



Delay Discounting in Subscription-Based Consumer Environments

Dr. Daniel M. Richardson

Associate Professor, University of Amsterdam, Netherlands

Abstract

Subscription-based consumption changes the temporal structure of consumer choice by separating immediate access from the full financial consequences of continued use. Streaming platforms, software services, fitness memberships, telecommunications plans, digital publications, membership programs, and other recurring-payment arrangements frequently offer benefits in the present while distributing payments and cancellation decisions across future periods.

This study examines delay discounting as a behavioral mechanism through which consumers may undervalue future subscription costs relative to immediate access, convenience, and perceived utility. Drawing on intertemporal-choice theory, present-bias research, mental accounting, payment-depreciation research, tariff-choice studies, and evidence from recurring service contracts, the paper proposes that steeper delay discounting is associated with stronger subscription-persistence propensity when immediate utility is salient and cancellation requires a separate future action. Because no original consumer dataset was supplied, the study uses a transparent simulation-based research design rather than presenting synthetic observations as empirical evidence. A reproducible dataset of 420 hypothetical consumer cases was generated using Delay Discounting, Immediate Utility Salience, Cancellation Friction, and Subscription Persistence Propensity.

Mean persistence increased from 3.01 among low-discounting cases to 3.62 among moderate-discounting cases and 4.20 among high-discounting cases. Multiple regression produced positive coefficients for Delay Discounting ($B = 0.536$), Immediate Utility Salience ($B = 0.244$), and Cancellation Friction ($B = 0.152$), with the model explaining 64.1% of synthetic outcome variance. These estimates are illustrative rather than population parameters. The analysis suggests that subscription decisions should be interpreted as sequences of temporally separated choices rather than isolated purchase events. Consumer welfare may be weakened when immediate access receives disproportionate weight, cumulative future payments remain psychologically distant, and cancellation is repeatedly postponed. The study concludes that responsible subscription design should improve temporal cost transparency, renewal salience, and cancellation accessibility while preserving legitimate consumer preference for convenience and predictable pricing.

Keywords: delay discounting, subscription consumption, present bias, intertemporal choice, recurring payments, cancellation friction, consumer behavior, mental accounting



1. Introduction

Subscription-based pricing has become an important form of consumer exchange because it transforms a single purchase decision into a continuing relationship between a consumer and a provider. Rather than paying once for a discrete product, subscribers typically obtain continuing access while financial obligations recur across weeks, months, or years. Economically similar costs can therefore be experienced very differently depending on whether they are presented as an aggregate amount, divided into periodic charges, or separated temporally from consumption. Atlas and Bartels demonstrated that periodic presentation of contract costs can alter how consumers mentally represent contract benefits, indicating that temporal pricing structure itself can influence perceived value. This temporal organization makes subscription markets especially relevant to behavioral theories of intertemporal decision making.

Delay discounting refers broadly to the tendency for outcomes to lose subjective value as they become more temporally distant. Thaler's early evidence on dynamic inconsistency showed that estimated discounting behavior varies with delay and reward characteristics, while later work by Frederick, Loewenstein, and O'Donoghue documented extensive departures from the simple constant-rate discounted-utility model. Laibson's hyperbolic-discounting framework and O'Donoghue and Rabin's analysis of present-biased preferences further demonstrated how people may place disproportionate weight on outcomes that are immediate relative to outcomes occurring later. In subscription settings, this distinction is consequential because the enjoyment of access may begin immediately while the cumulative burden of recurring payments becomes visible only over time.

Subscription decisions also interact with how consumers mentally encode payments. Gourville and Soman showed that the behavioral influence of a past payment can depreciate as the temporal separation between payment and consumption increases. Prelec and Loewenstein similarly developed a mental-accounting account in which payment and consumption can be psychologically coupled or decoupled. Soman later demonstrated that payment mechanisms influence recall and the experienced impact of prior expenditure, thereby affecting subsequent spending behavior. These findings suggest that recurring subscription costs cannot be treated merely as objective numerical amounts. Their psychological impact depends partly on when they are noticed, how they are framed, and whether consumers repeatedly reconsider them.

