



Spending Windfall (“Found”) Time on Hedonic versus Utilitarian Activities

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Consumers often gain extra free time unexpectedly. Given the increasing time pressure that consumers experience in their daily lives, it is important to understand how they spend windfall (or unexpected) free time, which we term *found time*. In a series of five laboratory experiments and naturalistic field studies, we found that consumers spend more of their free time on hedonic activities than on utilitarian activities when they gain the time unexpectedly (i.e., found time), but not when they know about the free time in advance. This pattern occurs consistently regardless of whether consumers gain the time from canceled work-related or leisure activities. In addition, our studies uncovered perceived busyness as a ubiquitous yet unexplored moderator for the windfall gain literature: the inclination to allocate found time to hedonic consumption decreases when consumers perceive themselves to be busy at the moment. We discuss several potential accounts for the effect of unexpectedness on time expenditure, including a perceived fit between the nature of found time (a fun windfall gain) and hedonic consumption, need for justification, and planning.

Keywords: windfall, time, resource gain, perceived busyness, utilitarian versus hedonic consumption

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Editors: Vicki G. Morwitz and Amna Kirmani

Associate Editor: Tom Meyvis

Advance Access publication 25 July 2022

Alexandra is about to meet with her firm's supplier to discuss some technical issues, and the meeting is scheduled for 1 hour. Right before the meeting, she learns that the issues have been resolved and thus the meeting is canceled. How might Alexandra spend her extra free time? Specifically, during this 1 hour, how much time would Alexandra spend on work-related tasks versus taking a break to check her stock portfolio, send a few text messages, or browse a few posts on Instagram? Suppose the meeting was canceled a few days ago instead, and so Alexandra knew about this cancellation in advance. How differently might Alexandra spend this same amount of free time then?

Most, if not all, consumers have had the experience of gaining extra free time unexpectedly. The amount of unexpected time gained ranges from a few minutes to several hours or even days; such gains of time may arise from time-saving smartphone apps, shorter-than-expected queues, or canceled meetings. What do consumers do when they unexpectedly gain some free time, which we

call *found time*? This question is also central to the impact of the COVID-19 pandemic on consumers' daily lives. How might the pandemic influence the way consumers spend their time, which is indisputably one of their most important resources? Since 2020, many people globally have started to work from home (WFH). WFH arrangements have helped many consumers gain extra free time by reducing the need to commute, travel, etc. Although some of this free time may have been anticipated or known in advance, others may be unexpected (e.g., last-minute canceled meetings), especially in these highly uncertain times as consumers attempt to adapt to their fluctuating, evolving schedules in the midst of the pandemic.

On the one hand, consumers may be inclined to spend found time on utilitarian, work-related activities to alleviate time pressure or earn extra income, especially given the increasing opportunity cost of leisure as a result of higher wages (Bluestone and Rose 1998; Reynolds 2005). On the other hand, the most common regrets that adults or dying patients have expressed are having worked too much and having spent too little time on activities such as romance, family, and entertainment (Morrison and Roese 2011; Warren 2012). The present research investigates how consumers utilize found time versus expected free time differently in terms of how they allocate the time gains between hedonic consumption and utilitarian consumption.

Research in psychology and consumer behavior on windfall money has shown that consumers are inclined to spend their windfall money frivolously and splurge on hedonic consumption (Arkes et al. 1994; Epley and Gneezy 2007; Kahneman, Knetsch, and Thaler 1991; Milkman and Beshears 2009; O'Curry and Strahilevitz 2001; Thaler 1985). Our work augments this area of study by examining how consumers spend unexpected time gains (found time) differently from expected time gains. As windfall money is characterized by "its unanticipated nature of the gain" (Arkes et al. 1994), we define found time as unexpected gains of extra free time. For example, suppose consumers gain 1 hour of free time because of the cancellation of a scheduled task. How might they spend the free time differently if they had received advanced notice of the cancellation hours or days before the scheduled time versus a sudden notice of the cancellation minutes before the scheduled time?

This is an important extension because the literature does not offer a clear prediction for whether the spending pattern of windfall money will generalize to found time given that consumers spend time and money differently (Leclerc, Schmitt and Dubé 1995; Lee et al. 2015; Okada and Hoch 2004; Olivola and Wang 2016; Zauberman and Lynch 2005). On the one hand, just as how they would spend windfall money, consumers might spend more of their found time on hedonic consumption than utilitarian consumption because of the link between windfalls and pleasure (Blythe and Hassenzahl 2018; Schultz, Apicella,

and Ljungberg 1993). On the other hand, a null effect or even a reversal may occur because people generally prioritize utilitarian activities and prefer to finish tasks on hand (de Graaf 2003; Watanabe and Yamauchi 2016). In the present work, we demonstrate through a series of laboratory and field experiments that consumers spend more of their extra free time on hedonic activities when the time gain is *unexpected* (found time) than when the time gain is *expected*.

Preliminary evidence from two exploratory studies in field settings lends support to this core finding. Pilot study 1 ($N=110$) was conducted during a strike in 2017 in Ontario, Canada that led to the closure of 24 colleges for 5 weeks. The strike provided an appropriate setting for a field study because students did not know when their college would resume classes while the faculty union and the colleges were negotiating a mutual agreement. Instead, the students learned at the end of *each week* whether they would have another week "off"; thus, the students at these colleges gained unexpected free time *each week* as a result of class cancellations until the strike ended. Per our negotiation with these 24 colleges, we first advertised the study using Google Ads and social media platforms for a total of 6 days (\$1,241; population of interest $\cong 515,000$) to recruit student participants from these affected colleges. We then asked participants how they had spent the extra free time in the week in which they filled out the questionnaire (week 5 during the strike). Participants reported spending more of the unexpected free time during the week on hedonic than utilitarian activities (58.45%, $>50\%$, midpoint of the scale as the null hypothesis value; $t(109) = 3.50$, $p = .001$). This field study suggests that consumers tend to spend more of their found time on hedonic activities.

In addition, we conducted pilot study 2 ($N = 346$ university students) during a snowstorm. The snowstorm resulted in a 1 day closure of a university in the United States, and all students gained extra free time unexpectedly. Again, participants reported spending more of their found time on hedonic activities (54.75% $> 50\%$, midpoint of the scale; $t(345) = 2.65$, $p = .008$) than utilitarian activities (41.75%). They spent only a small proportion of their time on other activities that were neither utilitarian nor hedonic (3.50%). See [web appendix A](#) for details on the two pilot studies and [web appendix B](#) for additional analyses on the types of activities participants engaged in with their free time.

In summary, these exploratory field studies provide initial evidence that when consumers gain found time, they tend to spend a greater proportion of it on fun. Next, we review the literature on hedonic versus utilitarian consumption as it is related to our dependent measure. Then, we report three experiments conducted in laboratory and field settings showing that consumers spend more of their free time on hedonic activities than on utilitarian activities when they gain the time unexpectedly (i.e., found time),

but not when they know about the free time in advance. In the bridge section, we discuss possible explanations for this effect by drawing from literature on windfall money, perceived fit between found time and hedonic consumption (it feels “right” to spend found time on fun activities), implicit beliefs (windfall gains are meant for acquiring pleasure), need for justification (windfalls are free and can be spent frivolously), and planning. We also discuss perceived busyness as a moderator. As robustness checks, we tested several background factors including source of gain and attribution of gain in the experiments. We also examine the relationship between the length of found time (another background factor) and the allocation of found time using data pooled across all our studies. In closing, we discuss the managerial and policy implications of our findings.

HEDONIC VERSUS UTILITARIAN ACTIVITIES

We first distinguish between hedonic activities and utilitarian activities—our central dependent measure—based on prior research. Utilitarian activities are considered to be instrumental and obligatory (Laran and Janiszewski 2011; Tonietto and Malkoc 2016). These activities feel like work, are not necessarily enjoyable (Babin, Darden, and Griffin 1994), and frequently require effortful mental operations (Choi and Fishbach 2011). In general, utilitarian activities are perceived as “shoulds,” and our society adheres to the value of completing such tasks promptly (Dhar and Nowlis 1999; Kivetz and Simonson 2002). While utilitarian activities bring functional benefits, hedonic activities are perceived as “wants”—activities that consumers desire and bring experiential enjoyment (Hirschman and Holbrook 1982; Hsee and Tsai 2008; Mano and Oliver 1993). Compared to utilitarian work activities, hedonic leisure activities are less burdensome (Csikszentmihalyi and LeFevre 1989), less structured, less instrumental (Tonietto and Malkoc 2016), and more pleasurable (Babin et al. 1994).

Notably, hedonic activities and utilitarian activities are not, strictly speaking, at opposite ends of a continuum. The same activity can be perceived as hedonic or utilitarian depending on one’s preferences and consumption goals (Chen, Lee, and Yap 2016; Leclerc et al. 1995; Newman, Tay, and Diener 2014). For example, working out in a gym can be perceived as either a hedonic activity that one does for fun and leisure or a utilitarian activity that helps one maintain a normal weight and healthy blood sugar level. One can also experience both aspects of an activity simultaneously. For example, when working on research, one can experience the excitement of the knowledge-discovery process as well as the tedium and boredom arising from programming surveys and setting up experiments.

Although both hedonic activities and utilitarian activities are important in consumers’ daily lives, consumers tend to prioritize and put greater emphasis on utilitarian activities over hedonic activities (de Graaf 2003; Kodz, Kersley, and Strebler 1998; Watanabe and Yamauchi 2016). This tendency may be attributed to the various benefits that utilitarian activities provide, such as income, accomplishment, and stability (Kodz et al. 1998; Watanabe and Yamauchi 2016). Yet, this does not mean that hedonic activities are less important; hedonic activities provide numerous benefits that are worth pursuing. For example, hedonic activities produce positive cognitions and emotions and relieve stress (Newman et al. 2014). Similarly, informal socialization such as talking on the phone with friends or engaging with social groups increases life satisfaction (Jang et al. 2004; Leversen et al. 2012). Finally, solitary forms of hedonic activities such as handcrafting, reading, listening to music, reflection, and gardening can also enhance mental well-being (Newman et al. 2014).

How might consumers allocate their found time between hedonic and utilitarian activities? Would they prioritize spending the extra free time on hedonic activities over utilitarian activities as suggested by the results of the two pilot field studies?

OVERVIEW OF THE STUDIES

The present work conceptualizes found time and examines its effect on the type of consumption (hedonic vs. utilitarian) that consumers choose. We define found time as an unexpected gain of free time in consumers’ daily lives. Consumers obtain found time from many sources including canceled meetings at work, a shortened gathering with friends, or a rescheduled doctor’s appointment. It can also occur as a result of extreme events such as a strike, adverse weather, or the COVID-19 pandemic. The length of found time also varies; while most time gains are short (1–4 hours), they can extend to several days (see study 1 in web appendix C for details on the empirical support for the characteristics of found time). In sum, found time is a resource consumers frequently obtain and utilize in their daily lives.

