affluence Scale. Participants then completed the two buying time questions and completed several measures that were outside of the scope of the current investigation. Participants also provided demographic information (See Table A1).

Study 10: Representative Sample of Adults in the Netherlands

Study 10 was part of a larger study examining the time-use and happiness of millionaires and non-millionaires (Smeets, Whillans, Bekkers & Norton, 2017). In this study, my colleagues collected a nationally representative sample of Dutch adults who had agreed to participate in the 2015 wave of the Giving in the Netherlands Panel Study. This sample was recruited via TNS NIPO, one of the leading survey agencies in the Netherlands. Participants first completed a one-item SWL measure that is used extensively in large scale survey research (e.g., Deaton, 2008). Specifically, participants reported their agreement to the following question, "How would you rate your life in general" on a scale from 0 (*the worst possible life*) to 10 (*the best possible life*). Next, participants reported on their feelings of time pressure using the four highest loading items from the MATAS. I selected the four top loading items from this questionnaire to minimize participant burden. Participants then completed several measures that were outside the scope of the current investigation and then completed the two key buying time questions of interest. At the end of the survey, participants provided the key demographic information of interest.

Study 11: Millionaires

Study 11 was part of the same larger study as Study 10. As part of this study, my colleagues recruited a sample of high net-worth Dutch adults through Elite Research, using a database of individuals residing in the Netherlands who have a high net worth (Smeets, Bauer & Gneezy, 2016). This data collection was identical to the data collection described in Study 10.

Table A1
Additional survey information for Studies 6-11

Study	N	Sample Description	% Outsource	Primary Well-being Measures	Missing Demographics[a]	Additional Demographics	Secondary Well-being Measures
6	366	US MTurkers	15.8%	2-item SWL (α = 0.78)	Gender	NA	5-item Meaning in Life[b] (α = 0.79)
7	1265	US Representative	21.9%	2-item SWL (α = 0.73)	NA	NA	NA
8	565	Danish Adults	23.1%	2-item SWL (α = 0.86)	# of hours worked # of kids	Occupation status	1-item Meaning in Life[b] 4-item Connection (α = 0.76)[c] 2-item Control (α = 0.71)[d]
9	325	Canadian Adults	25.6%	2-item SWL (α = 0.84)	Gender	$ spent on entertainment & bills/month	9-item Time Pressure (α = 0.87)
10	1231	Dutch Representative	21.3%	1-item SWL	# of hours worked	Employed (1=Yes)	4-item Time Pressure (α = 0.77)
11	818	Dutch Millionaires	51.8%	1-item SWL	# of hours worked	Employed (1=Yes)	6-item Time Pressure (α = 0.74)
N	4,570						

Note. [a]Participants across all studies completed information about their annual household income, their marital status, the number of hours they worked on average each week, the number of children they had living at home and their age and gender. Thus, I only report unique additional covariates under the column entitled "demographics." [b]Participants completed a X-item and 1-item measure of Meaning in Life from the Meaning in Life Questionnaire, respectively (Steger, Frazier, Oishi & Kaler, 2006). [c]Participants also completed a 2-item measure of perceived control from the Locus of Control Scale (Nowicki & Duke, 1974).

Table A2
Regression analyses for each sample separately[a]

| Study	N	Sample Description	Outsourcing (1=Yes) on SWL	Outsourcing (1=Yes) on SWL with covariates	Outsourcing ($) on SWL	Outsourcing ($) Squared on SWL[b]	Outsourcing ($) Squared on SWL with covariates
6	366	US MTurkers	$\beta = 0.02$, $p = 0.713$	$\beta = 0.03$, $p = 0.622$	$\beta = -0.01$, $p = 0.863$	$\beta = -0.02$, $p = 0.870$	$\beta = -0.02$, $p = 0.848$
7	1265	US Representative	$\beta = 0.14$, $p < 0.001$	$\beta = 0.11$, $p < 0.001$	$\beta = 0.005$, $p = 0.854$	$\beta = -0.14$, $p = 0.005$	$\beta = -0.12$, $p = 0.012$
8	565	Danish Adults	$\beta = 0.16$, $p < 0.001$	$\beta = 0.18$, $p = 0.001$	$\beta = 0.08$, $p = 0.124$	$\beta = -0.15$, $p = 0.087$	$\beta = -0.13$, $p = 0.225$
9	325	Canadian Adults	$\beta = 0.12$, $p = 0.029$	$\beta = 0.11$, $p=0.093$	$\beta = 0.09$, $p = 0.125$	$\beta = 0.02$ $p = 0.850$	$\beta = -0.01$ $p = 0.930$
10	1231	Dutch Representative	$\beta = 0.04$, $p = 0.143$	$\beta = 0.04$, $p = 0.175$	$\beta = 0.05$, $p = 0.100$	$\beta = -0.08$, $p = 0.071$	$\beta = -0.07$ $p = 0.124$
11	818	Dutch Millionaires	$\beta = 0.10$, $p = 0.005$	$\beta = 0.12$, $p = 0.004$	$\beta = 0.007$, $p = 0.839$	$\beta = -0.07$, $p = 0.397$	$\beta = -0.09$ $p = 0.397$
N	4,570						