Evidence from service contracts illustrates the practical importance of these behavioral mechanisms. DellaVigna and Malmendier's analysis of health-club contracts showed that many consumers choosing monthly contracts paid substantially more than they would have paid under alternative usage-based arrangements, providing a prominent example of self-control and forecasting problems in recurring service consumption. Their earlier theoretical work examined how firms may design contracts when consumers possess time-inconsistent preferences and incomplete awareness of future self-control problems. Lambrecht and Skiera likewise documented tariff-choice biases in which consumers frequently selected flat-rate arrangements even when realized usage would have made another tariff less expensive; their analysis identified insurance, convenience, usage overestimation, and the psychological discomfort of metered consumption among relevant mechanisms. Subscription preference is therefore unlikely to be explained exclusively by objective expected usage.



The present study develops these ideas into a specific model of delay-sensitive subscription persistence. It proposes that consumers who discount delayed outcomes more steeply may give greater relative weight to immediate service access and less weight to accumulated future payments, particularly when cancelling requires a future action that can itself be postponed. This does not imply that subscription continuation is inherently irrational. Subscriptions can provide substantial convenience, predictable expenditure, valuable access, and insurance against uncertain usage. The behavioral concern arises when continued payment becomes disconnected from realized value because temporally distant costs, future cancellation intentions, and accumulated expenditure receive insufficient attention. Since no genuine consumer transaction or survey dataset was supplied, the proposed relationships are examined through an explicitly labeled simulation designed to generate hypotheses for subsequent field and experimental testing.

2. Objectives of the Study

2.1 To Examine Delay Discounting in Recurring Consumer Decisions

The first objective is to examine delay discounting as a psychological mechanism influencing consumer decisions within recurring-payment environments. The study focuses on situations in which consumers receive immediate or near-immediate access to a service while financial consequences accumulate across later billing periods.

The analysis treats subscription behavior as an intertemporal sequence rather than a one-time purchase. Enrollment, continued use, renewal, and cancellation can each involve different immediate and delayed consequences, making the consumer's temporal weighting of outcomes central to understanding persistence.

2.2 To Evaluate Immediate Utility and Cancellation Friction

The second objective is to examine whether immediate utility salience and cancellation friction complement delay discounting in predicting subscription persistence.

Immediate Utility Salience reflects the prominence of convenience, entertainment, access, flexibility, or other benefits available now. Cancellation Friction represents the perceived behavioral effort associated with terminating the subscription, including remembering to cancel, locating the cancellation process, evaluating alternatives, and completing the required action.

2.3 To Identify Consumer-Welfare and Subscription-Design Implications

The third objective is to translate the behavioral model into implications for consumer decision quality and responsible subscription design.

The study particularly examines whether clearer long-run cost presentation, more salient renewal information, accessible cancellation procedures, and usage feedback could support more temporally balanced decisions without assuming that recurring pricing itself is undesirable.



3. Review of Literature

3.1 Delay Discounting, Present Bias, and Intertemporal Consumer Choice

Intertemporal-choice theory addresses decisions in which costs and benefits occur at different points in time. Conventional discounted-utility approaches assume that delayed outcomes receive systematically lower weights according to a discounting structure. Empirical research, however, has repeatedly identified patterns that do not conform neatly to constant exponential discounting. Thaler's experimental evidence demonstrated dynamic inconsistencies in estimated time preferences, helping establish the empirical basis for later behavioral models.

Laibson's work on hyperbolic discounting formalized how decision makers can display stronger impatience when trade-offs involve the present than when equivalent trade-offs occur entirely in the future. O'Donoghue and Rabin subsequently developed the behavioral implications of present-biased preferences by distinguishing immediate-cost and immediate-reward activities and by analyzing how sophisticated and naive consumers respond to their future self-control problems. These models are especially relevant when current choices create delayed consequences.

Frederick, Loewenstein, and O'Donoghue's critical review clarified that observed time preferences are influenced by multiple psychological processes and cautioned against treating all intertemporal behavior as the expression of a single stable discount rate. This qualification is important in subscription research because several mechanisms can generate apparently impatient behavior. Consumers may genuinely prefer current consumption, misunderstand cumulative costs, overestimate future usage, postpone cancellation, or simply value the insurance properties of unlimited access.

Subscription decisions create multiple temporal contrasts. At enrollment, the consumer may compare immediate access with payments distributed across future periods. During continuation, the consumer may compare immediate inconvenience from cancelling with delayed financial savings. At renewal, current convenience may compete with a future intention to reconsider usage. Each stage can therefore create a different manifestation of temporal weighting.

