

Prosocial Spending and Buying Time: Money as a Tool for Increasing Subjective Well-Being

Elizabeth W. Dunn

University of British Columbia

Ashley V. Whillans

Harvard Business School

Michael I. Norton

Harvard Business School

Lara B. Aknin

Simon Fraser University

Abstract

Researchers have long been interested in the relationship between income and happiness, but a newer wave of work suggests that how people *use* their money also matters. We discuss the three primary areas in which psychologists have explored the relationship between spending decisions and subjective well-being, beginning with a brief review of seminal research on the benefits of buying experiences. We then offer an in-depth review of two other domains in which changes in spending decisions have been shown to increase well-being: using money to benefit others (“prosocial spending”) and giving up money to have more time (“buying time”). We discuss how, when, and why prosocial spending and buying time promote happiness. In doing so, we critically consider the evidentiary value of past findings (particularly our own) and provide links to all of our available data, as well as practical recommendations about how to replicate our findings (e.g., which measures and manipulations produce the most consistent results). Taken together, our studies on prosocial spending and buying time underscore the value of conceptualizing money not only as a stable life circumstance, but also as a tool that individuals can intentionally utilize to alter their own happiness levels.

Consider four hypothetical people, each of whom wins \$781 in a lottery: one gives it all to charity, one buys a smartphone, one buys a hot air balloon trip for four friends, and one pays someone to clean their house once a month for a year. On their tax forms at the end of the year – and on surveys assessing their income – each person would look the same: an additional \$781. But these four examples show that *how* people use their income likely plays a critical role in shaping their subjective well-being – both their global sense of satisfaction with their lives overall, and their evaluations of their day-to-day positive and negative emotional experiences (Diener, 1999). Simply put, it is not just how much money people have, but also what they *do* with that money, that influences their lives (Dunn & Norton, 2013).

This distinction is consistent with Lyubomirsky, Sheldon, and Schkade's (2005) conceptual model of how happiness can change in sustainable ways over time. According to their model, happiness depends on both relatively stable factors (e.g., genetics, personality traits) and intentional activities – from attending yoga class to re-framing negative events. Viewed through this lens, consideration of the contribution of both income (as a more stable factor) and decisions over how to allocate that income (as a more intentional activity) to well-being are critical for understanding the broader relationship between income and happiness. Yet, money is often viewed as more akin to the former factor, with people across the income spectrum believing that more income will lead to more happiness (Aknin, Norton, & Dunn, 2009; Donnelly, Zheng, Haisley, & Norton, 2018; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2006). Instead, money might be better thought of as a tool to be deployed to achieve that goal (see Lea & Webley, 2006).

In the current chapter, we provide a sketch of the literature on the income-happiness link from the first perspective, and then delve more deeply into research on the income-happiness link from the second perspective. In particular, we discuss the three primary areas in which psychologists have explored the relationships between spending decisions and well-being. We briefly review research on the benefits of buying experiences (for a thorough review, see Gilovich & Kumar, 2015) and then offer an in-depth review of two other domains in which changes in spending decisions have been shown to increase well-being: First, drawing on studies conducted with children and adults in countries around the world, we argue that people derive more happiness from spending money to benefit others rather than themselves. Second, we examine the benefits of using money to improve the way people spend their time, such as by paying someone else for help with dreaded chores or by forgoing paid work hours in order to have more free time. We discuss how, when, why, and for whom prosocial spending and buying time promote happiness. Finally, we integrate these two related but distinct lines of research and provide recommendations for future research on spending and happiness.

The Link Between Income and Happiness

The study of income and happiness in both psychology and economics can be traced to initial research in the 1970s and 1980s exploring links between changes in income and changes—or lack thereof—in well-being (Brickman, Coates & Janoff-Bulman, 1978; Diener, Horwitz, & Emmons, 1985; Easterlin, 1974). The explosion of research examining these links began in the 2000s (see Diener & Seligman, 2002). One influential paper by Kahneman and Deaton (2010) offered two primary insights (see also Kahneman et al, 2006). First, the effect of income on day-to-day positive and negative emotions – such as self-reported smiling,

enjoyment, and stress – demonstrates diminishing marginal utility: money is associated with happiness, but as income increases, the effect of additional income decreases in magnitude.¹ Recent research using data from more than 1.7 million respondents in 164 countries also suggests a satiation point at which additional income does not result in as much additional happiness: on average, at \$60,000 – \$75,000 USD for positive and negative affect, though with variance and with satiation typically occurring at higher incomes in wealthier countries (Jebb, Tay, Diener, & Oishi, 2018).

Second, Kahneman and Deaton (2010) demonstrated that the relationship between income and life satisfaction – a more global evaluation of subjective well-being – did not appear to demonstrate the same level of satiation. However, Jebb et al. (2018) demonstrate that satiation for life satisfaction (as assessed by Cantril's (1965) Self-Anchoring Striving Scale) in fact does occur – on average, at \$95,000 – though again with considerable variation by country. Meta-analyses suggest that the average correlation between income and life satisfaction is typically between .17 and .21 (Lucas & Dyrenforth, 2006; Lucas & Schimmack, 2009). Taken together, this research suggests a consistent but nuanced relationship between money and happiness: positive and negative mood demonstrate diminishing utility of income, whereas the results for life satisfaction are more mixed, though with the latest research also suggesting similar diminishing utility at higher levels of income.

At the same time, nearly all of the samples used in research on income and well-being (including those above) have generally been comprised of average to above-average earners

¹ Note that the notion of diminishing marginal utility has a long history in both psychology and economics: developed first by Bernoulli (1738/1954) in the domain of risk preferences, and then independently in the domain of psychophysics, as with the Weber-Fechner law (see Dehaene, 2003; Kahneman, 2003).

and the poor (see Cummins, 2000). Several recent studies offer new evidence of the enduring relationship between wealth and life satisfaction at the upper end of the wealth distribution (e.g., Donnelly et al., 2018; Gardner & Oswald, 2007; Smeets, Whillans, Bekkers & Norton, 2019). For example, Smeets et al (2019) used two large samples of high net-worth millionaires and more representative citizens in the Netherlands; in both samples, the wealthy reported far greater life satisfaction (0.50 and 0.64 on 10-point scales, on which nearly all respondents rate their life satisfaction between 6 and 9.) These results suggest that, even given diminishing marginal utility of income, the small increment of utility gained for each, say, \$10,000 of additional income can add up to substantial differences in well-being – given a very large number of such \$10,000 increments – as is the case with millionaires and multi-millionaires.

Several streams of research approaching money as a stable factor have assessed a broader range of indicators of economic health, such as debt (Tay, Batz, Parrigon, & Kuykenall, 2017), employment status (Clark & Georgellis, 2013; Clark & Oswald, 1994; see Luhmann, Hofmann, Eid, & Lucas, 2012), and how much cash people have on hand (Ruberton, Gladstone, & Lyubomirsky, 2016). Recent investigations have also delved into the subtleties of the links between income and a wide variety of distinct emotions in addition to more general assessment of positive and negative emotion, such as enthusiasm, anger, frustration (Hudson et al., 2016), sadness (Kushlev et al., 2015; Stone, Schneider, Krueger, Schwartz, & Deaton, 2018), stress, tiredness, pain (Stone, Schneider, Krueger, Schwartz, & Deaton, 2018), amusement, awe, compassion, love, and pride (Piff & Moskowitz, 2018). In addition, research has investigated possible moderators of the relationship between income and happiness, including personality (Boyce & Wood, 2011a, 2011b), age (Cheung & Lucas, 2015), existing social ties (Richards,

2016), having earned or inherited income (Donnelly et al., 2018), and the rank of one's income in a relevant comparison set (Boyce, Brown, & Moore, 2010; Card, Mas, Moretti, Saez, 2012).

The voluminous body of research treating income as a stable factor, then, has clearly been fruitful. But considering Lyubomirsky et al.'s (2005) distinction between stable factors and intentional activities, researchers are increasingly recognizing the value of studying how people choose to use their money, whether they have a lot or a little of it.

Easterlin's (1974) seminal research demonstrated large differences across countries in the extent to which increases in material prosperity translated into increases in well-being (see Easterlin, 2017), providing an early clue that treating money as a stable predictor may have limitations in fully predicting people's well-being. Moreover, emphasizing a simple positive relationship between income and happiness not only fails to reflect the complex relationships between money and well-being reviewed above, but also yields the practical advice that people should always and forever strive to make more money as a route to well-being – potentially at the cost of other happiness-inducing activities such as spending time with loved ones. Research examining how people might glean more happiness out of the money they already earn can not only enhance our understanding of the money-happiness link, but can also offer actionable recommendations for individuals seeking to maximize the benefits of money (Aknin, Wiwad, & Hanniball, 2018; Dunn & Norton, 2013).

Buying Experiences

The earliest and most well-developed line of research treating money as a resource to be intentionally utilized shows that, on average, people experience greater happiness when using money to purchase experiences, as opposed to material goods (Van Boven & Gilovich,

2003; see Gilovich & Kumar, 2015, for a review). Before consumption, waiting for material goods tends to increase frustration, whereas waiting for experiences increases the positive feeling of anticipation (Kumar, Killingsworth, & Gilovich, 2014). During consumption, experiences spur more intense positive emotions than material goods, although material things offer more frequent doses of positive emotion (Weidman & Dunn, 2016). After consumption, experiences tend to provide more lasting pleasure (e.g., Weidman & Dunn, 2016) and become more tightly linked to people's identities than material goods (Carter & Gilovich, 2012; Keinan & Kivetz, 2011). Moreover, experiential (vs. material) purchases are less susceptible to (negative) social comparison – people can clearly assess whether their neighbor's television is larger, but find it harder to assess whether their neighbor's experience in Paris was superior (Carter & Gilovich, 2010). One limitation of research on this experiential advantage is that it has been examined largely among relatively homogenous samples, particularly college students at elite universities. Recent research suggests that while higher class individuals gain more happiness from experiential purchases, lower class individuals show no difference or even greater benefit from material purchases (Lee, Hall, & Wood, 2018). Thus, one lesson from research on the experiential advantage is that spending strategies that are consistently beneficial in relatively homogeneous samples may not be beneficial for a broader range of the population.

Taken together, research on the experiential advantage has provided a blueprint for studying consumption decisions and happiness. In the past fifteen years, researchers have used both correlational and experimental designs, examined the impact of spending strategies over the time course of consumption, carefully considered the role of social factors, and sampled

from different populations – which has served as a model for our research identifying additional spending strategies that reliably promote happiness.

Assessing and Improving Evidentiary Value

In the remainder of the chapter, we will focus on two spending strategies that we believe produce replicable, robust benefits for happiness in diverse populations: prosocial spending and buying time. Over the course of conducting these lines of work, research practices in psychology have shifted substantially, and thus we critically consider the evidentiary value of past findings (particularly our own). In particular, because psychologists now recognize that underpowered studies can produce not only high rates of false negatives but also high rates of false positives (Fraley & Vazire, 2014), we provide sample size information for the studies we discuss in detail, in order to enable readers to weight these findings appropriately. Hypotheses that have been tested exclusively with studies relying on small sample sizes are especially ripe for replication, and we hope some readers might be inspired to conduct direct or conceptual replications of these ideas.

Throughout the chapter, we provide key effect sizes to guide researchers in selecting appropriate sample sizes for future research and to guide consideration of the potential practical applications of our work. To promote transparency, in the appendix, we provide links to all of our available data, including data sets that were not provided in the original published papers. We also provide practical recommendations about how to replicate our findings (e.g., which measures and manipulations produce the most consistent results). Finally, because we have more inside knowledge—and perhaps more bias—regarding studies we have conducted ourselves, readers will notice the use of the first-person-plural (e.g., “We conducted a study”)

for any study discussed in detail in which *any* of the authors of the present chapter were involved.

Prosocial Spending

The Earliest Findings

In one of our first studies on prosocial spending, we walked up to people on our campus at the University of British Columbia (UBC) and asked them to complete a brief survey, which included a one-item measure of trait happiness and the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988). Then, we gave them an envelope containing either a \$5 or \$20 bill, which we asked them to spend by 5pm that day (Dunn, Aknin, & Norton, 2008 Study 3). We randomly assigned participants in the *personal spending* condition ($n = 22$) to spend the money on a bill, expense, or gift for themselves, whereas participants in the *prosocial spending* condition ($n = 24$) were assigned to spend the money on a gift for someone or a charitable donation. In the personal spending condition, people used the money to buy things like earrings, comic books, school supplies, and ice cream. Meanwhile, in the prosocial spending condition, people used the money to make donations to the SPCA and other charities, buy a bike helmet for a younger sibling, or treat friends to bubble tea.

That evening, a research assistant (who was blind to condition) called participants and asked them to report how they had been feeling throughout the day. Specifically, participants completed the PANAS again and reported their overall feelings of happiness that day, which we combined to create an overall index of positive mood; although we included the negative affect items from the PANAS in both the morning and evening survey, we focused only on the positive affect items in this study and subsequent studies. After completing this measure and other

subsidiary questions, participants reported how they had spent the money. We found that participants who had been assigned to spend the money on others reported feeling significantly happier that day compared to participants assigned to spend the money on themselves. The amount of money participants received (\$5 vs. \$20) did not influence their happiness, and did not interact with spending condition.

Although this initial experiment was extremely underpowered by more recent standards (e.g., Fraley & Vazire, 2014), we found converging evidence for the potential value of prosocial spending in a much larger correlational study (Dunn et al., 2008, Study 1). In this study, a nationally representative sample of 632 Americans reported their trait-level happiness (“Do you feel happy in general?”) and estimated how much money they spent in a typical month on bills, expenses and gifts for themselves, which we summed to form an index of personal spending ($M = \$1713$). They also reported how much they spent on gifts for others and donations to charity, which we summed to form an index of prosocial spending ($M = \$146$). When we entered personal spending and prosocial spending into a regression predicting happiness, we found that people who spent more money on others reported greater happiness; in contrast, the amount of money they spent on themselves was unrelated to happiness. These effects remained consistent when we controlled for income. Interestingly, the effects of income and prosocial spending were similar in size, suggesting that how much money people spend on others may matter as much for their happiness as income.

Are the benefits of prosocial spending universal? Because our initial studies on the benefits of prosocial spending were conducted in North America, we were confronted with a frequent question: Does spending money on others only lead to happiness when people have

plenty of disposable income? To explore this important boundary condition, we conducted conceptual replications of our initial research in countries around the world, including places where people were struggling to meet their own basic needs. Specifically, we conducted parallel experiments with UBC students in Canada and with community members and students from two universities in the East African nation of Uganda (Aknin et al., 2013, Study 2a). Participants in both countries were asked to vividly describe, in as much detail as possible, a time they spent approximately 20 Canadian dollars or 10,000 Ugandan shillings of their own money (these amounts provided roughly equal buying power). We randomly assigned participants to recall a time they spent this amount of money on themselves ($n_{\text{Canada}} = 70$; $n_{\text{Uganda}} = 340$) or on others ($n_{\text{Canada}} = 70$; $n_{\text{Uganda}} = 340$).

In these very different cultures, people reported very different spending experiences. For example, when participants were asked to describe a prosocial spending experience, one person in Uganda wrote, “The last time I spent approximately 10,000 Ugandan shillings was on my younger brother. He had no shoes, and when he presented his problem to me, I felt it deeply and I had to buy him a pair of shoes.” Another wrote, “Last month, I gave money to a friend...to buy medication for his aching ulcers.” Meanwhile, faced with the same set of instructions to describe a prosocial spending experience, one typical respondent in Canada wrote, “I spent \$20 for 2 dozen red roses from Costco for my mother’s birthday.” Of course, over 30% of people in both places described buying food--for themselves, or to share with others—whether at a “pork joint” in Uganda or a sushi place in Canada.

When we first read through the surveys, we were struck by the different flavors of spending experiences in the two cultures. And yet, within both countries, participants reported

greater happiness when they thought back on a time when they had spent their own money on others versus themselves. Although there was no significant interaction between spending condition and country, the beneficial effect of prosocial (vs. personal) spending appeared larger in Canada ($d = .41$) than in Uganda ($d = .14$). The recollection paradigm we used in this study had the advantage of capturing how people spent their own money in daily life, with the inherent trade-off that we sacrificed some degree of experimental control.

Thus, we conducted a more tightly controlled study with university students at UBC in Canada and the University of Cape Town in South Africa (Aknin et al., 2013, Study 3). Participants came into the lab in groups and completed an initial survey, which contained a measure of baseline happiness. Afterward, we told participants that they had earned a small monetary windfall – presented in the form of a paper voucher – and asked them to sign a receipt to accept the funds. We then informed participants that they could use this money buy a goody bag containing chocolate bars or juice at a discounted price. In the *personal spending* condition ($n_{\text{South Africa}} = 43$; $n_{\text{Canada}} = 60$), participants were told that they could pick up the treats at the end of the experiment. Meanwhile, in the *prosocial spending* condition ($n_{\text{South Africa}} = 37$; $n_{\text{Canada}} = 60$), participants were told that the treats would be donated to a sick child at a local children's hospital. In both conditions, participants were permitted to opt-out of purchasing a goody bag and take the cash for themselves.

Participants indicated their spending choice on a paper slip and took it, along with their voucher, to a research assistant in an adjacent room. There, the researcher packaged the selected items and set the goods aside for later. The research assistant also handed out notes thanking participants for their purchase and confirming that the goody bag would be available

for pick-up or donated (depending on condition). Critically, all paperwork was prepared ahead of time, such that the research assistant running the study remained blind to participants' randomly assigned condition. After making their purchase, participants privately reported their current happiness on the positive affect sub-scale of the PANAS.

We found that participants who had been assigned to purchase a goody bag for a sick child reported feeling significantly happier compared to participants assigned to purchase a goody bag for themselves, controlling for baseline happiness. Once again, there was no significant interaction between spending condition and country; the benefits of prosocial (vs. personal) spending were detectable not only among students in Canada ($d = .58$), but also in South Africa ($d = .45$) – where over 20% of participants reported having trouble securing food for themselves and their family over the past year.