Note. [a]For the full regression tables for Studies 7-11 with all predictors entered simultaneously see Tables A4 to A11 on Pages 130-133. [b]For a graphical depiction of all quadratic effects for each sample separately, see Figures A1-A4 on Pages 126-129.

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Table A3
Additional Regression Analyses (Moderation of Time Pressure)

| Study	N	Sample Description	Interaction between outsourcing X time pressure on SWL	Association between time pressure & SWL (Outsourcing = Yes)	Association between time pressure & SWL (Outsourcing = No)
9	325	Canadian Adults	$\beta = 0.07$ $p = 0.263$	$\beta = -0.27$ $p = 0.019$	$\beta = -0.34$ $p < 0.001$
10	1232	Dutch Representative	$\beta = 0.04$ $p = 0.244$	$\beta = -0.14$ $p = 0.025$	$\beta = -0.20$ $p < 0.001$
11	818	Dutch Millionaires	$\beta = 0.21$ $p < 0.001$	$\beta = -0.01$ $p = 0.895$	$\beta = -0.28$ $p < 0.001$
N	2,375				

Figure A1

Quadratic relationship between the amount of money spent outsourcing and SWL in Study 7
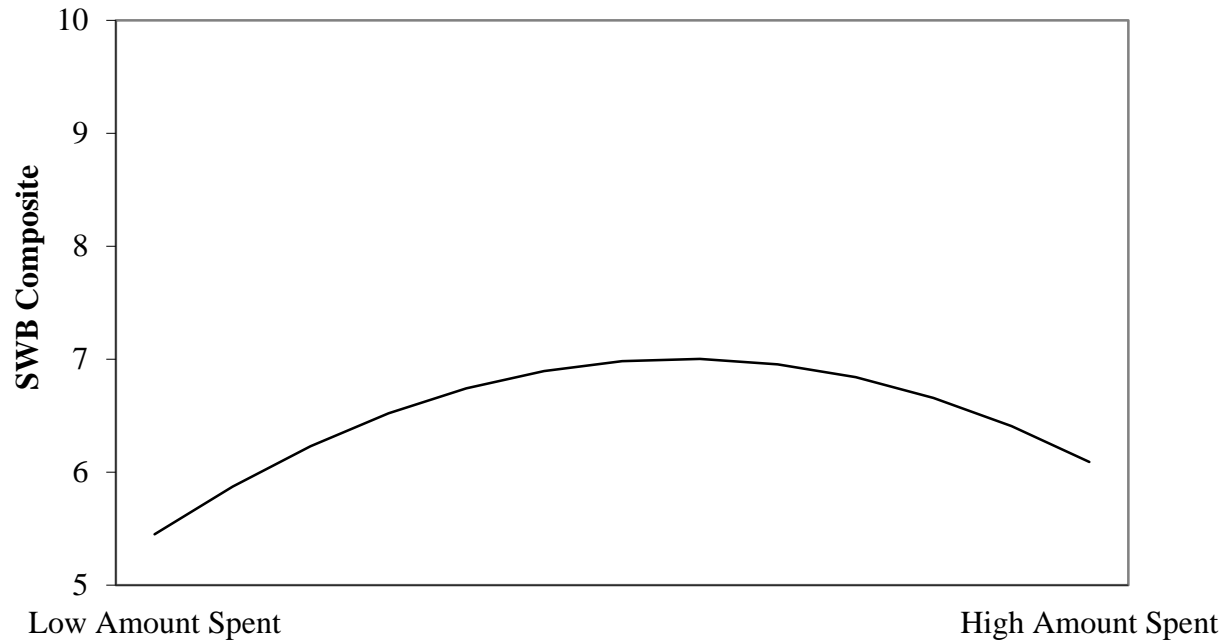
Note. The midpoint corresponds to spending approx. $41 to $60 USD to outsource disliked tasks per month. The endpoints depict ±1SD = $21-40 USD spent to outsource per month.