Present bias becomes particularly relevant when the action needed to improve long-run welfare imposes an immediate cost. Cancellation may require searching, logging in, reviewing alternatives, contacting the provider, or relinquishing access. The savings appear across future periods, whereas the effort or loss of convenience is immediate. O'Donoghue and Rabin's framework predicts precisely this type of difficulty when immediate costs and delayed benefits are separated.

Delay discounting should consequently not be interpreted merely as impatience in purchasing. In subscriptions, it can influence both starting and stopping behavior. Immediate access can encourage enrollment, while the delayed financial benefit of cancellation can encourage procrastination.

3.2 Mental Accounting, Periodic Pricing, and the Psychology of Recurring Payments

Mental accounting research demonstrates that objectively equivalent financial outcomes can be represented differently according to timing, categorization, and payment structure. Thaler's work on mental accounting established that consumers often organize expenditures into psychologically meaningful accounts rather than treating all financial resources as completely fungible. Subscription payments are therefore likely to be evaluated within mental frames such as entertainment expenditure,

software expense, fitness spending, telecommunications, or household services rather than solely as components of total wealth.

Prelec and Loewenstein examined the psychological coupling of payment and consumption, proposing that the experience of paying can interact with the enjoyment of consumption. Their framework helps explain why payment structures that make costs less psychologically immediate can influence consumer experience. A subscription payment that occurs automatically and separately from the moment of consumption may become less salient during each individual consumption episode.

Gourville and Soman's payment-depreciation research provides another mechanism. They found that when payments precede benefits, the behavioral influence of the original payment can diminish as time passes. Although many subscriptions involve repeated rather than purely prepaid charges, the underlying principle remains relevant: temporal separation changes how strongly a payment influences subsequent consumption and evaluation.

Soman's research on payment mechanisms further showed that the degree to which prior payments affect later spending depends partly on rehearsal and payment immediacy. In a recurring digital environment, low-salience payment processes may reduce the frequency with which consumers actively rehearse the financial consequences of continued subscription.

Atlas and Bartels added an important pricing-framing perspective. Their experiments showed that presenting contract costs as periodic prices influences how consumers mentally represent the associated stream of benefits and can increase perceived contract attractiveness under certain conditions. This finding is especially relevant to subscriptions advertised using daily or monthly equivalents rather than total annual cost.

Taken together, these studies suggest that subscription environments alter not only when consumers pay but also how payment enters cognition. A recurring charge can become routine, fragmented, or detached from each usage occasion. Consequently, consumers may evaluate the subscription primarily through current access while failing to repeatedly integrate the full cumulative cost.

The implication is not that periodic pricing is deceptive by definition. Many consumers prefer predictable fixed payments and may obtain genuine benefits from them. Behavioral concern arises when temporal framing systematically prevents consumers from comparing immediate service value with longer-run expenditure.

3.3 Tariff Choice, Self-Control, and Subscription Persistence

Direct research on contracts and tariff choice provides a strong bridge between intertemporal theory and subscription behavior. DellaVigna and Malmendier's contract-design analysis examined markets in which consumers may possess time-inconsistent preferences and incomplete awareness of future self-control problems. Their framework shows how contract terms can interact with predictable behavioral biases rather than simply responding to stable rational preferences.

Their later health-club study provided a highly relevant empirical application. Consumers who selected monthly gym contracts often incurred greater expenditure than they would have under alternative payment arrangements given their realized attendance. The importance of this evidence lies



not in the gym setting itself but in the structural similarity to other subscriptions: consumers forecast future use, commit to recurring payment, and later decide whether to continue or cancel.

Lambrecht and Skiera documented comparable tariff-choice biases in telecommunications. Their analyses showed that flat-rate bias can persist even when pay-per-use options would have produced lower charges based on actual consumption. They identified several explanations, including an insurance effect, the psychological discomfort associated with continuously observing incremental charges, convenience, and overestimation of usage. The findings demonstrate that choosing a subscription-like flat rate may reflect multiple sources of utility beyond simple arithmetic cost minimization.

The distinction between rational flat-rate preference and behavioral overcommitment is therefore essential. A consumer may rationally pay a premium for predictable expenditure, convenience, avoidance of metered-use anxiety, or option value. A behavioral bias exists only when actual choices systematically conflict with the consumer's own longer-term preferences or when the consumer mispredicts future behavior.