We conducted five studies in which we show that consumers spend more of their found time on hedonic activities than on utilitarian and other activities; however, this tendency does not occur for expected free time, as shown in two field studies that took place during the closure of a university in the United States (study 3) and a national COVID-related lockdown in the United Kingdom in 2020 (study 4). In addition, we demonstrate that consumers’ tendency to spend their found time on fun increases when they attribute the gain to their own effort (study 2) and that the effect is attenuated among consumers who perceive their current schedule to be busy and have little spare time

(study 4). We also explored possible mechanisms in two studies (study 5 and study 2 in [web appendix C](#)). As robustness checks, we examined source of gain, attribution of gain, and the length of found time as background factors. See [web appendix D](#) for the data exclusion procedure used in the studies.

STUDY 1: SOURCE OF FOUND TIME: WORK VERSUS LEISURE

Study 1 accomplished several goals. First, we tested how consumers allocate their free time (to hedonic vs. utilitarian activities) when the free time is unexpected versus when it is expected. Second, we investigated whether the source of the time gain (from work vs. leisure) played a role in consumers' allocation of found time. Third, we examined more closely the nature of the activities that consumers prefer to do with their found time. While the results of the two pilot studies suggest that consumers are more likely to spend their found time on hedonic activities, one may suggest that the activities that participants are more inclined to do are not necessarily hedonic, but rather are important yet less urgent ([Jhang and Lynch 2015](#); [Zhu, Yang, and Hsee 2018](#)). Take spending time with close friends for example; consumers might do so because it is fun or because they feel they have neglected to connect with their friends and instead have prioritized other less important but more urgent tasks such as mundane house-keeping chores. We tested the relevance of these issues in study 1. Finally, we examined whether the amount of free time affected consumers' time-use pattern.

Method

Design and Participants. This study employed a 2 (unexpectedness of free time: unexpected vs. expected) \times 2 (source of free time: work vs. leisure) between-subjects design. A total of 179 MTurk participants ($M_{\text{age}} = 39.06$, 47.48% male) were recruited for this online study.

Procedure. We told participants that the purpose of the study was to understand people's daily activities. Participants were randomly assigned to one of the four conditions; they received instructions about free time that varied in (1) the degree of unexpectedness and (2) the source of the free time (work vs. leisure; [table 1](#), also see [table 9](#) in [web appendix C](#) for the full instructions). Participants then indicated how they had spent their free time in question and the length of the free time (in hours and minutes) they had in their recalled episode.

Dependent Measures. On the page where we administered the dependent measure, we displayed participants' textual responses and asked them to indicate the proportion of time spent in each activity category by allocating 100

points to either "hedonic pleasure/leisure/relaxation activity" or "utilitarian work/self-improvement activity."

Potential Confounds: Importance and Urgency. Next, we asked participants to rate whether they perceived their stated activity as being more "hedonic versus utilitarian" on a 7-point scale (1 = hedonic, 7 = utilitarian). While we posit that consumers are more likely to spend their found time on "hedonic" activities, one may speculate that the activities that participants report are not necessarily hedonic but rather are important but less urgent ([Jhang and Lynch 2015](#); [Zhu et al. 2018](#)). Thus, we asked participants to rate whether they perceived the completion of the activity to be "urgent" (1 = not urgent, 7 = urgent) and "important" (1 = not important, 7 = important). Finally, participants responded to demographic questions.

Results and Discussion

Main Results: Proportion of Hedonic Consumption. Participants reported that they engaged in 1.78 activities on average (min = 1, max = 5, median = 2). Examples of reported "unexpected" free time included a delayed meeting at work and a canceled appointment with a friend due to his sick family member. Examples of "expected" free time included a cancelation of babysitting, a canceled exercise class, and getting an online delivery instead of going to the store.

A 2×2 between-subjects analysis of variance (ANOVA) revealed a significant main effect of unexpectedness on the allocation of free time ($M_{\text{unexpected}} = 58.82\%$, $SD = 0.35$ vs. $M_{\text{expected}} = 40.08\%$, $SD = 0.32$; $F(1, 175) = 13.04$, $p < .001$, $d = 0.56$). Participants spent a significantly greater proportion of their free time on hedonic activities when the free time was unexpected than when it was expected. The effect of unexpectedness was significant irrespective of whether the free time was obtained at work ($M_{\text{unexpected/work}} = 55.49\%$, $SD = 0.38$ vs. $M_{\text{expected/work}} = 37.85\%$, $SD = 0.32$; $F(1, 175) = 5.47$, $p = .02$, $d = 0.50$) or at leisure ($M_{\text{unexpected/leisure}} = 61.35\%$, $SD = 0.42$ vs. $M_{\text{expected/leisure}} = 42.11\%$, $SD = 0.33$; $F(1, 175) = 7.80$, $p = .006$, $d = 0.51$). Neither the main effect of the source of free time nor the two-way interaction was significant (both $F < 1$, NS). We therefore combined the data across different sources of free time and focused the rest of our analysis on the unexpectedness of free time. The results were similar when the source of free time and the two-way interaction were included in all the subsequent analyses.

Potential Confounds: Importance and Urgency. Compared to participants in the *expected* condition, those in the *unexpected* condition perceived their activities to be marginally more hedonic ($M_{\text{unexpected}} = 4.12$ vs. $M_{\text{expected}} = 4.66$; $F(1, 175) = 3.86$, $p = .051$; lower numbers indicate higher hedonic ratings), less urgent

TABLE 1
INSTRUCTIONS IN STUDY 1

Unexpectedness	Source	Recall task instructions
Unexpected	Work	... in our daily lives, we unexpectedly gain an extra few minutes to several hours due to the cancellation of our planned schedule at work ...
Unexpected	Leisure	... in our daily lives, we unexpectedly gain an extra few minutes to several hours due to the cancellation of our planned schedule from a non-work source (e.g., schedule related to leisure: time with family, friends, or just for the self)...
Expected	Work	... in our daily lives, we gain an extra few minutes to several hours due to the cancellation of our planned schedule at work . When we realize the cancellation in advance ...
Expected	Leisure	... in our daily lives, we gain an extra few minutes to several hours due to the cancellation of our planned schedule from a non-work source (e.g., schedule related to leisure: time with family, friends, or just for the self). When we realize the cancellation in advance ...

($M_{\text{unexpected}} = 3.36$ vs. $M_{\text{expected}} = 3.98$; $F(1, 175) = 4.89$, $p = .028$), and directionally (but not significantly) less important ($M_{\text{unexpected}} = 4.77$ vs. $M_{\text{expected}} = 5.15$; $F(1, 175) = 2.54$, $p = .113$). Together, these results suggest that when consumers gain unexpected (vs. expected) free time, they engage in activities that are more hedonic and less urgent, but these activities are not necessarily more/less important.

To verify the effect of the perceived urgency and importance of the activities on time use, we first included both urgency and importance as covariates in regression models with unexpectedness (1 = unexpectedness, -1 = expectedness) as the independent variable and the proportion of hedonic consumption as the dependent variable. The results confirmed that the effect of unexpectedness remained significant ($B_{\text{unexpectedness}} = 7.37$, $t(171) = 2.99$, $p = .003$) after controlling for urgency ($B_{\text{urgency}} = -2.50$, $p = .099$) and importance ($B_{\text{importance}} = -5.55$, $p = .002$). The results were highly similar when both covariates were included in the same regression model.

Background Factor: Length of Free Time. The length of free time ($M = 6.46$ hours, median = 2.75, skewness 3.95, kurtosis = 16.41) did not differ significantly across the *unexpected* and *expected* conditions ($M_{\text{unexpected}} = 7.15$ hours vs. $M_{\text{expected}} = 5.67$ hours; $t(177) = 0.82$, $p = .413$). Next, we conducted a regression analysis using unexpectedness (1 = unexpectedness, -1 = expectedness), mean-centered length of free time, and their interaction term as predictors of the proportion of hedonic consumption. The coefficients of unexpectedness ($B = 8.90$, $t(175) = 3.57$, $p < .001$) and length of free time ($B = 0.60$, $t(175) = 2.84$, $p = .005$) were significant, but the two-way interaction was not ($B = -0.24$, $t(175) = -1.10$, $p = .273$). These results suggest that the larger the amount of free time, the greater the proportion of free time allocated to hedonic activities in both the *unexpected* and *expected* conditions. Importantly, the effect of unexpectedness remained significant after controlling for the length of free time and the interaction term. Because length of free time was

unbounded, we log-transformed this variable, repeated the analysis, and found a similar pattern of the results (main effects: $ps < .008$; interaction: $p = .152$).

Together, the results of study 1 demonstrate that consumers tend to allocate their free time to hedonic consumption when the free time is unexpected (found time) than when it is expected. Whether the source of the free time is from work or from leisure does not affect their time allocation. We replicated these results in an auxiliary study (study 1 in the [web appendix](#); see [web appendix C](#) for details). In study 2, we explored another background factor by comparing the spending of found time gained from or attributed to an exogenous versus an endogenous reason.

STUDY 2: REASON FOR FOUND TIME: EXOGENOUS VERSUS ENDOGENOUS

Consumers' desire for hedonic consumption after hard work is evident in the nearly 85 million Google search results for the search string: "How to self-reward after work." Articles in the popular media also discuss myriad ways in which consumers can reward themselves after finishing a taxing job, including enjoying a nice social meal, splurging at a mall, and taking fun classes such as whiskey tasting. Similarly, academic research has shown that people tend to engage in activities for self-gratification after performing a virtuous deed or completing an effortful task (Xu and Schwarz 2009). Thus, we examined whether consumers would be even more inclined to spend their found time on hedonic consumption when their unexpected found time arises from an endogenous reason (e.g., their own effort) than an exogenous reason (e.g., delayed work arrangement).

Method

Design and Participants. This study employed a two-condition (attribution of found time: exogenous vs. endogenous) between-subjects design. A total of 80 MTurk

participants ($M_{\text{age}} = 36.15$, 48.75% male) were recruited for a short online survey.

Procedure. Participants were randomly assigned to one of the two conditions. In both conditions, participants imagined gaining unexpected found time. Depending on the condition, participants were told to imagine that they had gained 4 hours of free time unexpectedly because of either a delay in a supplier's scheduled delivery (*exogenous* condition) or their employer's recognition of their performance at work (*endogenous* condition; table 2).

Participants then allocated their windfall gain of 4 hours among six activity categories comprising three types of utilitarian activities (read a book for self-improvement, do other work-related tasks, meet other employees for work) and three types of hedonic activities (read a book for leisure, spend time for fun and relaxation, meet friends to chat and hang out).

Results and Discussion

Participants were more willing to spend their found time on hedonic consumption when the gain was attributed to their own effort than to some external reason ($M_{\text{endogenous}} = 83.03\%$, $SD = 0.25$ vs. $M_{\text{exogenous}} = 61.32\%$, $SD = 0.33$; $t(78) = 3.32$, $p = .001$, $d = 0.74$). This corroborates prior research that people justify their hedonic consumption when the gain is attributed to one's own effort (Kivetz and Simonson 2002; Mick and Demoss 1990).