Although the goody bag study provides a tightly controlled paradigm that is usable across cultures, one limitation of this design is that participants can choose *not* to purchase the goody bag. To minimize this problem, we offered the goody bag at a discounted price and we made collecting the cash inconvenient (by requiring students to pick up the cash at the end of the semester). Still, in this study, 27% of participants in the personal spending condition chose to keep the money rather than purchasing the goody bag for themselves; we retained these participants in all analyses because they were still getting a benefit for themselves. In the prosocial spending condition, less than 7% of participants chose to keep the money rather than purchasing the goody bag for a sick child, but we had to exclude them because they did not engage in a prosocial act. Regardless of whether we include or exclude any of the people who

chose to keep the money (vs. purchasing a goody bag), the main effect of prosocial spending remains significant.

While our experimental studies suggest that prosocial spending leads to higher happiness in relatively rich and poor samples, we were only able to conduct these experiments in a few locations. Therefore, to explore the generalizability of the relationship between prosocial spending and happiness, we turned to data collected through the Gallup World Poll (GWP), which contains representative samples of respondents from 136 countries around the globe ($n > 230,000+$). The GWP survey contained one item that asked respondents whether or not they had donated to charity in the past month (which provided a rough index of prosocial spending), as well as questions about life satisfaction. Our analyses revealed that prosocial spending was positively related to life satisfaction in 120 out of 136 countries; this relationship was statistically significant ($p < .05$) in 59% of the 120 countries, controlling for whether participants had access to sufficient food, as well as their household income, age, gender, and other demographic variables (Aknin et al., 2013, Study 1, see Figure 1). Because the sample sizes were low within some countries, we increased our power by combining countries into seven world regions commonly used by the GWP: Africa, Asia, Europe, former Soviet Union and Eastern Europe, Latin America, Persia/Middle East, and Australia/New Zealand/Canada/United States. The relationship between prosocial spending and well-being was significant in every region. Looking at the world as a whole, donating to charity had an effect on happiness that was equivalent in size to doubling individuals' income.

In sum, we were able to detect a positive relationship between giving and happiness in countries around the world—even in places where people were struggling to meet their own

basic needs. Thus, the emotional benefits of generosity may represent a psychological universal, pointing to the possibility that human beings may have evolved to find giving pleasurable. If this is the case, then an early version of this warm glow from giving may be detectable even among very young children. To put this idea to the test, we brought 20 toddlers just under the age of 2 into a developmental psychology lab at UBC (Aknin, Hamlin, & Dunn, 2012). During a brief “warm up” phase, the toddlers were introduced to several puppets and had the opportunity to give some treats (goldfish crackers or teddy graham crackers) to the puppets, who ate them with pleasure (Figure 2). Next, during the main testing period, participants met a new puppet named Monkey (Phase A). The experimenter explained that Monkey also liked treats, and she placed an empty bowl in front of him; the bowl had a false bottom which enabled Monkey to appear to eat treats placed inside it (see video at: <https://www.youtube.com/watch?v=fuWHHPFJPrs&feature=youtu.be>). The experimenter provided the child with a bowl and “found” eight treats, which she placed in the child’s bowl (Phase B). Next, three other events occurred in counterbalanced order:

- i. The experimenter “found” a treat and gave it to Monkey (Phase C).
- ii. The experimenter “found” a treat and asked the child to give it to Monkey (Phase D).
- iii. The experimenter asked the child to give one of his/her own treats to Monkey (Phase E).

Whenever Monkey received a treat, he “ate it” with enjoyment by putting his head down into the bowl and making “yummm” noises while pushing the treat through the false bottom.

Later, two trained research assistants rated the child’s happiness in each of the key study phases on a 7-point scale (1-not at all happy, 7- very happy). Using this within-subjects

design, we compared happiness ratings and found that children expressed greater happiness when giving treats to others than when receiving treats themselves (Figure 3). This was true when children gave Monkey the treat provided by the experimenter ($d = .88$) and when children gave Monkey one of their own treats ($d = 1.35$). Moreover, children appeared somewhat happier when giving Monkey their own treat than when giving a treat provided by the experimenter ($d = .46$). This suggests that giving may be especially rewarding when it involves personal cost, although this possibility merits further testing. An important limitation of our initial study was that research assistants were not blind to condition, so it is possible that their ratings could have been biased by their own expectations or their assumptions about our hypotheses. As described below, however, subsequent studies have found similar results even when research assistants were blind to condition.

The emotional rewards of giving versus receiving have also been detected in a pre-registered experiment conducted at the University of Washington with a larger sample of 5-year-old children ($n = 48$; Fast, 2018). All children received a stash of six stickers for themselves. They were also shown a separate pile of six stickers and told that they could give all, some, or none to another child in an adjacent room who did not have any. Research assistants—who were blind to condition—rated how happy children appeared when giving and receiving stickers; each child completed both phases, which were presented in counterbalanced order across the sample. Consistent with our earlier findings, children exhibited greater happiness when giving stickers to others than when receiving stickers for themselves ($d = 1.17$).

These studies with young children, in conjunction with our cross-cultural studies, provide support for the broader theoretical proposition that the pleasure of giving is a

fundamental component of human nature. Of course, even adults living in rural Uganda and toddlers living in North America have presumably had some exposure to Western cultural messages, such as television shows emphasizing the value of sharing. Because it is difficult to find people who have not been exposed to this pervasive cultural messaging, Aknin and colleagues (2015) travelled to a remote inland village on Tanna Island, in the South Pacific nation of Vanuatu. People in this area have no running water or electricity and rely on subsistence farming, while living in homes built from local materials such as bamboo. Very few people ever leave this island, which remains almost entirely cut off from Western culture (indeed, one child cried upon seeing the researcher, whose pale skin led her to be mistaken for a ghost). We invited both adults and young children (ages 2-5) in the local villages to participate in conceptual replications of our prior studies.

In our study with adults, we rented a local hut and invited as many individuals as we could recruit during the visit to come in one at a time, in exchange for 100 Vatu (equivalent to half a day's wage, or \$1 USD) (Aknin, Broesch, Hamlin & Van deVondervoort, 2015, Study 1). When participants came in, they were invited to take a seat on a bamboo mat, across from a trained research assistant hired from the village. Participants reported their baseline happiness and were then given a voucher for a bonus payment of 100 Vatu. Each participant was randomly assigned to the personal ($n = 13$) or prosocial spending ($n = 13$) condition. In the personal spending condition, participants were told they could use the voucher to purchase cookies, lollipops, or a mixture of both for themselves; these are considered rare and special treats among villagers, who were sometimes observed eating these confections immediately upon receiving them. In the prosocial spending condition, participants were given the option to

purchase the same items, but for friends or family rather than themselves. All participants were also given the option to redeem the voucher for cash in one week's time, and three participants in the personal spending condition—but no one in the prosocial condition—chose to do so. Consistent with our previous research, participants in the personal spending condition who chose the cash were retained in the analyses, given that they still received a benefit for themselves. After making their choice, participants were shown a picture of a ladder with 11 rungs and were asked to use the ladder to indicate the degree to which they felt happiness, anger, pride, strength and sadness; these emotions were selected because they were comprehensible to people within this cultural context. People randomly assigned to the prosocial spending condition reported more positive emotions compared to those in personal spending condition ($d = .93$).

We also recruited 20 young children from the same area and conducted a replication of our previous toddler study (Aknin, Broesch, Hamlin & Van deVondervoort, 2015, Study 2). Children were invited into one of the only concrete buildings in the area, a one-room schoolhouse, where they sat at a table. After completing a warm-up phase, children went through the same paradigm as in our original study, in which they met a puppet named Monkey and had the opportunity to give him treats, as well as receiving treats for themselves. Because Teddy Grahams and Goldfish crackers were not available in Vanuatu, we used fruit-flavored menthos. Sessions were videotaped and children's facial reactions were coded by 3 research assistants from Canada and one from Vanuatu, yielding highly reliable ratings ($\alpha = .90$). For the Canadian coders, we were able to provide silent cropped videos displaying only the child's face, thereby keeping coders blind to condition. This procedure ensured that coders' ratings were

not affected by their assumptions about the effects of giving on happiness, improving upon our original methodology (Aknin et al., 2012).

Consistent with our research in Canada, children displayed greater happiness when they shared their own menthos with Monkey than when they received menthos for themselves ($d = .83$), as shown in Figure 4. In addition, children appeared happier when they gave the experimenter's menthos to monkey than when they received this treat themselves ($d = .46$). Children were also slightly happier when giving away their own treat than giving away the experimenter's treat ($d = .30$), providing some additional evidence that costly giving might be particularly rewarding. Of course, the sample sizes we were able to obtain in Vanuatu were very small, and therefore these findings should be interpreted cautiously. That said, this work is consistent with the tenet that the capacity to derive joy from generosity is a universal component of human nature.

To conduct an even more stringent test of this idea by examining a population in which this effect should be difficult to detect, we studied people who report marked levels of disregard for others and have committed a felony-level offense within the past 5 years, such as murder, rape, robbery, domestic violence, or theft over \$5000 (Hanniball et al, 2019, Study 1). Using this sample (recruited online), we conducted a conceptual replication of our previous recollection study. Participants reported their baseline happiness and were randomly assigned to write about a time they spent \$20 on themselves ($n = 251$) or on others ($n = 250$). Afterward, they reported their current affect on the PANAS (including the additional items "happy" and "sad").

When asked to describe a previous act of personal spending, one ex-offender stated, “It was yesterday, when I was really hungry. I went to Chipotle and bought a burrito bowl, and then I went to Pizza Hut and ordered a large pizza to save for the next day.” Meanwhile, in the prosocial spending condition, ex-offenders often wrote about treating friends and family—or even strangers—to food and gifts. For instance, one ex-offender wrote, “I regularly spend money on my son. Last week I purchased a new toy for my son that cost \$25. He didn't need it but I really liked how it looked and I thought he would enjoy playing with a new toy so I bought it for him.” Another wrote, “The last time I spent twenty dollars on someone else was actually on a homeless character near work named Earl. There are quite a few homeless people around that area and he is by far the nicest so I was happy to help the guy out and just gave him a twenty that he needed way more than I did at the time.”

Were ex-offenders assigned to recall spending on others happier than those asked to recall spending on themselves? A comparison of post-spending positive affect revealed a marginal difference between conditions ($d = .16$), but this effect was significant when controlling for baseline happiness. These findings suggest that the emotional rewards of generous spending may be detectable among ex-offenders, at least when reflecting on their own past spending decisions.

As well as studying reflections on the past, we also examined the immediate happiness consequences of giving in an antisocial sample (Hanniball et al, 2019, Study 2). To do so, we recruited at-risk youth in Vancouver, Canada who were involved in delinquent peer groups (e.g., gangs) or had a recent criminal history. At local community centers, these youth ($M_{age} = 16$) completed a version of our goody bag paradigm: they had the opportunity to spend a bonus

payment of \$2.50 to purchase chocolate or juice for themselves (personal spending condition; $n = 33$) or a sick child in a hospital (prosocial spending condition; $n = 31$). We found that at-risk youth who purchased treats for a sick child felt happier immediately afterward than those who purchased treats for themselves ($d = .60$). Approximately 20% of participants in both conditions chose to keep the cash rather than purchasing a goody bag, but the results remained significant regardless of whether these participants were included or excluded.

Because the sample size of this study was small, we conducted a large, pre-registered conceptual replication of the goody bag paradigm (Hanniball et al, 2019, Study 4). Ex-offenders were recruited online and reported their baseline well-being on a state measure of happiness. Afterward, we informed participants that they had received a small additional sum (\$.05), which we encouraged them to take ownership of by “signing” an electronic receipt. With these funds, participants were invited to make a spending choice. Participants randomly assigned to the *personal spending* condition ($N = 707$) were able to purchase a snack or pen (each worth \$1) for themselves. Meanwhile, participants randomly assigned to the *prosocial spending* condition ($N = 588$) could donate \$1 to one of two active projects on DonorsChoose.org. The first project provided snacks to needy children and the second provided pens to needy students. Participants in both conditions could choose to redeem the \$.05 for themselves in several months, an option selected by 17% of participants in the prosocial spending condition and 21% of people in the personal spending condition. Consistent with earlier goody bag studies and the pre-registered exclusion criteria, participants in the prosocial spending condition who chose to take the cash for themselves were removed from analyses. After the spending choice, ex-offenders reported their momentary well-being on the PANAS (and the

additional item “happy”). Even among this sample of anti-social ex-offenders, we were able to detect the emotional rewards of giving when controlling for baseline happiness ($d = .11$). While the effect size is notably smaller than what has been observed in past research, the ability to detect an emotional reward from prosocial spending in a sample of relatively anti-social individuals provides further support for the universality of this effect.

In sum, we have been able to detect the emotional benefits of giving in culturally and economically diverse countries around the world—including an island nation largely cut off from Western culture—as well as among toddlers, preschoolers, and ex-offenders. Whereas most research in social psychology has focused almost exclusively on WEIRD people (from Western, educated, industrialized, rich, Democratic societies; Henrich, Heine, & Norenzayan, 2010), work on prosocial spending provides a model for how social psychologists can push these traditional boundaries of our field. By conducting tests of universality, we have been able to demonstrate that the joy of giving is not merely a quirky feature of North American college students, but rather a fundamental component of human nature, detectable from the first years of life across a wide range of contexts. Of course, these findings do not imply that everyone everywhere will always experience joy from prosocial spending. The effect sizes we have observed do vary substantially across different populations and social contexts, as we discuss further below—and fully understanding this variability remains an important ongoing goal.

How Big is the Effect of Prosocial Spending Anyway? And How Long Does it Last?

In order to conduct well-powered studies, it is important to accurately estimate the size of the relationship between prosocial spending and happiness. As noted in the preceding pages,

many of the early studies on prosocial spending relied on small sample sizes, by today's standards, and are likely to have over-estimated the effect size for this relationship. Simply averaging across all published experimental studies in which participants were randomly assigned to engage in or reflect on prosocial spending and to complete a measure of happiness, the average effect size was moderate ($d = .37$). This effect size, however, is much smaller when averaging only studies that used cell sizes of 100 or more ($d = .21$), consistent with the modal effect size across social psychology of $d = .18$ (Richards et al., 2003).

Effect sizes, of course, should be expected to vary depending on the nature of the experimental paradigm. Looking across published studies using variations on the "goody bag" procedure, which is a fairly tightly controlled paradigm that can be employed in diverse contexts, we observe a somewhat larger average effect size of prosocial (vs. personal) spending on state happiness of $d = .42$.² That said, the largest published study using the goody-bag paradigm in a lab context (n 's = 218/219) yielded an effect size estimate of $d = .23$ (Whillans, Aknin, Ross, Chen, & Chen, 2019).

Although effect size estimates are valuable for conducting power analyses, effect sizes provide limited insight into the real-world importance of the effect. Instead, it may be more helpful to compare how a relatively novel variable such as prosocial spending stacks up against other central predictors of happiness. In large-scale data from the Gallup World Poll, prosocial spending (i.e., donating money to charity in the past month) ranks among the top six predictors

² This represents the average non-weighted effect size of the Cohen's d scores observed when comparing post spending state happiness after personal vs. prosocial spending, while controlling for baseline happiness (Aknin et al., 2013, Study 3; Aknin, Broesh, Hamlin & Van de Vondervoort, Study 1; Aknin, Fleerackers & Hamlin, 2014; Hanniball, Aknin, Viljoen & Douglas, 2018, Studies 2-4; Whillans, Aknin, Ross, Chen & Chen, 2019). A weighted average of the same results yields a more modest Cohen's d estimate of .20.

of life satisfaction around the globe, along with trust in government, perceived corruption, GDP per capita, life expectancy, having someone to count on, and having the freedom to make one's own life choices (Helliwell, Huang & Wang, 2019).

Does the Warm Glow of Giving Extend Beyond Self-Report?

Most studies on prosocial spending have assessed happiness using self-report, leaving open the possibility that the emotional benefits of spending money on others stem primarily from social desirability. That is, participants may recognize that they *should* report joy from giving to others, either because of experimental demand characteristics or broader cultural scripts. Because of this concern, we have typically relied on between-subjects experimental designs, in order to minimize the likelihood of triggering these thoughts. Although it is worthwhile to keep this potential problem in mind when designing studies, several lines of research suggest that the happiness benefits of prosocial spending emerge even when using non-self-report measures. As described earlier in the chapter, an fMRI study found that participants exhibited activation in reward-processing areas of the brain when they gave money to a local food bank (Harbaugh et al., 2007; see also Moll et al., 2006; Hubbard et al., 2016). In our studies with toddlers (Aknin, Hamlin & Dunn, 2012) and young children (Aknin, Broesch, Hamlin & Van de Vondervoort, 2015), research assistants rated children's emotional behavior, revealing that the emotional benefits of giving resources to others emerged even in the absence of self-report.

Extending this observational approach to adults, we invited Simon Fraser University (SFU) students to report their current momentary level and trait-level of happiness and then decide whether to purchase a goody bag and which treats to include: chocolate, juice, or both (Aknin,

Fleerackers & Hamlin, 2014). Depending on their randomly assigned condition, they read that the goody bag was either for themselves ($n = 64$) or a sick child in a local hospital ($n = 55$), enabling the research assistant to remain blind to condition. After the research assistant filled the goody bag with the selected treats, participants reported their current positive and negative affect on the PANAS, which were used to form an affect balance scale (PA – NA). In addition, the research assistant rated how happy the participant appeared to be after purchasing the goody bag, on a single-item scale ranging from 1 (not at all happy) to 5 (extremely happy). Despite being blind to condition, the research assistant rated participants in the prosocial spending condition as appearing significantly happier compared to those in the personal spending condition ($d = .44$); we obtained a similar positive effect on self-reported happiness ($d = .38$), even though the research assistant's ratings were only weakly correlated with participants self-reported happiness ($r = .18$). Taken together, this research points to the conclusion that the emotional benefits of prosocial spending are not limited to self-report.