Figure A2

Quadratic relationship between the amount of money spent outsourcing and SWL in Study 8
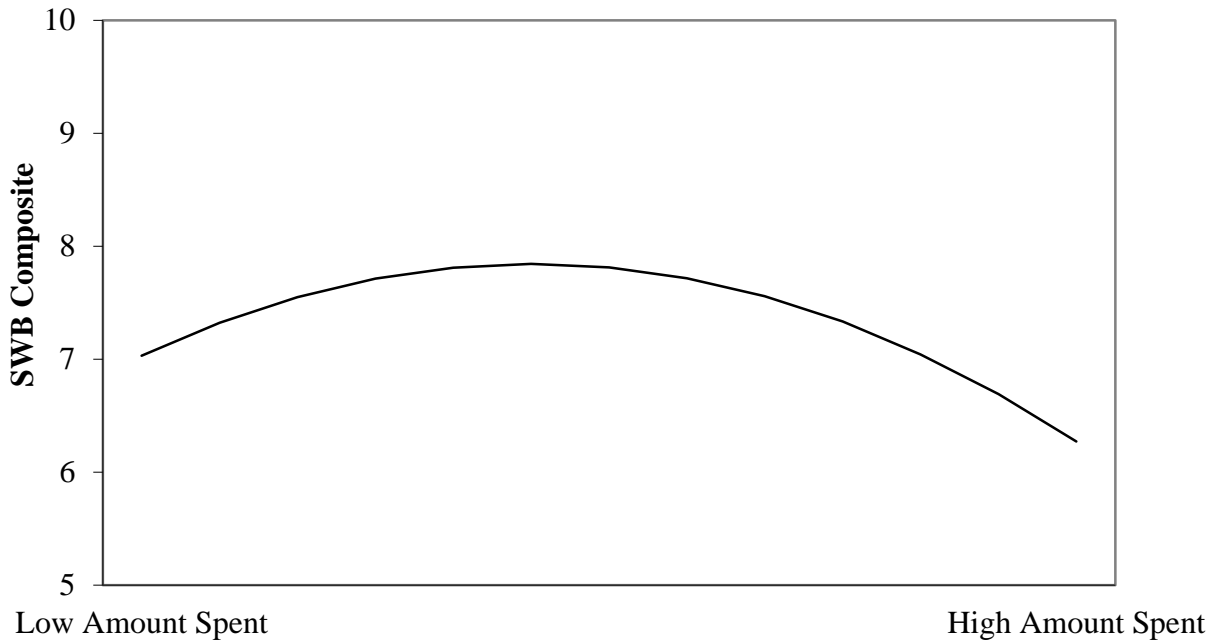
Note. The midpoint corresponds to spending approximately $252.83 USD to outsource disliked tasks per month. The endpoints depict ±1SD = $70 USD spent to outsource tasks per month.
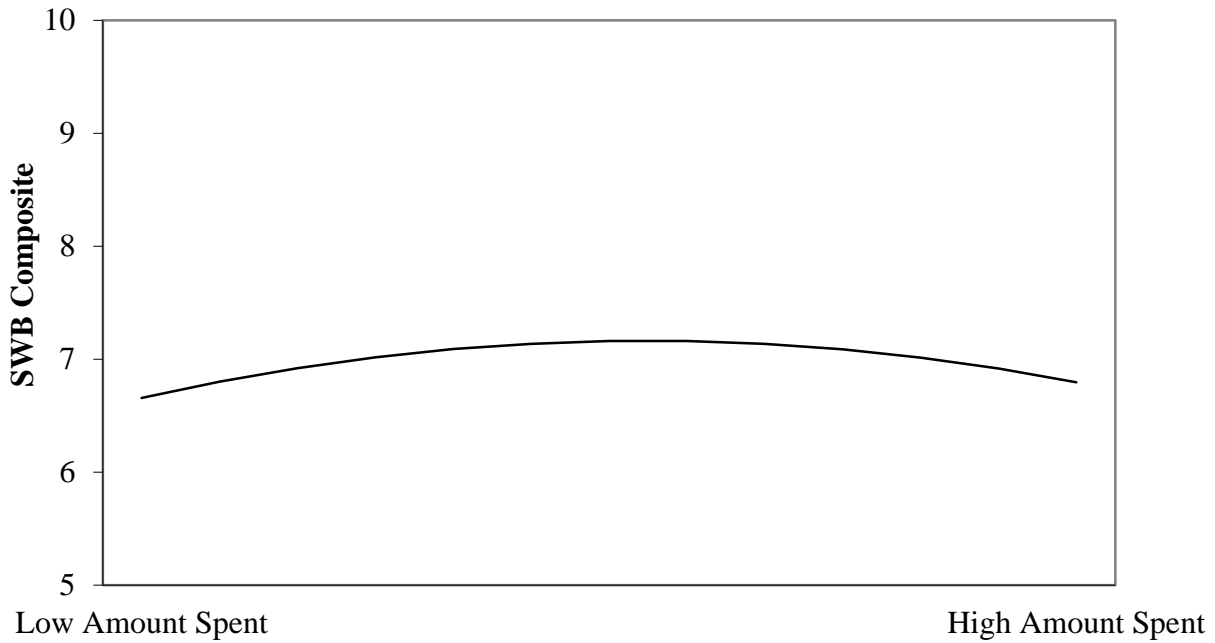
Figure A3