So far, we have demonstrated that consumers are more inclined to spend their free time on hedonic activities than on utilitarian activities when the free time is unexpected (found time) than when it is expected (study 1). Furthermore, their tendency to spend their found time on hedonic consumption increases when they attribute the gain to themselves (study 2). Building on our understanding of found time, we examined whether the observed effect would generalize to field settings arising from the pandemic in studies 3 and 4.

STUDY 3: A LONGITUDINAL FIELD STUDY DURING THE PANDEMIC

The Spring of 2020 saw an accelerating number of people infected by COVID-19 in various parts of the United States. Meanwhile, the first confirmed case detected in one of the authors' university alarmed the school's administrators. As a result, the university abruptly canceled the entire week of classes to thoroughly clean and disinfect all the school buildings. When classes were resumed, the author asked how her students had spent their unexpected free time the week before. This week served as phase 1 of study 3 (*unexpected* condition).

Later in the semester, the university did not hold any classes for 1 week. This was part of the academic calendar,

so students had anticipated being off this week since the beginning of the semester. Originally, it was a study week in April 2020, scheduled on the university calendar at the beginning of the 2019–2020 academic year. However, due to disruptions from the COVID-19 pandemic, in March 2020, the school changed its academic policy drastically and reduced students' workload substantially, making it effectively a free week. For example, the university allowed students to take *all* their classes as pass/fail (they could only take one class as pass/fail pre-pandemic). Furthermore, the school requested instructors to help students cope with the pandemic and be generous in grading, while the deadlines for most assignments were extended, and most examinations were canceled due to the remote-learning format. As a result, that week effectively became expected free time for all students as students had little schoolwork to do, and the policy changes and cancellations were announced to students 4 weeks before the break. This week served as phase 2 of the study (*expected* condition). Immediately after students returned to school, the author again asked her students how they had spent their free time the week before. The unexpected and scheduled class cancellations provided a natural, longitudinal field setting for us to study how consumers spend, respectively, unexpected free time and expected free time differently and to test whether our focal effect would hold during the pandemic.

Method

Design and Participants. The longitudinal study employed a two-level, single-factor (unexpectedness of free time: unexpected/phase 1 vs. expected/phase 2) within-subject design. A total of 86 university students ($M_{\text{age}} = 20.69$, 62.79% male) who were enrolled in one of the authors' classes responded in both phases.

Procedure. Phase 1 of the study occurred in the Spring of 2020 when the university suddenly canceled an entire week of classes due to concerns with the spread of COVID-19 in the region. At the end of the week, the author contacted students enrolled in her classes and asked them to respond to a short survey in exchange for class-participation credit.

All participants were asked to report how they had spent their found time by listing the activities they had done with their extra free time. Next, they indicated the proportion of time spent in each of the three categories: (1) utilitarian activities (academic, work-related activities); (2) hedonic activities (non-academic, leisure-related activities); and (3) other activities. To ensure that participants understand the definition of each category, we provided specific activity examples based on prior research (Koopman-Boyden and Reid 2009; Menec 2003; Newman et al. 2014). Examples of utilitarian activities included doing homework, studying, and writing emails related to classes and work. Examples

TABLE 2
INSTRUCTIONS IN STUDY 2

Attribution of found time	Scenario and instructions
Exogenous	Your work today has been going reasonably well and you are on schedule for most of your projects. Unexpectedly, the boss comes in and tells you that you can take 4 hours (a half-day) off today because a supplier needs more time to gather the information that you need for your projects. As a result, imagine that you can take a half-day off in the afternoon and spend the 4 hours (= 240 minutes) in different ways. Please distribute the 240 minutes among the categories below so that your time allocation sums up to 240 minutes
Endogenous	Your work has been going well and you have gotten ahead of schedule for most of your projects. Unexpectedly, the boss comes in and tells you to take 4 hours off (a half-day) in recognition of your efforts. As a result, imagine that you can take a half-day off in the afternoon and spend the 4 hours (= 240 minutes) in different ways. Please distribute the 240 minutes among the categories below so that your time allocation sums up to 240 minutes

of hedonic activities included web browsing for fun/relaxation and chatting and texting with friends and family. Importantly, this study included “other activities” in the response set, so that participants were not forced to categorize their activities as either utilitarian or hedonic. The proportions of time allocated to the three categories summed to 100 points.

Phase 2 of study 3 was conducted several weeks after phase 1 when students had another week without classes. All students were aware of this arrangement well in advance, as it was explicitly mentioned in the syllabus for all the classes at the university. At the end of the break, the author asked the same group of students to report the activities that they did during the break and complete the same time-allocation task from phase 1, followed by some demographic questions. At the end of the semester, we included each student’s final grade in the dataset to examine whether their use of found time was related to their academic performance.

Results

Main Results: Proportion of Hedonic Consumption. Participants reported having engaged in approximately the same number of activities across the two phases ($M_{\text{unexpected}/\text{phase 1}} = 4.67$, $SD = 1.58$ vs. $M_{\text{expected}/\text{phase 2}} = 4.98$, $SD = 1.41$; $F(1, 85) = 2.21$, $p = .141$). We submitted the proportion of hedonic consumption to a repeated-measures ANOVA and once again observed that participants spent more of their found time on hedonic activities ($M_{\text{unexpected}/\text{phase 1}} = 68.33\%$, $SD = 0.22$) than expected gains of free time ($M_{\text{expected}/\text{phase 2}} = 51.37\%$, $SD = 0.26$; $F(1, 85) = 32.59$, $p < .001$, $d = 0.75$).

Individual Difference: Academic Performance. One might suggest that the effect of unexpectedness would be more pronounced among students who cared less about their academic performance because these students would spend less time on utilitarian activities such as studying or working on assignments. We therefore conducted a repeated-measures ANOVA on the proportion of hedonic

consumption with unexpectedness (phases 1 and 2) as the within-subject variable and students’ final letter grade as the between-subjects variable. The results confirmed that the effect of unexpectedness remained significant ($p < .001$); however, the main effect of final grade and their two-way interaction were not (both $p \geq .230$).

Discussion

This longitudinal field study examined two occasions of class cancellation, which were either unexpected or expected. Results again showed that participants were more inclined to spend their found time (vs. expected free time) on hedonic, leisure activities. Other alternative interpretations of the results could be that students had a more limited consideration set (i.e., fewer hedonic activities available due to pandemic-related restrictions) or that they had a busier schedule in phase 2 than in phase 1. We believe these accounts cannot fully explain the results because both phases were conducted during the pandemic, within the same semester, and at the same location. Moreover, the students’ course load and the pandemic-related restrictions they faced were similar across the two phases. Although phase 2 took place later in the semester, and students typically study more later in regular semesters, their workload was lessened drastically in the Spring of 2020 and became similar in both phases as a result of reduced course deliverables (e.g., canceled final examinations, canceled laboratories and projects) and a lenient grading policy (e.g., unlimited pass/fail classes, accommodations for sickness [no need to show doctor’s note if unable to come to class or take the examination]). Nonetheless, we realize that if phase 2 had occurred during a regular spring break, we might have observed a reversal as students may have gone on vacation. Thus, our interpretation of the results of study 2 is predicated on several key assumptions about the situation in phase 2 (e.g., students’ workload). To mitigate this potential weakness, in study 4, we manipulated unexpectedness using random assignment and measured perceived busyness.

BRIDGE SECTION: THE PSYCHOLOGY OF FOUND-TIME EXPENDITURE

Thus far, studies 1–3, as well as two pilot field studies, have shown consistently that consumers tend to spend more of their found time on hedonic activities than on utilitarian activities. In this section, we discuss potential explanations for this effect by drawing from prior research on windfall gains, consumers' perceived fit concerning spending unexpected gains on pleasure and implicit beliefs about how the gains should be spent, need for justification, and planning. We also discuss perceived busyness as a potential moderator of the effect.

Windfall Gains

Prior literature on windfall gains has focused exclusively on comparing the expenditure of unexpected monetary gains (e.g., lottery prizes, inheritance) with the expenditure of anticipated monetary gains (e.g., income, savings; [Arkes et al. 1994](#)). One key finding is that in decisions such as buying a product or gambling, people tend to spend unanticipated monetary gains more readily than the same amount of earned income or savings ([Arkes et al. 1994](#); [Soster, Monga and Bearden 2010](#)). Researchers suggest that this is because people generally perceive unanticipated money as free money or "house money" ([Thaler and Johnson 1990](#)). This spending pattern holds across different forms of monetary gains. For example, consumers who redeemed a \$10-off coupon at a grocery store spent \$1.59 more on average than those who shopped without the coupon. Interestingly, the extra spending associated with coupon redemption was primarily for groceries that consumers do not typically buy: they splurge on luxury items such as seafood rather than purchase necessity items such as grains ([Milkman and Beshears 2009](#)). In summary, this line of work suggests a link between windfall gains and pleasure. In fact, some researchers argue that unanticipated money is perceived as "fun money" ([Arkes et al. 1994](#)).

Just as windfall money is considered "fun money," people may perceive found time as "fun time." Evidence for this possibility comes from studies spanning from biology and animal behavior to psychology and consumer behavior ([Blythe and Hassenzahl 2018](#); [Fiske and Maddi 1961](#); [Valkonen et al. 2015](#)). In the case of animal behavior, when monkeys received an unexpected reward, their dopamine neurons fired intensively, but the same monkeys did not exhibit this response when a similar reward was expected ([Schultz et al. 1993](#); [Schultz, Dayan, and Montague 1997](#)). Likewise, unexpected gains are "fun" for humans. For example, employees are more glad when they receive an unexpected pay raise, not simply because of the positivity of the event but also because of its unexpectedness ([Blythe and Hassenzahl 2018](#)). In consumer research, consumers pay more attention to the ingenuity (how

interesting/novel/unusual/ingenious) of a surprise promotional gift and pay less attention to its quality; and vice versa for an anticipated promotional gift ([Zhu, Chang, and Chang 2015](#)). Similarly, tourists predicted higher utility from an unexpected attraction during a guided tour (e.g., a visit to a famous restaurant owned by a celebrity chef) than when they were informed of the same event in advance (anticipated event; [Dixon et al. 2017](#)). These unexpected rewards and events can be especially valued by recipients ([Vanhamme and de Bont 2008](#)).

Perceived Fit between Found Time and Pleasure: Implicit Beliefs about Spending

Not only do consumers find unexpected gains pleasurable, but they also prefer to "spend" unexpected gains to acquire pleasure. That is, consumers may have implicit beliefs on how to spend the windfall gains. For example, consumers who unexpectedly received a coupon before entering a store subsequently purchased more hedonic goods than they typically did on a regular shopping trip ([Heilman, Nakamoto and Rao 2002](#)). In another study, consumers reported that if they were to win a lottery, they would prefer a hedonic product as the prize over a utilitarian product; however, if they were to spend their own money, they would rather purchase a utilitarian product ([O'Curry and Strahilevitz 2001](#)). Based on these studies on windfall monetary gains, it is plausible that consumers would also prefer to spend their found time on pleasurable, hedonic activities.