How and When Does Prosocial Spending Promote Happiness?

We propose that spending money on others has a highly robust effect on happiness because the benefits of prosocial spending flow through multiple pathways. According to self-determination theory (Ryan & Deci, 2000), human well-being depends on the satisfaction of innate needs for competence, autonomy, and relatedness. On average, spending money on others may be more likely to fulfill each of these needs than spending money on oneself, helping to explain why the emotional benefits of prosocial spending are so robust. That is, because multiple mechanisms are at work, even spending opportunities that do not enable the satisfaction of one specific need may still produce benefits through the other channels. It also

follows that the biggest benefits of prosocial spending should emerge for spending opportunities that facilitate the satisfaction of each of these three core needs, as we discuss below (see also Dunn & Norton, 2013; Dunn, Aknin, & Norton, 2014; Weinstein & Ryan, 2010).

Relatedness. It seems highly plausible that spending money on others should enhance feelings of social connection, helping to account for the beneficial effect of prosocial spending on happiness. Examining this idea, Yamaguchi et al (2016) asked approximately 1500 Japanese undergraduates to recall whether they had spent money on others during their summer break and, if so, whether doing so had positively affected their social relationships. Of the students who reported spending on others, 831 said that this spending choice exerted a positive impact on their social relationships, whereas only 124 reported no such positive impact. The highest happiness levels were observed among those who spent money in a way that positively influenced their relationships, whereas people who spent money on others with no positive impact on their relationship exhibited the same level of happiness as people who did not report any prosocial spending. Of course, correlational designs preclude causal conclusions, and thus we focus on reviewing experimental studies in the remainder of this section.

Using an experimental design, we found evidence that people derive more happiness from spending money on strong ties than weak ties (Aknin, Sandstrom, Dunn, & Norton, 2011). Participants were approached on campus at UBC and asked to vividly recall a time they spent approximately \$20 on a strong tie, such as a good friend, close family member, or romantic partner ($n = 39$) or on a weak tie such as an acquaintance, co-worker, or classmate ($n = 40$). On a modified version of the PANAS, we found that people reported more positive affect after reflecting on a time when they spent money on a strong (vs. weak) tie ($d = .48$), and additional

analyses suggested that intimacy level mattered more than relationship type (friend vs. family member). Regardless of intimacy level, several studies suggest that it may be possible to increase the emotional benefits of prosocial spending by enabling givers to connect with beneficiaries (Aknin, Dunn, Sandstrom, & Norton, 2013); given the very small sample sizes in these studies, however, this evidence should be treated as preliminary.

In a more recent pre-registered study using a within-subjects design, we asked 100 Mturk workers to reflect on two recent prosocial spending experiences, including one that enabled them to feel a sense of social connection with the beneficiary and one that did not (Lok & Dunn, 2019, Study 3). After each writing prompt, participants reported how happy they had felt after the experience on the Scale of Positive and Negative Emotions (SPANE; Diener et al., 2009); the prompts were presented in counterbalanced order and no effects of order emerged. Consistent with previous research, participants reported more positive affect when they thought about a prosocial spending experience that did (vs. did not) make them feel connected to the person or cause they were helping ($d = 1.78$), and this effect was very large. This suggests that social connection may be an important catalyst in turning good deeds into good feelings.

Competence. Spending money on others provides an opportunity to make a meaningful impact, potentially satisfying the human need for competence. Yet, not all giving experiences enable people to see how they are making a difference. Our research suggests that people are more likely to derive joy from giving to others when they can readily envision how their good deeds make a positive impact for others. In an initial test of this idea, we paid people on the UBC campus \$10 to participate in a study, which involved examining a charitable appeal (Aknin, Dunn, Whillans, Grant, & Norton, 2013, Study 1). Afterward, participants had the option to

make a donation to the charity. Participants completed broad measures of subjective well-being both at the outset of the study and after making a donation (if any). We showed 62 participants an ad for UNICEF, a charity that is well-known and well-respected, but also very broad, potentially making it difficult to envision how a small donation will make an impact. Meanwhile, we showed another 58 participants an ad for Spread the Net, a closely-related, but narrower charity that pledged to use every \$10 donated to provide one bed to protect a child against malaria—thereby making it relatively easy to imagine how a small donation would make a difference. Although participants in both conditions donated equivalent amounts—about \$5 on average—the emotional consequences of their donations differed, as shown in Figure 5. Controlling for baseline SWB, participants who donated more money to Spread the Net exhibited higher levels of SWB afterward ($\beta = .29$), but we observed so such emotional boost among participants who donated to UNICEF ($\beta = .00$).

Although the use of real charities maximizes external validity, it is important to note that UNICEF and Spread the Net differ on multiple dimensions (e.g., familiarity). Thus, we conducted a more focused test of the role of impact in a second study, by asking Mturk workers to describe a time they spent money on themselves ($n = 57$) or on others in a way that had a meaningful impact on that person ($n = 56$) or did not have an impact ($n = 68$; Aknin, Dunn, Whillans, Grant & Norton, 2013, Study 2). Participants who described a time they spent money on others in ways that had an impact on the beneficiary reported the highest levels of subjective well-being, while those in the other two conditions did not differ. A recent pre-registered study using a within-subjects design ($N = 100$) confirmed that impact plays a critical role (Lok & Dunn, 2019, Study 2); participants reported much greater positive affect following a

past prosocial spending experience when they were (vs. were not) able to see the difference their generosity had made for the person or cause they were helping ($d = .87$). Fast (2018, Study 2) found a similar effect in her pre-registered, within-subjects study of 48 five-year olds. Children were allowed to give desirable resources (stickers or crayons) to other kids in adjoining rooms, using a specially designed chute connecting the rooms. In one condition, children were able to see the beneficiary react with pleasure to receiving the gift, whereas in the other condition, they were not able to see the other child's reaction. Children exhibited greater happiness from giving when they could witness the other child's positive reaction, suggesting that perceived impact plays an important role in catalyzing the emotional benefits of giving, from early in development.

Autonomy. Consistent with the notion that autonomy is critical for subjective well-being, several studies suggest that people derive more joy from spending money on others when they choose to help out of their own volition. Using a dictator game paradigm, Weinstein and Ryan (2010, Study 2) enabled university students to divide a total of \$25 between themselves and another participant who had not received money. The more money participants gave away, the happier they felt afterward—but only if they were allowed to decide how to allocate the money ($n \approx 40$). In contrast, the emotional benefits of sharing money with the other participant disappeared—and showed a trend toward reversing—when people were told how much money to give away ($n \approx 40$). Several additional studies (Nelson et al., 2015; Weinstein & Ryan, 2010, Study 4) have examined other forms of giving (e.g., helping with a task) or other dependent measures, such as activation in reward regions of the brain (Harbaugh et al, 2007). Taken together, these studies point to the tentative conclusion that

people are more likely to experience joy from helping when the decision to help feels freely chosen. Because studies in this area have predominantly relied on small samples, we conducted a well-powered pre-registered study in which 100 Mturk workers described a prosocial spending experience in which they felt free to choose whether to help and another experience in which they had no choice about helping (Lok & Dunn, 2019, Study 4). We found a very large effect of choice, whereby participants felt much happier when they were (versus were not) free to choose whether to help ($d = 1.61$).

Integration. Taken together, existing research suggests that prosocial spending is more likely to deliver emotional benefits when people:

- (1) feel socially connected to the individual or cause they are helping,
- (2) are able to envision—or directly see—the impact their generosity is having
- (3) believe that they are giving out of their own volition.

Consistent with self-determination theory, these findings suggest that giving to others promotes well-being to the extent that this form of spending satisfies the fundamental human needs for relatedness, competence, and autonomy. Providing converging evidence for this perspective, a recent correlational study ($N = 383$) found that people derived especially large mood benefits from engaging in prosocial behavior when their needs for autonomy, competence, and relatedness had otherwise gone unmet (Hui & Kogan, 2018).

Because prosocial behavior can contribute to fulfilling each of these core needs, it makes sense that the emotional benefits of helping seem to flow through multiple pathways, rather than being explained by a single mediator (e.g., Weinstein & Ryan, 2010). The satisfaction of these three core needs posited by SDT, however, may not fully explain why

helping others promotes well-being. Recently, Martela and Ryan (2016) argued that it may be necessary to amend self-determination theory by adding a fourth fundamental need for beneficence (i.e., helping others). The notion that beneficence itself represents a fundamental human need—above and beyond autonomy, competence, and relatedness—would represent a substantial revision to self-determination theory and merits future testing.

Provocative Questions and Emerging Answers

In the preceding sections, we have described what we see as the clearest conclusions from research on prosocial spending. Next, we turn to provocative issues that remain largely unresolved, while describing what we know so far.

Beyond happiness. If helping others is indeed a core human need, we would expect to see positive consequences of prosocial spending that extend to other core components related to survival. In particular, people who use money in generous ways might exhibit health advantages. One study provides suggestive evidence for this idea. Adults with high blood pressure were randomly assigned to spend a \$40 windfall on themselves or someone else for three consecutive weeks. At follow-up, older adults randomly assigned to engage in prosocial spending displayed lower systolic and diastolic blood pressure than those assigned to spend money on themselves ($d = .54$; Whillans, Dunn, Sandstrom, Dickerson & Madden, 2016). The magnitude of these benefits were similar to starting a new aerobic exercise program.

There is a little bit of evidence that prosocial spending may also bolster momentary physical strength. Gray (2010) asked forty individuals to hold a handgrip for as long as possible. Beforehand, however, participants were randomly assigned to either a prosocial spending condition in which they were given a dollar that they could donate to charity (which all

participants accepted; $n = 20$), or to a control condition ($n = 16$) in which participants did not receive a dollar to donate. Participants who had just given to charity held the handgrip for 23 seconds longer ($d = .53$) than participants in the control condition.

One way that prosocial spending might promote survival could be by enhancing the effectiveness of small groups. Indeed, there is some preliminary evidence that prosocial spending can improve team performance (Anik, Aknin, Dunn, Norton & Quoidbach, 2013, Studies 2a/b). When a subset of individuals on dodgeball teams and sales teams were randomly assigned to spend a small windfall on a teammate, performance – measured as the percentage of games won or products sold – increased over time ($d_{\text{sports teams}} = .76$; $d_{\text{sales teams}} = 1.02$). Similar improvements in team performance were not observed when we assigned a subset of team members to spend on themselves ($d_{\text{sports teams}} = .17$; $d_{\text{sales teams}} = .04$). Because performance was measured at the team level and we were only able to recruit approximately 6 dodgeball teams and 6 sales teams per condition, however, these results should be treated as largely anecdotal. Taken together though, the studies reviewed in this section suggest that the benefits of prosocial spending might extend beyond happiness.

How long do the benefits of prosocial spending last? Most of the experimental studies we have described in this chapter have measured how participants felt immediately after spending money on others or at the end of that day, leaving open the question of how long the benefits of prosocial spending last. A central tenet of research on happiness is that human beings exhibit *hedonic adaptation*, whereby the pleasure provided by any one life experience quickly fades (e.g., Lyubomirsky, 2010). Thus, we would not expect people to experience enduring happiness from *any* single small expenditure (except perhaps when they are

prompted to reminisce about it). But even if each instance of prosocial spending yields relatively fleeting feelings of pleasure, daily life affords numerous opportunities to spend money on others, potentially providing frequent small doses of joy.

Although such repetition might also undercut the pleasure of helping others, O'Brien and Kassirer (2019) recently demonstrated that "giving may be slow to grow old" (p. 194). In a pre-registered experiment (Study 1), they provided participants at the University of Chicago with a set of five \$5 bills and told them to spend one of the bills each day for five days—with the catch that they had to use the money in exactly the same way each day. Some participants ($n = 54$) were assigned to spend the money on gifts for themselves, while other participants ($n = 59$) were assigned to spend the money on gifts for others. Consistent with past research on hedonic adaptation, the happiness participants derived from buying gifts for themselves dropped steadily with each passing day; in contrast, people continued to derive happiness benefits from buying gifts for others, with little decline over the course of 5 days. This research suggests that prosocial spending is relatively immune to the effects of hedonic adaptation, such that people may continue to derive pleasure from repeatedly spending money on others over time.

Does it matter if it's your own money? In our original experiment on prosocial spending, we gave participants a windfall of cash (\$5 or \$20) to spend that day, provoking questions about whether the emotional benefits of spending on others might be limited to spending "free money." That is, perhaps people would not derive pleasure from spending on others if they had to part with their own hard-earned cash. In contrast to this possibility, as reviewed in the preceding section, our subsequent studies using the recollection paradigm

showed that people feel happier when reflecting on a time when they spent their *own* money on someone else (versus themselves).

One very small study examined this windfall issue directly (Geenan et al., 2014). All participants completed a mundane task—sorting paperclips—and were paid 4 euros afterward. The payment was presented as a wage for half the participants, and as a windfall for the others. They were then randomly assigned to spend the money on others or themselves that day. At the end of the day, participants in the prosocial spending condition reported greater happiness than those in the personal spending condition (controlling for baseline happiness), and this effect was not moderated by whether the money was presented as a windfall or a wage. However, because each of the 4 conditions included only 17 participants and interaction effects require especially large sample to detect, this null effect provides little evidential value.

We would speculate that people may actually derive greater emotional benefits from spending on others when doing so comes at some personal cost. From an evolutionary perspective, an emotional boost should have evolved as a proximate mechanism to encourage people to engage in costly giving, which would otherwise be unlikely to occur. For this reason, in studies that entail giving people money and asking them to spend it, we take pains to give people a sense of ownership over the money by, for example, asking them to sign for it and put the cash in their wallet. Providing some evidence that costly giving is more rewarding than non-costly giving, we find that toddlers exhibit greater happiness when giving away one of their own treats than when giving away an identical treat that the experimenter “found” (Aknin, Hamlin & Dunn, 2012).

Do people recognize the emotional benefits of giving? Given that spending money on others can promote happiness, it is somewhat puzzling that charities often struggle to solicit donations. One possible explanation for this apparent paradox is that people fail to recognize how good giving would make them feel, exhibiting an affective forecasting error (Wilson & Gilbert, 2003). To explore this possibility, we told UBC students about the four conditions of our original experiment—in which participants spent either \$5 or \$20 on themselves or others—and asked them to rank which condition would make them the happiest. Of the 109 participants in our study, a significant majority ($n = 69$) thought they would be happier if they were assigned to spend money on themselves.

This is not to say that people never recognize the emotional benefits of generosity. People exhibit high levels of prosocial spending during certain holiday seasons (e.g., “The Giving Season” in December), which suggests that these temporal contexts might spur enhanced recognition of the emotional benefits of giving. To explore this idea, we again asked participants to consider spending \$5 or \$20 on themselves vs. others and to predict which type of spending would make them happiest—but we ran the study during the Christmas holiday season and varied whether the study was entitled the “Daily Habits Study” or the “Holiday Season Study” (Aknin, Dunn, & Norton, 2008). Of the 22 participants in the “Daily Habits Study,” 16 predicted that personal spending would make them happiest, whereas only 9 out of 22 participants did so in the “Holiday Season Study.” We replicated this effect in May, by running studies entitled either “Mother’s Day Study” or “Daily Habits Study.” Once again, participants were more likely to recognize the emotional benefits of generosity when they were reminded of the upcoming holiday (we observed a similar—but weaker—pattern in June when we

conducted a “Father’s Day Study”). Although these studies were never submitted for publication, they provide an intriguing clue that temporal reminders can nudge people toward appreciating the emotional benefits of giving.

More broadly, drawing on construal level theory (Trope & Liberman, 2010), we reasoned that people may be inclined to recognize the good feelings that giving can produce when they think about giving at a relatively abstract level. In one study, Mturk participants imagined receiving \$10 and deciding to give a small amount of this money (\$3) or a majority of this money (\$7) to another person they had not met, who had not received any money. Half the participants were asked to think about this decision more abstractly, focusing on its importance and meaning and connection to their past and future. The others were asked to take a more concrete approach, focusing on the specific contents of their thoughts and feelings about this decision. When participants imagined giving most of the money away, they expected to feel happier if they thought about it abstractly ($n = 44$) vs. concretely ($n = 51$); there was no effect of construal level when participants imagined giving away only a few dollars.

Aside from construal level, many other variables may shape people’s affective forecasts about giving. In an older study of 62 college students (Harris, 1977), participants reported that giving a dime to a person asking for money on the street would *lower* their mood, whereas they predicted that giving money to the March of Dimes (a charity devoted to protecting infant health) would improve their mood. This finding points to the possibility that people may anticipate more positive feelings when they think about giving to a highly sympathetic cause (infants vs. panhandlers). It would also be interesting to investigate whether people are more likely to predict that prosocial spending will make them happy when the giving opportunity

offers the chance to fulfill needs for competence, autonomy, or relatedness. In sum, the existing literature provides some intriguing clues—but few clear conclusions—about when and under what conditions people anticipate joy from giving. Shedding light on this topic could be very valuable for encouraging people to give money to charity.

Does the amount you give matter? Looking across our studies, an intriguing conclusion emerges: Even giving a very small amount of money can produce measurable benefits for happiness. In our oft-used goody bag paradigm, participants spent just \$2.50 CAD (which they earned for completing a survey), and in one online study, participants donated just \$1 CAD (Hanniball et al., 2019). Still, in studies in which participants have been allowed to choose how much money to give away, we typically see that giving more money leads to experiencing more happiness (Aknin, Dunn, Sandstrom, & Norton, 2013; Aknin, Dunn, Whillans, Grant, & Norton, 2013, Study 1; Dunn, Aknin, & Norton, 2008, Study 1; Dunn, Ashton-James, Hanson, & Aknin, 2010). We would speculate that the amount people give does not directly influence how happy they feel afterward, but rather that giving larger amounts increases the likelihood that people will perceive that they have made a positive impact on the recipient. This also points to the possibility that when people are able to envision how even a small donation might make a difference, they are likely to reap emotional benefits from giving even a seemingly trivial amount of money.

