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MENTAL ACCOUNTING OF TIME: HOW ANTICIPATED WAITING COSTS AND FUTURE RESOURCES SHAPE CURRENT CONSUMER DECISIONS

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Overview

Intertemporal decision making is a foundational topic in behavioral decision research and consumer psychology. A central insight of this literature is that individuals systematically overweight the present relative to the future, leading to impatience, present bias, and dynamically inconsistent preferences (Ainslie 1975; Laibson 1997; Frederick, Loewenstein, and O'Donoghue 2002). Classic models of time discounting formalize these tendencies by assuming that delayed outcomes are evaluated through a discount function that monotonically reduces their subjective value as a function of delay (Samuelson 1937; Ainslie 1975; O'Donoghue and Rabin 1999). This framework has been remarkably generative, accounting for a wide range of phenomena such as preference reversals, procrastination, under-saving, and impulsive consumption (Laibson 1997; O'Donoghue and Rabin 1999; Frederick et al. 2002).

Beyond formal discounting, research has increasingly emphasized the psychological representation of time and outcomes. Consumers do not merely respond to objective delays; rather, their intertemporal preferences depend on how future outcomes are construed, framed, and mentally organized (Loewenstein 1987; Read, Frederick, Orsel, and Rahman 2005; Zauberman et al. 2009). Prior work shows that impatience varies with outcome magnitude (Loewenstein and Prelec 1992), outcome sign (gains vs. losses; Thaler 1981), temporal framing (dates vs. intervals; Read et al. 2005), and perceived connectedness to the future self (Bartels and Urminsky 2011). These findings suggest that intertemporal choice is not governed by a single valuation mechanism, but instead reflects multiple interacting psychological processes that shape

how future outcomes are anticipated and evaluated (Frederick et al. 2002; Urminsky and Zauberman 2016).

A particularly influential development in this literature is the application of mental accounting principles to intertemporal decisions. Mental accounting theory proposes that individuals group, segregate, or integrate outcomes into cognitive "accounts," which in turn shapes experienced utility (Thaler 1985, 1999). Although this framework originated in the domain of financial outcomes, subsequent work has shown that similar accounting principles govern how people organize experiences, effort, and time (Thaler and Johnson 1990; Kahneman and Tversky 2013). Events that are mentally grouped together are evaluated differently than those kept separate, even when their objective properties are equivalent (Thaler 1999; Soster, Gershoff, and Bearden 2014). This perspective implies that intertemporal preferences may depend not only on when outcomes occur, but also on how temporal experiences are partitioned into mental units.

Despite these advances, existing research has largely examined waiting primarily as a cost to be minimized and future resources primarily as inputs to lifetime wealth, without a unifying account of how anticipation shifts how resources are mentally organized over time (Samuelson 1937; O'Donoghue and Rabin 1999). As a result, we know relatively little about how consumers structure anticipated future experiences, how they mentally bundle or segregate future resources, and how these anticipatory representations feed back into current decisions. This gap is theoretically important because anticipation is not neutral: how future time and future resources are mentally partitioned may systematically alter spending and tolerance for delay.

My dissertation addresses this gap by examining how consumers anticipate, structure, and mentally account for future experiences and resources, and how these anticipatory

representations systematically influence intertemporal choice. Rather than focusing exclusively on discounting outcomes, the research shifts attention to the anticipation of the future, including how waiting periods are organized and how future resources are mentally allocated. Across two papers, my dissertation demonstrates that consumers' present decisions are shaped by forward-looking considerations about cognitive burden, mental bookkeeping, and perceived manageability of future states, revealing novel contribution to the intertemporal decision making literature.

In essay 1, co-authored with Oleg Urminsky, I examine how consumers organize and anticipate waiting when multiple outcomes are delayed in parallel. Classic intertemporal models predict that, holding outcomes constant, consumers should always prefer earlier receipt of benefits, regardless of the timing of other outcomes. In contrast, this paper proposes that consumers are sensitive to the structure of waiting episodes and may be willing to accept longer total delays when doing so simplifies the anticipated waiting experience. Specifically, it introduces the synchronization effect: consumers are more willing to delay an earlier benefit when doing so allows it to arrive on the same future date as another benefit, even when synchronization offers no instrumental advantages such as convenience or reduced effort. Across multiple experimental contexts, including product delivery and monetary payments, introducing a synchronized option increases willingness to wait. Importantly, this reflects an attenuation of impatience rather than a reversal: consumers remain generally impatient but become more tolerant of delay when waiting periods can be consolidated.

The central mechanism is single-event construal. When outcomes arrive on the same date, consumers are more likely to represent waiting as a single unified episode rather than multiple distinct waits, reducing the anticipated cognitive burden of monitoring and mentally

tracking future events. Process evidence shows that synchronized delivery increases perceptions of "waiting once rather than twice," which mediates willingness to accept longer delays, and that the effect weakens when this unified construal is disrupted. By reframing waiting as an actively managed psychological experience rather than a passive temporal cost, this paper extends intertemporal choice theory to contexts involving multiple parallel delays and reveals a novel pathway through which anticipation shapes present behavior.

In essay 2, co-authored with Abigail Sussman, I shift focus from waiting to future financial resources, examining how consumers anticipate and mentally account for money that will become available over time. While traditional economic models treat future income as fungible and fully integrated into lifetime wealth, behavioral research shows that consumers often earmark funds into distinct mental accounts, constraining spending and shaping financial decisions. However, existing work has largely focused on current or past resources, leaving open how consumers mentally represent future resources when making present-day choices. This paper proposes that consumers organize future resources into temporally defined mental budgets rather than a single integrated pool. As a result, present decisions are guided not only by objective financial constraints but also by subjective perceptions of future slack or scarcity.

Across a series of studies, the paper demonstrates that anticipating future resources can systematically loosen or tighten present financial behavior, even when objective wealth remains unchanged. Consumers are more willing to spend, commit, or absorb costs when future resources are framed as psychologically available and integrated, but remain conservative when those same resources are mentally partitioned or earmarked for other purposes. These findings reveal a forward-looking form of mental accounting in which consumers regulate present behavior by managing expectations about future financial states.

Collectively, the two essays contribute to the intertemporal choice and mental accounting literatures in three ways. First, they advance a broader view of intertemporal decision making by shifting attention from outcome valuation to anticipatory processes, showing that consumers actively organize future experiences in ways that shape present choices. Second, the dissertation extends mental accounting beyond static financial outcomes to the dynamic organization of future time and resources, proposing that consumers maintain temporal accounts for waiting episodes and future budgets that can be strategically integrated or segregated to manage anticipated cognitive and financial burden, thereby reconciling deviations from standard discounting while preserving impatience as a baseline tendency. Finally, the research identifies cognitive burden minimization as a unifying motive across intertemporal contexts: whether managing multiple waits or anticipating future finances, consumers seek to simplify the mental work of navigating the future, offering a novel mechanism linking mental accounting, cognitive effort, and intertemporal choice.

From a managerial perspective, Essay 1 suggests that firms can influence consumers' tolerance for delay by structuring waiting rather than eliminating it: coordinating multiple future outcomes to occur on the same date can reduce perceived burden and increase acceptance of longer waits, even without monetary or instrumental benefits, implying that interface design and choice architecture (e.g., presenting delivery timing jointly or emphasizing unified milestones) can improve satisfaction while reducing operational and environmental costs. Essay 2 extends these implications to financial contexts, showing that the timing and framing of future resources—such as bonuses, rebates, deferred payments, or bill relief—shape current behavior: presenting future funds as flexible and broadly usable can increase uptake or spending, whereas earmarking or temporally isolating them can promote restraint or goal adherence. From the

consumer's perspective, both essays highlight anticipation as a self-regulation tool that can reduce cognitive burden and improve perceived manageability, but also bias decisions by encouraging underestimation of cumulative delays or overcommitment based on perceived future slack. Overall, by shaping how future time and resources are organized and anticipated, firms can design more effective policies, and consumers can better understand the psychological forces guiding their choices.

Essay 1: When Consumers Choose to Wait Longer: How Synchronized Delivery Attenuates Impatience

Abstract

Consumers are typically impatient, preferring immediate over delayed outcomes, a pattern well documented in classic models of intertemporal preference. Accordingly, firms often emphasize delivery speed, frequently splitting orders to enable earlier partial fulfillment, despite higher operational and environmental costs. Across seven preregistered experiments plus six preregistered supplemental experiments (total N = 4,948 US online and in-person participants), we document a counterintuitive synchronization effect. Specifically, consumers are more willing to delay an earlier benefit and tolerate a longer overall wait when doing so allows it to arrive with a later benefit on the same future date, even when synchronization offers no pragmatic benefits such as greater convenience or reduced environmental impact. We propose that synchronization induces a single-event construal, in which multiple waits are perceived as one unified episode, reducing the anticipated cognitive burden of waiting. Accordingly, the effect weakens when delivery decisions are made separately rather than jointly, disrupting the single-event construal. Our findings highlight an overlooked role of anticipated waiting in intertemporal choice and offer practical implications for encouraging acceptance of delayed, potentially more sustainable delivery options.

Consistent with classic theories of intertemporal choice (Ainslie 1975; O'Donoghue and Rabin 1999, 2015), consumers tend to be impatient, preferring immediate over delayed deliveries. To meet this demand for instant gratification, companies frequently emphasize delivery speed, sometimes dividing a single order into multiple packages to enable earlier partial fulfillment (Muñoz-Villamizar et al. 2021). However, such practices not only raise shipping and labor costs for business, but also exacerbate environmental harm through greater packaging waste and transportation emissions. Indeed, product deliveries are responsible for a significant portion of global greenhouse gas emissions (Gadou 2022).

However, consumers' preferences for speed may not be as absolute as commonly assumed. For example, many consumers opt for Amazon's "Amazon Day" option, which consolidates multiple items into a single delivery on a chosen day. Such delivery consolidation often involves a tradeoff with delivery speed, thereby lengthening the total waiting time (Zhang et al. 2019). This behavior challenges the classic view that consumers uniformly prefer earlier benefits and suggests that willingness to wait may be motivated by factors beyond immediacy, such as convenience (e.g., fewer deliveries to pick up; Wagner, Calvo, and Amorim 2023) or sustainability concerns (e.g., reduced packaging and emissions; Lee and Donohue 2025).

Importantly, beyond these pragmatic considerations, little is known about how consumers psychologically organize and anticipate waiting when multiple outcomes are delayed in parallel. Although prior research on intertemporal choice has richly documented how consumers discount delayed outcomes (Ainslie 1975; Loewenstein 1987), it typically conceptualizes waiting as a single, continuous delay until consumption. In contrast, many real-world consumption contexts involve multiple, overlapping waiting periods, such as anticipating several deliveries or

outcomes at once. How consumers mentally represent these multiple waiting episodes, and how such representations shape willingness to wait, remains largely unexplored.

This research proposes and finds a counterintuitive effect: people are willing to delay an earlier benefit for *synchronized delivery*, receiving it on the same future date as a second benefit, even when synchronization does not offer pragmatic benefits such as greater convenience or reduced environmental impact. This reflects a relative attenuation of impatience rather than a reversal of it. That is, consumers' choices deviate from, but do not contradict, the predictions of standard discounting models. Classic models would predict that regardless of the timing of other benefits, consumers always prefer to receive a benefit as soon as possible when waiting offers no additional instrumental value. However, our findings show that the availability of synchronized delivery systematically weakens this preference. Across our studies, when no synchronization option was offered, only a small proportion of participants chose to wait longer, consistent with standard time-discounting predictions (e.g., 13.5% in Study 1, 11.4% in Study 2, and 6.3% in Study 3, and 9.5% in Study 5). In contrast, when a synchronized delivery option was available, a significantly greater, though not necessarily majority, proportion of participants chose to delay the earlier benefit to achieve synchronization (e.g., 71.3% in Study 1, 30.9% in Study 2, 27.3% in Study 3, and 31.8% in Study 5). This relative increase suggests that the opportunity for synchronization meaningfully alters consumers' intertemporal preferences, leading them to accept longer total waits.

Critically, this shift cannot be explained by a preference for waiting itself, nor by additional instrumental benefits of delay. Instead, the presence of a synchronization option changes how the waiting experience is anticipated and evaluated, reducing the anticipated cognitive burden of waiting. Individuals are generally motivated to minimize anticipated

cognitive demands in decision making (Kool et al. 2010), and waiting for future outcomes requires ongoing cognitive operations such as monitoring progress and anticipating receipt (McDaniel and Einstein 2007). When benefits are scheduled to arrive on different dates, each constitutes a distinct waiting episode that must be managed separately, imposing repeated cognitive demands. In contrast, when multiple benefits are synchronized on the same day, consumers can consolidate several waiting episodes into a single anticipated event. Because temporally proximate events are naturally integrated into unified mental representations (Uitvlugt and Healey 2019; Zeithamova and Preston 2017), synchronization reduces the need to maintain and manage multiple parallel representations, thereby lowering the anticipated cognitive burden of waiting (Akyürek et al. 2017).

Consumers strategically organize temporal outcomes. For example, the hedonic editing hypothesis suggests that individuals structure the timing of outcomes to maximize overall utility: they tend to segregate gains to experience multiple bursts of positive affect (Lim, 2006), and they integrate losses to minimize total negative affect (Kahneman and Tversky, 2013; Thaler 1985, 1999). Similarly, individuals may deliberately segregate positive experiences across time to create multiple episodes of anticipation and savoring, thereby prolonging and amplifying overall enjoyment (Kumar, Killingsworth, and Gilovich, 2014). Building on these findings, we suggest that waiting behavior is shaped not only by impatience (i.e., the desire to obtain rewards sooner) and savoring (the desire to extend pre-consumption pleasure), but also by the motivation to minimize the anticipated cognitive burden of managing multiple waits.

This research makes three primary theoretical contributions. First, whereas classic models of intertemporal choice predict impatience for single delayed outcomes (Ainslie 1975; O'Donoghue and Rabin 1999), we add to this work by examining cases in which waiting

involves multiple episodes with recurring tracking burdens. We find that people sometimes delay an earlier reward to synchronize it with a later one, indicating that intertemporal preferences depend not only on when benefits occur but also on how waiting is mentally organized.

Second, we highlight cognitive-effort minimization as a previously overlooked driver of intertemporal preferences. Extending work on temporal integration and event segmentation (e.g., Raghubir and Srivastava 2009; Morewedge et al. 2007), we propose that aligning multiple outcomes in time prompts consumers to represent them as a single waiting episode, thereby reducing the cognitive burden associated with waiting.

Finally, this research extends mental accounting theory (Thaler 1999) beyond financial outcomes to the strategic organization of temporal processes. We show that distinct waiting periods function as "temporal accounts" and that synchronizing benefits collapses multiple accounts into a single mental episode. This process reduces the cognitive demands associated with managing separate waits.

This research also has important practical implications. First, its findings suggest that consumers may willingly accept longer waits when deliveries are synchronized. Retailers such as Amazon or JD.com can thus promote consolidated shipping options not merely as cost-saving or environmentally friendly, but as a means to "simplify waiting experience," therefore reducing shipping costs and environmental impact without necessarily lowering perceived service quality.

Moreover, our research suggests that companies can enhance perceived service quality by managing how waiting is mentally structured. Service providers could strategically coordinate multiple benefits or milestones to arrive simultaneously, allowing consumers to construe them as

a single, unified experience. Designing experiences that encourage single-event construal can effectively reduce perceived effort and mitigate impatience.

Consumer Impatience Based on Valuation of Outcomes

Research on intertemporal choice has long examined how consumers value outcomes that occur at different points in time. Classic discounting models predict that people disproportionately devalue delayed outcomes, with hyperbolic functions capturing the steep decline in patience for near-term delays relative to those further in the future (Ainslie, 1975; Frederick, Loewenstein, and O'Donoghue, 2002; Green and Myerson, 2004). These models account for robust tendencies such as present bias (Laibson 1997) and the general preference for accelerating positive outcomes (O'Donoghue and Rabin, 1999).

Outcome-based impatience is not determined solely by delay length, but also depends on how the delay is represented and how the outcome is framed (May and Monga 2014). For example, consumers often exhibit greater impatience for gains than for losses (Thaler 1981), and they discount smaller outcomes more steeply than larger ones (Loewenstein and Prelec 1992). Moreover, consumers are more impatient when a future outcome is described by an interval (e.g., "in 3 months") versus a specific date (e.g., "on March 15"; Read, Frederick, Orsel, and Rahman 2005; also see Sirwani, Sokolova, and Shu 2025). Reduced psychological connectedness to the future self similarly decreases willingness to wait for delayed outcomes (Bartels and Urminsky 2011).