Delay discounting provides one possible explanation for this mismatch. If future charges receive less subjective weight than current access, enrollment can appear unusually attractive. If the future savings generated by cancellation are also discounted, persistence can continue even after service utilization has declined.

This mechanism can coexist with forecasting error. A subscriber may overestimate future use, discount delayed costs, and postpone cancellation simultaneously. The resulting behavior cannot be attributed to one psychological bias in isolation.

The research gap addressed by the present study is therefore the integration of delay discounting with recurring contract persistence. Existing work establishes intertemporal inconsistency, payment psychology, flat-rate bias, and self-control problems, but subscription persistence can be more clearly modeled as a sequence in which consumers repeatedly balance immediate convenience against cumulative delayed financial consequences.

4. Research Methodology

4.1 Research Design and Simulation Framework

The present study uses a quantitative simulation-based design because no real consumer survey, subscription transaction database, cancellation log, or billing dataset was supplied. The synthetic data are used exclusively to demonstrate how the proposed behavioral relationships could be operationalized and statistically tested.

A reproducible sample of 420 hypothetical subscription consumers was generated using a fixed random seed of 42. Delay Discounting was represented on a continuous five-point scale, with higher values indicating stronger relative preference for immediate outcomes over delayed financial consequences.

Immediate Utility Salience represented the extent to which the immediate benefits of access—such as convenience, entertainment, flexibility, availability, or perceived usefulness—were prominent in the consumer's current evaluation.

Cancellation Friction represented the subjective effort associated with ending the recurring relationship. The construct is broader than technical difficulty and includes remembering to act,

evaluating continued value, locating the relevant procedure, and accepting the immediate loss of convenient access.

4.2 Operationalization of Constructs

Table 1: Operational Framework for the Simulation Study

Construct	Operational Definition	Simulated Scale	Analytical Role
Delay Discounting	Degree to which delayed costs and benefits receive less psychological weight than immediate outcomes	1–5	Primary predictor
Immediate Utility Salience	Prominence of current access, convenience, entertainment, flexibility, or usefulness	1–5	Predictor
Cancellation Friction	Perceived effort required to reconsider and terminate an ongoing subscription	1–5	Predictor
Subscription Persistence Propensity	Tendency to maintain the recurring service across future billing periods	1–5	Outcome
Delay-Discounting Category	Relative intensity of temporal discounting	Low = 1.00–2.33; Moderate = 2.34–3.67; High = 3.68–5.00	Descriptive comparison

For future empirical testing, five preliminary questionnaire items are proposed but were not administered in the present study.

4.3 Statistical Procedure and Research Ethics

The analysis was conducted in three stages. First, Delay Discounting was classified into low, moderate, and high categories and descriptive statistics were calculated for Subscription Persistence Propensity.

Positive coefficients were also expected for Immediate Utility Salience and Cancellation Friction because stronger immediate benefits and greater effort associated with termination were assumed to increase continuation.

Third, distributional differences across discounting groups were visualized using a violin graph, which displays the relative shape and concentration of the synthetic persistence scores.

No human participants were recruited, and no genuine financial, purchasing, payment-card, subscription, demographic, or personally identifiable information was collected. Human-subject ethics approval was therefore not applicable to the present simulation. Future consumer research should obtain appropriate ethics approval where required, disclose data practices, protect transaction con

fidentiality, and avoid experimentally imposing financially harmful subscription arrangements.

5. Analysis

5.1 Subscription Persistence Across Delay-Discounting Levels

- The descriptive results show a progressive increase in Subscription Persistence Propensity across the three synthetic Delay Discounting categories.
- The low Delay Discounting group contained 108 observations and recorded a mean Subscription Persistence Propensity of 3.01, with a standard deviation of approximately 0.49.
- The moderate Delay Discounting group contained 208 observations and recorded a mean persistence score of 3.62, with a standard deviation of approximately 0.48.
- The high Delay Discounting group contained 104 observations and produced the highest mean Subscription Persistence Propensity of 4.20, with a standard deviation of approximately 0.43.
- The difference between the low- and high-discounting groups was approximately 1.18 points on the five-point persistence scale.