The emotional benefits of giving small amounts may also depend on important reference points, such as how much people have available to give. For example, giving \$1 may feel like a generous action when participants are paid \$1 and asked whether they want to give it away—but this same donation might seem shameful when people are paid \$10 and choose to

give away just \$1. Similarly, people may feel very positively about giving \$1000 per year away when they are struggling young musicians, but might feel embarrassed about this same level of giving after becoming successful rock stars. That said, it is possible that people who gradually climb the income ladder may sometimes fail to re-evaluate their own level of giving, suggesting that reminding people of how their socioeconomic status has changed over time could provide one pathway to encouraging increased generosity.

When it comes to giving to friends and family, the amount of time people spend with their loved ones may matter more than the amount of money they spend. For example, taking a friend out for dinner might provoke more happiness than sending the friend a more expensive gift in the mail. Understanding how people navigate trade-offs between time and money when giving to others is an interesting—and largely unstudied—topic for future research.

Does “prosocial spending” make sense as a construct? In our foundational work on this topic, we defined prosocial spending very broadly, as “investing income in others rather than oneself” (p. 1687, Dunn et al., 2008). In our subsequent cross-cultural work, we specified that prosocial spending encompassed “donations to charities, gifts for friends and family, and a wide range of other expenditures, such as buying coffee for an acquaintance” (p. 637, Aknin et al., 2013). We intentionally focused our definition around behaviors rather than motives, given that individuals often cannot report the true reasons for their own choices (e.g., Nisbett & Wilson, 1977).

Although this working definition of prosocial spending has yielded new discoveries and replicable findings, pointing to its utility, it is worth questioning whether prosocial spending represents a unitary construct. For example, does it really make sense to lump buying a

birthday gift for your niece with donating money to the Red Cross after a natural disaster? These spending behaviors appear very different on the surface—and may be motivated by quite different concerns, from avoiding familial disapproval to seeking a tax receipt, respectively. But, importantly, both spending choices involve sacrificing resources that could have been spent on oneself. Consistent with our assumption that this represent an important unifying feature, we have observed that diverse forms of prosocial spending produce greater happiness than using those same resources to benefit oneself. Broadly speaking, we also see that key moderators (e.g., impact) exert similar effects across different type of prosocial spending.

One of the most famous quotes about science—often attributed to Albert Einstein—is that, “Everything should be made as simple as possible, but not simpler.” We have started by making the construct of prosocial spending as simple as possible, but future research could tackle this issue more directly by unpacking its full complexity.

It is also important to note that prosocial spending represents a relatively small fraction of most people’s total spending (Dunn, Aknin & Norton, 2008, Study 1). Thus, to provide a fuller window into how people can use money as a tool to promote happiness, we also need to consider how they use discretionary income to benefit themselves. To this end, in the next section, we discuss our newer line of research on “buying time.”

Buying Time

As discussed at the outset of this chapter, a seminal early line of research demonstrated that buying experiences, such as vacations or concert tickets, provides more happiness than buying material things (e.g., Gilovich & Kumar, 2015). Whereas this work focuses on the

benefits of accruing positive experiences, there may also be value in *removing* negative experiences. This spending strategy may be particularly valuable for people who feel pressed for time—an increasingly prevalent problem of modern life. In a survey of 2.5 million Americans surveyed between 2008-2017, 80% reported feeling like they did not have time to do what they wanted or needed to do (Whillans, 2019). This feeling of time stress had a stronger detrimental effect on subjective well-being than unemployment.

In theory, money and time are largely interchangeable resources (Leclerc, Schmitt & Dube, 1995; Okada & Hoch, 2004; Zauberaman & Lynch, 2005). People with more money, then, should have more control over how they spend their time. For example, they can hire a housecleaner or pay a premium to live closer to work. Yet, wealthier individuals actually report greater feelings of time stress—an effect that emerges in diverse cultural contexts including Europe, Asia, and North America (Hamermesh & Lee, 2007; DeVoe & Pfeffer, 2011). In a survey of over 30,000 Americans, people with higher incomes reported higher levels of stress (DeVoe & Pfeffer, 2011). Using data from the American Time Use Survey³, which includes a large, representative sample of Americans (N = 49,978), we found that people who made more money spent more time working and commuting—activities that are associated with elevated levels of stress (for these analyses, see: <https://osf.io/tgkn4/>).⁴

As well as shaping what people *do* with their time, wealth also influences how people *think* about their time. When people make more money, their time becomes more valuable.

³ For details on ATUS methods, see: <http://www.bls.gov/tus/home.htm>.

⁴ Pointing to a potential boundary condition of the relationship between income and spending time on stressful activities, we have observed that very high net-worth individuals in the Netherlands do in fact appear to utilize their financial resources to spend time in happier ways (Smeets, Whillans, Bekkers & Norton, 2019).

There is a well-documented relationship between scarcity and value (DeVoe & Pfeffer, 2011; Lynn, 1991; Shah, Shafir & Mullainathan, 2015), whereby a resource that is perceived as valuable tends to also be perceived as scarce. As people climb the income ladder, then, they are more likely to feel that their time is increasingly scarce—potentially exacerbating feelings of time stress (DeVoe & Pfeffer, 2011). These results suggest that there is a hydraulic relationship between financial affluence and time affluence.

Thus, it is critical to consider how people navigate trade-offs between time and money. Using correlational, longitudinal, and experimental studies conducted on three continents, we have found empirical support for the idea that people are better off when they give up money to have more time. We have examined this idea both by asking people about their specific spending decisions, as well as about their broader orientations regarding trade-offs between time and money.

Buying Time as a Specific Spending Strategy

One of the most obvious ways to buy time is simply to pay for help with the unpleasant, time-consuming tasks of daily life. Drawing on the theorizing discussed above, we reasoned that people who use money to buy their way out of disliked tasks should be happier than those who do not. To provide an initial test of this idea, we surveyed a nationally representative sample of employed Americans (N = 1260), Canadians recruited from train stations and public markets (N = 326), Americans on Mturk (N = 366), Danish adults (N = 467), a nationally representative sample of Dutch adults (N = 1232), and a large sample of Dutch millionaires (N = 818; Whillans et al., 2017, Studies 1-6). All participants were asked, “In a typical month, do you spend any money to outsource tasks (for example, household chores, shopping) to others that

you dislike spending time doing?” Across these samples, only about 28% of participants reported spending money to outsource their disliked tasks to others. As would be expected, we observed the highest rates among millionaires, but even in this wealthy sample, only 60% reported spending *any* money on outsourcing even though they likely had the means to do so.

All participants in our samples were also asked to rate their life satisfaction and to complete demographic measures. Across surveys of roughly 4,000 participants, we found that people who spent money to outsource disliked tasks in a typical month reported greater life satisfaction ($d = .24$). This effect was largely unchanged ($d = .22$) after controlling for key demographic variables, including household income, age, gender, number of hours worked per week, marital status, and the number of children living at home. Attesting to the robustness of this effect (see Figure 6), the relationship between outsourcing and life satisfaction was significant within the majority of our samples, including the representative sample of employed Americans ($d = .36$), Canadian adults ($d = .36$), Danish adults ($d = .41$), and Dutch millionaires ($d = .20$). This relationship was marginally significant for the representative sample of Dutch adults ($d = .11$), but did not reach significance for Mturkers ($d = .05$), who reported the lowest rates of outsourcing (16%). Based on these data, we would speculate that conducting research on time-money trade-offs using standard Mturk samples may produce atypical results as compared to more representative samples, perhaps in part because participants on Mturk are willing to sacrifice their time for very small amounts of money.

Although our focus in this research was on *whether* people spent money outsourcing, we also asked participants *how much* money they spent. Among those who reported outsourcing across our American, Canadian, Dutch, and Danish samples, the average participant

spent close to \$150 US per month. However, the amount of money that they spent was not consistently related to their life satisfaction.

The fact that we posed the same questions about outsourcing to diverse samples across multiple countries allows for easy comparison of the results, but it could mean that our findings were dependent on the specific (and somewhat quirky) wording that we used. In particular, the wording of our question may have been too narrow, potentially explaining the rather low rates of outsourcing we observed. Thus, we conducted an additional study with working adults in the United States, recruited through Qualtrics (N = 1,802; Whillans et al, 2017, Study 7), which we pre-registered. We asked participants a more carefully crafted question, which we would encourage researchers to use in follow-up work. While retaining our single-item format, this question was designed to capture a broader range of time-saving purchases, beyond outsourcing:

In a typical month, do you spend any money on time-saving purchases? Specifically, do you spend any money with the primary intention of acquiring free time: a purchase that allows you to have more free time? For example, do you spend any money to take a taxi instead of the bus, to purchase household services (e.g., lawn-mowing, laundry, or housecleaning services), to use online services (online accounting software and research services), or to purchase more expensive groceries from a closer grocery store? [Yes or No]

In response to this broader question, 50% of participants reported spending money on time-saving purchases in a typical month. Following our pre-registered analysis plan, we found that participants who spent money in this way reported greater life satisfaction ($d = .24$). This

effect held controlling for our standard set of covariates, including income, age, gender, marital status, and number of kids living at home ($d = .23$).

Even though we controlled for income, it is possible that the relationship between time-saving purchases and happiness might still be explained by wealth, given that income provides an imperfect proxy for wealth. It is also possible that the decision to spend money on time-saving purchases might reflect an individuals' discretionary income. As a result, we controlled for non-durable spending (i.e., the amount that respondents spent on groceries in a typical month) as well as how much money people spent on material and experiential purchases in a typical month (Headey, Muffels & Wooden, 2004; Van Boven & Gilovich, 2003). If people were happier only because they had more discretionary income, then controlling for these spending indicators should have eliminated the benefits of time-saving purchases. In contrast to this possibility, when we controlled for these indicators, the association between time-saving purchases and well-being remained significant ($B = 0.23$ with standard controls; $B = 0.15$ with standard controls and controls for the amount that respondents spent on groceries, material, and experiential purchases).

Because it is almost impossible to fully account for every potential confound, experimental methodology is essential in establishing causal relationships. To this end, we conducted a pre-registered field experiment in which we recruited working adults at a science museum, as well as through Craigslist (Whillans et al., 2017, Study 8). Using a within-subjects design ($N = 60$), we provided participants with \$40 to spend on each of two weekends. On one weekend, participants were assigned to spend this money on a time-saving purchase, in "any way that would save time." On another weekend, to control for the experience of receiving and

spending a windfall, the same individuals were asked to spend their \$40 payment on a material purchase for themselves. The order of spending was counterbalanced. To ensure that everyone would be able to follow our spending instructions, all participants had to generate a plan for how and when they would spend each payment, and they were reminded of their plan the day before spending.

When people were instructed to spend money on time-saving purchases, they frequently took cabs rather than the bus, ordered takeout, or had groceries delivered. One woman described paying “the neighborhood boy” to pick up a cell-phone battery for her at the local mall. When they were instructed to buy material things, participants bought clothes, books, board games and other items they wanted. At the end of each spending day, participants completed an online survey that included the Scale of Positive and Negative Emotions (SPANE; Diener et al., 2010). Following our pre-registered analysis plan, we found that people reported higher positive affect ($d = .33$) and lower negative affect ($d = .30$) on the day they made a time-saving purchase compared to the day they made a material purchase.

It is important to recognize that time-saving purchases might differ from material purchases on a number of dimensions, which we asked participants about at the end of our survey. While we found no differences between conditions in how fun or high in social status the purchases were, participants rated their material purchases as slightly more likely to be a one-time expense. They also rated time-saving purchases as being more helpful. Importantly, after controlling for these differences, participants still felt more positive affect and less negative affect after making a time-saving (vs. material) purchase.

Converging evidence for the happiness benefits of time-saving purchases comes from studies that have examined the emotional benefits of time-saving gifts. Across seven studies (N = 2,558), working Americans reported feeling greater happiness after receiving gifts that saved time as compared to receiving gifts that saved money (Lee-Yoon, Donnelly & Whillans, 2019). Taken together, our research provides evidence that there is a small, but robust association between buying time and happiness. Although this relationship may be bi-directional, our experimental work demonstrates that spending money on time-saving purchases can increase happiness on a given day.

Of course, making time-saving purchases represents just one way in which people could choose to exchange money for time. Individuals might also choose to work fewer hours in order to have more free time, or to structure their lives in other ways that prioritize time over money, such as buying a condo in the city center to minimize commuting. Just as the specific choice to make time-saving purchases in a typical month promotes happiness, the broader orientation to prioritize time over money may also be associated with greater happiness.

Buying Time as a Broad Orientation

To begin to understand how people think about trade-offs between time and money more broadly, we developed a simple single-item measure, called the Resource Orientation Measure (ROM; Whillans et al., 2016). We presented people with descriptions of two individuals, Tina and Maggie:

Tina values her **time** more than her money. She is willing to sacrifice 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 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.

Respondents choose who is more similar to them; they are always presented with protagonists who are matched to their own gender (men read about Tom and Michael, while those who do not select a gender category read about Taylor and Morgan). We ask people which protagonist they identify with more because there is evidence that people answer more honestly when they are asked about themselves indirectly, such as by answering about a peer (Fisher, 1993). Because people underreport their interest in owning nice things and making money (Christopher, Lasane, Troisi & Park, 2007), it is important to encourage honest responding by using indirect questioning. Although longer scales are more reliable, we utilized a single-item approach to enable data collection with large and diverse samples.

Using the ROM, we typically observe a fairly even split between those who report valuing time versus money, with a slight majority favoring time (Whillans et al., 2016). The ROM demonstrates good test-retest reliability; over 80% of people provide the same answer three months apart (Whillans et al., 2016, Study 1). The ROM is also distinct from related constructs, correlating only moderately with materialism ($r = .33$) and showing little correspondence with conscientiousness ($r = .08$) or how pressed for time or money people feel in the moment (r 's $< .11$; Whillans et al., 2016, Study 2a). People's responses on the ROM also predict their hypothetical choices when faced with a variety of scenarios, such as choosing between a cheaper flight with a longer layover versus a more expensive direct flight. Further supporting the predictive validity of this measure, people who report valuing time over money on the ROM

are more likely to select a housecleaning voucher over a cash prize when offered a lottery ticket (Whillans et al., 2016, Study 2b).

Using the ROM, we consistently find that people who value time over money are happier. We asked 242 undergraduates at the University of British Columbia (UBC) to complete the ROM, as well as measures of positive affect, negative affect, and life satisfaction, which we combined to form a composite measure of subjective well-being (SWB; Whillans et al., 2016, Study 2a). Individuals who valued time over money exhibited greater SWB ($d = .30$). We replicated this finding with a larger sample of more than 2300 students, although this study yielded a smaller effect size ($d = .10$; Whillans et al., 2016, Study 2b). Moving beyond student samples, we recruited a nationally representative sample of 1265 working adults in the United States and asked them to complete the ROM and a two-item measure of life satisfaction (Whillans et al., 2016, Study 4). Participants who valued time over money reported higher life satisfaction ($d = .18$), and this effect held controlling for income, education, age, marital status, number of children living at home, and number of work hours per week. In our data, the beneficial effect of valuing time over money was about half the size of being married (or in a marriage-like relationship) versus single. Combining across all of our initial studies ($N = 4,328$; Whillans et al., 2016), we see a small, but reliable effect ($d = .14$), whereby people who value time over money report higher SWB than those who value money over time. This relationship holds for all three facets of subjective well-being, but appears somewhat stronger for life satisfaction, followed by positive mood, with weaker and more inconsistent effects on negative mood.

Complementing our research using the ROM, an independent team of researchers asked participants whether they would rather have more time or more money (Hershfield, Mogilner, & Barnea, 2016). Across thousands of adults, drawn primarily from MTurk, only a minority (36%) reported wanting more time, but these individuals were happier compared to people who wanted more money. This effect was small but significant after controlling for demographic variables such as age and income, and it was not explained by the amount of time or money participants currently had available. The convergence of these findings with our own, suggests that the positive effect of prioritizing time over money does not hinge on how the question is asked.

Cross-sectional data are inherently limited, however, precluding inferences about whether the tendency to prioritize time over money *causes* greater happiness or vice versa. Although we theorized that prioritizing time leads to greater happiness, it is also plausible that happier people might choose to prioritize time. To begin to disentangle these possibilities, we studied individuals who were on the brink of a critical life transition—graduating from university—and tracked their priorities, feelings, and choices over time. During the final year of their undergraduate degree (Time 1), over a thousand students at the University of British Columbia reported whether they prioritized time or money on the ROM (Whillans, Macchia, & Dunn, 2019). Most of them (N = 823) also rated their current life satisfaction on the Cantril ladder (Cantril, 1965) and their positive and negative emotions over the preceding four weeks on the SPANE (Diener et al., 2009), which we combined to form an overall index of subjective well-being. Approximately one year after graduating (Time 2), the same individuals rated their life satisfaction and recent emotions, using the same measures as at Time 1. After controlling

for their initial happiness, individuals who reported prioritizing time over money during their final year of college reported greater happiness 12-24 months after graduating ($d = .12$). This effect held controlling for socioeconomic background, gender, and materialism. In contrast, participants' happiness at Time 1 did not predict their responses to the ROM at Time 2, controlling for their responses to the ROM at Time 1. Although experimental manipulations are necessary to enable clear causal conclusions, this longitudinal study provides the strongest evidence to date that the broad proclivity to prioritize time over money predicts subsequent well-being.

How and Why Does Trading Money for Time Promote Happiness?