Quadratic relationship between amount of money spent outsourcing to predict SWL in Study 9

Note. The midpoint corresponds to spending approximately $21- $40 CAD to outsource disliked tasks per month. The endpoints depict ±1SD = $40 CAD spent to outsource tasks per month.
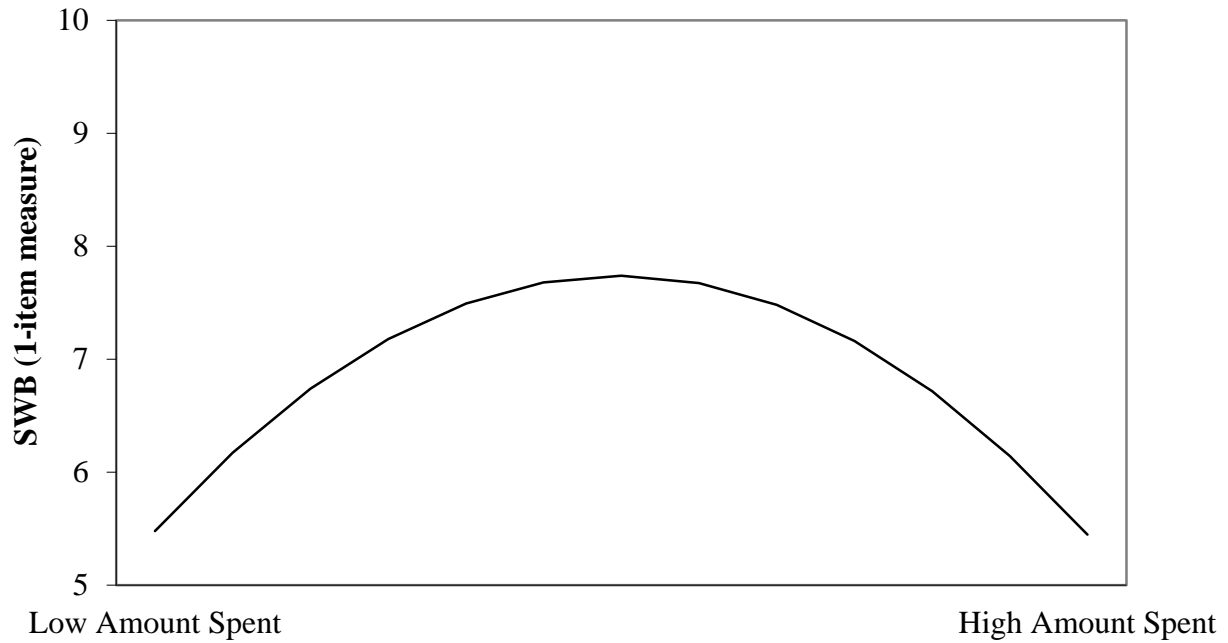
Figure A4

Quadratic relationship between amount of money spent buying time to predict SWL in Study 10

Note. The midpoint corresponds to spending approximately €105.66 to outsource disliked tasks per month. The endpoints depict ±1SD = €312.69 spent to outsource tasks per month.