Anticipating The Experience of Waiting

Beyond how delayed outcomes are valued, intertemporal preference is shaped by how delays are experienced (Malkoc 2026). Waiting is not merely an objective passage of time, but a

psychological state characterized by attention, affect, and anticipation (Kuhnen and Knutson 2005; Kim, Zauberman, and Bettman 2012). Attentional focus can magnify or attenuate perceived duration: when consumers actively track the passage of time, delays feel longer and more aversive, whereas distraction shortens subjective waiting (Zakay and Block 1997; Maister 1985). Uncertainty further shapes this experience, as unexplained or unpredictable delays feel longer and more frustrating than objectively identical, predictable ones (Maister 1985).

Anticipation can amplify the aversiveness of waiting, heightening impatience (Geoffard and Luchini 2010). However, when anticipation itself is rewarding (Loewenstein 1987), or when consumers feel nostalgic and prefer to slow down (Huang, Huang, and Wyer 2016), they tend delay consumption in order to savor. When consumer's temporal focus is shifted toward the future (e.g., by sustainability cues; Huang, Siddiqui, and Liu 2025), they tend to perceive the wait as shorter and become more patient for larger-later rewards.

Crucially, consumer care about the structure of waiting episodes. For example, they prefer improving sequences such as pay raises over time rather than declining ones, reflecting the value of perceived progress and growth (Loewenstein and Prelec 1993). To the extent that each new delay requires renewed monitoring and anticipation, multiple delays spread out across time imposes cognitive and emotional "start-up costs" similar to those observed in task switching (Monsell 2003). As a result, several short waits can feel more burdensome than one longer wait of equal total duration (Hornik 1984).

Thus, intertemporal preferences can reflect the joint influence of two psychological processes: (a) a desire to accelerate outcomes to minimize waiting, and (b) a preference for waiting structures that reduce anticipated cognitive burden of waiting. While prior research has identified cases where people expedite or delay individual outcomes, less is known about how

consumers evaluate and coordinate multiple waiting periods. However, many real-world decisions involve coordinating sequences of benefits or costs, such as scheduling deliveries, planning activities, or timing payments. In these cases, consumers' preferences are shaped not only by the value of outcomes across time and the absolute length of the wait, but also by how they mentally construe the structure of waiting episodes.

Mental Bundling of Temporal Episodes

Principles of mental accounting posit that consumers group outcomes into cognitive accounts to regulate how these outcomes are evaluated and experienced (Thaler 1999). This can extend to the domain of time: events that occur close together are likely to be integrated into the same mental account rather than treated as distinct (Uitvlugt and Healey 2019). Importantly, individuals can strategically structure the temporal distance between outcomes to influence whether they fall into the same or separate mental accounts. For instance, the work in hedonic editing finds that people prefer to combine negative outcomes to minimize pain, but to separate positive ones to maximize pleasure (Thaler and Johnson 1990).

Individuals are generally motivated to minimize anticipated cognitive demands in their decision making (Kool et al. 2010). From a mental-accounting perspective, each distinct mental account corresponds to a cognitive operation of tracking, monitoring, and evaluating outcomes (Thaler 1999). When outcomes are separated into multiple accounts (for example, one for 'trip' and one for 'bonus'), each account demands its own monitoring and evaluation pathway. As proposed in an attention-based framework of mental accounting (Koszegi and Matejka 2019), separate accounts impose additional cognitive burden.

Extending mental accounting beyond financial evaluation to the temporal domain, we propose that individuals can strategically reduce anticipated cognitive burden of waiting by combining multiple waiting episodes into a single mental account. Managing distinct episodes of anticipation requires continuous cognitive engagement: tracking time left, monitoring progress, and recalibrating expectations as each episode unfolds (McDaniel and Einstein 2007). Each of these operations constitutes a form of "mental bookkeeping" (Koszegi and Matejka 2018). Research on prospective memory distinguishes between effortful monitoring and spontaneous retrieval of future intentions, showing that managing multiple future events imposes an anticipated cognitive burden regardless of retrieval mode (Einstein et al. 2005; McDaniel and Einstein 2007). However, we argue that when separate outcomes are instead temporally aligned, these operations can be executed once rather than repeatedly, effectively collapsing several streams of anticipation into a single process. In this way, temporal synchronization functions as a cognitive-economy strategy, minimizing redundant attentional switching and updating demands.

Delivery Consolidation

The broader question we address speaks directly to the shipping literature. Although there is broad agreement that consumers generally prefer faster delivery (Cui et al. 2024; Ho and Zheng 2004), recent research documents important nuances, suggesting that speed is not always the dominant consideration. For example, Oyama et al. (2024) show substantial heterogeneity in consumers' willingness to pay for faster delivery, with many consumers placing surprisingly little value on shaving days or even hours off delivery times. Related work further indicates that consumers attend to attributes beyond speed, including sustainability-related features such as reusable packaging and electric-vehicle delivery (Kotzab et al. 2024), and that simple nudges can substantially increase selection of green-but-slow shipping (Lee and Donohue 2025). In addition,

consumers report higher satisfaction when delivery outcomes involve fewer violations of stated delivery expectations (Hu, Gaertig, and Dietvorst 2025), highlighting the importance of expectation management alongside speed (Rao, Rabinovich, and Raju 2014).

Recent research has examined delivery consolidation and finds that receiving all items in a single shipment can improve consumer outcomes. For example, delivering all products in an order together, even at the cost of a later arrival, reduces return likelihood, suggesting that the convenience of consolidated delivery can outweigh delivery speed in shaping consumer satisfaction (Wagner et al. 2023). Beyond pragmatic benefits such as convenience and sustainability, consumers may prefer to consolidate purchases that are perceived to be more valuable when combined, such as complementary items or those belonging to a coherent larger group (Shaddy and Tjoa 2021).

Importantly, synchronization in our context is distinct from delivery consolidation. It does not involve bundling items into a single package or reducing the number of deliveries, and thus does not provide the conventional benefits of convenience, cost efficiency, environmental sustainability, or complementarity. Even in the absence of these pragmatic advantages, we propose that synchronization itself meaningfully alters consumers' willingness to wait.

Officially, we predict a synchronization effect, whereby consumers show greater willingness to wait when delaying allows multiple benefits to be delivered on the same future date, compared to when delaying does not enable synchronized delivery. This is driven by a single-event construal, a cognitive process in which temporally aligned outcomes are represented as one unified episode rather than several distinct events. Evidence from cognitive psychology supports this mechanism: people naturally integrate temporally proximate events into unified memory representations (Uitvlugt and Healey 2019; Zeithamova and Preston 2017) and

experience reduced working-memory load when multiple stimuli are temporally integrated rather than maintained separately (Akyürek et al. 2017). In addition, aggregating effortful tasks reduces perceived preparation and recovery costs (Kruger and Evans 2004), suggesting that a single-event construal may reduce the anticipated cognitive burden of managing multiple future events.

According to the single-event construal account, synchronized delivery increases willingness to wait because consumers mentally represent multiple delays as one episode. We predict that disrupting this unified construal will weaken the synchronization effect. Specifically, we propose that presenting the delivery timing of each product separately, rather than jointly, will lead consumers to view the delays as distinct waiting episodes and increase the perceived burden of waiting twice. Finally, the single-event construal account also predicts how consumers will respond to delivery rescheduling. When a rescheduled delivery results in synchronized arrival of multiple items, consumers should be more willing to tolerate the expectation of longer wait and less likely to cancel a delayed order.

Overview of Studies

In sum, seven preregistered experiments reveal a novel synchronization effect: consumers are more willing to delay an earlier benefit when doing so aligns multiple benefits on the same future date (see Table 1.1). This effect, observed across diverse contexts, is driven by a single-event construal when multiple benefits are delivered on the same day, thereby reducing the anticipated cognitive burden of waiting. The initial studies establish the existence and generality of this effect while ruling out alternative, pragmatic explanations. Study 1 provides an initial test of the synchronization effect in a realistic online shopping context, demonstrating that consumers are more willing to wait when delivery dates are synchronized. To isolate synchronization from convenience or sustainability-based motivations, Study 2 shifts to a consequential-choice design

involving monetary rewards, where synchronized delivery offers no logistical or environmental benefits. Study 3 extends this test by examining whether the effect persists over longer waiting durations and larger monetary amounts. Study 4 further tests the robustness of the effect by introducing financial incentives for waiting, showing that synchronization increases willingness to wait even when consumers already have an independent, orthogonal reason to delay.

The remaining studies directly test the proposed psychological mechanism and its implications. Study 5 provides mediation evidence that the synchronization effect operates through a single-event construal, which reduces the anticipated cognitive burden of managing multiple waiting periods. Complementing this process evidence, Study 6 identifies a theory-based moderator: making delivery decisions separately (versus jointly) weakened synchronized-delivery preferences. Finally, Study 7 examines a downstream behavioral consequence in a fully between-subjects design, showing that the same-day synchronization reduces order cancellation following a delay through a single-event construal.

For transparency, we provide all stimuli, data and analysis scripts in an OSF repository (https://osf.io/k4uq9/?view_only=9a30b5eb90614be0b2d8c92c6fee1a6d). By underscoring the overlooked role of waiting in intertemporal decision-making, our work offers new theoretical insight into intertemporal preferences for receiving multiple benefits and practical guidance for designing policies, programs, and products involving delayed outcomes.

Table 1.1 Study Overview

	Conditions		
	No-same-day option	Same-day option	
Study 1 (% choosing the longer waiting option)	13.48%	71.28%	$\chi^2(1) = 59.91, p < .001$
Study 2 (% choosing the longer waiting option; incentive-compatible)	11.4%	30.9%	$\chi^2(1) = 21.09, p < .001$

Study 3 (% choosing the longer waiting option)	6.3%	27.3%	$\chi^2(1) = 338.98$, $p < .001$
Study 4 (% choosing the longer waiting option)	48.19%	58.88%	$\chi^2(1) = 4.07$, $p = .044$
Study 5 (% choosing the longer waiting option)	9.5%	31.8%	$\chi^2(1) = 29.14$, $p < .001$
Study 6 (% choosing the longer waiting option)	1.98% (single item)	36.00% (two items, joint-decision)	$\chi^2(1) = 35.75$, $p < .001$
		17% (two items, separate-decision)	$\chi^2(1) = 11.55$, $p < .001$
Study 7 (% choosing the longer waiting option)	14.48%	26.28%	$\chi^2(1) = 11.96$, $p < .001$
Study 8 (% choosing to cancel order)	24.50%	16.21%	$\chi^2(1) = 8.49$, $p = .004$

Study 1: The Synchronization Effect in Shipping Choices

In Study 1, we investigate the synchronization effect in product deliveries. These choices carry practical implications not only for reducing operational costs for businesses but also for promoting sustainability. Specifically, product deliveries are responsible for a significant portion of global greenhouse gas emissions (Gadou, 2022), and consumer willingness to accept delayed joint deliveries may reduce shipping frequency and packaging waste, thereby lowering the environmental impact of transporting products (Hong, Zhan and Lau, 2022).

This experiment employed a realistic hypothetical shopping scenario in which participants selected from a list of ten items and then made a shipping choice that mimicked the decision they would face when shopping on Amazon. We predicted that participants would be more willing to wait for delayed deliveries when they arrive on the same day.

Method

As pre-registered (https://aspredicted.org/u9n9v4.pdf), we recruited 266 visitors (M_{age} = 35.01, 57.9% female) from a behavioral science museum located in a downtown area. The study was run for three weeks from December 18, 2025 through January 20, 2026.

Participants were directed by research assistants to complete a hypothetical shopping study and were randomly assigned to one of two conditions: same-day-option or no-same-day-option. At the beginning of the study, participants were asked to imagine shopping on Amazon. They were then presented with a list of 10 items, including everyday products such as an electric toothbrush and a measuring tape. After selecting the product(s) they wished to purchase, participants who chose at least two items were asked to make a shipping decision, whereas those who selected fewer than two items were directed to the end of the study. The selected items were randomly divided into two batches with approximately equal numbers of items. When an odd number of items was selected, which batch contained the additional item was determined at random. The first batch always scheduled to arrive in five days from the day on which participants took part in the study. In the no–same-day option condition, the second batch was scheduled to arrive in either three or four days, and participants chose between these two delivery options. In the same-day option condition, the second batch was scheduled to arrive in either three or five days, such that the later arrival option coincided with the delivery date of the first batch. Mimicking Amazon's shipping interface, the later arrival option in the same-day option condition was labeled "same-day delivery" (rather than "Amazon Day"), and participants made the same choice.

To account for the possibility that participants might expect to use multiple items jointly, after making their shipping choices, participants indicated whether any of the items they had just

purchased would need to wait for another item from the same purchase to arrive before they could be used (yes or no). For exploratory purposes, we also asked those who selected the delayed option to explain in an open-ended text box why they chose the later delivery option. Participants answered several demographic questions before the end of the study.

Results

A total of 63 participants selected fewer than two items and were not included in the analysis. As preregistered, we excluded 20 participants who indicated using multiple items jointly. Given that the first batch was scheduled for delivery in five days in all options, participants in both conditions essentially chose whether to delay receipt of the second batch by one day (in the no-same-day-option condition) or two days (in the same-day-option condition). According to standard models of time discounting, participants should prefer the sooner delivery option, and more so for a two-day delay than a one-day delay. However, as predicted by our hypothesis, participants demonstrated a greater willingness to wait to receive both batches on the same day. In the no-same-day-option condition, 13.48% of participants chose to delay receipt of the second batch by one day. However, a significantly higher percentage of participants chose the delayed option in the same-day-option condition (71.28%, $\chi^2(1) = 59.91$, $p < .001$), despite the delay being two days rather than one day.

For exploratory purposes, we examined participants' open-ended responses to assess the extent to which preferences for delaying were motivated by sustainability-related considerations. Among the 67 participants in the same-day-option condition who chose to delay, 26 explicitly mentioned sustainability-related issues (e.g., reducing packing) as part of their decision to select the delayed option. Importantly, the results remained consistent with our predictions after excluding these participants: 60.29% chose the delayed option in the same-day-option condition

($\chi^2(1) = 35.71$, $p < .001$). Among the remaining participants, we observed explanations that aligned closely with our proposed mechanism. For instance, one participant wrote, "I can plan on one delivery day instead of two different days," indicating a preference to mentally represent the deliveries as a single, integrated event rather than as multiple distinct occurrences.

Discussion

Study 1 provided initial evidence for the synchronization effect: participants were more likely to opt for the option with a longer overall wait when it offered synchronized delivery. However, those who chose the delayed option in the same-day-option condition might have anticipated benefits of synchronized delivery beyond a single-event construal, such as reduced environmental impact or lower physical effort from picking up packages on the same day. To rule out these alternative explanations, the following two experiments examine willingness to wait for synchronized monetary transactions, which do not provide sustainability or physical-effort benefits. Based on our theory, the synchronization effect should persist for monetary transactions where such additional benefits are absent.

Study 2: Higher Willingness to Wait for Jointly Delivered Bonuses

Using an incentive-compatible design, we test whether people are more likely to accept a delay in receiving actual monetary bonuses when it results in receiving both bonuses on the same day. Because the payments were made online and required no physical effort to collect, the willingness to wait for synchronized delivery should stem from differences in perceived waiting.

Method

As pre-registered (https://aspredicted.org/zdtn-byx8.pdf), we recruited 404 participants from Prolific and excluded four participants who failed to complete the study (M_{age} = 40.10, 60.5% female). Participants were randomly assigned to one of two conditions: same-day-option or no-same-day-option. At the beginning of the study, participants learned that they would complete two separate tasks, each of which would earn them a $0.10 bonus for sufficient performance (the standard was not provided to participants). In the first task, participants completed five questions, in which they were shown a sequence of icons or numbers that followed a logical pattern. Their task was to choose the correct option that best completed the sequence. In the second task, participants completed four questions, in which they were shown two images and asked to select the one that contained a larger number of dots.

After completing each task, they were informed that they had earned a $0.10 bonus for that task (i.e., based on using task completion as the definition of sufficient performance), for a total of two $0.10 bonuses. Participants then chose between two bonus-payment options that differed in the timing of the first-task bonus payment. In the no-same-day-option condition, participants chose between either receiving $0.10 in 4 days and another $0.10 in 6 days, or receiving $0.10 in 5 days and another $0.10 in 6 days. Since the timing of the second payment was the same (in 6 days) in both options, participants essentially chose whether to receive the first bonus one day earlier (in 4 days) or not (in 5 days). However, neither option involved synchronized delivery.

In the same-day-option condition, participants chose between either receiving $0.10 in 4 days and another $0.10 in 6 days, or receiving both $0.10 bonuses in 6 days. The timing of the second payment was again the same (in 6 days) in both options, such that participants essentially

chose whether to receive the first bonus two days earlier (in 4 days) or not (in 6 days). However, in this condition, if participants selected the later timing, they would receive synchronized delivery: both bonuses on the same day (in 6 days). The delayed option in the same-day-option condition involved a longer wait (i.e., two days instead of only one day in the no-same-day-option condition). At the end of the study, participants answered several demographic questions. We made bonus payments to each participants' Prolific accounts according to each participant's timing choice.