Studies on memory can help explain this preference. People make judgments and decisions based on information accessible to them at the time of judgment rather than all the information stored in memory ([Bettman 1979](#); [Higgins 1990](#); [Wyer 2008](#)). Take brand choices for example. Consumers choose a brand from a list of brands that they can recall at the time of purchase (i.e., unaided brand recall), and this consideration set is susceptible to contextual factors (e.g., reminder advertising; [Nedungadi 1990](#)). Similarly, when people obtain windfall gains, they may generate memory-based consideration sets for how to spend the gains. The alternatives retrieved from memory depend on the properties of the windfall gains that serve as memory cues. Given that windfall gains connote pleasure, the alternatives that come to mind are likely to match and may even skew toward such a connotation, thereby increasing hedonic consumption.

Moreover, people may experience a positive feeling of fit when they spend their windfalls on items or activities selected from their pleasure-oriented consideration sets. This idea is akin to the notion of conceptual fluency where consumers perceive a fit between two concepts ([Schwarz 2004](#)). Consumers will favor items or activities that match the concept of windfall gains (fun, pleasure) because it feels appropriate or "fitting" to spend the gains on hedonic

consumption for the pleasure it brings. These spending experiences further shape and strengthen consumers' implicit belief about spending windfalls on hedonic consumption. Our intuition is consistent with the match between unexpected gains and hedonic consumption seen in mainstream marketing practices. For example, in Las Vegas, designer stores, shopping malls, entertainment, and fine dining are within close proximity to or even located within casinos (Kim and Tanford 2021). Presumably, this location strategy arises from marketers' observation that consumers tend to spend their windfall money on hedonic consumption. Similarly, consumers might find it fitting to spend their windfall time on hedonic activities.

Need for Justification

One explanation for consumers' tendency to spend windfall gains for fun is that there is little need to justify the spending. Consumers often feel guilty about spending money on hedonic purchases because they perceive such purchases as vices that are harder to justify than utilitarian purchases (Kivetz 1999; Lascu 1991; Prelec and Loewenstein 1998). As a result, consumers are unlikely to make hedonic purchases unless they can find reasons to justify doing so (Okada 2005). For instance, consumers may find it easier to justify buying luxury products by behaving virtuously before the purchase (Khan and Dhar 2006). And when consumers made greater effort to enroll in a reward program, they felt more justified and were more inclined to spend the reward points on luxuries items (Kivetz and Simonson 2002). Relatedly, prior research suggests that windfall money can be perceived as free money or "house money" and that the spending of windfall money might be perceived as a decrease in gain rather than the incurrence of a loss (Thaler and Johnson 1990). In the same vein, consumers may be inclined to spend found time on hedonic consumption; consumers may perceive the unexpected windfall time as a free gain that they can use to indulge in hedonic activities that are otherwise difficult to justify.

Planning

Yet another interpretation of our findings is that it is hard to find a useful way to spend extra free time on very short notice as in the case of found time. That is, consumers tend to spend more of their found time on hedonic consumption because hedonic activities are usually less structured in nature (Haworth and Veal 2004) and thus should require less planning than utilitarian activities. While this is true in some situations, consumers have plenty of utilitarian options at their fingertips in today's society, which we observed in participants' open-ended responses in studies 1–3 (e.g., replying to work-related emails, catching up with financial news for investors, or

browsing job postings). Furthermore, some hedonic activities actually require advanced planning (e.g., social gatherings, cooking a nice meal), which we also observed in some participants' responses. That said, we measured participants' ability and need to plan for spending time gains in the next two studies. In sum, although the perceived fit between windfall gains and pleasure (i.e., found time and fun/pleasure) may explain the observed effect of found time on hedonic versus utilitarian consumption in the studies reported thus far, consumers' need for justification and planning may present plausible accounts for the effect.

Perceived Busyness

Furthermore, we examine the potential moderating role of perceived busyness in consumers' use of found time. Our central prediction is that consumers will spend more of their found time on hedonic consumption than on utilitarian consumption. In addition, we posit that this effect will be more pronounced among those who feel they have time than those who feel busy. Past studies have shown that when people are busy, they have little time slack (defined as surplus time to complete a focal task; Zauberaman and Lynch 2005). In such cases, they tend to focus on finishing whatever tasks are on hand (Jhang and Lynch 2015; Shu and Gneezy 2010; Zhu et al. 2018). Intuitively, when consumers perceive themselves to be very busy, their time pressure can be so high that they rarely take a break. When they gain extra free time, they spend it to increase their productivity. For instance, a professor who has multiple impending deadlines, such as two examinations to grade, three article resubmissions, and two reviews, is likely to feel very pressed for time. All this professor could think of is increasing productivity to meet the deadlines. While those who face the greatest time pressure probably need or desire a break the most, existing research suggests they would not take the break when an opportunity arises. One reason is that consumers tend to focus on deadlines and generally desire to complete tasks that are due soon (Zhu et al. 2018) rather than spend time on hedonic activities that often do not have imminent deadlines (Winniffrith and Barrett 2016). Also, when people are busy, they tend to avoid activities that prevent them from completing their focal tasks (Jhang and Lynch 2015). Thus, we predict that the tendency to spend found time on hedonic consumption will be attenuated among consumers who feel they have little spare time.

Among the many potential explanations that may come into play, we explore the role of perceived fit/implicit belief in studies 4–5 and the moderating role of busyness in study 4. We also considered the role of other potential accounts, including the need for justification and planning, as well as other relevant background factors for consumers' time use including changes to the amount of free time, job situation, consumers' ability to plan, and guilt.

STUDY 4: A FIELD STUDY DURING THE PANDEMIC WEEK 1 VERSUS WEEK 3 DURING A STRICT LOCKDOWN

In study 4, we further tested our focal effect by manipulating unexpectedness. We used random assignment for this manipulation. Importantly, we expanded our empirical investigation in three ways. First, we ran the study using a non-student sample in another country, the United Kingdom. Second, we tested whether perceived busyness would moderate the effect of unexpectedness. We predicted that the effect of unexpectedness would be attenuated among consumers who perceive themselves to be busy (vs. less busy) and that they would not allocate more of their found time to hedonic activities. Third, we explored the perceived fit/implicit belief mechanism in a natural field setting where people might find having fun less fitting. Specifically, we tested the effect of unexpectedness during a strict nationwide lockdown in the UK that began in November 2020. UK citizens were not allowed to leave their residence except for essential activities, and there were restrictions on travels and visits to entertainment venues, attractions, fitness facilities, bars, and other non-essential shops.

We collected data in two waves during the lockdown (wave 1: week 1 of the lockdown; wave 2: end of week 3 of the lockdown) and asked participants to recall an incident of gaining either found time or expected free time in the past week, as in our previous studies. As the country had tens of thousands of new COVID cases each day during the first few weeks of the lockdown, we expected more incidents of found time related to the lockdown and COVID-19 in wave 2 (i.e., more canceled classes and activities due to new confirmed cases, more incidents of self-isolation due to contracting the disease or being in close contact with a confirmed case). These COVID-related incidents might also be associated with negative feelings. Our initial analysis confirmed our intuitions; in wave 1, the proportion of COVID-related incidents of found time was much lower (3.73%) than that in the expected condition (14.61%; $p = .001$). However, in wave 2, the difference across condition was no longer significant ($p = .457$) as the proportion of COVID-related incidents of found time more than doubled (8.28%). When describing the incidents that granted them extra free time, participants also expressed more negative feelings (disappointment, fear, and anxiety) in wave 2 than in wave 1 ($p = .013$) in their open-ended text responses. According to prior research on monetary gains, consumers are less likely to spend their windfalls on hedonic consumption when the money is associated with negative feelings (e.g., from a very ill uncle or a financially strapped sibling) because hedonic expenditures feel inappropriate (Levav and McGraw 2009). Therefore, we expected that the fit between found time and

hedonic consumption would decrease in wave 2 and that the effect of unexpectedness would be replicated in wave 1 and attenuated in wave 2.

Method

Design and Participants. This study employed a 2 (unexpectedness of free time: unexpected vs. expected) \times 2 (wave: wave 1/week 1 vs. wave 2/week 3) between-subjects design ($N = 649$ British Prolific workers, $M_{\text{age}} = 35.85$, 31.90% male).

Procedure. The study was conducted in two waves during the lockdown: week 1 (wave 1) and end of week 3 (wave 2). Our assumption was that most, if not all, participants knew about the lockdown in wave 1 and wave 2. On October 31, 2020, the UK government announced that the lockdown would begin on November 5. The British people learned about this through news, social media, and communication from the organizations they worked for or studied at.

In each wave, participants were randomly assigned to one of the two conditions (unexpected vs. expected) and responded to an identical survey. Participants in the *unexpected* condition recalled a situation in the past 7 days in which they unexpectedly gained some extra free time, whereas participants in the *expected* condition recalled a situation in the past 7 days in which they had known in advance that they would have some free time. In both conditions, participants reported how they had gained the time, the length of the free time, and how they spent the time. After this writing task, all participants were given the definition of three activity categories with corresponding examples: (1) utilitarian activities or chores; (2) hedonic activities; and (3) other activities. They were asked to report the proportion of time they had spent on each type of activities by allocating 100 points across the three categories.

Next, participants answered a manipulation check question for unexpectedness ("How expected/unexpected was this time gain to you?" 1 = expected, 7 = unexpected). Then, we measured perceived busyness using two items adapted from prior research (Jhang and Lynch 2015): "How much spare time do you have in the next 45 minutes/tonight?" (1 = very little spare time, 5 = a lot of spare time).

Other Measures. We also measured a number of confounding and pandemic-related variables such as planning, guilt, and job situation, and ruled out potential alternative accounts (for details, see table 11 in web appendix E). Finally, all participants responded to demographic questions and guessed the purpose of the study (see web appendix D for exclusion criteria).

Results

Manipulation Check. A 2×2 ANOVA revealed only a significant main effect of unexpectedness on our manipulation check question ($M_{\text{unexpected}} = 5.73$ vs. $M_{\text{expected}} = 4.04$; $F(1, 645) = 178.84$, $p < .001$): Participants in the *unexpected* condition perceived their free time to be more unexpected than those in the *expected* condition. Neither the main effect of wave nor the two-way interaction was significant (both $F < 1$, NS).