Table A4
Final regression model predicting SWL from outsourcing (1 = Yes) in Study 7 with all covariates entered simultaneously in the model

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.11	.48	.11	< .001				
Income	.18	.08	.01	< .001				
Age	.15	.02	.003	< .001				
Marital Status (1=Married)	.16	.57	.11	<.001				
# of hours worked/week	.01	.001	.004	.858				
# of kids at home	.01	.02	.04	.695				
Gender (1=Female)	.02	.07	.09	.695	$F(7, 1251)$	25.93	< .001	.13

Table A5
Regression model predicting SWL from outsourcing (1 = Yes) in Study 8 with all covariates entered simultaneously in the model

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.18	.60	.18	< .001				
Income	.16	.19	.08	.023				
Age	.12	.12	.07	.078				
Marital Status (1=Married)	.12	.24	.17	.043				
Employment (1=Employed)	-.25	-.71	.24	.003				
Gender (1=Female)	-.03	-.08	.16	.603	$F(7, 332)$	5.54	< .001	.11

Note. Study 8 did not ask participants to report the number of children they had living at home or how many hours they worked.

Table A6

Regression model predicting meaning in life from outsourcing (1 = Yes) in Study 8 with all covariates entered simultaneously

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.14	.21	.08	.015				
Income	-.02	-.01	.04	.829				
Age	.10	.05	.03	.170				
Marital Status (1=Married)	.13	.17	.08	.031				
Employment (1=Employed)	.09	.11	.11	.337				
Gender (1=Female)	.01	.01	.07	.874	$F(7, 320)$	2.50	.017	.05

Note. Study 8 did not ask participants to report the number of children they had living at home or how many hours they worked.

Table A7

Regression model predicting social connection from outsourcing (1 = Yes) in Study 8 with all covariates entered simultaneously

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.14	.17	.07	.012				
Income	.04	.02	.03	.607				
Age	.04	.02	.06	.551				
Marital Status (1=Married)	.20	.22	.06	.001				
Employment (1=Employed)	-.23	-.24	.09	.007				
Gender (1=Female)	-.09	-.10	.06	.095	$F(7, 331)$	4.24	< .001	.08

Table A8

Regression predicting perceived control from outsourcing (1 = Yes) in Study 8 with all covariates entered simultaneously

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.15	.21	.08	.008				
Income	.06	.03	.04	.421				
Age	.30	.14	.03	< .001				
Marital Status (1=Married)	.14	.18	.08	.019				
Employment (1=Employed)	-.15	-.19	.11	.083				
Gender (1=Female)	.02	.02	.07	.736	$F(7, 331)$	6.61	< .001	.13

Table A9

Regression model predicting SWL from outsourcing (1 = Yes) in Study 9 with all covariates entered simultaneously

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.13	.43	.23	.066				
Income	.12	.04	.03	.103				
Educational Status	-.001	-0.001	.05	.990				
Age	.12	.01	.01	.138				
Marital Status (1=Married)	.13	.36	.22	.103				
# of Hours Worked/Week	-.01	.0001	.01	.924				
# of Kids at Home	-.05	-.11	.15	.479	$F(7, 212)$	3.09	.004	.10

Table A10

Regression model predicting SWL from outsourcing (1 = Yes) in Study 10 with all covariates entered simultaneously

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.04	.12	.09	.175				
Net-worth	.09	.18	.06	.002				
Age	.02	.002	.003	.577				
Marital Status (1 = Married)	.14	.36	.08	< .001				
Employment (1 = Yes)	-.13	-.36	.09	< .001				
Gender (1 = Female)	.01	.04	.08	.635				
# of Kids at Home	.06	.08	.04	.084	$F(7, 1231)$	10.28	< .001	.06

Note. In Study 10 and 11 net-worth was used as a proxy for wealth.

Table A11

Regression model predicting SWL from outsourcing (1 = Yes) in Study 11 with all covariates entered simultaneously

Predictor	β	B	(SE)	P value for predictor	F value for model		P value	R-square
Outsourcing (1=Yes)	.12	.24	.08	.004				
Net-worth	-.01	-.01	.11	.906				
Age	-.04	-.004	.01	.442				
Marital Status (1 = Married)	.12	.28	.10	.005				
Employment (1 = Yes)	-.06	-.14	.12	.240				
Gender (1 = Female)	-.02	-.06	.12	.614				
# of Kids at Home	-.06	-.07	.06	.186	$F(7, 606)$	3.20	.002	.04

Note. In Study 10 and 11 net-worth was used as a proxy for wealth.