5.2 Multiple Regression Results

Table 2: Simulated Descriptive and Multiple Regression Results

Analytical Component	Statistic	Estimate	Interpretation
Low Delay Discounting	n	108	Synthetic observations
	Mean Persistence	3.014	Lowest continuation propensity
	SD	0.492	Simulated dispersion
Moderate Delay Discounting	n	208	Synthetic observations
	Mean Persistence	3.615	Intermediate continuation propensity
	SD	0.475	Simulated dispersion
High Delay Discounting	n	104	Synthetic observations
	Mean Persistence	4.195	Highest continuation propensity
	SD	0.430	Simulated dispersion
Regression	Delay Discounting, B	0.536	Strong positive association
	SE	0.021	—



Analytical Component	Statistic	Estimate	Interpretation
	t	24.962	—
	p	< .001	Recoverable synthetic relationship
Regression	Immediate Utility Salience, B	0.244	Positive association
	SE	0.025	—
	t	9.604	—
	p	< .001	Recoverable synthetic relationship
Regression	Cancellation Friction, B	0.152	Positive association
	SE	0.022	—
	t	7.048	—
	p	< .001	Recoverable synthetic relationship

Delay Discounting produced the largest regression coefficient. Within the simulated model, a one-unit increase in Delay Discounting corresponded with an estimated 0.536-unit increase in Subscription Persistence Propensity while the other predictors were held constant.

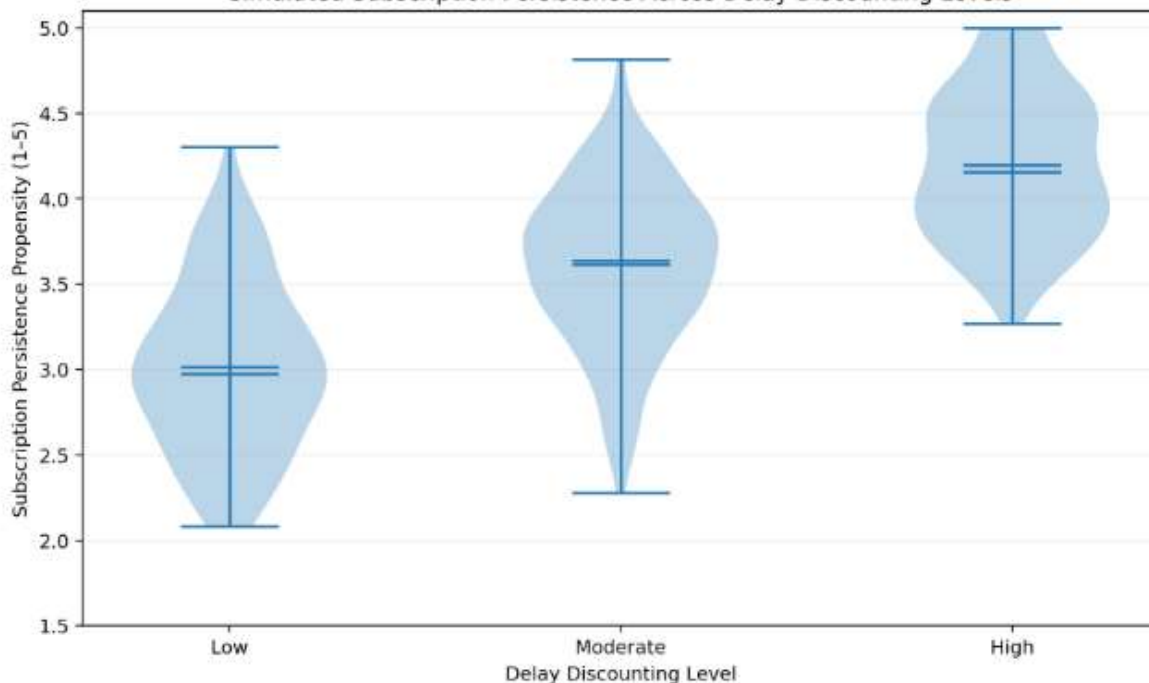
Immediate Utility Salience also remained positively associated with continuation. Consumers in the model were more inclined to retain subscriptions when current access and convenience were psychologically prominent.

Cancellation Friction produced a smaller but still positive simulated coefficient. This indicates that even relatively modest effort associated with reconsidering or ending a recurring service can complement temporal discounting by making immediate continuation easier than present action for future savings.