Results

Standard models of time discounting (e.g., see Urminsky and Zauberman 2016 for a review) make two straightforward predictions. First, under the assumption of a positive discount factor, participants in both conditions should choose the option in which the first bonus is received sooner, because there is no tradeoff (e.g., between timing and amounts). Second, to the degree that there is a difference in choices between the two conditions, participants should be more likely to choose the option with the sooner first bonus payment in the same-day-option condition (where the delay for the first payment would otherwise be two days) than in the no-same-day-option conditions (where the delay would otherwise be only one day), because a longer delay induces more discounting of net present value.

In the no-same-day-option condition, only 11.56% of participants chose to delay the reception of their first bonus payment by one day, consistent with time discounting using a predominantly positive discount factor. However, contrary to the predictions of standard time discounting models, a significantly higher percentage of participants chose the delayed option in the same-day-option condition (30.85%, $\chi^2(1) = 21.09$, $p < .001$). Participants were more willing to wait when it meant receiving both rewards on the same day, even though the two-day delay in

the same-day-option condition was longer than the one-day delay in the no-same-day-option condition.

Discussion

Using an incentive-compatible design, Experiment 2 demonstrated a preference for receiving two separate bonus payments on the same day, even though this meant delaying a sooner bonus payment and having a longer total waiting time. However, it is important to note that Experiment 1 involved a single decision with a relatively small financial outcome (e.g., 10 cents). While the result is not consistent with standard models of time discounting, it is possible that people have a weak preference for same-day delivery that only arises when the stakes are low. To examine whether our effect persists under higher financial stakes, Experiment 3 tests preferences in hypothetical scenarios involving larger financial outcomes (e.g., $5,000).

More generally, in Experiment 3, we conducted a more comprehensive examination of participants' intertemporal preferences to test whether factors beyond payment amount, such as the length of waiting period or the description format of synchronized delivery, influenced the preference for receiving payments on the same day.

Study 3: Replication with Larger Amounts and Enhancement by Joint-Presentation Framing

To test the robustness of our effect, Experiment 3 conducted a more comprehensive examination of intertemporal preferences in hypothetical scenarios, varying factors such as monetary amount, waiting period length, and the framing of synchronized delivery.

Method

As pre-registered (https://aspredicted.org/v9xv-hb8f.pdf), we recruited 405 participants from Prolific and excluded two participants who failed to complete the study (M_{age} = 40.23, 62.8% female). Participants were randomly assigned to one of four conditions in a 2 (smaller-amount short-horizon vs. larger-amount long-horizon, between-subjects) by 2 (separate description vs. combined description, between-subjects) by 15 (hypothetical scenarios, within-subjects) mixed design. In the smaller-amount short-horizon conditions, participants made hypothetical choices involving two separate $50 payments to be received in 4-6 days. In the large-amount long-horizon condition, they made hypothetical choices involving two separate $5,000 payments to be received in 4-6 months.

The 15 scenarios tested are shown in Table 1.2. In each scenario, participants chose between two options that varied in waiting time, but kept the amounts of money the same. In nine of the 15 scenarios, participants chose between one option that had a synchronized delivery timing and another that did not. In particular, in four of these nine scenarios, the synchronized delivery option involved more total waiting (as in the same-day-option condition in Experiment 1), testing the willingness to wait for synchronized delivery. In addition, six scenarios measured the baseline no-same-day willingness to wait, three in which both options had synchronized delivery, and another three in which neither option had synchronized delivery (as in the no-same-day-option condition in Study 2). Additional scenarios, such as those where neither option involved synchronized delivery, served as fillers to avoid drawing attention to the focal contrasts.

For example, in one scenario in the larger-amount long-horizon condition, participants chose between either receiving one $5,000 payment in 4 months and another in 5 months (Option A, total delay of 9 months) or receiving both $5,000 payments in 5 months (Option B, total delay

of 10 months). In this scenario, participants who were willing to forego a shorter overall waiting time (Option A) and instead have a longer wait would receive the payments at the same time (Option B).

Table 1.2 Study Design of Study 3

Smaller-amount Short-horizon ($50)			Larger-amount Long-horizon ($5,000)		
Option A (payment 1, payment 2)	**Option B (payment 1, payment 2)**	**% choosing Option B**	**Option A (payment 1, payment 2)**	**Option B (payment 1, payment 2)**	**% choosing Option B**
Same-day delivery only available when it involved longer waiting					
(4 days, 5 days)	(5 days, 5 days)	40.8%	(4 months, 5 months)	(5 months, 5 months)	24.3%
(4 days, 5 days)	(6 days, 6 days)	29.9%	(4 months, 5 months)	(6 months, 6 months)	15.8%
(4 days, 6 days)	(6 days, 6 days)	32.3%	(4 months, 6 months)	(6 months, 6 months)	17.8%
(5 days, 6 days)	(6 days, 6 days)	36.8%	(5 months, 6 months)	(6 months, 6 months)	20.8%
Same-day delivery only available when it involved shorter waiting					
(4 days, 4 days)	(4 days, 5 days)	5.0%	(4 months, 4 months)	(4 months, 5 months)	13.9%
(4 days, 4 days)	(4 days, 6 days)	6.5%	(4 months, 4 months)	(4 months, 6 months)	14.4%
(4 days, 4 days)	(5 days, 6 days)	6.5%	(4 months, 4 months)	(5 months, 6 months)	12.4%
(5 days, 5 days)	(5 days, 6 days)	9.0%	(5 months, 5 months)	(5 months, 6 months)	14.9%
Same-day delivery available for similar waiting					
(4 days, 6 days)	(5 days, 5 days)	50.2%	(4 months, 6 months)	(5 months, 5 months)	38.1%
Same-day delivery for both options					
(4 days, 4 days)	(5 days, 5 days)	5.0%	(4 months, 4 months)	(5 months, 5 months)	6.9%
(4 days, 4 days)	(6 days, 6 days)	4.0%	(4 months, 4 months)	(6 months, 6 months)	5.9%
(5 days, 5 days)	(6 days, 6 days)	3.5%	(5 months, 5 months)	(6 months, 6 months)	5.0%
Same-day delivery non-available for both options					
(4 days, 5 days)	(4 days, 6 days)	7.0%	(4 months, 5 months)	(4 months, 6 months)	8.9%
(4 days, 5 days)	(5 days, 6 days)	5.0%	(4 months, 5 months)	(5 months, 6 months)	4.0%
(4 days, 6 days)	(5 days, 6 days)	10.9%	(4 months, 6 months)	(5 months, 6 months)	9.4%

The study design included an exploratory experimental manipulation that varied how same-day payments were described across conditions. In the separate description condition, the same-day payments were described as two distinct events (e.g., “Receive the first $50 in 4 days and the second $50 also in 4 days”). In contrast, in the joint description condition, the payments were presented as a single combined event (e.g., “Receive both $50 payments ($100) in 4 days”). In all conditions, participants were told to assume that the two payments would be issued separately by different sources and would be directly deposited into their bank account. At the end of the study, participants answered several demographic questions.

We propose that people tend to construe the synchronized delivery of two rewards as a single instance of waiting, making them more willing to wait when the delayed outcome involves

synchronized delivery. Describing the two payments jointly ("Receive both $50 payments ($100) in 4 days") could therefore increase the likelihood of construing the delay as a single instance, and therefore increase the willingness to wait for synchronized delivery.

Results

Few participants chose the longer-delay option in the baseline scenarios in which either none of the options had synchronized delivery (three scenarios, only 7.53% chose the longer delay) or both options had synchronized delivery (three scenarios, only 5.05% chose the longer delay). This confirms an overall preference not to wait in this decision context (across the six baseline scenarios, 6.29% chose the longer delay).

However, in the 4 scenarios in which participants could receive synchronized delivery if they waited longer, significantly more participants chose the longer-delay synchronized option, contrary to the predictions of time-discounting theories, and replicating the findings of Experiment 1 (27.30% vs. 6.29%, $\chi^2(1) = 338.98$, $p < .001$). In particular, the greater willingness to wait for a delayed synchronized delivery option held in both the smaller-amount shorter horizon conditions (34.95% vs. 6.29%, $\chi^2(1) = 423.70$, $p < .001$) and the larger-amount longer horizon conditions (19.68% vs. 6.29%, $\chi^2(1) = 123.16$, $p < .001$). These results confirm that synchronized delivery motivates people to wait even without monetary compensation for waiting.

As preregistered, overall and in each condition, we ran a generalized linear mixed-effects model (GLMM) using all scenarios, predicting the likelihood of choosing option B, based on the difference in total waiting time (summing the wait for both payments) between options, the synchronized-delivery difference (1 if the payments were same-day in option B only, 0 if the two

options matched, and -1 if same-day for option A only), and a participant-level random intercept. In the overall analysis, participants were less likely to choose options with a longer total waiting time (b_{Total} = -.48, p < .001), consistent with a general tendency to prefer earlier outcomes. However, as predicted, participants were also more likely to select an option if the two payments arrived on the same day ($b_{Same\text{-}day}$ = 1.09, p < .001). The preference for same-day options was highly robust, separately confirmed in four separate regressions conducted within each between-subjects condition (small-amount, separate condition: $b_{Same\text{-}day}$ = 1.37, p < .001; small-amount, combined condition: $b_{Same\text{-}day}$ = 2.05, p < .001; large-amount, separate condition: $b_{Same\text{-}day}$ = .32, p < .001; large-amount, combined condition: $b_{Same\text{-}day}$ = .66, p < .001).

There was also a significant interaction between synchronization and description (b = .67, p < .001), suggesting that the positive effect of synchronization on choosing the delayed option was enhanced by joint description, consistent with our proposal that construing synchronized outcomes as a single instance of waiting increases the willingness to wait.

Discussion

Study 3 confirmed the robustness of the preference for synchronized outcomes, holding across smaller and larger amounts, shorter and longer waiting periods, and across different description formats. Furthermore, consistent with our account based on the mental accounting of time, the preference for synchronized receipt was enhanced when synchronized amounts were presented jointly instead of separately, as joint presentation reinforced the perception of a single waiting mental construal.

The preference for synchronized delivery generalizes across different types of benefits. In a supplemental experiment, we tested if the preference for synchronized delivery varied

depending on when the delayed benefits were framed as gift cards versus money in hypothetical scenarios. Money is fungible, non-tangible, and broadly usable, whereas gift cards are less fungible, tangible, and more unique. Despite these differences, participants showed a similar preference for synchronized delivery in both cases. This pattern also indicates that the preference is unlikely to be driven primarily by the physical convenience of receiving the benefits on the same day. Building on this insight, the following studies focus on investigating the preference for joint delivery timing in product purchases.

Study 4: Synchronization Increases Willingness to Wait When Waiting Is Financially Incentivized

One possibility is that the synchronization effect may arise only when waiting is otherwise unattractive. In many real-world contexts, however, consumers are explicitly compensated for waiting (e.g., through discounts), which may reduce general wait aversion and attenuate the role of delivery timing structure. The present study examines whether synchronization continues to increase willingness to wait even when consumers have an independent, salient reason to wait. Specifically, Participants chose between two delivery options that differed only in whether delaying one item by one day resulted in synchronized versus non-synchronized delivery, with the delayed option always offering an identical monetary discount. We predict that the synchronization effect persists when delaying receipt is financially incentivized.

Method

As pre-registered (https://aspredicted.org/gv5nj7.pdf), we recruited 397 participants from Prolific and excluded seven responses with a captcha score of 0.5 or less for AI detection (M_{age} = 40.04, 55% female). Participants were randomly assigned to one of two conditions: no-same-day option vs. same-day option.

Participants imagined shopping on the day of the study and buying a shoe rack and a backpack, each priced at $45. In all conditions, participants chose between two delivery options (Option A vs. Option B) that differed in delivery timing. In the no-same-day option condition, Option A involved receiving the shoe rack in 4 days and the backpack in 6 days, whereas Option B involved receiving the shoe rack in 5 days and the backpack in 6 days. Thus, Option B required waiting one additional day relative to Option A, without offering same-day delivery. In the same-day option condition, participants chose between receiving the shoe rack in 4 days and the backpack in 5 days (Option A) or receiving both items in 5 days (Option B), such that Option B involved the same amount of additional waiting (one extra day of waiting for the shoe rack) as in the no-same-day option condition. In both conditions, participants were informed that there was a $2.00 shipping fee, and choosing Option B resulted in a reduction to $1.50. Thus, the additional day of waiting associated with Option B was compensated by a $0.50 discount.

To rule out sustainability-related preference as a potential driver of choice, all participants were told that the two items would ship from different warehouses in separate packages and would be delivered separately, and the total carbon footprint stayed similar regardless of their choice. Participants answered several demographic questions before the end of the study.

Results

Participants across both conditions essentially chose whether to delay the receipt of the first item for one day. As predicted, participants were more willing to wait to receive both products on the same day, even when there were alternative reasons for waiting. In the no-same-day option condition, 48.19% of participants chose the delayed option. However, a significantly higher percentage of participants in the same-day condition chose the delayed option (58.88%, $\chi^2(1) = 4.07$, $p = .044$).

Discussion

Study 4 tested whether the synchronization effect persists when consumers have an independent reason to wait. Consistent with this possibility, participants were more willing to delay receipt when waiting resulted in synchronized delivery, even though the delayed option in both conditions offered an identical monetary discount. This pattern suggests that synchronization continues to shape preferences beyond general wait aversion and is not eliminated when waiting is financially compensated. One limitation of this design is that, in order to hold constant the relative waiting length between options, the timing of the non-delayed option necessarily varied across conditions. To address this concern, we conducted a supplemental study that implemented same-day delivery in multiple ways, varied the relative waiting costs of synchronization, and independently manipulated financial incentives for waiting. Across these variations, and controlling for the size of the monetary incentive, same-day delivery consistently increased willingness to wait, providing convergent evidence for a preference for synchronized delivery.

Study 5: Single-Event Construal as The Underlying Mechanism

Study 5 tested the proposed mechanism underlying synchronized-delivery preferences: the tendency to mentally consolidate multiple delays into a single waiting episode. To assess this single-event construal account, we measured participants' perception of "waiting once," and examined several theoretically grounded processes that might arise from such consolidation. These include lower anticipated cognitive burden of waiting, reduced affective discomfort, shorter perceived duration, as well as greater perceived control and predictability, all of which prior research identifies as key determinants of waiting aversiveness. By comparing these accounts, this study aims to isolate the psychological process that best explains consumers' willingness to wait for synchronized delivery.

Since managing one wait requires less planning, attention, and mental bookkeeping than tracking two separate delays, a single-event construal of multiple waits may reduce anticipated cognitive burden of waiting. Beyond the cognitive economy account, we examined additional accounts. First, single-event construal may reduce affective discomfort. Consistent with findings that people prefer to cluster unpleasant experiences to "get them over with" (Loewenstein and Prelec 1993), perceiving multiple delays as a single episode may lessen the repeated emotional burden that accompanies separate waiting periods (Friman 2010). Second, it may shorten perceived duration. Actively tracking multiple intervals tends to elongate subjective time (Zakay and Block 1997), and collapsing multiple delays into a single cognitive episode can make the overall wait feel shorter, even if it is objectively longer. Moreover, we also examined perceived control and predictability, given that higher control and more predictable waits reduce the aversiveness of delay (Maister 1985; Taylor 1994). By assessing these accounts alongside single-

event construal, this study aims to identify the specific psychological process through which synchronized delivery increases consumers' willingness to accept longer total waits.

Method

As pre-registered (https://aspredicted.org/z5v6kj.pdf), we recruited 401 participants from Prolific and excluded two participants who failed to complete the study (M_{age} = 41.95, 50% female). Participants were randomly assigned to one of two conditions: no-same-day option vs. same-day option.

Participants imagined a shopping scenario similar in that in Study 4. Specifically, in the no-same-day option condition, participants chose between either receiving the shoe rack in four days and the backpack in six days, or receiving the shoe rack in five days and the backpack in six days. Essentially, participants chose whether to receive the first product one day earlier (in four days) or not (in five days). In the same-day option condition, participants instead chose between either receiving the shoe rack in four days and the backpack in six days, or receiving the shoe rack and the backpack both in six days. Essentially, participants chose whether to receive the first product two days earlier (in four days) or later but on the same day as the second product (in six days).

We have proposed that the preference for synchronized delivery is driven by the mental consolidation of two separate waiting periods into a single, unified waiting period. After the choice, we measured the respondents' subjective perception in our proposed process as a potential mediator: "Which option feels more like you are waiting once (and not twice)?" using a seven point scale (1 = definitely option A, 7 = definitely option B). To better understand the psychological processes underlying the effect of single-event construal on synchronized delivery

preferences, we included several exploratory items. Specifically, we measured the anticipated cognitive burden of waiting ("Which option would be more distracting to wait for?", "Which option would involve more planning?", "Which option would involve more thinking about it while waiting?", and "Which option would require more effort in keeping track of progress while waiting?"), affective discomfort ("Which option feels more unpleasant to wait for?", "Which option would make you feel more anxious during the wait?", "Which option would feel more boring to wait for?", and "Which option would make the wait feel more irritating?"), and perceived duration ("Which option seems like it would take longer to wait for?" and "Which option seems like the wait would drag on for longer?"). Because prior research suggests that perceived control and predictability moderate the aversiveness of waiting (Maister 1985; Taylor 1994), we also measured perceived control ("Which option would make you feel more in control during the wait?") and perceived predictability ("Which option would make the wait feel more predictable?") of the waiting. All of the exploratory items were measured using a seven point scale (1 = definitely option A, 7 = definitely option B). At the end of the study, participants answered several demographic questions.