Main Results: Proportion of Hedonic Consumption. A 2×2 ANOVA revealed only a significant two-way interaction on the dependent measure ($F(1, 645) = 4.15$, $p = .042$). Neither of the two main effects was significant (both $F < 1$, NS). Specifically, 1 week into the lockdown (wave 1), participants in the *unexpected* condition reported spending a greater proportion of their found time on hedonic activities than those in the *expected* condition ($M_{\text{unexpected}/\text{wave 1}} = 55.99\%$, $SD = 0.40$ vs. $M_{\text{expected}/\text{wave 1}} = 46.98\%$, $SD = 0.41$; $F(1, 645) = 4.18$, $p = .041$). However, 3 weeks into the lockdown (wave 2), the proportion of free time spent on hedonic activities did not differ between conditions ($M_{\text{unexpected}/\text{wave 2}} = 51.80\%$, $SD = 0.41$, vs. $M_{\text{expected}/\text{wave 2}} = 55.87\%$, $SD = 0.41$; $F(1, 645) = 0.761$, $p = .383$).

Length of Free Time. We conducted a 2×2 ANOVA with the length of free time ($M = 3.10$ hours, median = 1.17, skewness = 13.72, kurtosis = 231.85) as the dependent variable. Results revealed a significant main effect of unexpectedness ($F(1, 645) = 4.13$, $p = .042$) and a significant two-way interaction between unexpectedness and wave ($F(1, 645) = 5.18$, $p = .023$). Wave did not have a significant main effect on length of free time ($F < 1$, NS). The two-way interaction was driven by the length of free time being shorter in the *unexpected* than the *expected* condition in wave 1 ($M_{\text{unexpected}} = 1.34$ hours vs. $M_{\text{expected}} = 5.49$ hours, $F(1, 645) = 9.86$, $p = .002$). (Recall in study 1, length of free time was directionally *longer* in the *unexpected* condition, suggesting that this pattern is unreliable.) There was no difference in length of free time across conditions in wave 2 ($M_{\text{unexpected}} = 2.65$ hours vs. $M_{\text{expected}} = 2.89$ hours, $F < 1$, NS). We therefore controlled for length of free time and tested the robustness of our focal effect. After including length of free time as a covariate ($p = .831$) in a two-way ANCOVA on proportion of hedonic consumption, the interaction between unexpectedness and wave remained significant ($F(1, 644) = 4.04$, $p = .045$). Using a log-transformed length of time ($p = .66$) as a control variable also yielded similar results ($F(1, 644) = 4.06$, $p = .044$).

The Moderating Role of Perceived Busyness. We first created a busyness index by averaging the two spare time measures ($r = 0.31$, $p < .001$; $M_{\text{busyness}} = 3.34$, min = 1, max = 5) and submitted the index to a two-way ANOVA.

The results showed that perceived busyness did not vary across conditions (all $F < 1$), confirming that participants across the conditions did not differ in the amount of spare time they perceived to have.

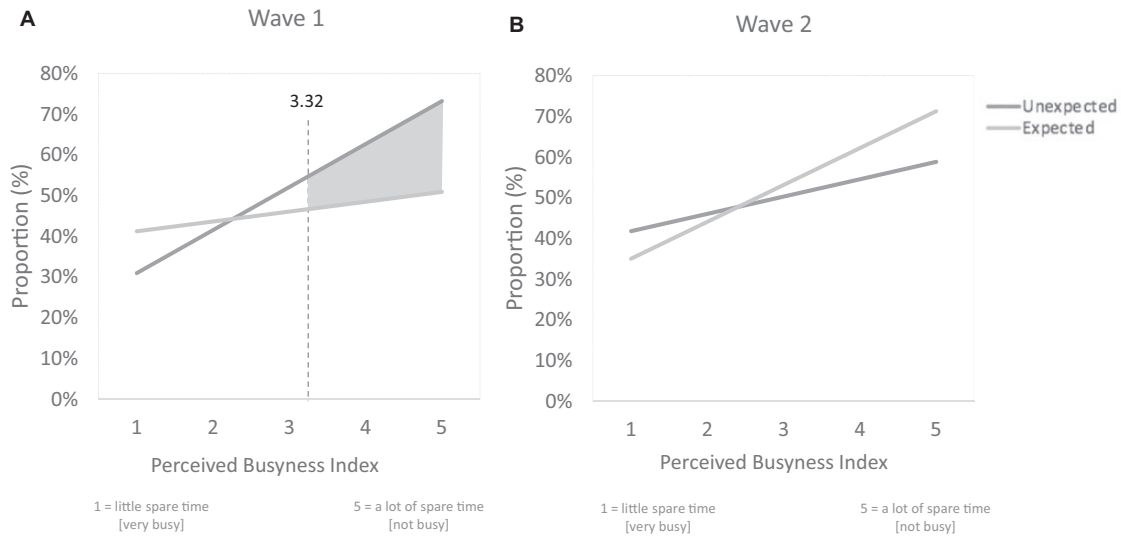
As noted earlier, we predicted that the effect of found time would be moderated by perceived busyness (e.g., having little spare time). We conducted a floodlight analysis (Spiller et al. 2013) with unexpectedness (1 = unexpectedness, -1 = expectedness), wave (-1 = wave 1, 1 = wave 2), and their interaction term as independent variables, and the busyness index (mean-centered; $M = 3.34$, $SD = 1.11$) as the moderator. The results showed a significant three-way interaction between the two independent factors and the busyness index ($B = -0.03$, $t(641) = -2.27$, $p = .024$), as well as a significant two-way interaction between unexpectedness and wave ($B = -0.03$, $t(641) = -2.07$, $p = .038$). (The negative coefficient for the three-way interaction was due to the coding of busyness; the lower the number, the less spare time one has, and the busier one feels.) To understand the three-way interaction, we analyzed the results for each wave separately. Consistent with our theorizing, the results showed a significant interaction between unexpectedness and the busyness index ($B = 0.04$, $t(641) = 2.06$, $p = .040$; figure 1A) in wave 1 (week 1), but not in wave 2 (week 3; $p = .245$; figure 1B). In wave 1, the results supported our prediction that the effect of unexpectedness diminished among participants who had a busyness index score of less than 3.32, with lower numbers indicating less spare time and higher perceived busyness. In wave 2, although spare time was still positively correlated with proportion of hedonic activities ($r = 0.174$, $p = .002$), consistent with our prediction, the correlation coefficient between perceived busyness and proportion of hedonic consumption did not differ across conditions ($r_{\text{unexpected}} = 0.120$, $r_{\text{expected}} = 0.241$, $p = .139$).

Discussion

The results of study 4 replicated our focal effect and showed the moderating effect of perceived busyness in wave 1 (week 1 during a strict national lockdown in the UK), and these effects were attenuated in wave 2 (week 3). This attenuation is consistent with the perceived fit account because more incidents of found time were associated with the pandemic and the overall negative feelings associated with found time increased in wave 2. In other words, found time felt less pleasurable and special as the lockdown continued and hedonic consumption seemed less fitting. Need for justification might also have played a role as it could be hard for consumers to justify spending found time on hedonic consumption in times of difficulty (cf. some researchers might argue that similar to the “house money” effect [Thaler and Johnson 1990], found time is still a

FIGURE 1

THE MODERATING ROLE OF PERCEIVED BUSYNESS IN STUDY 4



Notes: The x-axis resembles perceived busyness and y-axis resembles the proportion of found time spent on hedonic activities. Results show a significant two-way interaction in wave 1, but not in wave 2.

windfall gain and consumers should still be able to justify spending it on fun).

Alternatively, one might suggest that during the lockdown, people simply had fewer options for hedonic activities or habituated to a limited number of hedonic activities. We believe this account cannot fully explain the attenuation because consumers could still spend more of their found time on a variety of hedonic activities at home (e.g., watching *Lupin* or *Squid Game* on Netflix, online dating, playing video games, chatting with friends over the phone) if they just wanted to relax and have an enjoyable time. If Netflix became a little less interesting to some consumers for some reason, they had many other options for hedonic consumption. Nonetheless, we further examined this alternative explanation in study 5, where participants were offered an equal number of hedonic and utilitarian options to choose from.

Our findings suggest that planning did not play an important role in the observed effects in this study. When we reviewed participants' open-ended responses, the degree of planning did not vary meaningfully across conditions. For example, meals (cooking, baking, eating) was the second most frequently mentioned set of hedonic activities, and these activities do require some planning and preparation.

So far, our studies have examined the use of found time across various real-life contexts using open-ended text responses (studies 1, 3, and 4) and a pre-defined activity category list (study 2). The observed pattern of found-

time expenditure was relatively stable regardless of the source of the time gain—be it from work or leisure. Also, the effect remained unchanged or became even stronger in some cases when we controlled for the length of free time in our analyses. We also obtained evidence for perceived busyness as a moderator, such that consumers who perceive themselves to be busy (having little spare time) are less inclined to spend their found time on fun (study 4). However, we are keenly aware that the results are subject to other interpretations due to the field setting of the study and the lack of random assignment in exploring the reduced fit between found time and hedonic consumption specifically. Therefore, we further explored the fit account in two more studies (study 5 and study 2 in [web appendix C](#)).

STUDY 5: PRODUCTIVITY PROMPT

In this study, we attenuated the effect of unexpectedness by prompting participants to spend their time productively in an unrelated task. We expect the productivity prompt to cause participants to view their found time as a means or resource that can help them finish their tasks and enhance their productivity, rather than a windfall gain that they can spend freely. Specifically, we gave participants examples of reasonable ways to spend resource gains, including money, gifts, and time. We expect these examples to increase the incidence of utilitarian activities in people's

consideration sets for spending their free time and reduce the perceived fit between found time and hedonic consumption, thereby attenuating the effect. Relatedly, this planning prompt might even increase consumers' need to justify hedonic consumption and further reduce the proportion of found time spent on fun activities. Because expected free time is not a windfall gain, people may already be seeking to use this type of free time productively. Therefore, this productivity prompt is unlikely to decrease time allocation to hedonic activities even more in the *expected* condition. In sum, we predict the productivity prompt should reduce the proportion of free time allocated to hedonic activities when it is unexpected, thereby attenuating the effect of unexpectedness on time expenditure.

Furthermore, we randomly assigned participants to receive either expected or unexpected free time, while controlling for the length of the free time and the available options for hedonic and utilitarian consumption (10 video options). In our previous studies, we relied on participants' memories about their past experiences with time gains and the activities that they did. While we do not believe the unexpectedness of free time would distort participants' memories, we ruled out this possibility by measuring participants' real-time expenditure (which does not rely on participants' memories) as the dependent variable in study 5. These design features allowed us to rule out planning because watching hedonic and utilitarian videos during this study did not require any planning. Finally, this fixed-choice paradigm expanded the scope of our empirical testing from activities to consumer products.

Method

Design and Participants. This study employed a 2 (unexpectedness of free time: unexpected vs. expected) \times 2 (productivity prompt: baseline/no prompt vs. prompt) between-subjects design. A total of 332 MTurk participants ($M_{\text{age}} = 39.99$, 49.10% male) were randomly assigned to one of the four conditions.