The model explained approximately 64.1% of synthetic outcome variance. The high explanatory value reflects the controlled data-generating process and should not be expected automatically in field data involving heterogeneous consumers, products, household finances, and competitive market conditions.

5.3 Distribution of Persistence Propensity

Graph 1: Simulated Subscription Persistence Across Delay Discounting Levels



The graph shows a visible upward displacement of Subscription Persistence Propensity as Delay Discounting changes from low to moderate and high. The low-discounting distribution is concentrated around approximately 3.0, whereas the high-discounting distribution is concentrated above 4.0.

The distributional form is informative because individuals at the same general discounting level do not receive identical predicted values. Immediate Utility Salience and Cancellation Friction contribute additional variation, illustrating why temporal preferences alone should not be treated as a complete explanation of subscription behavior.

Key Finding: The synthetic evidence supports the proposition that subscription persistence can become increasingly likely when future financial consequences are discounted more strongly while current access remains salient and cancellation requires immediate effort.

6. Discussion

6.1 Delay Discounting and the Temporal Architecture of Subscription Choice

The principal theoretical implication is that subscription consumption should be treated as an intertemporal decision architecture rather than as a conventional one-time purchase. Enrollment creates access now but also establishes a stream of later financial obligations. Continued subscription repeatedly preserves immediate convenience while retaining future payments. Cancellation reverses this temporal configuration because the consumer must often accept an immediate cost—effort, inconvenience, or loss of access—in exchange for savings that accumulate later. Present-biased preferences can therefore influence both sides of the subscription relationship. O'Donoghue and Rabin's analysis of immediate costs and delayed benefits provides a useful behavioral foundation for understanding why actions that consumers intend to complete later can repeatedly be postponed.



The simulated positive relationship between Delay Discounting and Subscription Persistence is compatible with this temporal structure but should not be interpreted as evidence that high persistence is necessarily irrational. Consumers frequently obtain legitimate option value from subscriptions. Unlimited or continuing access reduces the need to repeatedly evaluate individual purchases and can insure consumers against uncertainty in future usage. Lambrecht and Skiera's tariff-choice research demonstrates that preferences for flat-rate pricing partly reflect insurance, convenience, and aversion to monitoring incremental usage costs. A consumer may therefore rationally accept a somewhat higher expected financial cost in exchange for these benefits.

The behavioral concern emerges when the consumer's own long-term evaluation would favor cancellation or a cheaper plan, yet current convenience continues to dominate because future expenditure receives insufficient weight. DellaVigna and Malmendier's health-club evidence is important in this respect because recurring contract choices were often inconsistent with realized usage patterns. The relevant welfare criterion is therefore not whether a subscriber could theoretically have paid less, but whether the arrangement remains aligned with the consumer's informed preferences once future use and cumulative cost are evaluated realistically.

6.2 Payment Framing, Immediate Utility, and Cancellation Inertia

The positive simulated contribution of Immediate Utility Salience highlights how subscription services can remain attractive even when consumers recognize recurring costs. The benefit is psychologically available at the moment of decision: the subscriber can watch content, use software, enter a facility, obtain delivery privileges, or retain access immediately. The cumulative cost, in contrast, is distributed over future periods. Atlas and Bartels showed that periodic pricing influences perceived contract benefits because consumers mentally represent recurring payment structures differently from aggregated costs. Consequently, presenting a service as a modest monthly or daily equivalent can change the frame within which its benefits are evaluated.

Payment psychology can further reinforce this separation. Gourville and Soman demonstrated payment depreciation when costs and consumption are separated temporally, while Soman showed that payment mechanisms influence the recall and experienced impact of prior spending. In subscription settings, a recurring payment that becomes routine may receive less active attention than an equivalent fresh purchase decision each month. The consumer still pays, but the payment may no longer trigger the same deliberate evaluation of whether the service continues to justify its cost.

Cancellation friction adds another layer. The simulated coefficient is smaller than the Delay Discounting coefficient, but its direction is theoretically important. A consumer who must undertake an immediate effort to obtain delayed savings confronts a classic intertemporal self-control problem. Even minor friction can matter when the alternative—doing nothing—preserves access automatically. The decision environment therefore contains an asymmetry: continuation may require no new action, whereas cancellation requires an active intervention.