Results

Given that the backpack was scheduled for delivery on the same day in all options, participants in both conditions essentially chose whether to receive the shoe rack one day (in the no-same-day option condition) or two days (in the same-day option condition) earlier or later. According to standard models of time discounting, participants should prefer the sooner delivery option, and more so for a two-day delay than a one-day delay. However, replicating our findings in the previous studies, participants demonstrated a greater willingness to wait to receive both products on the same day. In the no-same-day option condition, 9.50% of participants chose to

delay receipt of the backpack by one day. However, a significantly higher percentage of participants chose the delayed option in the same-day option condition (31.84%, $\chi^2(1) = 29.14$, $p < .001$), despite the delay being two days rather than one day.

Consistent with our theory, participants in the same-day option condition ($M = 5.99$) were more likely than those in the no-same-day option condition ($M = 4.58$) to perceive the delayed option as involving waiting once rather than twice ($t(399) = 7.69$, $p < .001$). As preregistered, a bootstrapped mediation analysis (1,000 simulations) revealed a significant indirect effect of synchronized delivery on increased likelihood of choosing the delayed option via the perception of a single wait (ACME = .10, 95% CI: [.06, .16], $p < .001$). Controlling for the mediator, the average direct effect (ADE) of synchronized delivery on choices of delayed option was reduced but still significant (0.11, 95% CI: [.03, .20], p = .006), indicating partial mediation.

We next conducted a factor analysis of all exploratory items. The results supported a three-factor structure corresponding to affective discomfort, perceived duration, and anticipated cognitive burden. Accordingly, we averaged the four affective discomfort items, the two perceived duration items, and the four anticipated cognitive burden items to form single measures for each construct. Independent-samples t-tests revealed that the affective discomfort did not differ significantly between the no-same-day option condition ($M = 4.69$) and the same-day option condition ($M = 4.69$; $t(399) = .01$, $p = .990$). Instead, participants in the no-same-day option condition ($M = 4.72$) perceived the delayed option as containing shorter waiting duration than those in the same-day option condition did ($M = 5.56$; $t(399) = 4.46$, $p < .001$). In addition, participants in the no-same-day option condition ($M = 4.00$) perceived the delayed option as involving more anticipated cognitive burden than those in the same-day option condition did ($M = 3.29$; $t(399) = 4.58$, $p < .001$). We next entered all three constructs into a parallel mediation

model (1,000 simulations) that predicted the effect of same-day delivery option on choices of the delayed option. The results showed that anticipated cognitive burden was the only significant mediator (ACME = .03, 95% CI: [.01, .06], p = .006). In contrast, neither affective discomfort (ACME = 0.0002, 95% CI: [-.03, .03], p = .960) nor perceived duration (ACME = 0.00003, 95% CI: [-.006, .01], p = .930) mediated the effect.

To explore the indirect effect through single-event construal and anticipated cognitive burden, we conducted an analysis in lavaan to test a serial mediation, whether same-day delivery option influences choices of the delayed option through perception of a single wait and then perceived reduction in anticipated cognitive burden. We found that higher single-event construal reduced anticipated cognitive burden of waiting (b = -.32, SE = .03, p < .001). Offering synchronized delivery reduced anticipated cognitive burden, but this effect becomes marginally significant after controlling for single-event construal (b = –.25, SE = .15, p = .093). Overall, the indirect path from same-day delivery through a single-event construal to lower anticipated cognitive burden of waiting and then to choice of the delayed option was significant (b = .29, SE = .05, p < .001).

Discussion

Study 5 replicated our results in the context of product delivery. We found that participants were more likely to opt for the option with a longer overall wait when it offered synchronized delivery. The results also supported our proposed mechanism: synchronized delivery enhanced the construal of waiting as a single episode, which in turn increased willingness to wait. Exploratory analyses further showed that synchronized delivery enhanced single-event construal, which reduced anticipated cognitive burden of waiting, thereby increasing willingness to delay. These results provide convergent support for our proposed mechanism.

Study 6: Separate-Decision Mental Construal Reduces Choices of Synchronized Delivery

In Study 6, we directly tested our theory by manipulating how participants construed the delay. We propose that consumers tend to perceive a synchronized delivery as a single waiting episode rather than multiple ones. A testable consequence of this account is that disrupting the single-event construal by having participants separately consider the delivery timing of each product should weaken the preference for synchronized delivery. To rule out logistical convenience or sustainability inferences, participants were told that items would be shipped separately and delivered directly to their door. Thus, any effect of consideration mode can be attributed to differences in mental construal of waiting periods.

Method

As pre-registered (https://aspredicted.org/sb9w-xdnw.pdf), we recruited 303 participants from Prolific and excluded three participants who failed to complete the study (M_{age} = 40.50, 55% female). Participants were randomly assigned to one of three conditions: either a baseline condition involving a single product delivery, or a joint-decision or separate-decision condition, both of which involved delivery of two products. In the scenario, participants imagined placing an order on January 1st that would be delivered later that week.

In the baseline condition, participants were asked to imagine shopping for a pair of running shoes, and they chose between receiving the shoes on January 4th or January 5th. In the other two conditions, participants were asked to imagine purchasing both running shoes and a desk lamp. In the joint-decision condition, they then made a single choice, between either

receiving the running shoes on Jan 4th and the desk lamp on Jan 5th or receiving the running shoes on Jan 5th and the desk lamp also on Jan 5th.

In the separate-decision condition, participants were asked to imagine purchasing a desk lamp that would arrive on Jan 5th. Then, on the next page, they imagined purchasing a pair of running shoes and chose between either receiving the running shoes on Jan 4th or on Jan 5th. In the joint- and separate-decision scenarios, both items were described as equally urgent, and participants were told that the two items would be shipped separately from different warehouses and delivered directly to the shopper's door. These details were included to reduce the likelihood of decisions based on other factors (e.g., perceptions of joint delivery as more sustainable or logistically more convenient if both items arrived in a single delivery). At the end of the study, participants answered several demographic questions.

Results

Given that the delivery timing for the desk lamp in the two test conditions was held constant (on January 5th), the decision in all conditions was between receiving the running shoes a day earlier or a day later. Accordingly, time discounting with a positive discount factor would predict choosing the sooner-delivery option, with the same preference in all three conditions. In the single-purchase baseline condition, only 1.98% of participants chose to delay the delivery of their purchase, consistent with the predictions of time discounting. In the joint-decision condition (when a single choice of delivery timing for the two purchased items was made), we replicated the synchronized-delivery preference observed in the previous studies, with a substantial proportion of participants willing to wait for joint timing. Over a third (36.00%) of participants opted to delay receiving the earlier-arriving product by a day, such that both items would arrive

on the same day (January 5th), a significantly higher willingness to delay than in the baseline condition ($\chi^2(1) = 35.75$, $p < .001$).

However, consistent with our proposed account, we find that manipulating the consideration mode to emphasize the distinct delivery delays, and potentially disrupt the mental construal of the delay as a single wait, reduced the preference for joint timing. In the separate-decision condition, only 17.00% of participants chose to delay their purchase to achieve synchronized delivery, significantly fewer than in the joint-decision condition ($\chi^2(1) = 8.32$, $p = .004$). However, manipulating consideration mode reduced but did not eliminate the effect, as participants in the separate-consideration condition still showed a higher preference for delaying deliver (to receive synchronized delivery) compared to the willingness to delay in the baseline condition ($\chi^2(1) = 11.55$, $p < .001$). This suggests that some people may spontaneously combine multiple synchronized outcomes into a single delay in their deliberation, even when considering the two outcomes separately.

Discussion

In Study 6, we demonstrate a theoretical implication of our account, that willingness to delay for synchronized delivery decreases when consumers decide delivery timing separately rather than jointly. Consistent with our theory, we find that this willingness decreases when consumers evaluate delivery options separately rather than jointly, because separate consideration disrupts the perception of synchronized delivery as a single waiting episode.

Study 7: Synchronizing Deliveries Reduces Order Cancellation

In Study 7, we tested the willingness to wait for synchronized delivery in a fully between-subjects design. We used a different measure of single-wait construal as a mediator, for generality. We extended the implications by testing a novel downstream consequence of synchronized-delivery preferences: whether consumers differ in their likelihood of canceling orders when orders were rescheduled to occur on the same day versus on different days.

Method

As pre-registered (https://aspredicted.org/rc49-3xk3.pdf), we recruited 801 participants from Prolific (M_{age} = 39.99, 54% female). Participants were randomly assigned to one of four conditions in a 2 (original delivery schedule: separate-days vs. same-day) by 2 (updated delivery schedule: separate-days vs. same-day) between-subjects design. While our primary pre-registered analysis focused on examining the effect of whether the updated delivery time was same-day or separate-days, we also varied the timing of the original delivery schedule to address potential confounding effects of perceived consistency of delivery timing.

At the beginning of the study, participants read a scenario about purchasing both a pair of running shoes and a desk lamp on Jan 10th, as in Experiment 4. In the scenario, they had placed an order for the two items and were shown the intended delivery times. In all conditions, they were then informed that, due to the retailer's supply chain issues, their purchases would be delivered later than the originally estimated delivery schedule. The additional waiting time always totaled six days across the items, but was allocated differently across the conditions (Table 1.3).

Table 1.3 Conditions in Study 7

Condition	Original Schedule	Updated Schedule
Separate-days originally → Separate-days updated	Jan 12 and Jan 18	Jan 15 and Jan 21
Separate-days originally → Same-day updated	Jan 12 and Jan 18	Jan 18 and Jan 18
Same-day originally → Separate-days updated	Jan 15 and Jan 15	Jan 15 and Jan 21
Same-day originally → Same-day updated	Jan 15 and Jan 15	Jan 18 and Jan 18

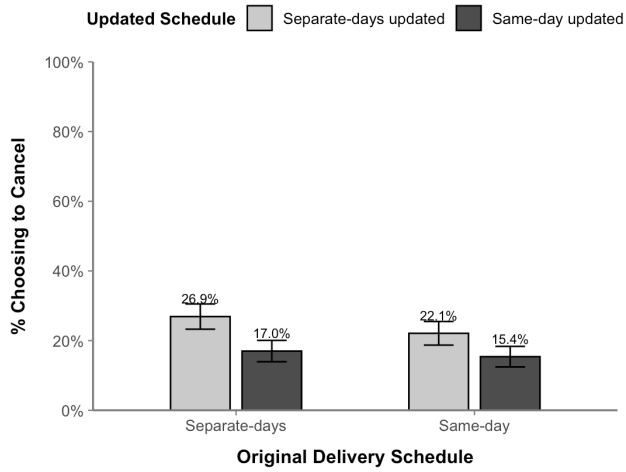
In some conditions (those in which the same-day-status did not change), both options were delayed by three days; in the other conditions, one of the options was delayed by six days and the other was not delayed. Under the assumption that both items are equally valued, standard models of exponential or hyperbolic time discounting would predict that only delaying one of the options would preserve the most value. Alternatively, if one option is sufficiently lower valued, then delaying that lower-valued option by the full six days should preserve the most value and delaying the higher-valued option should lose the most value.

Participants were then informed that they could cancel: "You now have the option to cancel your order and explore available options from a different retailer. If you choose to cancel, both items will be canceled". They indicated whether they would proceed with canceling their order or not. We assume that, all else equal, choosing to cancel the order indicates a revealed preference that more perceived value has been lost by the delay than if the order was not cancelled. Lastly, we measured participants' single-wait construal by asking "Does it feel like you are waiting once or waiting twice? (1 = definitely waiting once, 7 = definitely waiting twice)" for the updated delivery schedule and asked several demographic questions.

Results

Consistent with our prediction that people would be willing to wait for synchronized delivery, fewer participants chose to cancel the order when the rescheduled delivery time was same-day rather than on separate days. Specifically, when the rescheduled delivery time occurred on separate days, 24.50% of participants chose to cancel the order, while only 16.21% cancelled if the rescheduled deliveries occurred on the same day[1] (pooling across initial delivery versions; $\chi^2(1) = 8.49$, $p = .004$; see Figure 1.1).

Figure 1.1 Percentage of Participants Choosing to Cancel the Order



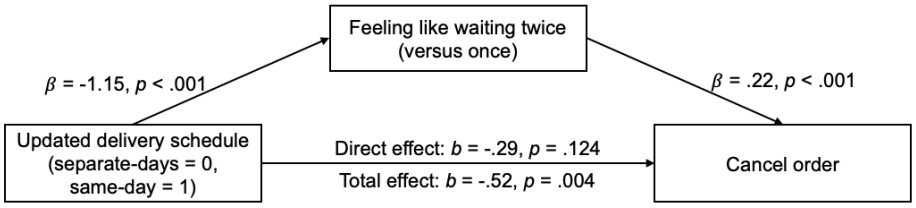
Notably, the alternative predictions of time discounting were not supported. Participants were not significantly more likely to cancel in the pooled conditions in which both items were delayed by three days (21.1%) versus when one of the items was delayed by six days (19.6%, $\chi^2(1) = .31$, $p = .575$). If this was because participants were more impatient for one (e.g., higher-valued) option than the other, then we would expect to see a difference between the two conditions in which different products were delayed by 6 days (17.0% vs. 22.1%, $\chi^2(1) = 1.66$ p

[1] We report Chi-square tests for ease of interpretation. We had preregistered logistic regressions as our main analyses, which generated equivalent results.

= .20) but not between the two conditions in which both products were delayed by three days (26.9% vs. 15.4%, $\chi^2(1) = 7.89$, $p = .005$). Instead, as illustrated in Figure 1, the results suggest that a main-effect preference for synchronized delivery superseded any differences in time-discounted valuations.

Next, we tested our proposed single-wait construal mediator. Participants were more likely to report that it felt like they were waiting once rather than twice in the same-day rescheduled delivery conditions ($M = 3.70$, $SD = 2.22$) compared to in the separate-day rescheduled delivery conditions ($M = 4.86$, $SD = 2.07$; $F(1, 799) = 57.92$, $p < .001$). A bootstrapped mediation analysis (1,000 simulations) revealed a significant indirect effect of same-day updated delivery on reduced cancellation via the perception of a single wait (ACME = -.04, 95% CI: [-.06, -.02], $p < .001$; see Figure 1.2). The single-wait perception mediator explained about half of the effect. The total effect (TE) was -0.08, (95% CI: [-.14, -.03], p = .002), and the average direct effect (ADE) of same-day updates on cancellation probability after controlling for the mediator was -0.04 (95% CI: [-.10, .01], p = .110).

Figure 1.2 Reduced Number of Waiting Episodes as a Mediator



Note: Coefficients from separate regressions.

Discussion

Adopting a fully between-subjects design, Study 7 examined a downstream consequence of preference for synchronized delivery. We found that participants were less likely to cancel

delayed orders if the delay resulted in a synchronized delivery. The results further supported that the preference for retaining the rescheduled order when there would be synchronized delivery can be explained by mental accounting of synchronized deliveries as a single instance of waiting.

Study 8: Tracking Availability Does Not Moderate the Effect

In Study 8, we tested whether the synchronization effect is driven by anticipated monitoring inconvenience rather than cognitive tracking burden. If consumers prefer synchronization to avoid repeatedly checking shipment updates, the effect should attenuate when tracking is unavailable. In contrast, if the effect arises from cognitive tracking burden, it should persist even without tracking. In addition, Study 8 tested the robustness of the effect when outcomes are less naturally integrated, specifically when items spanned distinct product categories and originate from different retailers, discouraging psychological bundling. Therefore, this provided a conservative test of our account.