Procedure. The study consisted of two surveys that were separated by a 10 minute break. Before the study began, all participants were informed that the study would take approximately 30 minutes to complete and that it would comprise two surveys: survey 1 on social science and survey 2 on consumer evaluations. As shown in [figure 2](#), participants encountered the manipulation of the two independent variables in survey 1 (the sequence of the manipulations varied depending on the condition). Specifically, survey 1 had five components, including (1) the announcement of a 10 minute break (i.e., free time), (2) the productivity prompt ("productivity prompt" in [figure 2](#)), (3) a filler task, (4) demographic items, and (5) the dependent measure (video selection). Survey 2 included a filler task that corresponded to the cover story for this part of the

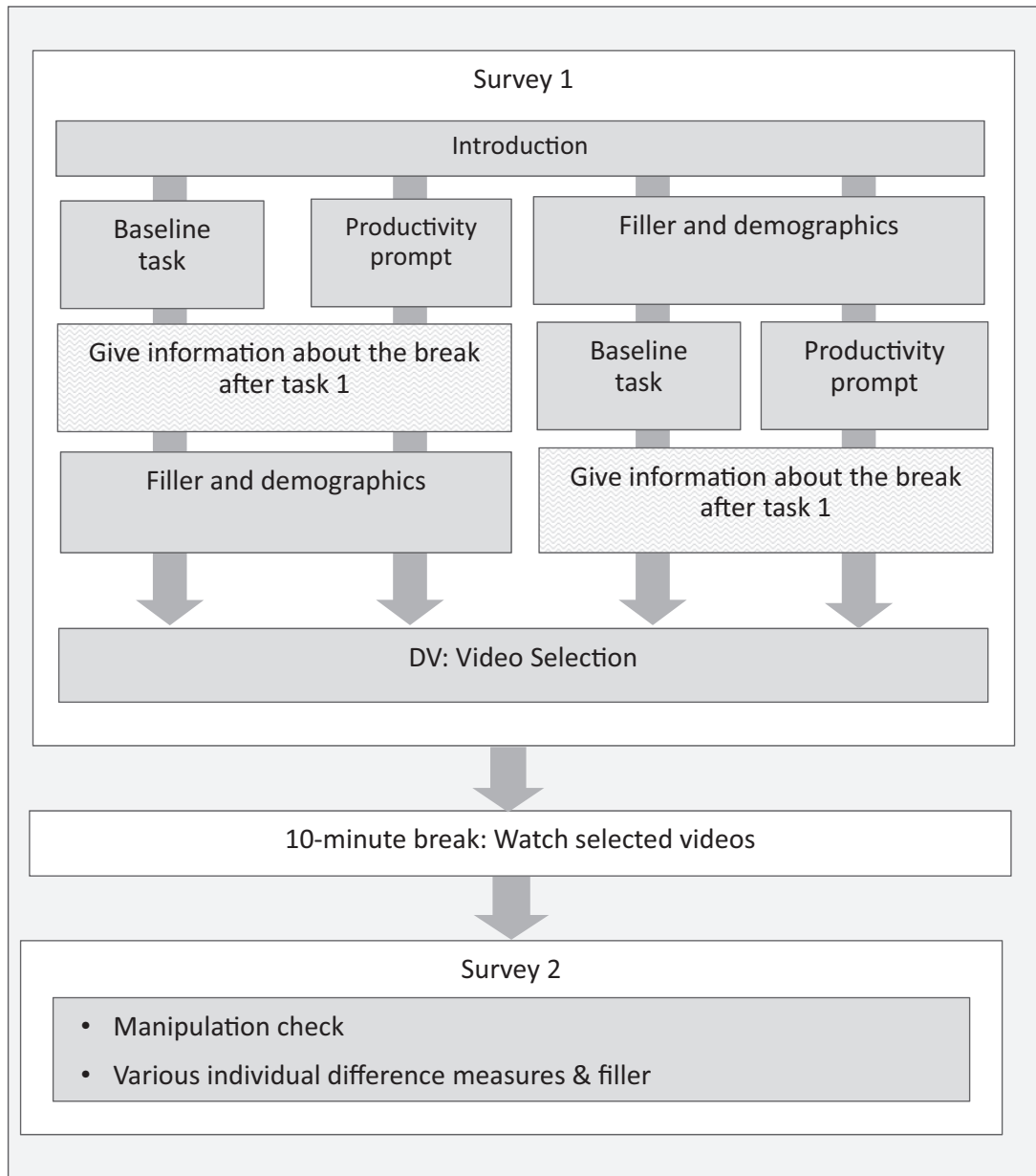
study, the manipulation check for the unexpectedness manipulation, and the measurements of potential confounding variables (table 11 in [web appendix E](#)).

Unexpectedness Manipulation. We adapted the unexpectedness manipulation from prior research ([Valenzuela, Mellers, and Strebel 2010](#)) by varying when the 10 minute break was announced. Prior research on windfall gains ([Arkes et al. 1994](#); [Valenzuela et al. 2010](#)) suggests that people are more surprised by an event when they are informed of it right before its occurrence than when they are informed in advance. For example, receiving an unexpected coupon in a store feels more surprising than receiving the same coupon by e-mail before going to the store. Applying this paradigm, we informed half of the participants (*expected* condition) in the earlier part of survey 1 that there would be a 10 minute break between survey 1 and survey 2. The cover story was that the 10 minute break was meant to prevent any carryover effect on survey 2. Participants were assured that they would still be paid for the 30 minute session despite the break. After receiving this announcement, these participants continued with survey 1. The remaining half of the participants (*unexpected* condition) were informed of the 10 minute free time right before they took the break. We expected these participants to feel more surprised when spending the extra free time.

Productivity Prompt. We made productivity more salient by prompting some participants to come up with ways to spend their resource gains, including time, in a sensible and productive way. Specifically, half of the participants were assigned to the *productivity-prompt* condition in which they read that consumers encounter various types of gains in their lives and that some consumers use the resource gains wisely, while others do not. To increase the realism of the task and prevent a potential demand effect, we first asked participants to read the spending behavior of five consumers and rate these behaviors. Care was taken to ensure that participants would not suspect the purpose of the study: some spending behaviors were prudent, and others were frivolous. Some scenarios involved spending time gains, and others involved how consumers used gifts or spent monetary gains. For example, "*Recently, I was going to spend the day outside working in the garden, but it rained. I decided to tidy up the house. The house looked nicer and cleaner as a result.*" A negative example is "*My aunt gave me a gift card for my graduation. I used it to buy a dress that I liked. it was not very practical because I only wore it once.*"

For each of the five spending scenarios, participants rated how well the gain was spent using two items: (1) "How would you rate the way the gain was spent?" (1 = very poorly, 7 = very well) and (2) "Could the person have spent the gain in an even better way?" (1 = could have spent it better, 7 = could not have spent it better). Next, we asked participants to imagine receiving a gain in

FIGURE 2
STUDY 5 PROCEDURE



the future, explain how they would spend the gain, and rate their spending decision using the same two items for the five scenarios earlier. We intentionally did not specify the type of gain to keep it general; the gain could be in the form of time, money, or goods.

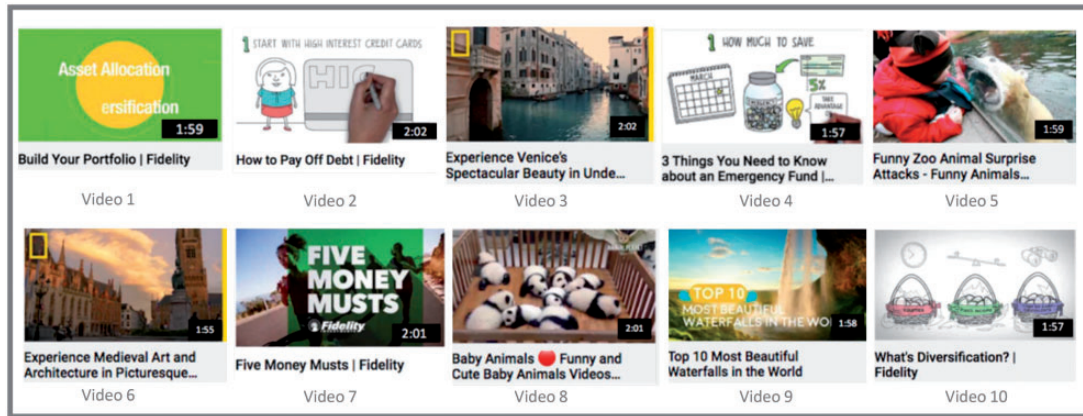
Participants assigned to the *baseline* condition did not encounter this productivity prompt. Instead, they did a neutral reading task in which they read and summarized an

article. Then, participants responded to filler items and demographic questions. Finally, all participants responded to the dependent measures (see below) and had a 10 minute break.

Dependent Measure. We measured how participants spent their 10 minute break. Specifically, we presented participants with a selection of 10 videos, each lasting about

FIGURE 3

VIDEOS (5 FOR SELF-IMPROVEMENT AND 5 FOR FUN) USED IN STUDY 5



two minutes; five of these videos were related to self-improvement while the other five were for fun (figure 3). The self-improvement videos were obtained from an asset management company covering topics such as “Build your portfolio.” The fun videos featured beautiful sceneries or cute animals. Participants chose five videos to watch. The dependent variable was the proportion of hedonic, fun videos that participants chose to watch (min = 0 [0%], max = 5 [100%]). After participants had made their video choices, participants watched their selected videos, which played one-by-one automatically for a total duration of 10 minutes.

Manipulation Check Measures. After watching the videos, all participants responded to survey 2. We first administered two manipulation check questions on unexpectedness using two items (“How unexpected/surprising was it to have the 10-minute break?”) on 7-point scales.

Other Measures. We also measured several confounding and pandemic-related variables and ruled out potential alternative accounts (for details, see table 11 in the [web appendix](#)). Finally, participants responded to filler items and guessed the purpose of the study (no one was able to).

Results

Manipulation Check. We created an unexpectedness index by averaging the two manipulation check items ($r = 0.69$; $p < .001$). A 2×2 ANOVA revealed only a significant main effect of unexpectedness ($M_{\text{unexpected}} = 6.03$ vs. $M_{\text{expected}} = 4.91$; $F(1, 328) = 38.00$, $p < .001$). Participants in the *unexpected* condition perceived the 10 minute break to be more unexpected than those in the *expected* condition did. Neither the productivity prompt ($p = .299$) nor the two-way interaction

($p = .686$) had a significant effect on the unexpectedness index.