Recent research suggests that trading money for time may promote happiness through multiple pathways. At the broadest level, people who prioritize time may be more inclined to use their time in emotionally satisfying ways (Hershfield et al., 2016; Whillans et al., 2016). Providing the first evidence in support of this idea, we saw that people who prioritized time on the ROM reported working fewer hours and spending more time volunteering compared to those who prioritized money (Whillans et al., 2016, Study 4).

Socializing. One of the most enjoyable activities in most people's day is socializing (e.g., Krueger et al., 2009; for recent analyses using the American Time Use Survey, see: <https://osf.io/tgkn4/>), and researchers have argued that simply thinking about time makes people more inclined to invest in social activities and social relationships (Aaker, Rudd, & Mogilner, 2011; Mogilner, 2010). Thus, we hypothesized that people who prioritize time over money would be more willing to initiate new social relationships. We asked 127 UBC students to complete the ROM and to tell us how they had used their time in the past 7 days (Whillans &

Dunn, 2018, Study 1). Specifically, they reported the percent of time they had spent socializing with new peers they had met since starting university, among other activities (including working, studying, and attending class). Participants who prioritized time over money reported spending more time socializing with their university peers, compared to people who prioritized money over time ($d = 0.52$). This effect held controlling for how pressed for time students felt, as well as their extraversion, conscientiousness, age, gender, and ethnicity.

Going beyond self-report, we collected observational data from 358 UBC students, who had completed the ROM during pre-screening at the beginning of the school year (Whillans & Dunn, 2018, Study 2). These participants signed up for a one-hour lab study, for which they received course credit. After spending 35 minutes on a lab task, they were asked to have a conversation with another participant (who was actually a confederate trained to behave in a standardized manner). Importantly, participants were instructed to talk to the other person for as long as they wanted in order to get to know the other person sufficiently, and then both people would be free to leave. The research assistant handed the confederate a stack of 12 slips of paper, each containing one question from the Fast Friends paradigm; these questions are designed to enable people to get to know each other (Aron, Aron, & Smollan, 1992; Page-Gould, Mendoza-Denton, & Tropp, 2008). For example, the stack included questions such as, “Before making a telephone call, do you ever rehearse what you are going to say?” and “When did you last sing to yourself?” The participant was assigned—ostensibly at random—to read each question aloud. Next, the confederate provided a true, but standardized response before participants responded to the question. After both the confederate and participant had responded, the participant was assigned to decide whether they should continue getting to

know each other by proceeding with the next question, or to terminate the study before the end of the full hour.

The amount of time participants chose to keep talking and the number of questions they completed were our primary dependent measures, providing an index of how willing individuals were to invest time in getting to know a new peer. After the interaction ended, both the participant and the confederate completed a brief questionnaire in separate rooms, rating how close they felt to the other person (e.g., “How close do you feel to the other participant in the study?”) and how interested they were in becoming friends with the other person (e.g., “In the future, to what extent do you feel you could be friends with the other participant in the study?”). Participants who had previously reported prioritizing time on the ROM answered more questions ($d = .29$) and spent 18% more time getting to know their partner ($d = .33$) compared to those who had reported prioritizing money. Almost 30% of participants who valued time chose to keep talking until the end of the one-hour lab session, whereas less than 20% of those who valued money remained in the lab for the entire hour. These results held after controlling for gender, age, ethnicity, and socioeconomic background. Interestingly, participants’ responses on the ROM were unrelated to how much the confederates reported enjoying interacting with them and wanting to be friends with them. Taken together, our results suggest that people who prioritize time over money are not necessarily more socially skilled, but are simply willing to invest more time in getting to know their peers.

Given the central importance of social relationships for happiness (e.g., Diener, Seligman, Choi, & Oishi, 2018), it seems highly plausible that prioritizing time over money promotes well-being to the extent that this broad orientation propels greater investment in

building social relationships. Consistent with this reasoning, Hershfield et al (2016) found that, among people who said they would like to have more time (vs. money), those who reported that they would spend their additional time on others exhibited greater happiness.

Similar effects emerge when it comes to people's specific decisions about whether to spend money on time-saving services. As part of the American Time Use Survey (ATUS)⁵, over 37,000 people recorded how they spent time over the preceding 24 hours, with half assigned to complete this report for a weekday and half for a weekend day (Whillans, 2017). Of these respondents, 545 reported using time-saving services such as lawncare or housecleaning. Respondents who bought time reported greater happiness—but only if this purchase occurred on the weekend, a time when they presumably had more opportunities to socialize. Indeed, people who spent money on time-saving services reported spending approximately 30 minutes longer socializing with friends and family on that day, compared to people who did not purchase time-saving services. The increased time participants spent socializing partially explained the beneficial effect of time-saving services on happiness that day. These results are consistent with exploratory analyses from our experiment in which participants were given \$40 to spend on the weekend (Whillans et al., 2017): When participants were told to make a time-saving purchase, 28% of participants spent their additional free time socializing with friends and family, which positively predicted participants' end-of-day happiness.

This finding points to the possibility that people who buy time may experience greater relationship satisfaction. To explore this possibility, we conducted nine studies with over four-thousand working adults in committed romantic relationships (Whillans, Pow & Norton, 2019).

⁵ For our analyses, see <https://osf.io/amdbdk/>

Across studies, we asked participants, “In a typical month, do you and your partner spend any money on time-saving purchases?” Elaborating on this question, we provided the same wording we developed in our previous research to describe the broad variety of forms this spending might take (Whillans et al., 2017, Study 7). In an initial study, we recruited over 600 adults on Qualtrics who worked full-time and were living with a romantic partner in a married (or marriage-like) relationship (Whillans, Pow & Norton, 2019, Study 1a). As well as reporting whether they spent money on time-saving purchases, participants completed several measures of relationship satisfaction and reported how much “quality time” they spent with their partner in a typical month. Respondents who spent money on time-saving purchases exhibited greater relationship satisfaction ($d = .32$), and this effect remained significant after controlling for our standard set of covariates (e.g., age, gender, household income, etc.). Respondents who spent money on time-saving purchases reported spending more quality time with their partner, which partially mediated the beneficial effect of time-saving purchases on relationship satisfaction. In contrast, although people who spent money on time-saving purchases also reported spending less time on household chores, this reduction could not account for the beneficial effect we observed on relationship satisfaction. These results provide converging evidence for the idea that deriving benefits from buying time may hinge on using one’s increased free time to invest in social relationships.

To test this idea experimentally, we asked 400 married adults who worked full-time to write about spending approximately \$40 on a time-saving purchase, and we randomly assigned them to write about a purchase that did (or did not) enable them to spend their additional free time with their partner (Whillans, Pow & Norton, 2019, Study 4a). Across both conditions,

participants wrote about making similar purchases like ordering take-out, having their house cleaned, and hiring someone to complete their yard work. After writing about a purchase that enabled them to spend time with their partner, participants reported that the purchase had made them feel more connected to and supported by their partner, compared to participants who made a time-saving purchase that did not increase the amount of time they spent with their partner. In sum, a growing body of evidence suggests that buying time promotes happiness to the extent that this spending strategy enables individuals to invest in building social relationships.

Managing daily stress. As well as enabling people to spend more time with peers and loved ones, buying time may promote well-being by protecting people from the negative effects of daily stress. Our first studies on the benefits of buying time provided initial evidence for the notion that buying time protects people from the detrimental effects of daily stress (Whillans et al., 2017). Across studies, we asked over 2300 respondents how overwhelmed they felt by the demands of daily life; they rated their agreement with items such as “I have felt like things have been really hectic” (Whillans et al., 2017, Studies 1-6). Among individuals who did not use money to buy time, we found the typically observed relationship whereby greater time stress was associated with lower life satisfaction. This relationship was significantly attenuated, however, for individuals who used money to buy time.

Importantly, at the cross-sectional level, people who use money to buy time report relatively high levels of stress, and presumably spend money on time-saving purchases to help alleviate the stress they experience. Cross-sectional designs therefore make it difficult to detect any direct relationship between buying time and reduced stress. Going beyond correlational

approaches, in our field experiment (Whillans et al 2017, Study 8), we examined whether participants who were randomly assigned to spend money on a time-saving purchase would report lower feelings of time stress on that day. Consistent with our theorizing, spending \$40 on a time-saving purchase led people to experience lower feelings of subjective time pressure, which largely explained the boost in mood they exhibited that day (see Figure 7).

We found converging evidence for our theorizing in a 6-week daily diary study of working adults in committed romantic relationships (N = 79; Whillans, Pow & Norton, 2019, Study 5). On days that people experienced higher than average levels of stress, they were more likely to make time-saving purchases. In turn, these purchases protected people from the negative impact of stress on end-of-day positive mood. Thus, buying time may promote well-being in part by mitigating the pernicious effects of daily stressors.

Major life decisions. As well as predicting how people manage stress on a daily basis, the trade-offs people make between time and money may shape the ways they navigate major life decisions. In our study of over a thousand graduating UBC students (Whillans, Macchia, & Dunn, 2019), individuals who reported prioritizing time prior to graduation were more likely to pursue graduate school compared to people who reported prioritizing money. In contrast, people who prioritized money were more likely to enter full-time employment following graduation. Whether they sought further schooling, employment, or some other activity, those who reported prioritizing time were more likely to pursue intrinsically motivated activities. This pursuit of intrinsically motivated activities helped to explain why people who valued time over money before graduating reported greater SWB over a year later. Although deciding what to do after graduation is a particularly consequential choice, we would theorize that the proclivity to

prioritize time should also shape other major life decisions. For example, people who value time over money may be more inclined to take time off from work after having children or retire at the first available opportunity. Further longitudinal research is needed to understand how prioritizing time alters trajectories of well-being at critical junctures in people's lives.

Are the Benefits of Buying Time Universal?

Whereas the emotional benefits of prosocial spending appear to be largely universal, the benefits of buying time may be more circumscribed. Our research to date has focused on relatively affluent individuals living in developed countries. An important next direction for this program of research is to better understand whether buying time benefits individuals living in diverse socioeconomic and cultural contexts. We would speculate that the benefits of buying time may hinge on individual differences and the broader social context, as detailed below.

Socioeconomic context. It stands to reason that people who are struggling to make ends meet might be better off saving money by not purchasing time-saving services. Interestingly, however, the link between buying time and life satisfaction was not moderated by household income in our correlational studies of working adults living in the United States, Canada, Denmark, and the Netherlands (Whillans et al., 2017). Because we were studying working adults in developed countries, most of our respondents were presumably able to meet their own basic needs. We are currently conducting a large-scale experimental study in East Africa to examine the benefits of providing working women living below the poverty line with vouchers for services that save time (e.g., meals and laundry; Whillans & West, 2019). Conceivably, the benefits of time-saving services might be particularly pronounced in developing countries where infrastructure such as roads and highways are less developed and

where running simple errands can take many hours. Buying time could therefore have the most impact for poor people in developing countries for whom daily tasks carry substantial time and productivity costs.

In considering the role of socioeconomic factors, it is important to consider financial variables other than just income. For example, when people have at least some discretionary income, the objective amount of income they earn may matter less than their subjective feelings of financial insecurity (e.g., Diener & Seligman, 2004; DiTella & MacCullough, 2010). In a nationally representative sample of close to 3,000 Americans, the link between prioritizing money (vs. time) and happiness was not moderated by income—but people who reported experiencing financial insecurity were happier if they prioritized money (Whillans, 2017).

Guilt. The benefits of buying time may also be attenuated to the extent that people feel guilty about delegating their disliked tasks to other individuals. To examine this idea, we asked a nationally representative sample of over 800 Americans to think of a task they would like to buy themselves out of doing, as well as how they could make this happen (Whillans, Lee-Yoon, & Dunn, 2019, Study 1b). Then, they reported how happy and how guilty they felt when thinking about this spending opportunity. People who spontaneously envisioned a specific individual taking over their disliked task reported feeling more guilt, undercutting how happy they felt about the prospect of buying time. To investigate this process experimentally, we developed a paradigm in which participants earned money for completing a dull online task (copying letter strings into a new browser window). They then had the opportunity to continue the task for another 30 minutes or use their previously earned income to buy their way out of the rest of the task, leaving them with 30 minutes of free time to spend in any way they wished.

Depending on condition, participants were either told that another student would complete the task on their behalf, or no mention was made of a specific individual completing the task. When faced with the prospect of buying their way out of this task, participants felt more guilt and less happiness if they knew that another student would have to perform this unpleasant task (Whillans, Lee-Yoon & Dunn, 2019, Study 3).

Of course, delegating a task to an identifiable service provider should only generate feelings of guilt if the task is perceived as a burden on the other person. To test this assumption, we randomly assigned 390 adults in Boston to view one of two ads for a popular outsourcing service called *Hello Alfred* (Whillans et al., 2019, Study 4). One version of the ad emphasized the benefits for consumers, whereas the other ad emphasized the benefits for the service providers themselves (in terms of personal satisfaction and career advancement). When thinking about using the service, participants experienced less guilt and more happiness when the benefits for providers (vs. consumers) were highlighted. This line of research points to the broader conclusion that the emotional rewards people derive from time-saving services may hinge on whether they perceive their own benefit as coming at another individual's expense (see Figure 8).

Protestant Work Ethic. Individuals from certain cultural backgrounds may be particularly prone to experience guilt about buying time. In particular, people who endorse the protestant work ethic—which emphasizes hard work as a moral obligation (Furnham, 1982)—may feel especially guilty about offloading their disliked tasks. Consistent with this reasoning, in two correlational studies with a total of over 1,000 participants, we found that endorsement of the protestant work ethic was linked to greater feelings of guilt about outsourcing a disliked

task (Whillans, Lee-Yoon & Dunn, 2019, Study 3). In contrast, people who remembered their parents making time-saving purchases were less likely to experience guilt, further suggesting that individuals' social and cultural backgrounds shape their emotional response to buying time.

Work Norms. The hedonic consequences of prioritizing time over money should also depend on broader social norms about time use. The typical link between time stress and happiness does not emerge in places where it is normative to work a lot of hours. Combining data from the Gallup World Poll and the US Current Population Survey (N = 954,225), we found evidence that when people live in areas where the average number of hours worked by their peers is relatively high, the negative impact of time stress is attenuated (Whillans, Ward, Collins & Norton, 2019). In contrast, when people lived in areas where the average number of hours worked by peers is relatively low, they experienced a greater negative impact of time stress on subjective well-being. This finding points to the possibility that prioritizing time over money may offer relatively few benefits when people are surrounded by others who have very little free time.

Provocative Questions and Emerging Answers

Because research on buying time is relatively new, numerous questions remain to be explored. Below, we discuss several of these open questions and outline our current thinking about possible answers.

During what phase(s) of consumption do the emotional benefits of buying time emerge? People who regularly buy time report greater life satisfaction, but it is not entirely clear when in the process of consumption these benefits emerge. Theoretically, a purchase can provide pleasure when people are looking forward to it prior to consumption (anticipatory

pleasure), during consumption (momentary pleasure), and when they reminisce about it (afterglow pleasure; for a full discussion of the time course of consumption, see Dunn & Weidman, 2015). As already discussed, our research suggests that people feel happier on the day in which they utilize time-saving services (particularly if consumption occurs on the weekends), suggesting that buying time provides momentary pleasure. To the best of our knowledge, no research has examined whether people experience anticipatory pleasure in looking forward to a time-saving purchase, but this seems somewhat unlikely, and several studies suggest that people experience little afterglow happiness when reflecting on past time-saving purchases. Across three studies (N = 1,129; Lee-Yoon, Donnelly & Whillans, 2019) participants were asked to reflect on a time when they received an experiential gift (e.g., a meal out), a time-saving gift (e.g., a housecleaning service), or a material gift (e.g., clothes or books). Participants then reported how happy each gift had made them at the time. Consistent with previous research (Chan & Mogilner, 2017), participants reported the greatest happiness after receiving an experiential gift. In contrast, participants reported the lowest amount of happiness after reflecting about receiving a time-saving gift. Taken together, existing research suggests that buying time provides momentary happiness but not afterglow happiness, although future research should more carefully delineate how happiness fluctuates across the full time-course of consumption.

Do people adapt to the benefits of time-saving services? It is likely that when people buy time on a regular basis, the benefits of time-saving services would be subject to hedonic adaptation. To promote long-term shifts in well-being, people might need to replace the time they have purchased with a regularly scheduled, rewarding activity (Mochon, Norton & Ariely,

2008). People could pair the free time they have received from hiring a housecleaner with an activity that accumulates benefits over time, such as learning a new language, going to a cross-fit class, or learning how to play guitar. Future research should examine whether and how the long-term benefits of using time-saving purchases emerge.

Does “buying time” make sense as a construct? In line with our approach to prosocial spending, we have defined “buying time” quite broadly, as any way in which people trade money for time. Thus far, we have captured this overarching construct both by investigating whether people spend money on time-saving purchases and by asking them about their broader orientation to prioritize time versus money. In pursuing these closely related lines of work, we have assumed that people’s broad orientation to prioritize time should be linked to a variety of specific decisions, including the choice to purchase time-savings services. Consistent with this assumption, across our studies, people who value time over money are more likely to make time-saving purchases. In a sample of working adults recruited in Canada (N = 515), people who valued time over money were more likely to choose an outsourcing service compared to a cash prize in a lottery (26% vs. 15%; Whillans, Weidman & Dunn, 2016, Study 2b). In a nationally representative sample of employed Americans (N = 1265), people who valued time over money were more likely to outsource their disliked tasks ($d = .11$; Whillans, Weidman & Dunn, 2016, Study 4). Across both studies, the well-being benefits of prioritizing time were partially explained by respondents’ willingness to buy time. These findings provide evidence that people’s general orientations predict their daily decision-making and have implications for happiness.