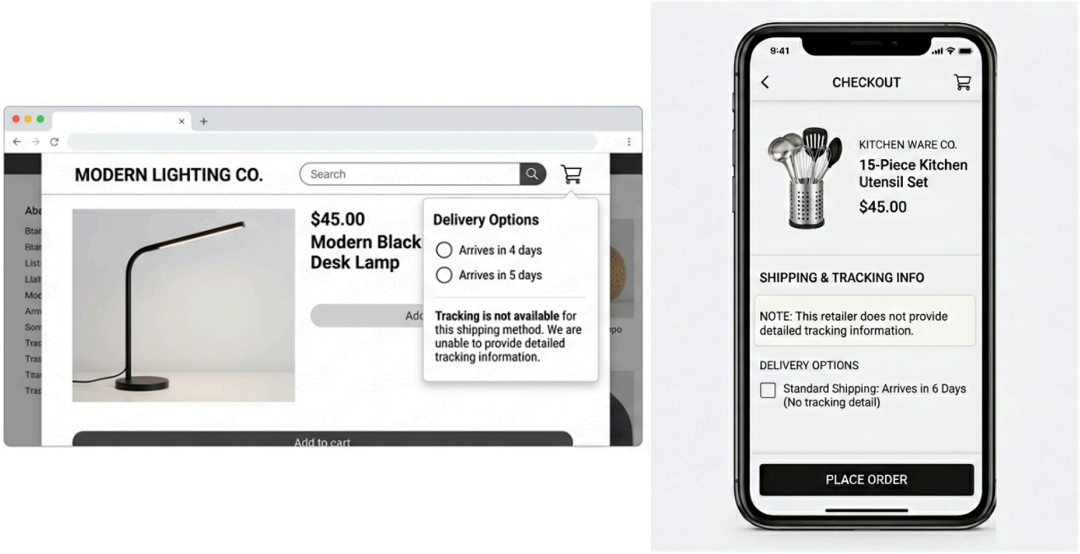
Method

As preregistered (https://aspredicted.org/2cx2fw.pdf), we recruited 597 participants from Prolific and excluded nine participants who received a CAPTCHA score of 0.50 or below on the AI-detection check (M_{age} = 40.42, 60% female). Participants were randomly assigned to one of eight conditions in a 2 (delivery schedule: no-same-day option vs. same-day option) by 2 (tracking availability: available vs. unavailable) by 2 (product order: desk lamp first vs. kitchen set first) between-subjects design.

At the beginning of the study, participants were instructed to imagine purchasing two items from different retailers: a desk lamp ($45) for your office and a kitchen utensil set ($45)

for everyday cooking. Thus, the products belonged to distinct categories and were intended for t different usage contexts. Participants viewed two separate checkout pages, one on a laptop and one on a mobile phone, with product order counterbalanced across participants. Each product was described as being sold by a distinct hypothetical retailer. In the no-same-day option condition, participants chose between receiving the first item in four days and the second item in six days, or receiving the first item in five days and the second item in six days. In the same-day option condition, they instead chose between receiving the first item in four days and the second item in six days, or receiving both items in six days. Thus, all participants chose between an option with shorter overall waiting and an option with longer overall waiting. Tracking information was described as either available or unavailable on the checkout page, depending on condition. After marking the choice, participants answered several demographic questions.

Figure 1.3 Stimuli in Study 8



Note. The figure illustrates an example of stimuli in the same-day option, tracking available condition.

Results

As preregistered, product order did not influence the results, so we collapsed across order conditions. We ran a logistic regression with choice as the dependent variable and delivery schedule (0 = no-same-day option, 1 = same-day option), tracking availability (0 = unavailable, 1 = available), and their interaction as dependent variables. Consistent with our hypothesis, the presence of a same-day option significantly increased the likelihood of choosing the option with longer overall waiting (b = .62, SE = .31, p = .044). Tracking availability did not significantly influence choices (b = .08, SE = .33, p = .813). Importantly, the interaction between delivery schedule and tracking availability was not significant (b = .23, SE = .42, p = .591), suggesting that the effect of the same-day option was not moderated by tracking availability.

To further probe the effect, we conducted unpreregistered analyses examining choice shares within each tacking condition. When tracking was available, 14.97% of participants in the no-same-day option condition chose the longer overall waiting option, compared to 29.14% in the same-day option condition (b = .85, SE = .29, p = .004). When tracking was not available, a similar pattern emerged: 14.00% of participants in the no same-day option condition chose the longer waiting option, compared to 23.24% in the same-day option condition (b = .62, SE = .31, p = .044).

Discussion

The results of Study 8 provided a conservative test for the synchronization effect while offering little evidence for a convenience-based account. The preference for synchronization persisted even when tracking information was unavailable, a context in which monitoring-related inconvenience is largely eliminated. This pattern suggests that consumers opt for synchronization not to avoid separately checking shipment updates. Instead, the findings are consistent with our

account that synchronization allows consumers to mentally consolidate multiple pending outcomes into a single episode, thereby reducing cognitive bookkeeping demands.

General Discussion

Classic accounts of intertemporal choice portray consumers as impatient, valuing earlier over later outcomes and treating waiting as a single continuous cost (Ainslie 1975; O'Donoghue and Rabin 1999, 2015). Yet many marketplace decisions involve multiple parallel waits, such as tracking several deliveries, payments, or milestones at once. The present research shows that in these settings, consumers sometimes behave in a manner that departs from the predictions of strict impatience: across seven preregistered experiments (and four preregistered supplemental studies; total N = 4,948), consumers were more willing to delay an earlier benefit when doing so allowed synchronized receipt of multiple benefits on the same future date. This shift was reliable across monetary and product-delivery contexts and emerged even when synchronization increased total waiting time.

We identify single-event construal as the mechanism underlying consumers' increased willingness to wait for synchronized delivery. We propose that synchronizing multiple outcomes leads consumers to represent waiting as a single unified episode rather than as multiple distinct ones, thereby reducing the anticipated cognitive burden of managing several waiting periods. We provide convergent evidence for this account: synchronized delivery increased single-event construal, which mediated willingness to wait (Study 5), and disrupting this construal by having consumers evaluate delivery timing separately attenuated the effect (Study 6).

Across studies, willingness to wait was selective rather than general. When no synchronized option was available, few participants chose to wait, consistent with standard time discounting. In contrast, introducing the possibility of synchronization reliably increased willingness to delay. Notably, willingness to wait for synchronized outcomes persisted for longer delays and larger amounts (Study 3), when waiting was financially incentivized (Study 4), and even when participants could receive the first benefit immediately. Importantly, the preference for synchronized delivery should be understood as relative rather than absolute. Although synchronization shifted choices toward longer waits, it did not eliminate impatience: in many settings, the majority of participants still preferred earlier delivery. Thus, our findings do not contradict classic models of intertemporal choice. Instead, they reveal a systematic deviation that arises when consumers evaluate multiple parallel waiting periods, showing that impatience remains the baseline tendency, but can be attenuated at the margin when synchronization reduces the anticipated burden of waiting.

Importantly, the effect is unlikely to be driven by instrumental considerations tied to receiving physical goods. Although synchronized delivery is often associated with convenience or sustainability benefits in real-world contexts, our designs intentionally hold these factors constant to isolate the underlying psychological mechanism. In particular, the preference for synchronization emerges even in purely monetary contexts that require no physical handling or coordination (Studies 2 and 3), eliminating considerations related to packaging, effort, or environmental impact. We further distinguish our proposed mechanism—cognitive tracking burden—from the inconvenience of tracking actions. Cognitive tracking burden refers to the mental cost of monitoring multiple pending outcomes, whereas tracking inconvenience reflects effortful behaviors such as checking emails and shipment updates. Although such behavioral

inconvenience may increase preference for synchronized delivery through pragmatic benefits (e.g., reduced effort in tracking), our theory predicts aversion to cognitive burden even in the absence of any tracking actions. Consistent with this account, a supplemental experiment shows that preferences for synchronized delivery did not differ between monetary transactions and physical gift cards, further ruling out fixed costs associated with tracking or receipt as an explanation.

Our findings diverge from predictions based on hedonic editing. Classic hedonic editing principles suggest that consumers prefer to segregate gains to maximize positive affect and integrate losses to minimize negative affect (Thaler and Johnson 1990). Applied to the temporal domain, this logic would predict a preference for spreading positive outcomes across time rather than combining them. However, our results reveal a systematic departure from this prediction. When the primary cost is not the outcome itself but the anticipation of waiting, consumers often prefer to combine even positive outcomes. Thus, while hedonic editing focuses on optimizing emotional reactions to outcomes, our findings highlight a distinct motive: minimizing the anticipated cognitive burden of waiting through synchronization.

Theoretical Implications

This research makes three primary theoretical contributions. First, we contribute to the extensive literature on intertemporal choice by reframing waiting as an active, structured psychological experience rather than a passive temporal gap between choice and consumption. Classic models of intertemporal choice treat waiting as a single, continuous delay that reduces utility (Ainslie 1975; O'Donoghue and Rabin 1999), predicting that consumers will always prefer accelerating any benefit regardless of other outcomes. However, real-world waiting often involves multiple parallel episodes that impose recurring tracking costs. Our findings reveal a

systematic attenuation of strict impatience: consumers are more willing to delay an earlier reward when doing so aligns it with a later one. This counterintuitive effect demonstrates that consumers' intertemporal preferences depend not only on when benefits occur but also on how waiting is mentally organized.

Second, this research introduces single-event construal as a novel mechanism explaining why synchronized delivery can feel less burdensome despite longer total delays. Building on work in temporal integration and event segmentation (e.g., Raghubir and Srivastava 2009; Morewedge et al. 2007), we argue that consumers manage not only when outcomes occur but how the anticipation of those outcomes is mentally structured. By consolidating multiple waits into a single episode, consumers reduce anticipated cognitive burden of waiting, revealing an understudied driver of intertemporal preferences.

Finally, our results also extend the mental accounting literature (Thaler 1999) beyond financial outcomes to the domain of waiting experiences. We show that consumers treat distinct waiting periods as distinct “temporal accounts” that can be kept apart or combined. Synchronizing benefits merges multiple accounts into a single mental episode, reducing the anticipated cognitive burden from managing multiple accounts.

Practical Implications

Our findings may also have practical implications for sustainability, even though sustainability considerations were not a driver of the observed effect in our studies. In an era when consumers are accustomed to near-instant gratification, companies often resort to costly and inefficient practices such as splitting shipments and sending partial orders early to appease

impatient customers (Muñoz-Villamizar et al. 2021). These practices not only increase shipping and labor costs but also generate additional packaging waste and higher carbon emissions.

The psychological mechanism identified in our studies suggests a potential path forward. When synchronized delivery reduces the perceived burden of waiting, companies can increase customer tolerance for longer delivery windows by presenting multiple items as arriving together, reframing several separate waits as a single, more manageable episode. In turn, customers may become less inclined to demand fragmented, expedited deliveries and more willing to accept consolidated schedules, enabling businesses to consolidate shipments, reduce packaging, and optimize delivery routes. Indeed, our results may help explain the success of innovations such as Amazon Day, which allows customers to select a single weekly delivery date for all packages (Perez 2019). At the same time, our results imply that interface design matters: presenting delivery timing jointly can increase favorability toward synchronized delivery, whereas prompting consumers to consider items separately can reduce it.

Boundary Conditions

Our findings may be subject to important boundary conditions, particularly in contexts where waiting is less aversive. For example, the effect may be attenuated or reversed for highly hedonic or experiential consumptions, such as gourmet meals, vacations, or entertainment. In these cases, consumers may deliberately segregate experiences across time to create multiple episodes of anticipation and savoring, which serve as a strategy to prolong and amplify overall enjoyment (Kumar, Killingsworth, and Gilovich 2014). A related boundary condition concerns situations in which repeated consumption of the same product within a short time frame diminishes enjoyment. For example, eating the same rich dessert twice in one day may reduce marginal utility and make temporal separation more attractive than integration. In these cases,

consumers may prefer to space out delivery or consumption occasions rather than combine them. A similar logic applies when consumers view repeated, time-spaced use as instrumental for self-regulation, as integrating deliveries can undermine the structure and feedback that periodic usage provides. Many subscription or repeated-use products, such as food supplements and skincare treatments, are often intended for regular, paced consumption, both to track progress and to maintain effectiveness. In these cases, combining deliveries would disrupt the expected consumption rhythm, making temporal separation more desirable.

In addition, synchronization preferences may depend on the perceived combinability of outcomes within mental accounting. Our theorizing assumes that multiple outcomes can be integrated into a single mental episode; however, synchronization preferences may attenuate when such integration is difficult. For example, when outcomes differ substantially in category, originate from separate retailers or sources, or are intended for different recipients, consumers may be less likely to mentally bundle them into a unified account. In these cases, each outcome may be represented and evaluated independently, even under synchronization, reducing its appeal.

Another boundary condition arises when waiting is financially incentivized. In Supplemental Experiment 5, we found that favorability toward synchronization was attenuated when the longer delivery option was accompanied by a cost saving. This pattern suggests that when waiting is framed as financially beneficial, consumers may construe the decision more narrowly in economic terms, focusing on monetary trade-offs rather than the experiential or psychological benefits of synchronized delivery. Future research could further examine how different types and magnitudes of incentives shift the framing of waiting decisions and identify conditions under which financial incentives dampen or amplify preferences for synchronization.

Limitations and Future Directions

The current research focuses on product deliveries or monetary payments that are typically viewed as positive outcomes and does not examine negative outcomes. Future research can extend this framework to contexts involving negative outcomes. Existing literature suggests that individuals sometimes expedite negative experiences to "get them over with" and minimize anticipatory dread (Loewenstein 1987). However, our framework offers a different possibility: people may choose to delay a negative outcome when doing so allows it to be synchronized with another loss, thereby consolidating waiting into a single episode and minimizing the dread of waiting through multiple periods. Additionally, future research could also explore the role of uncertainty in these processes. While we examined certain outcomes, real-world waiting often involves variability or ambiguity. For instance, medical test results, or job application outcomes. It is possible that uncertainty changes how consumers mentally construe synchronized versus separate waiting periods, perhaps amplifying or weakening the perceived benefits of synchronized delivery.

Moreover, while we focus on intertemporal choice, the notion of a single-event construal may extend to many other domains. For example, in planning and scheduling of tasks, consumers might prefer to consolidate tasks to the extent that the consolidation reduces the perceived effort required for preparation. At the same time, this tendency could lead consumers to underestimate the difficulty of jointly scheduled tasks, as they may view them as part of one overarching episode rather than multiple distinct efforts. Finally, while we are focused on same-day synchronization, future work can explore synchronization based on boarder temporal landmarks. For example, consumers may mentally construe the expenses occurring in the same budget period as a single, larger outflow. In line with this tendency, they may deliberately

structure their financial calendars, such as aligning bill due dates, loan payments, or major purchases, so that multiple expenses fall within the same budget period.

In conclusion, this research shows that impatience is not fixed. When multiple outcomes can be synchronized, consumers become more willing to wait, even if doing so increases total waiting time. Understanding the phenomenon of synchronized delivery preferences sheds light on how consumers regulate anticipated cognitive burden of waiting and offers new insights into when waiting longer can paradoxically feel better.

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Essay 2: Managing Finances in Recurring Budgets: Anticipating Future Budget Availability Increases Current Spending

Abstract

Consumers commonly maintain recurring budgets that correspond to specific spending periods (e.g., weekly or monthly budgets). While existing research has primarily focused on a single period's budget in isolation, this research investigates the intertemporal dynamics of consumers' budgeting behavior when budgets recur. We propose that consumers tend to consider spending across budget periods, whereby the anticipation of budget availability in the next period can influence spending within the current period. Evidence from five preregistered studies shows that consumers increase their spending within the current budget period when the replenishment of funds allocated for an upcoming budget period is prominent and perceived as close. This increase in spending can sometimes result in budget overruns. Consumers' perceived ease of justifying the use of funds allocated for the upcoming period underlies this pattern. Supporting this mechanism, this effect is attenuated when consumers are encouraged to consider managing their finances over the course of two consecutive budget periods, when the upcoming budget period is perceived as distant (vs. close), and when expenses that the future budget is intended to cover are highlighted.

Consumers commonly maintain recurring budgets that correspond to specific spending periods, such as weekly or monthly budgets. In a nationally representative study of US households, approximately two-thirds of those surveyed reported keeping a budget and over 85% of those respondents reported having a weekly or monthly budget (Zhang et al. 2022). Existing research has focused on investigating spending patterns within specific budgets, treating the decisions made under each budget or within each budget period as independent from one another (Choe and Kan 2021; Choe et al. 2023; Fernbach, Kan, and Lynch 2015; Stilley, Inman, and Wakefield 2010). In contrast, this research investigates the dynamics of consumers' budgeting behavior across recurring budget periods, specifically analyzing the effect of anticipating funds available in a future budget on the present spending decisions.

Although one of the main reasons for budgeting is to prevent spending beyond one's income (Zhang et al. 2022), a majority of people struggle to adhere to their budgeting plans (Lukas and Howard 2023). According to research from Slickdeals, 79% of people who keep a recurring budget have failed to stick to it. Specifically, the average weekly expenditure reported by survey respondents, excluding bills such as mortgage or rent, far exceeded the average amount they budgeted (O'Brien 2019). Budget violation can be understood as a form of overspending, in which consumers spend beyond a typical amount (Sui, Sun, and Geyfman 2021). To understand overspending arising from such violations, this research explores the following question: When consumers opt to take on a higher risk of exceeding their current budget, *where* do they think the surplus money comes from?