This asymmetry suggests that subscription persistence can arise from three conceptually distinct sources: continuing utility, temporal underweighting of future costs, and behavioral inertia. Empirical research should measure these mechanisms separately rather than treating every retained subscription as evidence of either consumer satisfaction or exploitation.

6.3 Consumer Protection, Responsible Subscription Design, and Managerial Implications

Responsible subscription design should improve the quality of intertemporal choice without eliminating the convenience that makes recurring services valuable. One useful principle is temporal cost transparency. Consumers should be able to see not only the current periodic price but also a meaningful representation of longer-run expenditure. This does not require assuming that annual cost is always the correct decision frame; instead, both periodic and cumulative views can allow consumers to choose the temporal representation most appropriate to their budgeting needs. The broader mental-accounting literature demonstrates that framing and temporal separation influence how financial consequences are perceived.

A second principle concerns renewal and cancellation symmetry. If enrollment can be completed with minimal effort but cancellation is intentionally more difficult, persistence may reflect process design rather than continued consumer preference. A welfare-oriented interface should permit consumers to reconsider future value without imposing unnecessary procedural costs. Usage summaries can also support informed reevaluation by showing whether actual consumption corresponds with anticipated use. This is particularly relevant because DellaVigna and Malmendier's evidence demonstrates that consumers may systematically mispredict usage under recurring contracts.

Managers also have strategic reasons to avoid depending excessively on consumer inertia. Retention generated by genuine value differs from retention generated by forgotten payments or procedural obstacles. The former supports sustainable customer relationships, whereas the latter may increase dissatisfaction once the consumer becomes aware of the accumulated expenditure. Firms can instead use reminders, usage-based recommendations, pause options, appropriate lower-cost tiers, and transparent renewal information to help customers remain on plans that fit actual consumption.

The study therefore does not advocate eliminating subscriptions or automatically interpreting flat-rate pricing as harmful. Recurring contracts can provide efficient access, predictable budgeting, convenience, and valuable flexibility. The managerial and regulatory challenge is to preserve these advantages while reducing the probability that temporal discounting and unnecessary friction transform passive continuation into a substitute for active consumer preference.

7. Conclusion

Subscription-based consumer environments provide a particularly useful context for studying delay discounting because they distribute financial consequences across time while frequently delivering immediate access and convenience. The consumer is not making a single decision but participating in a sequence of interdependent choices involving enrollment, utilization, renewal, continuation, and cancellation. Behavioral theories of intertemporal choice indicate that the relative weighting of immediate and delayed consequences can shift across these stages, creating conditions in which consumers' present choices may conflict with their own longer-term preferences.

The simulation developed in this paper illustrates this theoretical mechanism. Mean Subscription Persistence Propensity increased from 3.01 among low Delay Discounting cases to 3.62 under moderate discounting and 4.20 under high discounting. Multiple regression produced positive coefficients for Delay Discounting, Immediate Utility Salience, and Cancellation Friction, with the simulated model explaining 64.1% of outcome variance. These numerical values are synthetic outputs rather than

empirical estimates and should not be generalized to real consumer populations without subsequent field validation.

The primary contribution of the study is the integration of delay discounting with subscription persistence. Consumers may continue recurring contracts because those contracts remain genuinely valuable, but persistence may also be strengthened when immediate access is highly salient, future payments are psychologically discounted, cumulative expenditure is weakly represented, and cancellation requires present effort for delayed savings. Distinguishing these mechanisms is essential because identical observed continuation behavior can arise from very different underlying preferences. Future research should examine actual subscription histories, cancellation timing, realized usage, price-plan transitions, renewal decisions, and experimentally manipulated cost frames.

Longitudinal studies would be particularly valuable because delay discounting concerns temporal behavior and cannot be fully understood through isolated hypothetical choices. Subscription markets need not be understood as inherently problematic behavioral environments; rather, they provide an important setting in which firms, researchers, and policymakers can examine whether recurring-payment architecture helps consumers express stable preferences or unintentionally amplifies predictable difficulties in intertemporal self-regulation.