Yet, the associations between valuing time over money and making time-saving purchases were small, attesting to the fact that people's general orientations do not entirely explain people's decisions to use money to change the way that they spend their time, likely due to structural factors such as how readily available outsourcing is in the regions where individuals live (see also Ajzen & Fishbein, 1973; Kenrick & Funder, 1988; Funder, 2006). Although our research has focused primarily on the broad orientation to value time and one specific form it can take (i.e., time-saving purchases), it would be worthwhile to study the benefits of other, specific behaviors such as whether people choose to reduce work hours to have more free time or move to a more expensive apartment to reduce commuting time.

Conclusion and Integration

Taken together, our studies on prosocial spending and buying time underscore the value of conceptualizing money not only as a stable life circumstance, but also as a tool that individuals can intentionally utilize to alter their own happiness levels. Returning to our opening example of the four lottery winners who allocated their \$781 in dramatically different ways, we should not expect higher levels of income to yield higher levels of happiness directly; rather, money provides an opportunity for—but not a guarantee of—increased happiness.

Our lines of research on prosocial spending and buying time have proceeded largely independently, informed by the contributions of other collaborators (beyond the authors of the present chapter) whose expertise and ideas have shaped the direction of each line of work. Despite conceptualizing prosocial spending and buying time as distinct spending strategies, there are interesting areas of overlap between these constructs. Our recent research suggests that people are more likely to derive happiness from buying time when they believe they are

benefitting—rather than burdening—the service provider (Whillans et al., 2019). Thus, a single spending decision, such as hiring one’s chronically unemployed neighbor to help out with yard work, could potentially offer the benefits of both prosocial spending and buying time.

More broadly, the happiness benefits these two strategies provide may both be undergirded in part by the fundamental human need to belong (Baumeister & Leary, 1995; Ryan & Deci, 2000). As reviewed in detail above, individuals are especially likely to derive emotional benefits from buying time or spending on others when they do so in ways that enable them to feel connected to other people. Indeed, given this powerful common mechanism, one could argue that we should advise individuals to spend money in whatever ways will make them feel connected to people, rather than offering more specific recommendations to spend money on others or buy time.

We suspect, however, that broader advice might be difficult to apply, especially given that people are not always adept at predicting how their own choices will make them feel (e.g., Wilson & Gilbert, 2003). Consistent with previous work on experiential purchases, therefore, both lines of our research have focused on relatively concrete everyday behaviors, such as donating money to UNICEF or paying a house-cleaner, rather than more abstract psychological constructs that are often studied in our field (e.g., mortality salience, stereotype threat). A downside of this approach is that both prosocial spending and buying time are marked by some theoretical fuzziness, with their benefits running through multiple, overlapping psychological pathways. A major upside of this approach, however, is that the insights generated by these lines of research are relatively straightforward for people to apply in their everyday lives. We believe this feature helps to explain why this work has garnered such broad interest beyond our

own field, with our first paper on prosocial spending appearing in *Science* and our first paper on buying time appearing in *PNAS*. While recognizing that taking everyday behavior as a starting point means sacrificing some degree of scientific precision, we would encourage researchers who study spending behavior—and social psychology more broadly—to develop hypotheses that map on to the way individuals think about their day-to-day choices (see also Dunn & Weidman, 2015).

As well as being relatively easy to apply, the recommendations to spend money on others and buy time appear to have broad relevance across diverse populations. We are convinced by Henrich et al.'s (2010) argument that studying college students in North America provides a wildly inadequate portrait of human psychology. Acting on this conviction, we have sought out diverse samples from around the world in pursuing each line of research, although we are just beginning to extend our newer work on buying time beyond developed countries. We would speculate that the benefits of buying time might be less robust across diverse cultural contexts than the benefits of prosocial spending. As we have argued in the preceding pages, the joy of giving appears to be a fundamental component of human nature, rooted in evolution; in contrast, we think of buying time as an effective response to the more recent challenges of modern life. With this difference in mind, it is perhaps unsurprising that we have generally detected smaller effect sizes in our research on buying time than in our research on prosocial spending; of course, these differences should be interpreted with a great deal of caution since we have not examined both spending strategies within a single study.

Although we see considerable value in offering spending recommendations that are broadly applicable across diverse populations, we believe there is room to do much better.

With the advent of “big data,” it is increasingly possible for researchers to move beyond population-level recommendations, offering more individualized guidance on how to optimize the use of money to promote happiness. Highlighting the potential value of this approach, Matz, Gladstone, and Stillwell (2016) used more than 76,000 bank-transaction records to show that people who spent money on purchases that reflected their own personalities reported higher life satisfaction. Just as fitness apps allow people to track their own sleep and heart rate, financial apps allow people to track their own spending choices over time, potentially enabling insights into optimal spending strategies tailored to the person, rather than the population. By collecting detailed data on how people are spending their own money in daily life, financial apps are poised to offer more precise recommendations about how much money people should devote to each spending strategy. More broadly, these new technologies may enable us to better understand when, how, and for whom buying time and spending money on others promotes happiness, as well as illuminating the value of other salutary spending strategies that have yet to be discovered.

Figure 1

World map displaying the relationship between prosocial spending and life satisfaction around the globe (re-printed from Aknin et al., 2013).

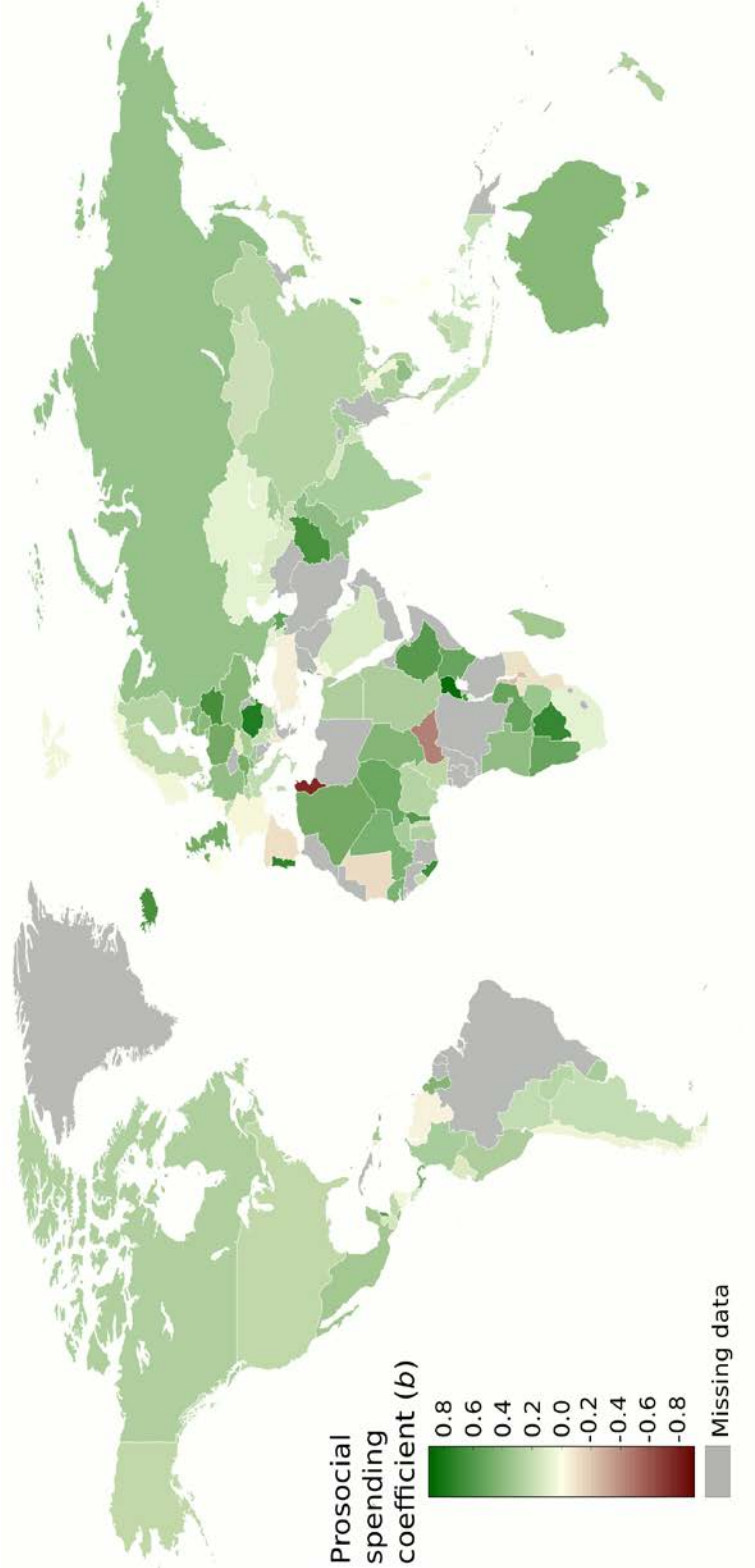


Figure 2

Five phases of the main experiment. Toddlers are introduced to the puppet in Phase A, given eight treats in Phase B, watch the experimenter give a treat to the puppet in Phase C, asked to give found treats to the puppet in Phase D, and asked to give their own treats to the puppet in Phase E. (re-printed from Aknin, Hamlin & Dunn, 2012)

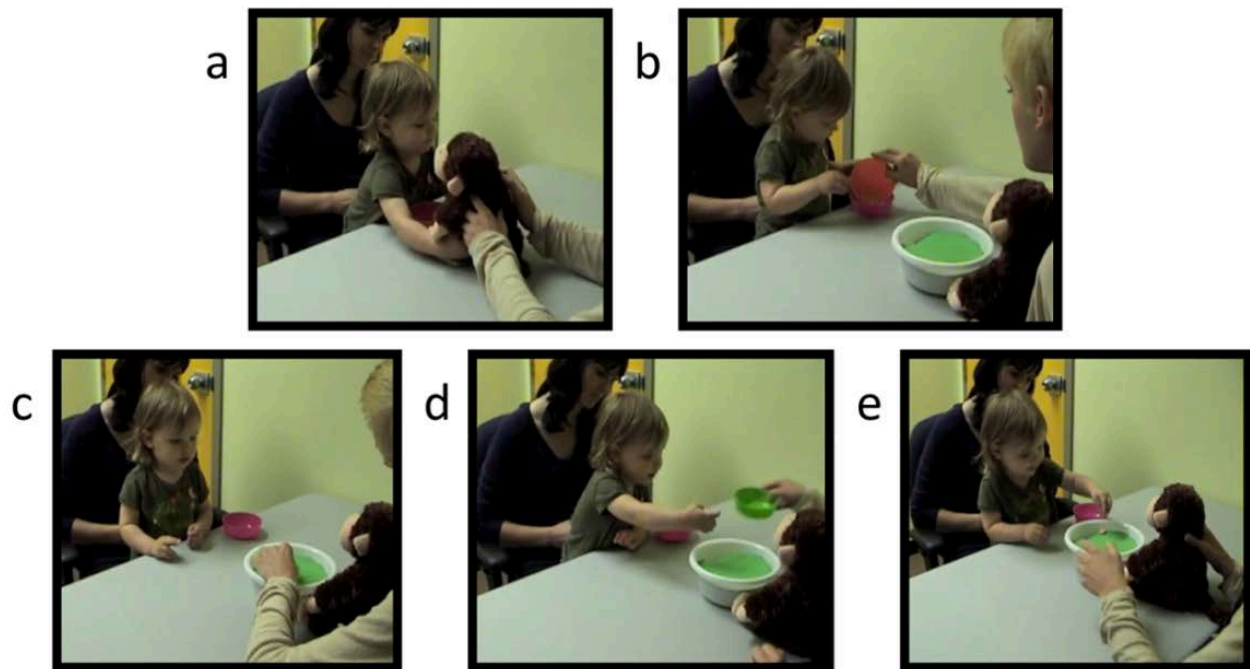


Figure 3

Toddler happiness as rated by coders in the main experiment for each of the five phases of the study (Phases A-E). (re-printed from Aknin, Hamlin & Dunn, 2012)

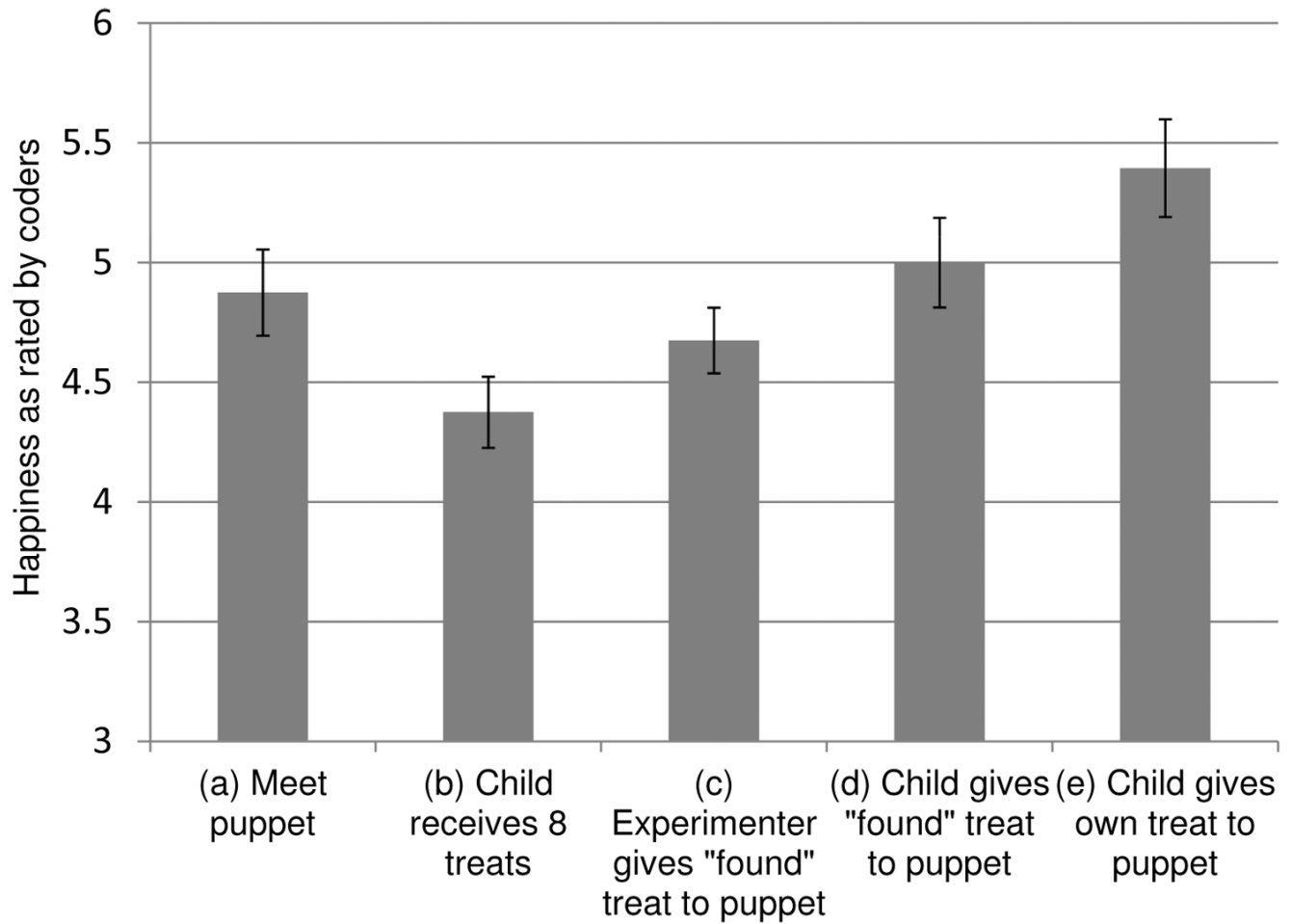


Figure 4

Average happiness ratings of children, as rated by coders, across the five experiment phases in Study 2 of Aknin, Broesch, Hamlin & Van de Vondervoort (2015).

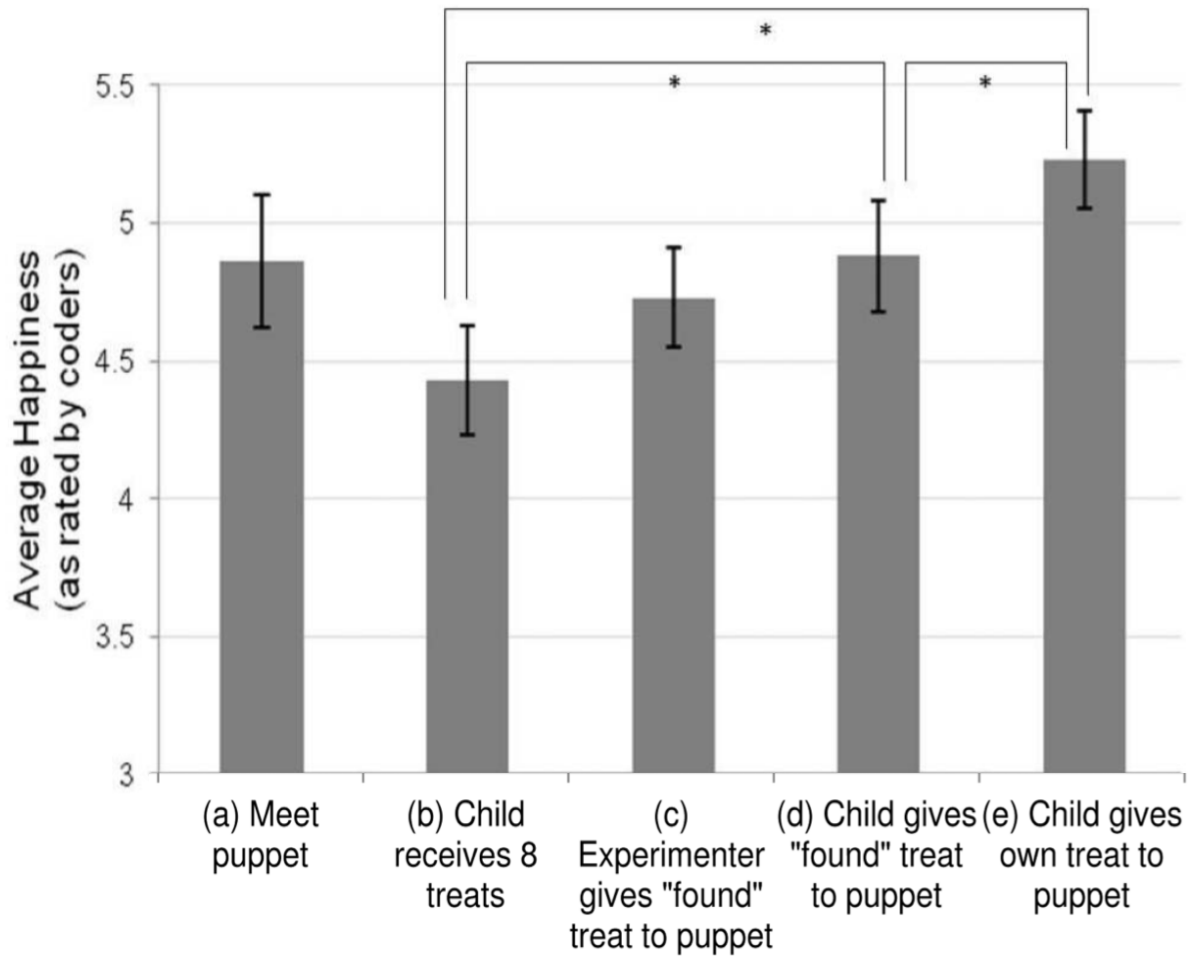


Figure 5

Relationship between the amount of money given to the target charity (Spread the Net or UNICEF) and post-donation happiness in Study 1 of Aknin, Dunn, Whillans, Grant, & Norton (2013).