One possibility is that consumers view budget accounts designated for different periods as independent from each other and mentally write off any remaining surplus or deficit at the end of each budget period. In such cases, when needing additional funds, they may tap into existing

accounts originally intended for other purposes, such as emergency funds or savings reserved for long-term goals. However, the mental accounting literature suggests that consumers prefer to align their spending with the specific accounts they have established for such purchases (Reinholtz, Bartels, and Parker 2015), sometimes even willing to incur high interest rate debt rather than drawing from an account designated for a different purpose (Sussman and O'Brien 2016).

Alternatively, since consumers' perceived financial periods tend to be fluid (Jang and Urminsky 2023), we suggest that consumers may flexibly restructure their budget periods by managing their finances over an extended timeframe (Soster, Monga, and Bearden 2010). For example, rather than treating each budget cycle as independent, they may decide to manage their finances across multiple adjacent budget periods. With this approach, when the current budget is depleted, consumers may adopt a broader perspective and draw from a future account designated for the same purpose. As a result, consumers with a recurring budget are prone to increase their current spending if they can flexibly draw from funds originally earmarked for an upcoming budget period. Our pilot study (N = 100) shows that consumers with a stronger natural tendency to consider future budget availability reported higher levels of credit card debt ($r = .251$, $p = .013$), suggesting a potential downstream consequence of this tendency.

Additionally, we propose that consumers are especially prone to higher spending within the current budget period when the funds available in an upcoming budget period are salient and the upcoming budget period is perceived as approaching. This occurs because anticipating a budget refresh makes it easier for consumers to justify drawing on funds allocated for a future budget period to cover current expenses. Correspondingly, our results show that encouraging consumers to consider managing their finances over the course of two consecutive budget

periods increases this perceived ease of justification and attenuates the effect of salient budget availability.

Further supporting this mechanism, we propose and find that when consumers perceive the upcoming budget period as distant rather than close, they will find it difficult to justify utilizing funds allocated for that future budget period, thereby responding less strongly to the salience of budget availability. Finally, we show that highlighting expenses expected to be covered by the future budget further constrains this tendency. By reinforcing the intended use of future funds, this intervention limits the temptation to draw on those future funds for current spending, thereby attenuating the budget availability effect.

This research contributes to literature on consumer financial decision making in several ways. First, existing budgeting research has primarily focused on people's spending behavior within a specific budget or over a given period (see Sussman, Wang, and Apalkova 2022 for a review), often treating the effect of one period's budget as independent from others. Adding to the budgeting literature, the current research investigates the dynamics of consumers' budgeting behavior across periods.

Second, past research examining the influence of budgets across time has focused on the effect of past budgets on current behaviors (e.g., Carlson et al. 2015; Choe and Kan 2021; Lukas and Howard 2023). In contrast, the current research examines how anticipating funds available in a future budget can affect spending within the current budget period. Finally, expanding the malleable mental accounting literature (Cheema and Soman 2006; Cheng and Cryder 2018), this research investigates consumers' tendency to draw on funds originally earmarked for future expenses, thereby justifying desirable purchases in the current budget period.

This research also has practical implications for both individuals looking to regulate their own spending and marketers seeking to understand and help manage consumers' spending patterns. Individuals seeking to prevent their spending from exceeding their designated budget can benefit from understanding the temptation to draw from the funds allocated for a future budget period or to flexibly extend their current budget period. Importantly, when future budget availability becomes salient, considering the expenses that those future funds are intended to cover can help reduce this temptation by limiting perceived slack and reinforcing the budget's intended use. In situations where consumers do draw upon future funds for current expenses, it is advisable to compensate by having a concrete plan to reduce spending in the subsequent budget period.

On the other hand, marketers who are focused on fostering sustainable customer relationships through informed spending should be cautious about their promotion tactics that involve the notion of "borrowing from the future self." While such strategies can be effective in the short term, they risk encouraging consumers to overextend themselves financially. This is particularly problematic for individuals with limited financial literacy or those already experiencing budget constraints, who may underestimate the difficulty of making future spending adjustments.

Theoretical Framework

Managing Finances Across Periods

Consumers pre-assign money to budget accounts for various purposes, such as tracking and monitoring spending (Antonides, De Groot, and Van Raaij 2011), controlling indulgent

consumption (Krishnamurthy and Prokopec 2010), avoiding or decreasing debt (Zhang et al. 2022), and saving for either short-term (Choe, Kan, and Polman 2023) or long-term (Sussman and O'Brien 2016) financial goals. Among these goals, avoiding overspending one's income stands out as one of the primary motivations for budgeting (Zhang et al. 2022). Previous studies have predominantly focused on specific budgets or budgets within specific periods (Choe and Kan 2021; Choe et al. 2023; Fernbach et al. 2015; Stilley et al. 2010). However, limited attention has been paid to consumers' behaviors regarding recurring budgets.

A recurring budget is a financial plan that allocates a specific amount of money to be spent over a repeated period, such as weekly, monthly, quarterly, or yearly. Most consumers maintain recurring budgets (Marder 2023). In a nationally representative study of US households, over 85% of respondents who budgeted or had budgeted in the past reported budgeting on a weekly or monthly basis (Zhang et al. 2022). The practice of keeping a recurring budget has a profound impact on consumers' financial activities. For instance, consumers may perceive an income stream as more valuable if they can align it with their recurring budget periods (De La Rosa et al. 2022).

Research that examines people's behaviors across multiple budget periods has focused on the effect of past budgeting behaviors on current decisions within a given budget period. For instance, it has been shown that spending within a budget category tends to reduce subsequent spending on similar types of items within the same budget period (Fei and Bartels 2021; Soman and Lam 2002). Carlson and colleagues (2015) found that when the budgeted amount becomes smaller relative to a previous budget, consumers tend to opt for less diversity to minimize the anticipated psychological losses from the decreased allocation for each item. Additionally, utilizing a large dataset from a personal finance app, Lukas and Howard (2023) found that

creating a monthly budget for a given period moved spending toward the budgeted amount, an effect that persisted over time.

Relatively little attention has been paid to how the prospect of a future budget might influence spending within the current budget period. Addressing this gap in the literature, this research investigates the effect of anticipating budget availability in the context of recurring budgets. As each new budget period begins, the allocated amount of funds becomes available for that period. We propose that instead of viewing the budget allocated for each period as separate mental accounts, consumers may flexibly post their spending into a future budget account if they anticipate having available funds in that upcoming budget but not in the present.

Anticipating Money Allocated for the Future

Consumers adjust their consumption activities in anticipation of income changes to keep the marginal utility of money constant over time, a phenomenon known as consumption smoothing (Browning and Crossley 2001; Campbell and Deaton 1989; Dutt and Padmanabhan 2011, Morduch 1995). Consumption smoothing is correlated with the practice of financial planning (Parker 2017). When expected income rises, consumers tend to increase their spending (Baugh et al. 2021), sometimes by borrowing. For instance, students often take out loans against future earnings, and the borrowing decisions are correlated with a stronger preference for high-salary jobs after graduation (Rothstein and Rouse 2011). This borrowing tendency also arises for short-term expectations. Leveraging comprehensive panel data, Olafsson and Pagel (2019) find that consumers who expect to receive small windfalls are prone to spend more and increase their short-term borrowing prior to receiving the windfalls.

Although consumers may borrow to maintain a constant marginal utility of money, evidence suggests that consumers sometimes overreact to changes that have little impact on their expected lifetime income (Browning and Crossley 2001; also see Browning and Collado 2001 for counterevidence). For example, Shapiro and Slemrod (1993) presented survey evidence that in response to a change in tax withholding that only increases short-term cash flow but has no impact on lifetime income, participants reported increased intent to spend even if they were not liquidity constrained. Similarly, Chambers and Spencer (2008) found in an experiment that a change in the anticipated timing of tax refund, which did not affect lifetime income, stimulated the subjects' current expenditures.

Anticipating a budget that will become available at the start of the next budget period differs from expecting income. Indeed, consumers often set budget periods that do not necessarily match their pay frequency (De La Rosa et al. 2025). According to the Bureau of Labor Statistics (2022), approximately 43% of employees in the United States received a biweekly salary, making it the most common pay period. In contrast, only 10% of employees received a monthly paycheck. However, a majority of consumers budget on a monthly basis. Instead of strictly aligning budget periods with income cycles, consumers may structure them based on other factors, such as large recurring expenses (De La Rosa and Tully 2022).

We suggest that when consumers face budget constraints, the salience of funds allocated for an upcoming budget period may serve as a reminder that they can navigate these constraints without needing to acquire additional funds from a new source. We predict that consumers who maintain recurring budgets may increase their current spending in anticipation of funds allocated for a future period, sometimes at the risk of budget violation. In other words,

H1: The heightened salience of the availability of funds allocated for an upcoming budget period will increase consumers' spending within the current budget period.

Justifying Spending through Malleable Mental Accounting

Consumers create mental accounts to organize, evaluate, and keep track of their financial activities (Thaler 1999). The mental accounting process has been shown to be malleable, meaning that consumers have flexibility to assign an expense to different mental accounts, which in turn influences their spending decisions based on how they categorize these expenses. For instance, Sussman and Alter (2012) found that consumers categorize exceptional expenses more narrowly than they categorize ordinary expenses, making it difficult for them to incorporate exceptional expenses into future budgets. As a result, they tend to spend more on otherwise identical purchases that they consider exceptional rather than ordinary.

Mental accounting can serve as an important self-regulation device (Heath and Soll 1996). For example, Sussman and O'Brien (2016) find that consumers avoid drawing from savings accounts that are earmarked for responsible goals, such as for child's education. Consequently, they sometimes borrow high interest rate debt while maintaining savings that generate low interest in these responsible accounts. However, mental accounts can be malleable, allowing consumers to circumvent self-control commitments and justify attractive spending (Mishra et al. 2013). For example, Cheema and Soman (2006) find that when ambiguity exists in the mental accounting process, consumers are more likely to incur an expense if they can malleably assign this expense to an account that has more available budget. Additionally,

findings by Cheng and Cryder (2018) suggest that consumers may justify desirable purchases by flexibly applying one financial gain to multiple purchases.

In this research, we draw on the concept of malleable mental accounting and propose that consumers are more likely to draw on funds earmarked for the future when the availability of that budget becomes salient. In these cases, consumers may frame overspending as a temporary budget deviation that can be corrected through adjustments in the next budget period. By mentally reallocating future resources to cover present expenses, consumers can justify increased current spending without feeling as though they are violating their broader financial goals. Put formally,

> **H2:** Consumers' tendency to justify current spending by drawing from the budget allocated for the future underlies the future budget availability effect.

We further propose that the effect is more likely to arise when the next budget period is perceived as close rather than distant. When consumers perceive a future budget as imminent, it provides a justification for increased present spending, based on the belief that any deficit will soon be replenished. This perception reduces the perceived risk and guilt associated with increased spending in the moment. However, when the upcoming budget period feels distant, the delayed replenishment of funds increases the perceived risk of overspending, making it more difficult for consumers to justify the malleable allocation of a current expense. As a result, it is less likely for consumers to post a current expense to a future account.

H3: The future budget availability effect is moderated by perceived distance to the next budget period, such that the effect is attenuated when the next budget period is perceived as distant (vs. close).

Evidence from six preregistered studies supports our hypotheses. We begin by establishing the basic phenomenon and its psychological basis. Study 1 documents that individuals who are more inclined to consider an upcoming budget refresh are more likely to increase spending, providing initial correlational support. Building on this, Study 2 provides causal evidence by manipulating the salience of a future budget, showing that making future budget availability salient increases the likelihood of exceeding the current budget (H1), and that this effect is driven by an increased perceived ease of justifying drawing on future funds (H2). To demonstrate the behavioral consequences in a more consequential setting, Study 3 employs an incentive-compatible paradigm and shows that highlighting future budget availability increases current-period spending and can lead to overspending.

Having established both the effect and its mechanism, we next test the underlying process more directly. Study 4 shows that encouraging consumers to manage their finances across consecutive budget periods attenuates the effect, consistent with the ease of justification mechanism. We then examine when this effect is more or less likely to occur. Study 5 identifies perceived temporal distance to the next budget period as a boundary condition (H3), demonstrating that the effect emerges when the upcoming budget is perceived as imminent but weakens when it is perceived as distant. Finally, Study 6 leverages the proposed mechanism to design a practical intervention: highlighting expenses that the future budget is intended to cover reduces perceived ease of justification and attenuates the budget availability effect.

Study 1 The Natural Tendency to Consider Future Budget Availability

In study 1 (preregistered at AsPredicted https://aspredicted.org/KJL_Z65), we tested whether consumers' natural tendency to consider the availability of an upcoming budget was associated with increased spending. We predict that when making purchase decisions, consumers vary in their natural consideration of the funds available in a future budget. Further, this variation will be correlated with an increased inclination to justify drawing funds from the future budget and subsequently a greater likelihood to make a purchase.

Method

A total of 234 participants were recruited through MTurk on Friday, March 15, 2024. At the beginning of the study, participants were asked if they kept a regular financial budget, such as a weekly or monthly budget. After excluding 30 participants who indicated not keeping a regular financial budget, we ended up with an active sample of 204 participants (mean age = 43.2, 58% female). On a separate page, all participants saw a product page of a T-shirt. The original price of the T-shirt was $30, and participants were told that the T-shirt was on sale and cost $24 for only today. They read that if they decided to make a purchase, the cost would be deducted from their regular budget. They indicated their purchase likelihood on a 7-point scale (1 = very unlikely, 7 = very likely). On the next page, they were asked about their natural tendency to consider future budget availability: "While making the purchase decision on the previous page: To what extent have you thought that your regular budget is going to refresh at the beginning of the next budget period?" and a question assessing their perceived ease of

justifying drawing from a future account: “To what extent do you feel it is easy to justify using money from your next budget for making purchases today?” Both questions were measured on 7-point scales (1 = not at all, 7 = very much). Next, participants estimated the percentage of their current budget that they had used up on a slider scale that ranged from 0% to 100%. They also indicated the number of days remaining in their current budget period.

Instead of making expenditures easier to justify, the consideration of future budget availability could also stimulate spending through alternative paths such as by decreasing perceived financial constraints in the present or by inducing the desire to fully utilize the current budget prior to its renewal. To address these two alternative accounts, we measured the extent to which participants felt financially constrained and the extent to which they believed they should spend all of their current budget before the start of the next budget period on 7-point scales (1 = not at all, 7 = very much). Participants responded to several demographic questions before the end of the survey.

Results

We first ran a linear regression with purchase likelihood as the dependent variable and consideration of budget refresh as the independent variable. The results suggested that a higher tendency to consider budget refresh was associated with a greater purchase likelihood (β = .44, SE = .07, $t(202) = 6.41$, $p < .001$). Further, we found that greater perceived ease of justification was associated with an increased purchase likelihood (β = .66, SE = .06, $t(202) = 11.08$, $p < .001$).

We then ran a mediation analysis (PROCESS model 4, 10,000 resamples) with purchase likelihood as the dependent variable, consideration of future budget availability as the independent variable, and perceived ease of justification as the mediator. The results suggested that the perceived ease of justification mediated the relationship between consideration of future budget availability and purchase likelihood (b = .25, SE = .05, 95% CI: [.15, .36]). A parallel mediation model with perceived ease of justification, perceived financial constraint, and participants' desire to fully utilize their current budget as three parallel mediators found that the perceived ease of justification remained to be the only significant mediator (b = .22, SE = .05, 95% CI: [.13, .33]). Neither perceived financial constraint (b = -.0001, SE = .01, 95% CI: [-.02, .03]) nor desire to fully utilize the current budget (b = .04, SE = .02, 95% CI: [-.003, .09]) mediated the effect.

On average, participants estimated that they had used up 50.7% of their current budget. Additionally, 43.2% of participants kept a monthly budget, and they reported an average of 12.6 days remaining in their current budget period. For exploratory purposes, we analyzed the correlations between the percentage of budget that participants had used up (or number of days remaining in the current budget period) and our key outcome variables. We found that the more participants had used up their current budget, the less likely they were to make a purchase (r(202) = -.14, p = .043) or to justify drawing from the upcoming budget (r(202) = -.14, p = .040), but the usage of their current budget was not significantly correlated with their tendency to consider future budget availability (r(202) = -.01, p = .914). Furthermore, the number of days remaining in the current period was not associated with any of our key outcome variables, including purchase likelihood (r(202) = .03, p = .710), consideration of future budget availability (r(202) = -.02, p = .801), and perceived ease of justification (r(202) = .02, p = .805). These non-

significant correlations might arise because the objective number of days remaining in the current budget period might not accurately reflect subjective temporal distance. Participants might perceive the time until the next budget period differently, even when the actual number of days remained the same.

Discussion

Study 1 provided evidence suggesting that consumers' tendency to consider future budget availability is associated with greater perceived ease of justifying drawing from a future budget and an increased likelihood of making a purchase in the current budget period. Besides, our findings suggest that the impact of future budget availability consideration on purchase decisions is unlikely to be driven by a decrease in perceived financial constraints or an increase in desire to fully utilize the current budget. In the following experiments, we tested the causal relationship between future budget availability consideration and purchase likelihood by directly manipulating the salience of future budget availability.