Main Results: Proportion of Hedonic Consumption. The number of hedonic videos that participants chose was converted into a proportion (e.g., they could choose five videos for the 10 minute break; if they chose three fun videos, it meant they spent 60% of the break on hedonic activities). A 2×2 ANOVA on this dependent measure revealed only a significant two-way interaction on the proportion of hedonic consumption ($F(1, 328) = 10.68$, $p < .001$). Neither the main effect of unexpectedness nor the main effect of productivity prompt was significant (both $F < 1$). Planned contrasts showed that in the *baseline* condition (no productivity prompt), participants spent more of their 10 minute break on fun videos when the free time was unexpected than when it was expected ($M_{\text{unexpected/baseline}} = 71.08\%$, $SD = 0.27$ vs. $M_{\text{expected/baseline}} = 61.64\%$, $SD = 0.30$; $F(1, 328) = 4.13$, $p = .043$, $d = 0.33$). This result replicated the earlier studies conceptually. However, participants in the *unexpected/productivity-prompt* condition spent less of their break time on hedonic consumption ($M = 61.28\%$, $SD = 0.29$) than those in the *unexpected/baseline* condition ($F(1, 328) = 5.06$, $p = .025$, $d = 0.34$). Though not central to our main prediction, participants in the *expected/productivity-prompt* condition ($M = 72.68\%$, $SD = 0.29$) spent more of their free time on hedonic consumption compared to those in the *expected/baseline* condition as well as those in the *unexpected/productivity-prompt* condition (both $p < .018$). We did not replicate this reversal in the follow-up study (study 2 in the [web appendix](#)), suggesting that this result may not be reliable.

Discussion

Study 5 lent further support to the focal effect of unexpectedness by using a productivity prompt that should reduce the fit between found time and hedonic consumption and might even increase consumers' need to justify hedonic consumption. Because we offered every participant the same video choices, participants did not have to plan how they would spend their free time, and thus planning did not apply to this study context. In particular, when participants were led to think that gains should be spent well, those who gained found time spent less of their gain on hedonic consumption (i.e., watching fewer fun videos). We further conducted a follow-up study (reported as study 2 in [web appendix C](#)) with a similar design as study 5. The only

difference was the specific instructions that reminded participants of the importance of efficient time usage. We expected that the focus on efficient time usage would attenuate the effect of unexpectedness on time expenditure. The results of this study confirmed our prediction.

META-ANALYSIS ON LENGTH OF FOUND TIME

One may wonder whether the focal effect of unexpectedness on the consumption of free time would persist for varying lengths of found time. To address this question, we probed more deeply into our study results, combining the datasets from the *unexpected* condition in all the main studies and conducting linear and curvilinear regression analyses. The distribution was highly skewed (mean = 9.64; median = 3.17; skewness = 15.61; kurtosis = 324.71). We therefore transformed the length of found time using natural log (mean centered) for the analyses.

A linear regression analysis using length as the predictor and the time allocation (i.e., proportion of hedonic consumption) as the dependent variable revealed that the time allocation remained somewhat constant regardless of the length of found time ($B = 1.06$; $p = .275$).

Next, we conducted a curvilinear regression analysis. The analyses revealed a U-shaped curvilinear, rather than a linear, relationship between length of found time and proportion of hedonic consumption ([table 3](#): linear: $B = -0.41$, $p = .721$; curvilinear: $B = 1.41$, $p = .019$ also see [figure 4](#)).

TABLE 3

SUMMARY OF REGRESSION MODELS

	Unstandardized coefficients		<i>t</i>	Sig.
	<i>B</i>	Std. error		
Model 1				
(Constant)	58.07	1.03	56.57	0
ln_length	1.06	0.971	0.033	0.275
Model 2				
(Constant)	56.49	1.22	46.14	0
ln_length	-0.41	1.15	-0.36	0.721
ln_length ²	1.41	0.6	2.35	0.019

FIGURE 4

PROPORTION OF HEDONIC CONSUMPTION (%) AS A FUNCTION OF LENGTH OF FOUND TIME

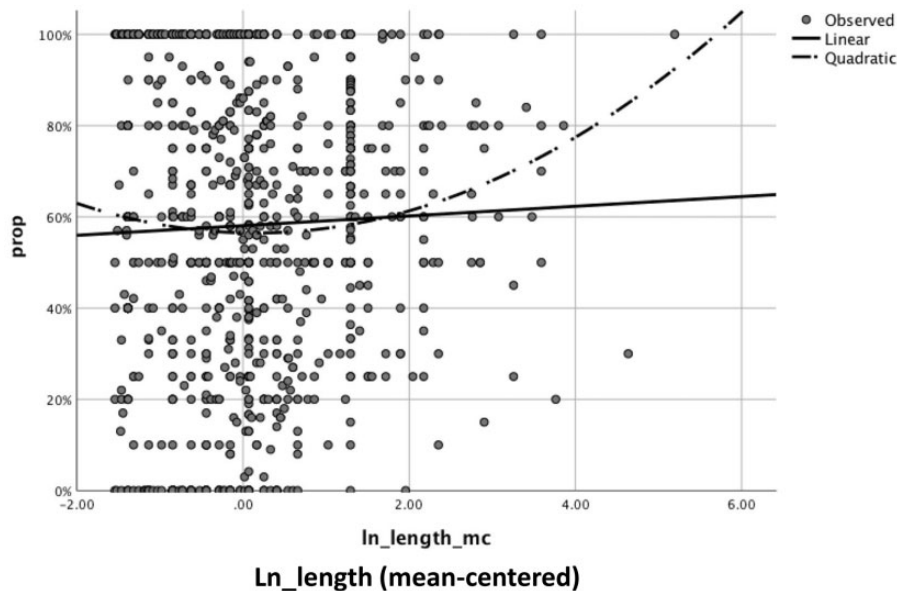
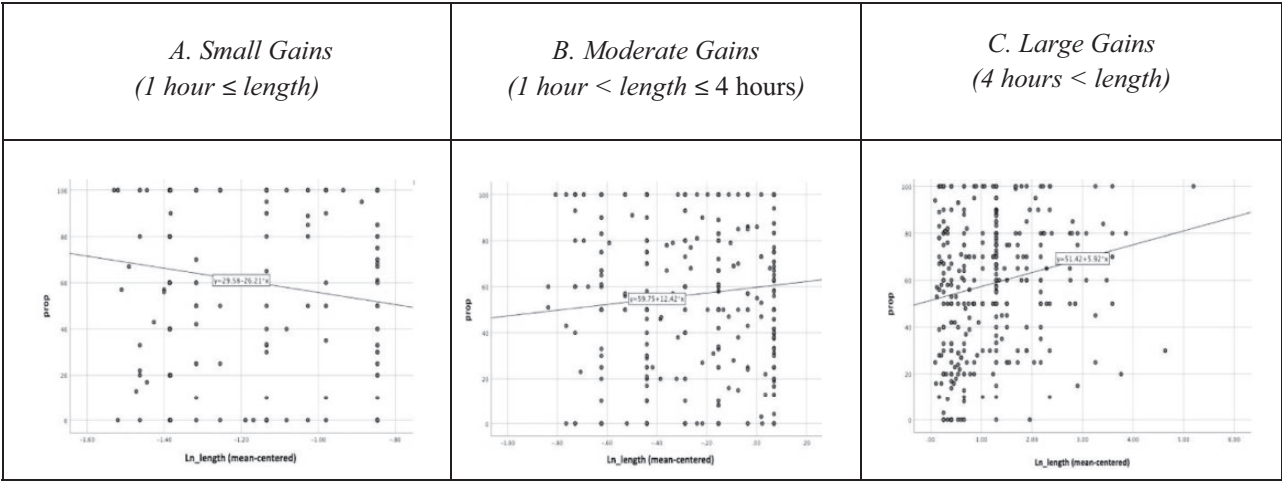


FIGURE 5

PROPORTION OF HEDONIC CONSUMPTION (%) FOR DIFFERENT LENGTHS OF FOUND TIME



To better understand this curvilinear relationship, we categorized the length of found time into three groups: small gains (1 hour or less), moderate gains (over 1 hour, up to 4 hours), and large gains (more than 4 hours). We categorized the time gains based on our exploratory analysis (web appendix C) showing that a notable proportion of found time tends to be short (i.e., 1 hour or less; 37.11%) and that the vast majority of the time gains were 4 hours or less (80%). Only 20% of the time gains were more than 4 hours. Then, we conducted a linear regression for each group.

For small amounts of found time (1 hour or less), people spent less of their found time on hedonic consumption when the length of time increased (figure 5A: $B = -26.21$; $p = .007$). For moderate gains (more than 1 hour, up to 4 hours), the correlation between length of found time and amount of hedonic consumption was positive (figure 5B: $B = 12.42$; $p = .046$). This positive correlation was even stronger for gains greater than 4 hours (figure 5C: $B = 5.92$, $p = .001$). Overall, these results suggest a curvilinear relationship in how consumers allocate their found time which varies by its length. Overall, people still spend more of their found time on hedonic consumption ($Ms = 56.87\text{--}58.23\%$), across different lengths of found time.

GENERAL DISCUSSION

This research introduces the concept of found (windfall) time. The results of six studies (studies 1 and 3–5 and two supplementary studies in the web appendix) consistently show that consumers spend more of their free time on hedonic activities when they receive the free time

unexpectedly (found time) than when the free time is expected. The greater tendency to spend found time (vs. expected free time) on fun was attenuated when the perceived fit between found time and hedonic consumption was weakened in the midst of a strict national lockdown (study 4) and when people were prompted to be productive with their time (study 5 and study 2 in the web appendix). See table 4 for a summary of our studies.

We observed a consistent pattern of found-time expenditure in a broad range of contexts, including field settings and laboratory experiments using online panels and university student samples, and using different measurements of time expenditure including participants’ self-coded open-ended activity listing (studies 1, 3, and 4) and video choices (study 5 and study 2 in the web appendix). The activity-listing task allowed us to control for individual differences in perceptions of a similar activity (e.g., cooking is fun for one but a chore for another). The video-choice paradigm, on the other hand, allowed us to control for the number of available hedonic and utilitarian activities at hand and to test our prediction using consumer products and a real-time behavioral measure. Of note, studies 3–5 and study 2 in the web appendix were conducted during the pandemic, suggesting that the effect of unexpectedness extended to this difficult and uncertain period, except when in the midst of a strict national lockdown, which was an extreme emergency situation. As discussed in study 4, we suspect the lockdown weakened the perceived fit between found time and pleasure.