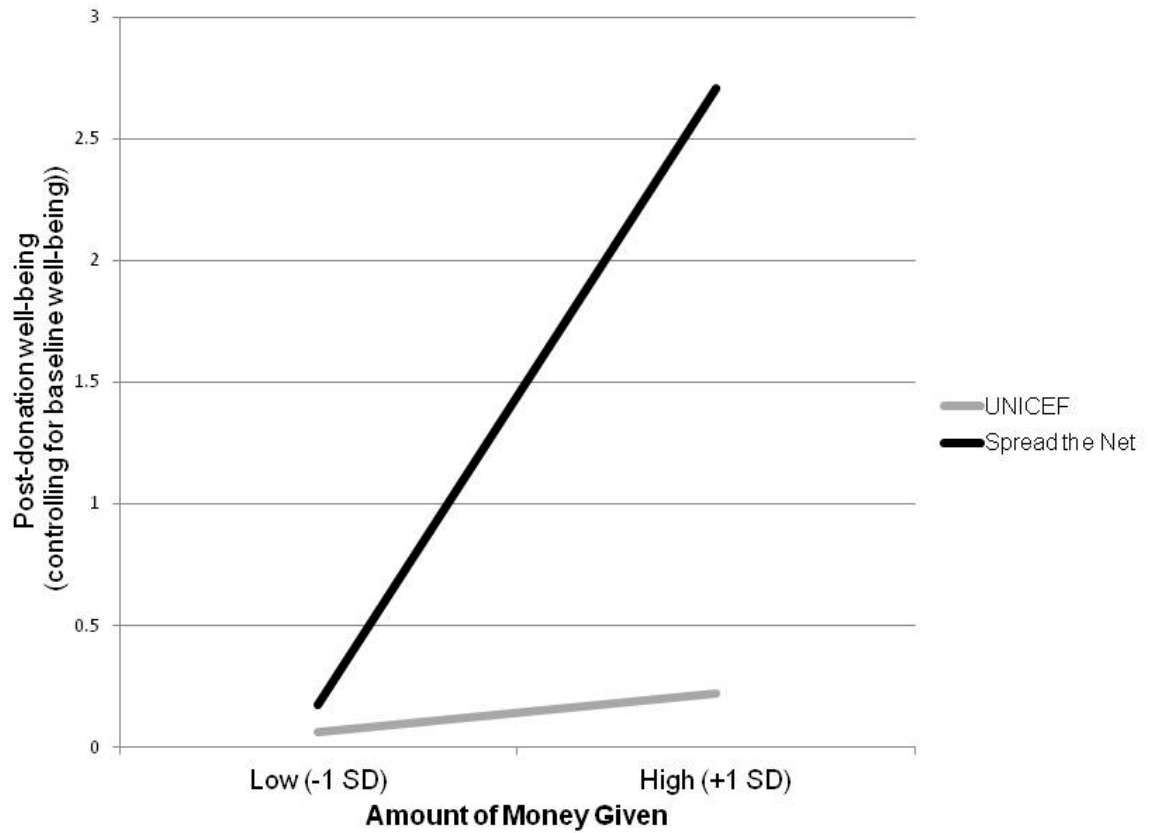


Figure 6

The effect sizes for time-saving purchases on life satisfaction across Studies 1-6 in Whillans et al. (2017)

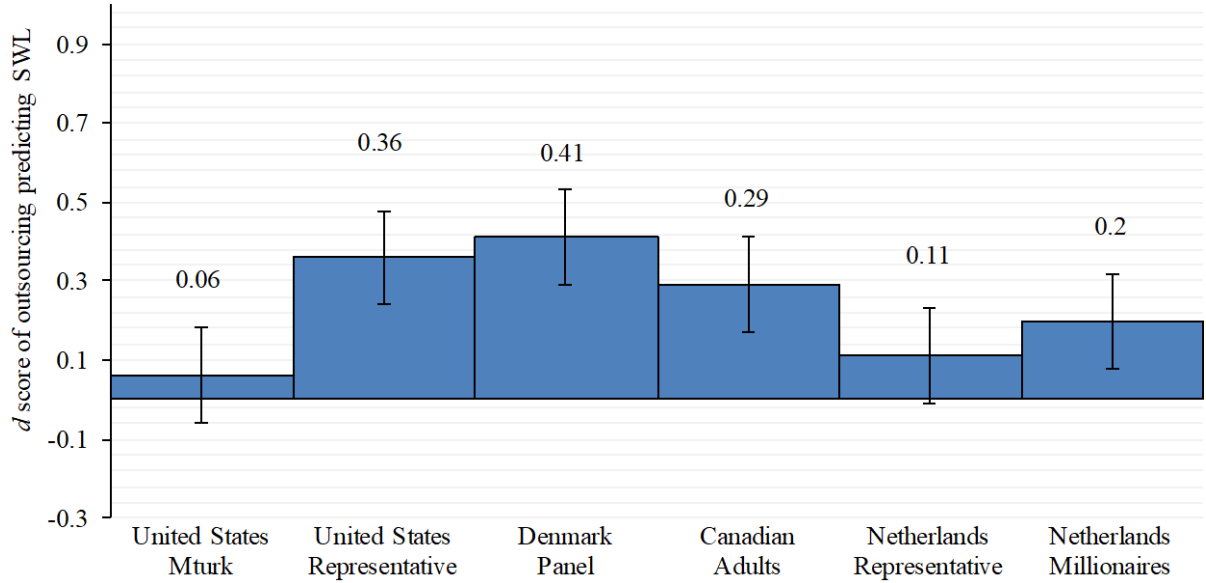
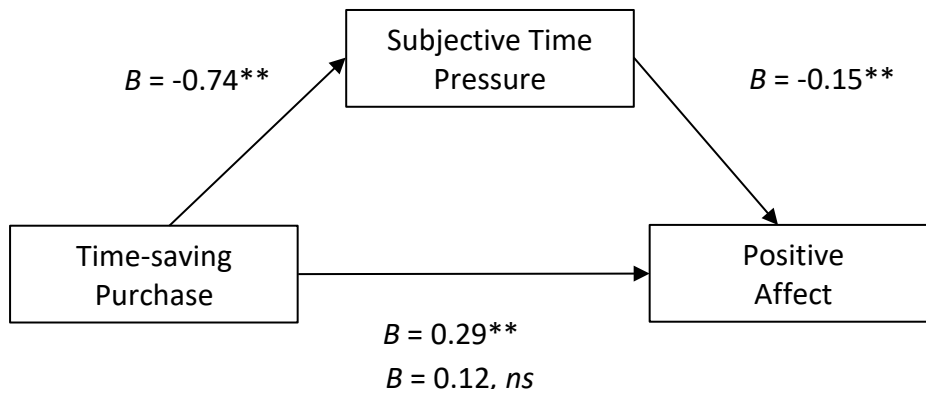


Figure 7. The effect of time-saving purchases on end-of-day positive affect through time pressure in Whillans et al (2017).

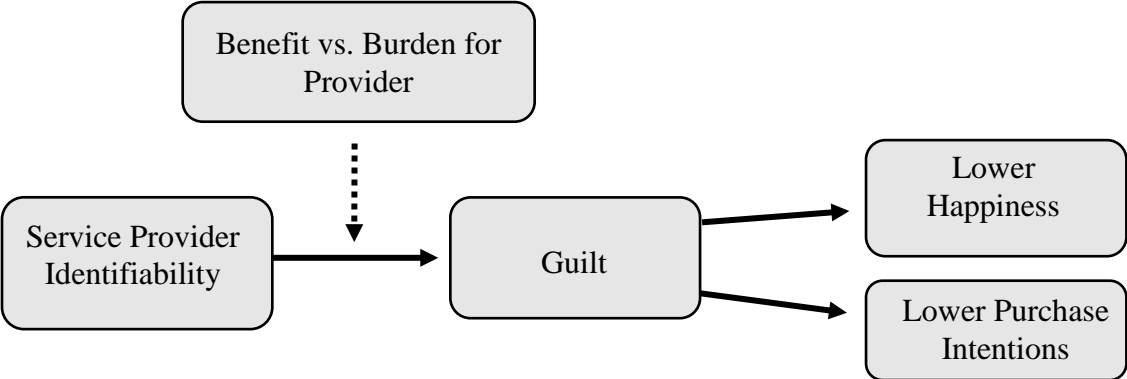
Indirect Effect: 0.11(0.06) [0.02, 0.24]



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

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

Figure 8. Conceptual Model Linking Perceived Consequences for Service Provider to Greater Feelings of Guilt (from Whillans et al, 2019).



Appendix. To promote open science, we have provided links below to all available data sets for our studies on prosocial spending and buying time discussed in this chapter. We have provided publicly accessible links via the Open Science Framework wherever possible. For studies in which appropriate consent was not requested for such broad sharing of data, we have placed the data on a password-protected site; researchers are welcome to contact the first author (edunn@psych.ubc.ca) or last author (lara_aknin@sfu.ca) to obtain this password. We have not provided data for studies that are currently under review, that were not retained in our laboratory files, or that have special privacy concerns.

PROSOCIAL SPENDING		
<i>Paper</i>	<i>Studies</i>	<i>Link</i>
Aknin et al., 2013	2a, 3	http://bit.ly/30hRnUX
Aknin, Broesch, Hamlin & Van de Vondervoort, 2015	1, 2	http://bit.ly/32aVHHD
Aknin, Dunn, Sandstrom & Norton, 2013	3	http://bit.ly/2FZBhHT
Aknin, Dunn & Norton, 2008	Holiday Study, Mother's Day Study, Father's Day Study	http://bit.ly/30jeheB
Aknin, Dunn, Whillans, Grant & Norton, 2013	1,2	http://bit.ly/2Xx0OTv
Aknin, Fleerackers & Hamlin, 2014	1	http://bit.ly/2xDzZO4
Aknin, Hamlin & Dunn, 2012	Main study	http://bit.ly/2xwmVu6
Aknin, Norton & Dunn, 2009	1, 2	http://bit.ly/2JjRoSK
Aknin, Van Boven & Graham-Johnson, 2015	2	http://bit.ly/2YG5Jhu
Anik, Aknin, Dunn, Norton & Quoidbach, 2013	2a/b	http://bit.ly/2LI69QW
Dunn, Aknin & Norton, 2008	1, 3	http://bit.ly/2Jt4Hz3
Hanniball, Aknin, Douglas & Viljoen, 2019	1, 2, 3, 4	https://osf.io/x3ypv/
Whillans, Aknin, Ross, Chen & Chen, 2014	1	https://osf.io/kvrhs/
BUYING TIME		
<i>Paper</i>	<i>Studies</i>	<i>Link</i>
Smeets, Whillans, Bekkers & Norton (2019)	1	https://osf.io/vndmt/
Whillans, Dunn, Bekkers, Smeets & Norton (2017)	1-8	https://osf.io/vr9pa/

Whillans, Weidman & Dunn (2016)	1-4	https://osf.io/3zdv7/
Whillans, Macchia & Dunn (2019)	1	https://osf.io/c28xa/
Whillans & Dunn (2018)	1-3	https://osf.io/cu64s/
Whillans, Pow & Norton (2019)	1-5	https://osf.io/zcavu/
Whillans, Lee-Yoon & Dunn (2019)	1-4	https://osf.io/rqjq9/

References

- Aaker, J. L., Rudd, M. & Mogilner, C. (2011). If money does not make you happy, consider time. *Journal of Consumer Psychology, 21*, 126-130.
- Ajzen, I. & Fishbein, M. (1973). Attitudinal and normative variables as predictors of specific behavior. *Journal of Personality and Social Psychology, 27*, 41-57.
- Aknin, L. B., Barrington-Leigh, C. P., Dunn, E. W., Helliwell, J. F., Burns, J., Biswas-Diener, R., ... & Norton, M. I. (2013). Prosocial spending and well-being: Cross-cultural evidence for a psychological universal. *Journal of Personality and Social Psychology, 104*, 635-652.
- Aknin, L. B., Broesch, T., Hamlin, J. K., & Van de Vondervoort, J. W. (2015). Prosocial behavior leads to happiness in a small-scale rural society. *Journal of Experimental Psychology: General, 144*, 788-795.
- Aknin, L. B., Dunn, E. W., & Norton, M. I. (2008). *Do subtle reminders of the holidays make the emotional rewards of giving more recognizable?* Unpublished data.
- Aknin, L. B., Dunn, E. W., Sandstrom, G. M. & Norton, M. I. (2013). Does social connection turn good deeds into good feeling? On the value of putting the 'social' in prosocial spending. *International Journal of Happiness and Development, 1*, 155-171.
- Aknin, L. B., Dunn, E. W., Whillans, A. V., Grant, A. M., & Norton, M. I. (2013). Making a difference matters: Impact unlocks the emotional benefits of prosocial spending. *Journal of Economic Behavior & Organization, 88*, 90-95.
- Aknin, L. B., Flerackers, A. L., & Hamlin, J. K. (2014). Can third-party observers detect the emotional rewards of generous spending? *The Journal of Positive Psychology, 9*, 198-203.

- Aknin, L. B., Hamlin, J. K., & Dunn, E. W. (2012). Giving leads to happiness in young children. *PLoS One*, *7*, e39211.
- Aknin, L. B., Norton, M. I., & Dunn, E. W. (2009). From wealth to well-being? Money matters, but less than people think. *The Journal of Positive Psychology*, *4*, 523-527.
- Aknin, L. B., Sandstrom, G. M., Dunn, E. W., & Norton, M. I. (2011). It's the recipient that counts: Spending money on strong social ties leads to greater happiness than spending on weak social ties. *PloS One*, *6*, e17018.
- Aknin, L. B., Wiwad, D. & Hanniball, K. B. (2018). Buying well-being: Spending behavior and happiness. *Social and Personality Psychology Compass*, *12*, e12386.
- Anik, L., Aknin, L. B., Norton, M. I., Dunn, E. W., & Quoidbach, J. (2013). Prosocial bonuses increase employee satisfaction and team performance. *PloS One*, *8*, e75509.
- Aron, A., Aron, E. N. & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*, 596-612.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*, 497-529.
- Bernoulli, D. (1954). Exposition of a new theory on the measurement of risk. *Econometrica*, *22*, 23–36 (Original work published 1738).
- Boyce, C. J., Brown, G. D., & Moore, S. C. (2010). Money and happiness: Rank of income, not income, affects life satisfaction. *Psychological Science*, *21*, 471-475.
- Boyce, C. J., & Wood, A. M. (2011a). Personality and the marginal utility of income: Personality interacts with increases in household income to determine life satisfaction. *Journal of Economic Behavior & Organization*, *78*, 183-191.

Boyce, C. J., & Wood, A. M. (2011b). Personality prior to disability determines adaptation:

Agreeable individuals recover lost life satisfaction faster and more completely.

Psychological Science, 22, 1397-1402.

Brickman, P., Coates, D., & Janoff-Bulman, R. (1978). Lottery winners and accident victims: Is

happiness relative? *Journal of Personality and Social Psychology, 36*, 917-927.

Cantril, H. (1965). *Pattern of human concerns*. New Brunswick, NJ, US: Rutgers University Press.

Card, D., Mas, A., Moretti, E., & Saez, E. (2012). Inequality at work: The effect of peer salaries on job satisfaction. *American Economic Review, 102*, 2981-3003.

Carter, T. J., & Gilovich, T. (2010). The relative relativity of material and experiential

purchases. *Journal of personality and social psychology, 98*, 146-159.

Carter, T. J., & Gilovich, T. (2012). I am what I do, not what I have: The differential centrality of

experiential and material purchases to the self. *Journal of Personality and Social*

Psychology, 102, 1304-1317.

Chan, C. & Mogilner, C. (2017). Experiential gifts foster stronger social relationships than

material gifts. *Journal of Consumer Research, 43*, 913-931.

Cheung, F., & Lucas, R. E. (2015). When does money matter most? Examining the association

between income and life satisfaction over the life course. *Psychology and Aging, 30*, 120-135.

Christopher, A. N., Lasane, T. P., Troisi, J. D. & Park, L. E. (2007). Materialism, defensive and

assertive self-presentational tactics, and life satisfaction. *Journal of Social and Clinical*

Psychology, 26, 1145-1162.