Study 2 Manipulating the Salience of Future Budget Availability

Study 1 found a positive association between the salience of future budget availability and purchase likelihood. In study 2 (preregistered at AsPredicted https://aspredicted.org/9DB_VG4), we aimed to provide causal evidence for our hypothesis that consumers tend to increase their spending when an upcoming budget is prominent and perceived as approaching (H1). The current study is focused on analyzing consumers' decisions on whether to exceed a current budget, offering insights into patterns of budget violation.

We examine budgets for discretionary spending because evidence suggests that budget overruns often occur in non-essential categories (O'Brien 2019). In addition, non-essential categories offer greater flexibility, allowing consumers to adjust their spending based on discretion. The current experiment also tested our proposed mechanism; that is, whether the effect is driven by people's tendency to justify drawing from an upcoming budget (H2).

Method

A total of 302 participants recruited through MTurk were randomly assigned to one of two conditions (future budget availability: control vs. salient). Participants were asked to enter a dollar amount that they would typically allocate each month for non-essential expenses such as dining out and entertainment. On the next page, they read: "Imagine that you maintain a monthly budget of $[dollar amount they allocated] specifically for non-essential expenditures such as dining out and entertainment. You refresh your budget on the first day of every month. In cases where you spend more than your budget, you typically put the expenses on your credit card." The instruction about putting surplus expenses on credit cards was consistent with what consumers normally do when they exceed their budgets, as 44% of respondents to a survey from NerdWallet indicated that they used a credit card to pay for the additional purchases they made when going over budget (Marder 2023). Next, participants were reminded of the date on which this study was run (October 30). Those in the [control/salient] condition read that "Today is Oct 30, one day away from [the end of this month/the start of next month]." All participants imagined that they had used up their current budget. Participants in the salient condition also received a refresh reminder: "Your monthly budget of $[dollar amount they allocated] will refresh in one day." All participants then indicated the likelihood of purchasing a smart speaker

that was described to be on sale for the day and cost $28 (1 = very unlikely, 7 = very likely). We measured perceived ease of justification by asking: “To what extent did you feel it was easy to justify using money from the next month's budget?” (1 = not at all, 7 = very much). Participants responded to several demographic questions before the end of the survey.

Results

Purchase likelihood. Participants in the salient (M = 3.92, SD = 2.02) versus control condition (M = 3.25, SD = 1.97) were more likely to make a purchase ($t(300) = 2.91$, $p = .004$, $d = .34$), supporting our hypothesis that consumers spend more when future budget availability is prominent.

Ease of justification. Participants in the salient condition (M = 4.35, SD = 1.99) perceived greater ease of justifying spending from the next month’s budget than in the control condition (M = 3.63, SD = 1.99; $t(300) = 3.15$, $p = .002$, $d = .36$).

Mediation analysis. We next ran a mediation analysis using Hayes’s (2017) PROCESS macro, with budget refresh condition as the independent variable, ease of justification as the mediator, and purchase likelihood as the dependent variable. The results showed a significant mediation effect ($b = .30$, 95%CI: [.11, .49]; 10,000 resamples), providing evidence supporting our proposed mechanism.

Discussion

Study 2 provided causal evidence for our H1 by varying the salience of future budget availability. It also tested the ease of justifying using funds allocated for the upcoming budget period as a driver of the budget refresh effect in a mediation model.

Study 3 Incentive-Compatible Behavioral Game

In Study 3 (preregistered at AsPredicted https://aspredicted.org/gxr4-nwjn.pdf), we aimed to test the effect in an incentive-compatible behavioral game where participants made spending decisions across budget periods. Participants made purchase decisions across two rounds, with each round representing one week. There were seven days in each week, and participants were given a weekly spending budget of $100 for making purchases on each day. Each purchase was able to yield a randomly generated bonus within a given range. The incentive structure was designed such that the value of money—as measured by the bonuses earned for the same amount of spending—was higher in the second week than in the first. Consequently, increased spending in the first period would lead to a lower total bonus by limiting the opportunity to earn higher bonuses in the second period. We predicted that highlighting future budget availability would increase (decrease) the spending within a current (future) budget period, leading to worse overall financial outcomes.

Methods

A total of 312 participants recruited through MTurk were randomly assigned to one of two conditions (future budget availability: control vs. salient). At the beginning of the survey,

participants read the following instructions: “In this game, you will make purchase decisions across 2 rounds, with each round representing one week. You will be given a weekly spending budget of $100, which refreshes at the beginning of each week. Each week has seven days, from Monday to Sunday. Within each day, we will present you with four options which you can purchase using your budget. You will be able to earn points by making purchases, with point values randomly generated by the computer. Since purchase prices and points vary, some purchases will yield more points per dollar spent compared to others.” On the next page, participants were presented with an example where they could choose to make no purchase or multiple purchases out of four purchase options, each offering a different number of points for a certain amount spent (e.g., “spend $15 to get 300 points” and “spend $8 to get 200 points”). On the following page, we further specified rules for overspending and bonus calculation. Specifically, participants read that if they exceeded their budget at the end of week one, the excess spending would be deducted from the budget of the following week. Conversely, any remaining budget would carry over to the next week. After week two, a bonus would be calculated based on the total points they had earned from purchases at a constant rate, and any remaining money available in their budget at the end of week two would not be considered in bonus calculations. They further read that there would be a significant penalty if they spent more than their overall budget at the end of week two, with the magnitude of this penalty increasing with the extent of overspending. This design incentivized participants to exhaust, but not exceed, their allocated budget before the end of week two.

To ensure that participants carefully read and understand the instructions, we included four comprehension check questions asking about the rules of this game. For example, participants were asked: “What happens if you have budget remaining at the end of week 1?” and

chose among three options, such as “The remaining budget will carry over to the following week.” and “There will be a penalty deducted from my earned points.” Any participant who failed to answer all four questions correctly on the first attempt was redirected to the initial page of the instructions for another opportunity to read them and try again. If a participant still failed to answer all four questions correctly after the second attempt, she was directed to the end of the survey.

After the comprehension check, participants proceeded to the game and made purchase decisions on 14 consecutive days, from the Monday in week one to the Sunday of week two. Similar to the example presented to them earlier, they were presented with four options per day that varied in prices and points, and they could choose to make zero or multiple purchases each day. The information about the remaining budget and total points earned from prior purchases was displayed on the same screen where participants made purchase decisions. To simplify decisions, the points for each purchase option were multiples of 10. The price-to-points exchange rates were randomly generated. In week one, the exchange rates ranged from 10 to 20, such that for every dollar spent, participants would earn an average of 15 points. In week two, the exchange rates increased to between 40 and 60, with every dollar spent yielding 50 points on average. The average exchange rate was designed to be higher in week two to increase the average value of money in the future period. This change in average exchange rate in week two was unrevealed to participants. For each participant, a bonus was calculated by dividing the total points earned by 30,000. If a participant exceeded her overall budget, a penalty of $0.03 was deducted from the total earned bonus for every dollar that exceeded the budget.

To manipulate the salience of future budget availability, for those who were assigned to the salient budget refresh condition, a message was displayed on the same screen where they

made purchase decisions. Specifically, from Monday through Thursday in week one, the message read: "Keep in mind that your $100 weekly budget is going to refresh at the beginning of next week." From Friday through Sunday in week one, the message read: "You are approaching the start of the next week. Your $100 budget is about to refresh shortly." In contrast, participants in the control condition did not receive these messages. After the game, all participants received a bonus based on their total earned points.

Results

Total spending in week one. We first computed the total spending in week one, where participants either received or did not receive a daily message about future budget availability. Participants in the salient budget availability condition (M = 96.55, SD = 18.08) spent more than those in the control condition (M = 90.71, SD = 20.18; $t(312) = 2.71$, $p = .007$, $d = .30$) in week one.

Overall spending across two weeks. We did not find a significant difference in participants' overall spending across two weeks between salient budget availability (M = 193.24, SD = 27.44) and control (M = 192.64, SD = 25.25; $t(312) = .20$, $p = .841$) conditions.

Bonus earned. As predicted, overall, participants in the salient budget availability condition (M = .20, SD = .06) earned smaller bonuses than those in the control condition (M = .22, SD = .04; $t(312) = 2.37$, $p = .019$, $d = .26$).

Budget violation in week one. We found that a significantly higher percentage of participants in the salient budget availability condition (22%) exceeded their week one's budget than those in the control condition did (11%; $\chi(1) = 6.82$, $p = .009$) in week one. Overall, there

was no significant difference in the proportion of participants who exceeded their total budget at the end of week two between salient budget availability (7.7%) and control (4.1%; $\chi(1) = 1.81$, $p = .179$) conditions.

Sensitivity to price-to-points exchange rates in week two. For exploratory purposes, we tested whether participants who received a daily refresh reminder and spent more in the first period would seek better deals in the subsequent period when money became more valuable. We computed a sensitivity score dividing total points earned in week two by total spending in week two, with a higher score indicating a higher sensitivity to price-to-points exchange rates. The results showed that the average price-to-points ratio in week two was 50.45, which was significantly higher than the ratio by chance ($t(312) = 2.41$, $p = .016$). This finding suggested that participants made an effort to select options that would yield them a higher bonus given the limited budget. We found no significant difference between the sensitivity score between salient budget refresh ($M = 50.40$, SD = 3.44) and control ($M = 50.51$, SD = 3.11; $t(391) = .31$, $p = .759$) conditions.

Discussion

In Study 3, we tested our effect in an incentive-compatible game where participants spent their budget to earn bonuses across two consecutive budgeting periods. Consistent with the results in previous studies, we found that highlighting future budget availability led to increased spending and a higher likelihood of budget violation within the current budget period. Furthermore, increased spending in a prior period did not result in a greater tendency to seek good deals in the following period, even when money became more valuable. As a result,

participants in the salient budget availability condition earned an overall lower bonus payment than those in the control condition. Having established the budget availability effect and its behavioral consequences, the subsequent studies further probe the underlying mechanism through theoretically motivated moderators. In Study 4, we manipulated participants' tendency to draw from an upcoming budget and tested whether the effect would be attenuated when this tendency was heightened.

Study 4 Moderation by Flexibility of Budget Management Approach

In Study 2, we found evidence that increased ease of justification mediated the effect of future budget availability on spending. In Study 4 (preregistered at AsPredicted https://aspredicted.org/MXT_LF7), we further tested this mechanism by manipulating the perceived flexibility of the budget management approach. By encouraging consumers to manage their finances flexibly across two consecutive budget periods rather than within a single period, we aimed to increase the perceived ease of justifying current spending by drawing from an upcoming budget. We predicted that this broader financial management approach would moderate the impact of budget availability salience on spending decisions.

Methods

A total of 600 participants recruited through MTurk were randomly assigned to one of four conditions in a 2 (future budget availability: control vs. salient) by 2 (budget management approach: rigid vs. flexible) between-subjects design. The stimuli and budget availability salience manipulation were similar to study 2. After planning for a monthly budget for non-

essential expenditures, participants imagined that today was October 30th and they had used up their budget for the current month. Participants in the rigid conditions viewed a calendar of October, whereas those in the flexible conditions viewed the calendars of October and November side by side. Those in flexible conditions also read an instruction that prompted a flexible budget management approach: "People have the flexibility to manage their money over multiple budget periods. For example, someone with a monthly budget might manage their income and expenditures over the course of two months by combining the two monthly budgets." They then indicated the likelihood of purchasing a smart speaker similar to study 2. As a manipulation check for flexible budget management, we asked: "While you were considering whether to purchase the smart speaker in the scenario you imagined, to what extent did you believe that the current month and next month were part of the same financial period?" (1 = not at all, 7 = very much). Participants responded to several demographic questions before the end of the survey.

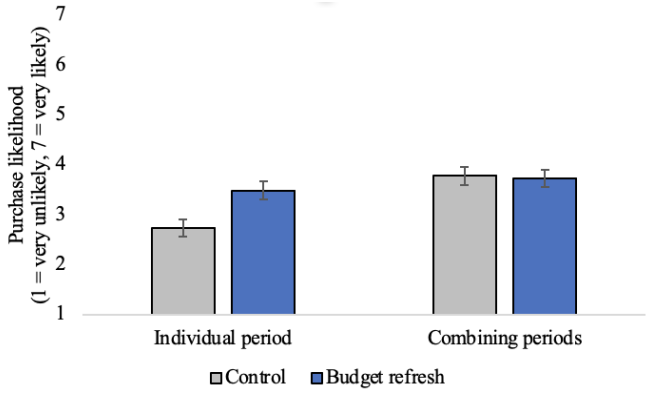
Results

Manipulation check. As intended, participants who were prompted to a consider a flexible budget management approach (M = 2.75, SD = 1.85) were more likely to view the current month and next month as belonging to the same financial period than those who did not receive this prompt (M = 3.49, SD = 2.20; $F(1, 596) = 9.29$, $p = .002$; $\eta^2 = .02$).

Purchase likelihood. As predicted, A two-way ANOVA analysis revealed a significant interaction effect between budget availability salience and budget management approach ($F(1, 596) = 5.37$, $p = .021$; $\eta^2 = .01$). In the control budget management condition, the salience of future budget availability increased their purchase likelihood ($M_{control}$ = 2.75, SD = 1.85; $M_{salient}$=

3.49, SD = 2.20; $F(1, 596) = 9.29$, $p = .002$; $\eta^2 = .02$). However, this effect was attenuated when they considered a flexible budget management approach ($M_{control} = 3.79$, SD = 2.16; $M_{salient} = 3.73$, SD = 2.25; $F < 1$; see Figure 2.1). These results were consistent with a mechanism in which considering a broader budget management strategy increases consumers' tendency to draw from an upcoming budget, therefore attenuating the effect of future budget availability.

Figure 2.1 Results in Study 4



Discussion

The results in Study 4 provided further support for our proposed mechanism. The effect of future budget availability was mitigated when participants were prompted to flexibly manage their finances over the course of two consecutive budget periods, which allowed them to justify tapping into funds allocated for the upcoming period. In the following experiment, we tested a boundary condition of the budget availability effect. Specifically, we propose that the budget availability effect will be attenuated when the next budget is perceived as distant, controlling for the objective distance to the next budget period.

Study 5 Perceived Distance to the Next Budget as a Boundary Condition

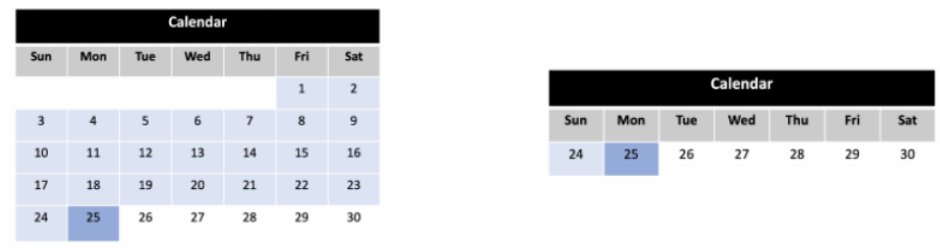
Our theory suggests that when future budget availability is more salient, consumers feel that it is easier to justify drawing from this future budget to cover present expenditures. If our theory holds, increasing the difficulty of justifying spending from future funds should diminish the influence of salient future budget availability. To test this, Study 5 (preregistered at AsPredicted https://aspredicted.org/ZWL_8VY) examined whether the impact of budget availability salience on spending would be attenuated when participants perceived an upcoming budget as temporally distant rather than close, even while the objective temporal distance to the budget refresh was held constant (H3). We predicted that when an upcoming budget is perceived as temporally distant (compared to close), it becomes more difficult for consumers to justify drawing from it. As a result, the effect of heightened budget salience on current spending would be weakened or eliminated.

Methods

A total of 600 participants recruited through MTurk were randomly assigned to one of four conditions in a 2 (future budget availability: control vs. salient) by 2 (perceived distance: close/monthly vs. distant/weekly) between-subjects design. We manipulated perceived distance to the upcoming budget period while holding objective distance constant by asking participants to imagine either maintaining a monthly (see Figure 2.2 left panel) or weekly budget (see Figure 2.2 right panel). Participants imagined that today was September 25th. Those in the salient budget availability conditions received a reminder that their [monthly/weekly] budget would become available in 5 days. They then indicated their likelihood of purchasing a smartwatch. We measured ease of justification similar to in studies 2 and 3. We also accounted for several

alternative explanations by measuring participants' perceived financial constraints ("To what extent did you feel you were constrained in finances?", perceived wealth ("How much money did you feel you have to make the purchase?"), perceived control ("To what extent did you feel confident in your ability to manage your spending?"), desire to deplete the current budget before the next budget period starts ("To what extent did you consider spending as much of your current budget as possible?), and a fresh-start mindset ("To what extent did you consider regulating your spending starting from the next budget period?") while they were making the purchase decision. These variables were all measured on seven-point scales (1 = not al all, 7 = very much). Participants then responded to a perceived distance manipulation check: "How close/distant do you feel your next [monthly/weekly] budget is?" (1 = very close, 7 = very distant). Participants responded to several demographic questions before the end of the survey.