Importantly, our work identifies perceived busyness as a moderator. When consumers perceive themselves to be busy (as reflected in lower relative time slack in pilot

TABLE 4
SUMMARY OF FINDINGS

Study	Method	Sample size and design ^a	Key results
Pilot 1	Field study: college students recalled how they had spent their found time during a strike.	110 (1 condition)	Students spent more of their found time on hedonic activities than on utilitarian activities.
Pilot 2	Field study: students reported how they had spent their found time on a snowstorm day.	346 (1 condition)	Participants spent more of their found time on hedonic activities than on utilitarian activities; those perceiving having a busy schedule were less likely to spend the free time on fun.
Study 1	MTurk study: participants recalled a recent occasion in which they had gained unexpected versus expected time.	179 (4 conditions)	Participants' allocation of found time to hedonic activities decreased when they had anticipated the time gain. Perceived urgency and importance of activities were ruled out.
Study 2	MTurk study: participants reported how they would spend found time when the gain was attributed to self-effort versus an external reason.	80 (2 conditions)	When found time resulted from one's self-effort (vs. an external reason), more of the time gain was spent on hedonic activities.
Study 3	Longitudinal field study: college students gained unexpected, and expected time periods of 1 week, and reported how they had spent their free time for each week.	86 (1 condition with two-level within-subject variable)	Participants spent more of their free time on hedonic activities when it was unexpected (phase 1) than when it was expected (phase 2).
Study 4	Field study: UK participants were recruited in the first week of the lockdown and 3 weeks into the lockdown. In each wave, participants recalled a situation in which they gained either unexpected free time or expected free time.	649 (4 conditions)	In wave 1 (the first week of the lockdown), we replicated the effect of unexpectedness. In wave 2 (3 weeks into the lockdown), the effect was attenuated. Perceived busyness moderated the effect of unexpectedness.
Study 5	MTurk study: participants then reported how they would spend 10 minutes of free time by selecting which videos to watch.	332 (4 conditions)	When productivity was prompted, the effect of unexpectedness was attenuated.

^aAll the studies adopted a between-subjects design, unless specified otherwise.

studies 1–2, busyness in study 1 in the [web appendix](#), and reduced spare time in study 4), they are *less* likely to spend their found time on hedonic activities. In addition, we explored several moderators for the observed effect. In study 4, we observed an attenuation of our focal effect during the national lockdown in the United Kingdom (i.e., a national emergency is not the time to have fun). In study 5 and study 2 in the [web appendix](#), we directly prompted productivity. Although study 5 also casts doubt on several alternative accounts (e.g., guilt, entitlement for hedonic consumption), the results of study 2 show that the allocation of found time to fun increased when participants attributed the gain to an endogenous factor (self-effort at work) than an exogenous factor (other people's delay at work). This suggests that consumers' need to justify their hedonic consumption may be at work. While our study results provide some support for the fit between found time and hedonic consumption and possibly also the need-for-justification account, it is likely that the effect of found time on consumption is a multiply determined phenomenon and, therefore, warrants further research.

In our studies, we examined several background factors that could influence the expenditure of found time versus expected free time. Besides comparing an exogenous and

an endogenous attribution of found time in study 2, we explored in study 1 how source of time gain (work vs. leisure) might influence time expenditure. Although one may argue that consumers would spend less of their found time on hedonic activities when it is gained because of a canceled work-related event than when it is gained because of a canceled recreational activity, the results of study 1 revealed that the source of the free time does not play a significant role.

Theoretical Contributions

Hedonic versus Utilitarian Consumption. We extend prior research on hedonic versus utilitarian consumption to understand how consumers use the time that they gain unexpectedly. The literature suggests that hedonic activities tend to be nonobligatory, less instrumental, and more pleasurable, whereas utilitarian activities are more obligatory, more instrumental, and not necessarily pleasurable (Babin et al. 1994; Tonietto and Malkoc 2016). However, our participants' open-ended responses, in which they listed activities that they did with their extra free time, revealed that hedonic activities and utilitarian activities are likely to include both meaningful and frivolous activities. For

example, the hedonic activities listed included spending quality time with loved ones (family/friends) as well as frivolous activities such as browsing entertainment news. Similarly, while many self-reported utilitarian activities were personally meaningful (e.g., studying to obtain a professional license), this category also included relatively mundane tasks such as folding laundry.

To systematically understand how these consumers spend their time, we conducted content analyses for five studies (two pilot studies and studies 1, 3, and 4; 2,947 data points in total). Some interesting findings emerged. For example, when we examined the sequence of activities in which participants engaged with their unexpected free time, the majority of the participants listed hedonic activities more frequently than utilitarian activities at each position of the sequential order (e.g., activity 1: hed % > util %, activity 2: hed % > util %; activity 3: hed % > util %; activity 4: hed % > util %). This suggests that participants prioritized hedonic activities over utilitarian activities when they gained found time and that hedonic activities were more salient in their mind than utilitarian activities when they recalled how they had spent their found time ([web appendix B](#)). Furthermore, situational contexts such as strict lockdown or sheltering in during the COVID-19 pandemic seemed to have affected how people perceive found time. For example, compared with the beginning of the lockdown (study 4: wave 1), the effect of unexpectedness was weakened such that participants spent less of their windfall (found) time on hedonic consumption when they were deep in the lockdown (wave 2). According to our analysis of their descriptions of the incidents of gaining extra free time, windfall (found) time felt less pleasurable or special and was associated with more negative feelings as the lockdown continued and hedonic consumption seemed less fitting in wave 2 than wave 1. Need for justification might also have played a role as it could be harder for consumers to justify spending found time on hedonic consumption in times of difficulty. See [web appendix F](#) for details of the protocol analysis for S4.

Windfall Gains. In addition, we extend past research on windfall gains, which has focused on windfall versus non-windfall money ([Arkes et al. 1994](#); [Levav and McGraw 2009](#)). Prior work has shown that consumers spend more of their windfall money on fun than they would with non-windfall money ([Milkman and Beshears 2009](#)). Similarly, we find that consumers are more willing to spend their found time on fun than they would for the same amount of expected free time. Interestingly, the tendency to spend found time on fun also exists when the time gain arises at work, corroborating prior literature showing that people are likely to spend windfall money gained in a work-related context (e.g., school lab, workplace) on fun items ([Arkes et al. 1994](#)). In line with the windfall money literature, the results of our studies suggest that a perceived

fit between found time and hedonic consumption may explain our observed effect. We also discuss the potential role of need for justification and one's ability to plan. Importantly, our work identifies perceived busyness as a ubiquitous yet unexplored moderator for how consumers spend found time and shows that consumers' tendency to spend their found time on hedonic activities decreases when they perceive themselves to be busy. This is an important extension for the windfall gains literature. If the same principle applies to monetary gains, people might be less likely to spend their windfall money on hedonic products when they encounter reminders of resource scarcity ([Roux, Goldsmith, and Bonezzi 2015](#)).

Time Usage. Our work also adds to the literature on time usage. Prior work has demonstrated that when people perceive themselves to be busy, they tend to focus on finishing tasks at hand ([Jhang and Lynch 2015](#); [Shu and Gneezy 2010](#); [Zhu et al. 2018](#)). Our work shows that perceived busyness can even prevent people from enjoying themselves when they gain extra free time unexpectedly, even though taking a break might actually help alleviate stress and potentially increase productivity for subsequent tasks ([Winniffrith and Barrett 2016](#)).

Implications for Consumers

Our research sheds light on how to help consumers enjoy hedonic consumption more as they usually prioritize utilitarian activities and purchases. From the consumer's perspective, being able to enjoy one's consumption is beneficial for their wellbeing. Managers may be able to encourage hedonic consumption by helping consumers gain (or think they have gained) found time. For example, service providers can shorten wait time or embed an unexpected break into their service (e.g., educational programs), which may promote hedonic consumption while creating cross-selling opportunities.

Although the COVID-19 pandemic may be waning gradually, there remain many uncertainties in our lives (and hence schedules) due to emerging health-related issues (e.g., monkeypox), political instability (e.g., the recent shakeup of the British Government), and severe-weather conditions especially with global warming (e.g., wildfires, floods, and severe thunderstorms). The insight discovered during the COVID-19 pandemic is likely to continue to be relevant and applicable to consumers' lives. For example, changes in one's lifestyle and adapting to the "new normal" may cause some consumers to view their free time as less unexpected, while the blurring distinction between leisure and work may lead consumers to have less fun with their found time. Consumers' inability to take a break and enjoy life when they gain extra free time during a strict lockdown can have important implications on wellbeing (e.g., boredom; [Tsai and Zeng 2021](#)) and lead to

suboptimal decision-making (e.g., isolation lowers conformity to the norm; Tsai, Zhao and Soman 2022; boredom increases risk taking; Tsai and Zeng 2021). Furthermore, it is plausible that consumers may become more accustomed to managing uncertain gains (or losses) in life, while myriad other psychological forces such as mental stress, and need for control and personal freedom, may operate. These changes may directly or indirectly impact consumers' implicit association between found time and pleasure.

Limitations and Future Research

There are several limitations in our studies. First, our empirical results are based on consumers in North America and the United Kingdom—societies in which people tend to spend more time on work, be employed more often, and have more consumption options (partly due to higher incomes) than people in many other countries. The extent to which cultural and socioeconomic factors play a role in the use of found time is a promising area for future research. Relatedly, due to the constraints of online platforms, the experimental paradigm in study 5 and its follow-up study involved relatively small amounts of free time, and our participants might have treated the free time as work. Although random assignment ensures that these platform-specific characteristics cannot fully explain our findings, they deserve greater attention in future research.

Second, we tested the impact of several potential moderators (length of time, source of gain, endogenous vs. exogenous attribution of found time) in addition to perceived busyness. Future work could build on these findings by further comparing the different forms and situations in which found time arises and their impact on time expenditure. For example, some gains come in definite amounts, arise from external sources, and are available to others as well (e.g., cancelation of work or school due to a snowstorm, a technological advancement that reduces the time it takes to perform a particular task), while others come in more ambiguous amounts, arise from internal sources, and are available to only an individual or a small group of consumers.

The effects of how found time is presented to consumers can also be further explored. Depending on the reference point, found time can be framed as either a gain or a loss. For example, when a professor cancels a class, some students will consider the extra hours as a gain (Kahneman and Tversky 1979) while students who are forced to attend a makeup class may view the cancelation as a loss of future time.

Found time also opens up a number of broader, thought-provoking questions such as: What is the relation of found time to health, happiness, and welfare, and is it more important than expected free time to these various aspects of life? How can a company generate profits from found time? Can consumers be coached to use found time in

ways that benefit them so that they do not “waste” it? Is “wasted” found time really wasted, or does it carry some kind of value? Finally, there is an obvious parallel to found time: lost time, that is, time consumers thought they had which is suddenly “usurped” by other activities. How consumers perceive and treat such a loss, along with how such a loss differs from the way they treat a gain of found time, are also promising avenues to explore further.

Of course, it is beyond the scope of the present research to provide an exhaustive examination of potential factors that influence how consumers utilize found time. Nonetheless, we hope our work will spark much future research and discussion among researchers, practitioners, and policymakers on this vital and pervasive domain of time expenditure.

DATA COLLECTION INFORMATION

Data for study 1 (February 2018), study 2 (October 2015), and study 5 (December 2020) were collected using the MTurk online platform. Data for study 3 (March–May 2020) were collected by recruiting students at Rice University. Data for study 4 (November, 2020) were collected using Prolific platform. All data were collected by the first author under the supervision of the other authors. All authors discussed data analysis and interpretation together, provided critical revisions, and approved the final version of the article for submission. The data are stored in a project folder on the Open Science Framework.

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