References

1. Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, 82(4), 463–496.
2. Amasino, D. R., Sullivan, N. J., Kranton, R. E., & Huettel, S. A. (2019). Amount and time exert independent influences on intertemporal choice. *Nature Human Behaviour*, 3, 383–392. <https://doi.org/10.1038/s41562-019-0537-2>
3. Chakraborty, A. (2021). Present bias. *Econometrica*, 89(4), 1921–1961. <https://doi.org/10.3982/ECTA16467>
4. Croote, D. E., Lai, B., Hu, J., Baxter, M. G., Montagrin, A., & Schiller, D. (2020). Delay discounting decisions are linked to temporal distance representations of world events across cultures. *Scientific Reports*, 10, 12913. <https://doi.org/10.1038/s41598-020-69700-w>
5. Ericson, K. M. M., & Laibson, D. (2019). Intertemporal choice. In B. D. Bernheim, S. DellaVigna, & D. Laibson (Eds.), *Handbook of Behavioral Economics: Applications and Foundations 1* (Vol. 2, pp. 1–67). Elsevier. <https://doi.org/10.1016/bs.hesbe.2018.12.001>
6. Gershman, S. J., & Bhui, R. (2020). Rationally inattentive intertemporal choice. *Nature Communications*, 11, 3365. <https://doi.org/10.1038/s41467-020-16852-y>
7. Green, L., Fry, A. F., & Myerson, J. (1994). Discounting of delayed rewards: A life-span comparison. *Psychological Science*, 5(1), 33–36.
8. Kable, J. W., & Glimcher, P. W. (2007). The neural correlates of subjective value during intertemporal choice. *Nature Neuroscience*, 10, 1625–1633.
9. Loewenstein, G., & Prelec, D. (1992). Anomalies in intertemporal choice: Evidence and an interpretation. *The Quarterly Journal of Economics*, 107(2), 573–597.
10. Loewenstein, G., & Prelec, D. (1993). Preferences for sequences of outcomes. *Psychological Review*, 100(1), 91–108.



11. Mazur, J. E. (1987). An adjusting procedure for studying delayed reinforcement. In M. L. Commons, J. E. Mazur, J. A. Nevin, & H. Rachlin (Eds.), *Quantitative Analyses of Behavior: Vol. 5. The Effect of Delay and of Intervening Events on Reinforcement Value* (pp. 55–73). Erlbaum.
12. Odum, A. L., Becker, R. J., Haynes, J. M., Galizio, A., Frye, C. C. J., Downey, H., Friedel, J. E., & Perez, D. M. (2020). Delay discounting of different outcomes: Review and theory. *Journal of the Experimental Analysis of Behavior*, 113(3), 657–679. <https://doi.org/10.1002/jeab.589>
13. Oliveira-Castro, J. M., & Marques, R. S. (2017). Temporal discounting and marketing variables: Effects of product prices and brand informational reinforcement. *Perspectives on Behavior Science*, 40(2), 475–492. <https://doi.org/10.1007/s40614-017-0109-6>
14. Rachlin, H. (2000). *The Science of Self-Control*. Harvard University Press.
15. Read, D., McDonald, R., & He, L. (2018). Intertemporal choice. In A. Lewis (Ed.), *The Cambridge Handbook of Psychology and Economic Behaviour* (pp. 167–197). Cambridge University Press. <https://doi.org/10.1017/9781316676349>
16. Rung, J. M., Peck, S., Hinnenkamp, J. E., Preston, E., & Madden, G. J. (2019). Changing delay discounting and impulsive choice: Implications for addictions, prevention, and human health. *Perspectives on Behavior Science*, 42(3), 397–417. <https://doi.org/10.1007/s40614-019-00200-7>
17. Scherbaum, S., Frisch, S., & Dshemuchadse, M. (2018). Step by step: Harvesting the dynamics of delay discounting decisions. *Quarterly Journal of Experimental Psychology*, 71(4), 791–805. <https://doi.org/10.1080/17470218.2017.1307863>
18. Scholten, H., Scheres, A., de Water, E., Graf, U., Granic, I., & Luijten, M. (2019). Behavioral trainings and manipulations to reduce delay discounting: A systematic review. *Psychonomic Bulletin & Review*, 26, 1803–1849. <https://doi.org/10.3758/s13423-019-01629-2>
19. Thaler, R. H. (1981). Some empirical evidence on dynamic inconsistency. *Economics Letters*, 8(3), 201–207.
20. Zhang, Y., & Read, D. (2008). The role of temporal distance in intertemporal choice. *Journal of Behavioral Decision Making*, 21(4), 337–354.