Figure 2.2 Stimuli in Study 5 (Left and Right Panel)

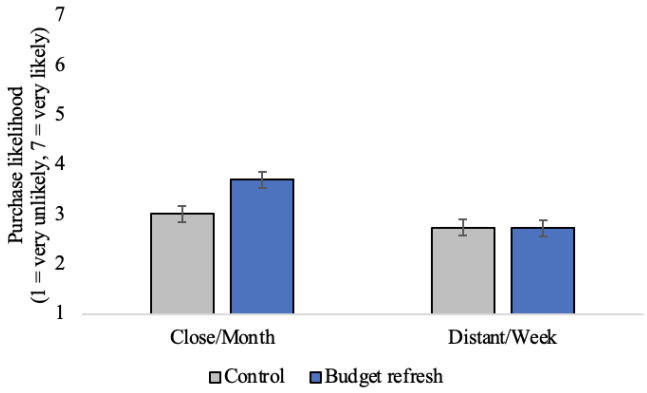


Results

Manipulation check. Participants in the close/monthly budget conditions (M = 2.63, SD = 1.31) perceived the upcoming budget period to be significantly closer than those in the distant/weekly budget conditions (M = 5.00, SD = 1.68; $F(1, 596) = 370.48$, $p < .001$, $\eta^2 = .38$), suggesting that our distance manipulation worked as intended. Neither the main effect of budget availability salience ($F < 1$) nor the interaction ($F < 1$) was significant.

Purchase likelihood. A two-way ANOVA analysis revealed a significant interaction between budget availability salience and perceived distance ($F(1, 596) = 4.81$, $p = .029$, $\eta^2 = .01$; see Figure 2.3). When the upcoming budget period was perceived as close, participants in the salient budget availability conditions ($M = 3.71$, SD = 2.00) were more likely to make a purchase than those in the control conditions ($M = 3.02$, SD = 1.95; $F(1, 596) = 9.12$, $p = .003$; $\eta^2 = .02$). However, this effect was attenuated when the upcoming budget period was perceived as distant ($M_{control} = 2.75$, SD = 1.92; $M_{salient} = 2.74$, SD = 1.92; $F < .01$).

Figure 2.4 Results of Purchase Likelihood in Study 5

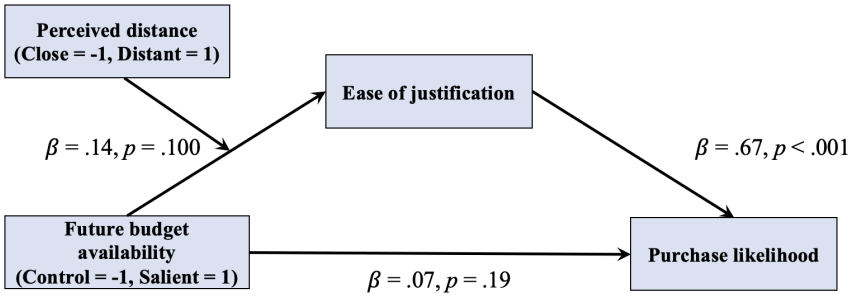


Ease of justification. A two-way ANOVA analysis revealed a significant interaction between budget availability salience and perceived distance ($F(1, 596) = 4.71$, $p = .030$, $\eta^2 = .01$). When the upcoming budget period was perceived as close, budget availability salience increased perceived ease of justification ($M_{control} = 3.40$, SD = 2.07; $M_{salient} = 4.05$, SD = 2.10; $F(1, 596) = 7.08$, $p = .008$; $\eta^2 = .01$). However, this effect was attenuated when the upcoming budget period was perceived as distant ($M_{control} = 3.29$, SD = 2.11; $M_{salient} = 3.21$, SD = 2.07; $F < 1$).

Moderated mediation analysis. We next ran a moderated mediation analysis using PROCESS model 7 (10,000 resamples), with future budget availability condition as the

independent variable, ease of justification as the mediator, perceived distance as the moderator, and purchase likelihood as the dependent variable. The analysis yielded a meaningful index of moderated mediation (index = -.25, 95% CI: [-.47, -.02]; see Figure 2.4). The ease of justification mediated the effect of budget availability salience on purchase likelihood when the upcoming budget period was perceived as close (β = .22, 95% CI: [.05,.38]). However, this pattern of mediation did not hold when the upcoming budget period was perceived as distant (β = -.03, 95% CI: [-.19,.13]).

Figure 2.5 Results of Moderated Mediation Analysis in Study 5



Index of moderated mediation: β = -.25, 95% CI: [-.47, -.02]
Indirect effect when next budget is perceived as close: β = .22, 95% CI: [.05,.38]
Indirect effect when next budget is perceived as distant: β = -.03, 95% CI: [-.19,.13]

Discussion

Study 5 tested a boundary condition of the future budget availability effect (H3). Specifically, we tested the perceived distance, while holding constant the objective distance, to the next budget period as a moderator of the budget refresh effect. The results suggested that the salience of future budget availability increases spending by increasing ease of justification only when the upcoming budget period is perceived as close. When the upcoming budget period is perceived as distant, increasing the salience of future budget availability would not lead to increased spending.

Study 6 Considering Future Expenses Attenuates the Budget Availability Effect

In Study 6 (preregistered at AsPredicted https://aspredicted.org/gk3ft9.pdf), we tested an intervention to attenuate the budget availability effect. While making future budget availability salient increases the perceived ease of justifying drawing on future funds, this tendency should be attenuated when the future budget is simultaneously mentally committed to upcoming expenses. Highlighting these expenses reduces perceived slack by reinforcing the budget's intended use, thereby limiting the extent to which consumers view future resources as freely available. As a result, we predict that the budget availability effect will be attenuated when future expenses are highlighted.

Methods

We recruited 607 participants from Prolific. As preregistered, we excluded four participants who received CAPTCHA scores of 0.50 or below on the AI-detection check, resulting in a final sample of 603 participants (55% female, M_{age} = 39.21). Participants were randomly assigned to one of four conditions in a 2 (future budget availability: control vs. salient) by 2 (future expenses: not-considered vs. considered) between-subjects design. After planning for a monthly budget for non-essential expenditures[2], participants considered purchasing a $25 T-shirt. In the control budget availability conditions, they read: "Suppose that today is April 29, the 29th day of the current month. You have used up your $[planned amount] budget for the current month." In the salient budget availability conditions, participants instead read: "Suppose

[2] To ensure the focal purchase was feasible and thus meaningful, participants who reported a budget of $25 or less (n = 15) were directed to the end of the survey before responding to the dependent variable.

that today is April 29, one day away from the start of next month. You have used up your $[planned amount] budget for the current month. Your monthly budget of $[planned amount] will refresh in one day."

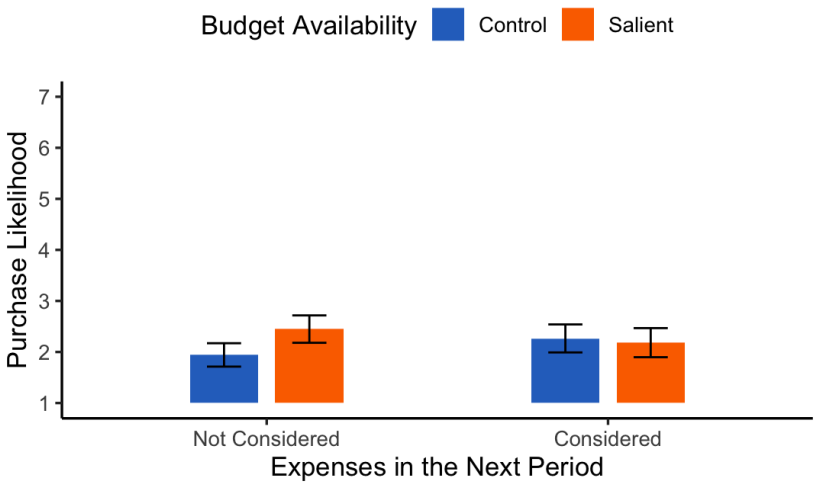
To manipulate future expense consideration, participants in the considered conditions listed five non-essential purchases they planned to make next month, describing each expense and indicating its estimated cost. This task was omitted in the not-considered conditions. A post-test study (N = 197) finds that this future-expenses consideration task reduced participants' perceived ease of justifying drawing on next month's budget to make a purchase today ($M_{\text{not-considered}}$ = 4.40, SD = 1.69; $M_{\text{considered}}$ = 3.87, SD = 1.94; $t(194) = 2.04$, $p = .043$, $d = .29$).

All participants indicated their likelihood of purchasing this T-shirt on a seven-point scale (1 = very unlikely, 7 = very likely) and answered several demographic questions.

Results

Purchase likelihood. A two-way ANOVA analysis revealed a significant interaction between budget availability salience and future expense consideration ($F(1, 584) = 4.52$, $p = .034$, $\eta^2 = .01$; see Figure 2.4). When participants did not consider the future expenses, we replicated the budget availability effect: those in the salient budget availability conditions (M= 2.46, SD = 1.76) were more likely to make a purchase than those in the control conditions (M = 1.94, SD = 1.46; $F(1, 319) = 8.08$, $p = .005$; $\eta^2 = .02$). However, this effect was attenuated when participants considered the expenses in the future budget period (M_{control} = 2.24, SD = 1.63; M_{salient}= 2.18, SD = 1.63; $F < .1$).

Figure 2.4 Results of Purchase Likelihood in Study 6



Discussion

The results in Study 6 suggest that while the salience of future budget availability increases the perceived ease of justifying drawing on future funds, this tendency can be attenuated by simultaneously highlighting expenses that are expected to be covered by that future budget. Importantly, prompting participants to consider future expenses may simultaneously increase the salience of future budget availability while constraining how those funds can be used. As a result, the budget availability effect is eliminated without necessarily producing a uniform reduction in current spending.

General Discussion

Consumers tend to track their monetary costs across accounting periods (Soster, Monga, and Bearden 2010). Distinct from past research that examines independent budgets, this research investigates consumers' spending decisions in recurring budgets. Evidence from five preregistered studies supports our hypotheses that the heightened salience of budget availability in an upcoming period increases current spending, sometimes resulting in budget violation (H1).

Consumers' tendency to justify utilizing funds allocated for the subsequent budget period underlies this effect (H2). Correspondingly, increasing the ease of justification by encouraging the practice of flexibly managing finances over two consecutive budget periods will attenuate the effect of future budget availability. In addition, we identify a boundary condition for the effect: the salience of future budget availability only increases current spending when the subsequent budget period is perceived as close rather than distant (H3).

This research focuses on examining consumers' decisions to exceed their budget. Although budget violations can lead to overspending and may conflict with short-term or long-term financial goals (Sui, Sun, and Geyfman 2021), we do not take a stance on the normality of this tendency. In Study 3, money became more valuable in the future period, but in other cases, its value may be greater in the present. For instance, an individual may choose to exceed his current budget to take advantage of a limited-time deal or investment opportunity that would not be available in the future. In such cases, this decision reflects an understanding of the fungibility of money (Thaler 1990), as it allows the individual to maximize value and potentially reduce future spending on the same purchase.

To clarify the theoretical role of future budget availability, we conducted a supplemental study comparing its effect to two related but distinct sources of perceived financial slack. Specifically, we contrasted (a) highlighting unused budget from the same category in a prior period, which captures backward-looking carryover within the focal account, and (b) highlighting remaining budget in a different category in the current period, which reflects cross-category liquidity. This design allows us to assess whether the effect of future budget availability reflects a general perception of available resources or a more specific relaxation of temporal boundaries within the focal account. The results show that highlighting future budget availability

increases spending to a similar extent as highlighting leftover budget from the prior period, suggesting that consumers treat anticipated future budget as psychologically available in a manner similar to realized surplus from prior periods within the same account. In contrast, highlighting remaining budget in a different category does not significantly influence current spending, indicating that the effect is not driven by general liquidity or cross-category fungibility. Together, these findings suggest that the effect of future budget availability reflects temporal fungibility within the focal account rather than a general perception of available financial resources.

Theoretical and Practical Implications

From a theoretical perspective, this research contributes to the literature in several ways. First, existing budgeting research has primarily examined individuals' budgeting behavior within a single period or their spending decisions within a specific budget (see Sussman et al. 2022), often treating the effect of each period's budget as independent. Adding to the budgeting literature, the current research investigates the dynamics of consumers' budgeting behavior across periods in a context where budget recurs.

Second, past research examining the influence of budgets across time has focused on the effect of past budgets on current behaviors (e.g., Carlson et al. 2015; Choe and Kan 2021; Lukas and Howard 2023). In contrast, the current research examines how anticipating funds available in a future budget can affect spending within the current budget period.

Finally, expanding insight into malleable mental accounting (Cheema and Soman 2006; Cheng and Cryder 2018), this research investigates consumers' tendency to post a current

expense to a future budget period, thereby justifying desirable purchases in the current budget period. Further, our findings suggest that consumers may manage finances flexibly over an extended budget period in order to justify attractive spending in the present.

From a practical perspective, our findings have implications for both individuals and marketers. For individuals seeking to adhere to a budget, our findings suggest that consumers often justify current spending by drawing on future budgets, creating a false sense of financial slack that can lead to overspending. To counter this tendency, consumers may benefit from creating stricter psychological boundaries between budget periods, for example, treating each period as independent rather than fluid. In addition, when future budget availability becomes salient, intentionally considering the expenses that those funds are intended to cover can help reduce the temptation to violate the current budget. Setting clear rules in advance, such as only spending from current funds or using separate accounts for different periods, can help maintain budget discipline.

Moreover, consumers should be cautious about overestimating their ability to "make up for it later." The idea of compensating in the next budget cycle is often overly optimistic, as it assumes both stability in future expenses and a willingness to restrict spending—conditions that rarely hold. To address this, consumers might implement restrictions on specific categories after a budget overrun.

For marketers aiming to leverage the budget availability effect to boost sales, they could subtly emphasize the approach of an upcoming budget period. For example, messaging that evokes "soon-to-be-available" resources, such as "plan ahead with next month's funds," can serve as subtle cues to trigger justification for current purchases. In addition, marketers can highlight the opportunity to make a purchase utilizing a buy-now-pay-later plan, which

highlights future budget availability. However, marketers focused on long-term customer satisfaction and trust should be mindful of the ethical boundaries of these tactics. Reliance on framing strategies that encourage "borrowing from the future budget" may lead to regret or financial strain, especially for vulnerable consumers. This is particularly important at the end of common budgeting periods, such as the end of the week or month, when consumers may be more susceptible to budget violation according to our findings in Study 5. Brands that prioritize customer well-being might avoid emphasizing future budget availability and instead design interventions that support self-regulation, such as spend alerts tied to budget thresholds. By understanding when and how consumers justify tapping into future budgets, marketers can better tailor their strategies to either stimulate demand or support more sustainable consumer behavior.

Limitations and Future Directions

One limitation of this research is that we analyze consumers' decisions to exceed their current budget without tracking their spending patterns in subsequent periods. Although Study 3 examined spending across two periods, our emphasis on the negative consequences of exceeding the overall budget may have reduced participants' likelihood of doing so. In real life, however, consumers may not fully recognize the long-term consequences of repeatedly exceeding their budget and may continue justifying budget violations by drawing from future funds. As a result, it remains unclear whether the salience of future budget availability has a negative impact on long-term financial well-being. Future research could explore this effect by tracking individuals' spending behavior across multiple consecutive periods.

The current research provides initial evidence for consumers' tendency to flexibly draw from a future account to justify attractive spending in the present when budget recurs. However, there remain ample avenues for future research to further delve into the effect of future financial plans on consumers' current behaviors. For instance, while the current research focuses on examining broad budget categories, such as a recurring budget for non-essential expenditures or for all kinds of expenditures, future research might analyze the impact of granularity of budget categorization on the budget availability effect. It is possible that the increased granularity of budget categorization will make the planned expenses within each category more concrete, thereby heightening the tradeoff consumers need to make between now and future.

Future research could also examine whether the effect of future budget availability only arises for certain types of purchases depending on budget categorization. For example, it is likely that consumers will only increase their current spending on certain purchases (e.g., a T-shirt) when they consider drawing from future funds that are designated for the same type of expenses (e.g., a monthly budget for fashion), but not when an unrelated future budget (e.g., a monthly budget for food) is made salient.

More broadly, while this research focuses on examining the effect of anticipating future budget availability, our theory can also extend to the impact of considering past budget availability on current spending decisions. For example, if a consumer has an unspent budget from a previous period, she may justify attractive spending in the present by drawing from these leftover funds even if they have already been reallocated for other purposes. Future research may further explore when our theory may or may not apply to these instances.

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