Clark, A. E., & Georgellis, Y. (2013). Back to baseline in Britain: adaptation in the British

- household panel survey. *Economica*, 80, 496-512.
- Clark, A. E., & Oswald, A. J. (1994). Unhappiness and unemployment. *The Economic Journal*, 104, 648-659.
- Cummins, R. A. (2000). Personal income and subjective well-being: A review. *Journals of Happiness Studies*, 1, 133-158.
- Dehaene S. (2003). The neural basis of the Weber-Fechner law: a logarithmic mental number line. *Trends in Cognitive Science*, 7, 145–147.
- Diener, E. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 213-229). New York: Russel Sage Foundation.
- Diener, E., Horwitz, J., & Emmons, R. A. (1985). Happiness of the very wealthy. *Social Indicators Research*, 16, 263-274.
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Biswas-Diener, R. (2009). New measures of well-being: Flourishing and positive and negative feelings. *Social Indicators Research*, 39, 247-266.
- Diener, E., & Seligman, M. E. (2002). Very happy people. *Psychological Science*, 13, 81-84.
- Diener, E. & Seligman, M. E. (2004). Toward an economy of well-being. *Psychological Science in the Public Interest*, 5, 1-31.
- Diener, E., Seligman, M. E., Choi, H. & Oishi, S. (2018). Happiest people revisited. *Perspectives on Psychological Science*, 13, 176-184.
- DeVoe, S. E., & Pfeffer, J. (2011). Time is tight: how higher economic value of time increases feelings of time pressure. *Journal of Applied Psychology*, 96, 665-676.

- DiTella, R. & MacCullough, R. (2010). Happiness adaptation to income beyond “basic needs”. In E. Diener, D. Kahneman & J. Helliwell (Eds.), *International Differences in Well-Being* (pp. 217-246). Oxford Scholarship Online.
- Donnelly, G. E., Zheng, T., Haisley, E., & Norton, M. I. (2018). The amount and source of millionaires’ wealth (moderately) predict their happiness. *Personality and Social Psychology Bulletin*, *44*, 684-699.
- Dunn, E. W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science*, *319*, 1687-1688.
- Dunn, E. W., Aknin, L. B., & Norton, M. I. (2014). Prosocial spending and happiness: Using money to benefit others pays off. *Current Directions in Psychological Science*, *23*, 41-47.
- Dunn, E. W., Ashton-James, C. E., Hanson, M. D., & Aknin, L. B. (2010). On the costs of self-interested economic behavior: How does stinginess get under the skin? *Journal of Health Psychology*, *15*, 627-633.
- Dunn, E. W., & Norton, M. I. (2013). *Happy Money: The science of smarter spending*. New York: Simon & Schuster.
- Dunn, E. W., & Weidman, A. C. (2015). Building a science of spending: Lessons from the past and directions for the future. *Journal of Consumer Psychology*, *25*, 172-178.
- Easterlin, R. A. (1974). Does Economic Growth Improve The Human Lot? Some Empirical Evidence. In P. A. David and M. W. Reder (Eds.), *Nations and Households in Economic Growth: Essays in Honour of Moses Abramovitz* (pp. 89-125). New York: Academic Press.
- Easterlin R. (2017). Paradox Lost? *Review of Behavioral Economics* *4*, 311–339.
- Fast, A. A. (2018). *The Emotional Benefits of Generosity: Children's Experiences and Beliefs*

- Regarding Giving and Happiness* (Doctoral dissertation). Retrieved from Washington ResearchWorks Archive.
- Fisher, R. J. (1993). Social desirability bias and the validity of indirect questioning. *Journal of Consumer Research*, 20, 303-315.
- Fraley, R. C., & Vazire, S. (2014). The N-pact factor: Evaluating the quality of empirical journals with respect to sample size and statistical power. *PLoS One*, 9, e109019.
- Funder, D. C. (2006). Towards a resolution of the personality triad: Persons, situations, and behaviors. *Journal of Research in Personality*, 40, 21-34.
- Furnham, A. (1982). The Protestant work ethic and attitudes towards unemployment. *Journal of Occupational Psychology*, 55, 277-285.
- Gardner, J. & Oswald, A. J. (2007). Money and mental well-being: A longitudinal study of medium-sized lottery wins. *Journal of Health Economics*, 26, 49- 60.
- Geenen, N. Y., Hohelüchter, M., Langholf, V., & Walther, E. (2014). The beneficial effects of prosocial spending on happiness: work hard, make money, and spend it on others? *The Journal of Positive Psychology*, 9, 204-208.
- Gilovich, T. & Kumar, A. (2015). We'll always have Paris: The hedonic payoff from experiential and material investments. *Advances in Experimental Social Psychology*, 51, 147-187.
- Gray, K. (2010). Moral transformation: Good and evil turn the weak into the mighty. *Social Psychological and Personality Science*, 1, 253-258.
- Hamermesh, D. S. & Lee, J. (2007). Stressed out on four continents: Time crunch or yuppie kvetch? *The Review of Economics and Statistics*, 89, 374-383.
- Hanniball, K. B., Aknin, L. B., Douglas, K. S., & Viljoen, J. L. (2019). Does helping promote well-

- being in at-risk youth and ex-offender samples? *Journal of Experimental Social Psychology*, 82, 307-317.
- Harbaugh, W. T., Mayr, U., & Burghart, D. R. (2007). Neural responses to taxation and voluntary giving reveal motives for charitable donations. *Science*, 316, 1622-1625.
- Harris, M. B. (1977). Effects of altruism on mood. *The Journal of Social Psychology*, 102, 197-208.
- Headey, B., Muffels, R. & Wooden, M. (2004) Money doesn't buy happiness...or does it? A reconsideration based on the combined effects of wealth, income, and consumption. (IZA, Institute for the Study of Labor, Bonn, Germany) Discussion Paper no. 1218.
- Helliwell, J. F., Huang, H. & Wang, S. (2019). Changing world happiness. In J. F. Helliwell, R. Layard & J. Sachs (Eds.), *World Happiness Report 2019* (pp. 10-45). New York: Sustainable Development Solutions Network.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33, 61-83.
- Hershfield, H. E., Mogilner, C., & Barnea, U. (2016). People who choose time over money are happier. *Social Psychological and Personality Science*, 7, 697-706.
- Hubbard, J., Harbaugh, W. T., Srivastava, S., Degras, D. & Mayr, U. (2016). A general benevolence dimension that links neural, psychological, economic, and life-span data on altruistic tendencies. *Journal of Experimental Psychology: General*, 145, 1351-1358.
- Hudson, N. W., Lucas, R. E., Donnellan, M. B., & Kushlev, K. (2016). Income reliably predicts daily sadness, but not happiness: A replication and extension of Kushlev, Dunn, and Lucas (2015). *Social Psychological and Personality Science*, 7, 828-836.

Hui, B. P., & Kogan, A. (2018). Daily Ups and Downs: An Event-Sampling Study of the Mediated Moderation of Prosocial Engagement on Well-Being. *Social Psychological and Personality Science, 9*, 675-688.

Jebb, A. T., Tay, L., Diener, E., & Oishi, S. (2018). Happiness, income satiation and turning points around the world. *Nature Human Behaviour, 2*, 33-38.

Kahneman, D. (2003). A perspective on judgment and choice: Mapping bounded rationality. *American Psychologist, 58*, 697–720.

Kahneman, D. & Deaton, A. (2010). High income improves evaluation of life but not emotional well-being. *Proceedings of the National Academy of Sciences, 107*, 16489-16493.

Kahneman, D., Krueger, A. B., Schkade, D., Schwarz, N. & Stone, A. A. (2006). Would you be happier if you were richer? A focusing illusion. *Science, 312*, 1908-1910.

Keinan, A. & Kivetz, R. (2011). Productivity orientation and the consumption of collectable experiences. *Journal of Consumer Research, 37*, 935-950.

Kenrick, D. T. & Funder, D. C. (1988). Profiting from controversy: Lessons from the person-situation debate. *American Psychologist, 43*, 23-34.

Krueger, A. B., Kahneman, D., Schkade, D., Schwarz, N. & Stone, A. A. (2009). National time accounting: The currency of life. In A. B. Krueger (Eds.), *Measuring the subjective well-being of nations: National accounts of time use and well-being* (pp. 9-86). University of Chicago Press.

Kumar, A., Killingsworth, M. A., & Gilovich, T. (2014). Waiting for Merlot: Anticipatory consumption of experiential and material purchases. *Psychological Science, 25*, 1924-1931.

- Kushlev, K., Dunn, E. W., & Lucas, R. E. (2015). Higher income is associated with less daily sadness but not more daily happiness. *Social Psychological and Personality Science*, *6*, 483–489.
- Lea, S.E.G., & Webley, P. (2006). Money as tool, money as drug: The biological psychology of a strong incentive. *Behavioral and Brain Sciences*, *29*, 161–209.
- Leclerc, F., Schmitt, B. H. & Dube, L. (1995). Waiting time and decision making: Is time like money? *Journal of Consumer Research*, *22*, 110-119.
- Lee, J. C., Hall, D. L. & Wood, W. (2018). Experiential or material purchases? Social class determines purchase happiness. *Psychological Science*, *29*, 1031-1039.
- Lee-Yoon, A., Donnelly, G. & Whillans, A.V. (2019). *Overcoming consumer scarcity: The role of time and money gifts*. (Unpublished manuscript). Harvard University.
- Lok, I. & Dunn, E. W. (2019). *Under what conditions does prosocial spending promote happiness?*. (Paper under review, Collabra). <https://psyarxiv.com/9bpg5>
- Lucas, R. E. & Dyrenforth, P. S. (2006). Does the existence of social relationships matter for subjective well-being? In K. D. Vohs & E. J. Finkel (Eds.), *Self and relationships: Connecting intrapersonal and interpersonal processes* (pp. 254-273). New York: Guilford Press.
- Lucas, R. E. & Schimmack, U. (2009). Income and well-being: How big is the gap between the rich and the poor? *Journal of Research in Personality*, *43*, 75-78.
- Luhmann, M., Hofmann, W., Eid, M., & Lucas, R. E. (2012). Subjective well-being and adaptation to life events: a meta-analysis. *Journal of Personality and Social Psychology*, *102*, 592-615.

- Lynn, M. (1991). Scarcity effects on value: A quantitative review of the commodity theory literature. *Psychology and Marketing, 8*, 43-57.
- Lyubomirsky, S. (2010). Hedonic Adaptation to Positive and Negative Experiences. In S. Folkman (Eds.), *The Oxford Handbook of Stress, Health, and Coping*, (pp. 200-226). Oxford University Press.
- Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology, 9*, 111-131.
- Martela, F., & Ryan, R. M. (2016). The benefits of benevolence: Basic psychological needs, beneficence, and the enhancement of well-being. *Journal of Personality, 84*, 750-764.
- Matz, S. C., Gladstone, J. J., & Stillwell, D. (2016). Money buys happiness when spending fits our personality. *Psychological Science, 27*, 715-725.
- Mochon, D., Norton, M. I. & Ariely, D. (2008). Getting off the hedonic treadmill, one step at a time: The impact of regular religious practice and exercise on well-being. *Journal of Economic Psychology, 29*, 632-642.
- Mogilner, C. (2010). The pursuit of happiness: Time, money, and social connection. *Psychological Science, 21*, 1348-1354.
- Moll, J., Krueger, F., Zahn, R., Pardini, M., de Oliveira-Souza, R., & Grafman, J. (2006). Human fronto-mesolimbic networks guide decisions about charitable donation. *Proceedings of the National Academy of Sciences, 103*, 15623-15628.
- Nelson, S. K., Della Porta, M. D., Jacobs Bao, K., Lee, H. C., Choi, I., & Lyubomirsky, S. (2015). 'It's

- up to you': Experimentally manipulated autonomy support for prosocial behavior improves well-being in two cultures over six weeks. *The Journal of Positive Psychology, 10*, 463-476.
- Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review, 84*, 231-259.
- O'Brien, E., & Kassirer, S. (2019). People are slow to adapt to the warm glow of giving. *Psychological Science, 30*, 193-204.
- Okada, E. M. & Hoch, S. J. (2004). Spending time versus spending money. *Journal of Consumer Research, 31*, 313-323.
- Page-Gould, E., Mendoza-Denton, R. & Tropp, L. R. (2008). With a little help from my cross-group friend: Reducing anxiety in intergroup contexts through cross-group friendship. *Journal of Personality and Social Psychology, 95*, 1080-1094.
- Piff, P. K., & Moskowitz, J. P. (2018). Wealth, poverty, and happiness: Social class is differentially associated with positive emotions. *Emotion, 18*, 902-905.
- Richard, F. D., Bond Jr, C. F., & Stokes-Zoota, J. J. (2003). One hundred years of social psychology quantitatively described. *Review of General Psychology, 7*, 331-363.
- Richards, L. (2016). For whom money matters less: Social connectedness as a resilience resource in the UK. *Social Indicators Research, 125*, 509-535.
- Ruberton, P., Gladstone, J. & Lyubomirsky, S. (2016). How your bank balance buys happiness: The importance of "cash on hand" to life satisfaction. *Emotion, 16*, 575-580.
- Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.

- Shah, A. K., Shafir, E., & Mullainathan, S. (2015). Scarcity frames value. *Psychological Science, 26*, 402-412.
- Smeets, P. Whillans, A.V., Bekkers, R. & Norton, M.I. (in press). Time use and happiness of millionaires: Evidence from the Netherlands. *Social Psychology & Personality Science*.
- Stone, A. A., Schneider, S., Krueger, A., Schwartz, J. E., & Deaton, A. (2018). Experiential wellbeing data from the American Time Use Survey: Comparisons with other methods and analytic illustrations with age and income. *Social Indicators Research, 136*, 359-378.
- Tay, L., Batz, C., Parrigon, S., & Kuykendall, L. (2017). Debt and subjective well-being: The other side of the income-happiness coin. *Journal of Happiness Studies, 18*, 903-937.
- Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review, 117*, 440-463.
- Van Boven, L. & Gilovich, T. (2003). To do or to have? That is the question. *Journal of Personality and Social Psychology, 85*, 1193-1202.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. *Journal of Personality and Social Psychology, 54*, 1063-1070.
- Weidman, A. C. & Dunn, E. W. (2016). The unsung benefits of material things: Materials purchases provide more frequent monetary happiness than experiential purchases. *Social Psychological and Personality Science, 7*, 390-399.
- Weinstein, N., & Ryan, R. M. (2010). When helping helps: autonomous motivation for prosocial behavior and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology, 98*, 222-244.

- Whillans, A. V. (2017). *Exchanging cents for seconds: the happiness benefits of choosing time over money* (Doctoral Dissertation, University of British Columbia).
- Whillans, A. V. (2019). Time for happiness: Why the pursuit of money isn't bringing you joy – and what will. Special issues on HBR Big Idea: Time Poor and Unhappy. *Harvard Business Review*. Retrieved August 10, 2019 from <https://hbr.org/cover-story/2019/01/time-for-happiness>
- Whillans, A. V., Aknin, L. B., Ross, C. J., Chen, L., & Chen, F. S. (forthcoming). Common variants of the oxytocin receptor gene do not predict the positive mood benefits of prosocial spending. *Emotion*. doi: 10.1037/emo0000589
- Whillans, A. V. & Dunn, E. W. (2019). Valuing time over money is associated with greater social connection. *Journal of Social and Personal Relationships*, 36, 2549-2565.
- Whillans, A. V., Dunn, E. W., Sandstrom, G. M., Dickerson, S. S., & Madden, K. M. (2016). Is spending money on others good for your heart? *Health Psychology*, 35, 574.
- Whillans, A. V., Dunn, E. W., Smeets, P., Bekkers, R., & Norton, M. I. (2017). Buying time promotes happiness. *Proceedings of the National Academy of Sciences*, 114, 8523-8527.
- Whillans, A.V., Lee-Yoon, A. & Dunn, E.W. (2019). *The identifiable service provider effect: When guilt undermines consumer willingness to buy time*. (Unpublished manuscript).
- Whillans, A.V. Macchia, L. & Dunn, E.W. (in press). Valuing time predicts happiness after a major life transition: A pre-registered longitudinal study of graduating students. *Science Advances*.
- Whillans, A.V., Pow, J. & Norton, M. I. (2018). *Time-Saving Purchases Promote*

Relationship Satisfaction. Harvard Business School Working Paper, No. 28-072.

Whillans, A.V., Seider, S.C., *Dwyer, R., *Chen, L., Novick, S., *Graminga, K.J., *Mitchell, B.A., Savalei, V., Dickerson, S.S., & Dunn, E.W. (2017). Does volunteering causally improve well-being? *Comprehensive Results in Social Psychology*.

Whillans, A.V., Ward, G., Collins, H., & Norton, M.I. (2019). *The link between work norms, time stress, and unhappiness*. Unpublished data.

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, 213-222.

Whillans, A.V. & West, C. (2019). Alleviating time poverty among the working poor: A pre-registered longitudinal field experiment. *Nature Human Behavior*. Retrieved August 10, 2019 from https://springernature.figshare.com/collections/Alleviating_time_poverty_among_the_working_poor_Collection_/4368455/1

Wilson, T. D., & Gilbert, D. T. (2003). Affective forecasting. *Advances in Experimental Social Psychology*, 35, 345-411.

Yamaguchi, M., Masuchi, A., Nakanishi, D., Suga, S., Konishi, N., Yu, Y. Y., & Ohtsubo, Y. (2016). Experiential purchases and prosocial spending promote happiness by enhancing social relationships. *The Journal of Positive Psychology*, 11, 480-488.

Zauberman, G. & Lynch Jr, J. G. (2005). Resource slack and propensity to discount delayed investments of time versus money. *Journal of Experimental Psychology: General*, 134, 23-37.