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A joint account with my future self:

self-continuity facilitates adjustment of present spending to future income changes

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Abstract

Is consumers' present spending influenced by future changes in their income? From an economic perspective, consumers should reduce present spending when anticipating a future income decrease and boost spending when anticipating a future income increase to maximize their welfare. We find that although consumers tend to adjust their spending to a future income decrease, they are less likely to do so to a future income increase. We show that this is in part due to a low sense of self-continuity, a tendency to view the future self whose income increases as if it were a different person and, as a result, to categorize present and future income into two separate mental accounts. Enhancing self-continuity leads consumers to combine present and future income in a single mental account, and thereby facilitates adjustment of present spending to a future income increase. Whereas prior work linked high self-continuity to reduced present spending, we identify a context in which high self-continuity can boost present spending. We discuss the implications of these findings for consumer well-being.

Keywords: consumer financial decision-making, self-continuity, discretionary spending, consumption smoothing, future income, mental accounting

Current spending decisions can interact with future finances in two ways. First, current spending can influence the amount of money that will be available in the future. For example, if a consumer regularly spends $6 on a Starbucks latte, they will have a significantly smaller pool of money available in the future. Would considering this "latte factor" (Bach, 2016) influence whether they buy a latte today? Conversely, current spending can be influenced by the amount of money that will be available in the future. For instance, if a consumer learns that their income will significantly increase next year, they have a larger pool of money available overall. Would considering this income change in the future influence their decision to buy a latte today?

Prior research focused on the first question and examined settings in which present spending draws from a fixed pool of financial resources at the expense of future savings (Bartels & Urminsky, 2011, 2015; Hershfield, 2011; Zauberman & Urminsky, 2016). This research shows that consumers are often myopic: they overspend at present because they neglect, or heavily discount, future consequences of present spending.

This paper focuses on the second question and examines settings in which the pool of financial resources changes because of a future decrease or increase in income. Forward-looking consumers should reduce their spending in advance of an income decrease and boost their spending in advance of an income increase to maximize the overall utility they can derive from their income (Friedman, 1957; Hall, 1978; Modigliani & Brumberg, 1954; Thaler & Shefrin, 1981). If consumers were myopic in these settings, too, and failed to take future income changes into account, they might experience negative consequences: in the case of a decrease, they may be insufficiently prepared for the time their future income is reduced; in the case of an increase, they may forgo current beneficial consumption opportunities, leading to regret and reduced well-being (D'Orlando & Sanfilippo, 2010; Kivetz & Keinan, 2006; Ravenscraft, 2020).

In seven studies, we examine consumers' adjustment of present spending to future income changes. We show that consumers adjust their spending less to a future income increase than to a decrease and test the process underlying this asymmetry. The proposed process comprises three causal links (Figure 1). The first link joins future income changes and self-continuity—the psychological connectedness between present and future self (Bartels & Urminsky, 2011; Hershfield, 2011)—and predicts that future income increases lead to lower self-continuity than future income decreases. The second link joins self-continuity and representation of income as mental accounts (Thaler, 1990, 1999) such that lower, versus higher, self-continuity causes consumers to view their present and future income as two separate mental accounts rather than one joint account. The third link joins mental accounting and spending decisions and predicts that separate mental accounts, relative to one joint account, reduce adjustment of present spending to future income changes. After testing these three links separately, we test the overall process. Specifically, we show that the asymmetric adjustment of present spending to future income changes can be mitigated by manipulating self-continuity and mental accounting, making consumers more likely to adjust their present spending to a future income increase.

This paper makes several contributions. Although adjustment to future income changes has been investigated in economics using primarily survey and archival data, we address this topic experimentally. In addition, we contribute to research on self-continuity and financial decision-making in two ways. First, whereas prior work focused on situations in which higher self-continuity reduces present spending (Bartels & Urminsky, 2011, 2015; Hershfield, 2011), by studying changes in future income, we identify a context in which higher self-continuity boosts present spending. Second, we show that self-continuity influences mental accounting (Cheema & Soman, 2006; Heath & Soll, 1996; Prelec &

Loewenstein, 1998; Soster et al., 2010; Thaler 1990, 1999), thereby connecting these two concepts.

A lack of adjustment to future income increases can have adverse implications related to hyperopia—the tendency to indulge too little in the present—which can cause regret and reduced life satisfaction (Heath & Soll, 1996; Kivetz & Keinan, 2006). If consumers do not take future income increases into account, they may postpone and even forgo pleasurable experiences they could afford based on their long-term income. Although this may seem prudent (Loewenstein, 1987; Nowlis et al., 2004), there are temporal limits to the availability of some experiences, or to the possibility of enjoying them fully. For instance, traveling to foreign countries may be more formative in younger years, wellness treatments may be most beneficial during one's most stressful life phases, and a favorite band may no longer be active in the future. Even for experiences that are not temporally bounded, like fine dining and specialty drinks, spending adjustments that account for future income increases can bring additional pleasure in earlier years without diminishing it in later years. Thus, by failing to consider future income increases, prudent consumers may risk neglecting present consumption opportunities that will no longer be available or provide the same pleasure in the future.

Theoretical Development

Adjustment of Current Spending to Future Income Changes

Consumers commonly anticipate decreases in income, for example due to retirement or reduction of work hours, or increases in income, for example due to career advancements or completing higher education. Economic theories suggest that consumers should adjust their present spending to future income changes in order to create a stable path of consumption over time that would maximize the overall utility derived from a given lifetime income (Friedman, 1957; Hall, 1978; Modigliani & Brumberg, 1954). Archival and survey

data, however, offer mixed support for such "consumption smoothing," with some evidence for an asymmetry: consumers adjust less to future income increases than to decreases (Havranek & Sokolova, 2020; Jappelli & Pistaferri, 2010). Liquidity constraints have been proposed to account for such an asymmetry, but several studies found that consumers with different levels of liquidity constraints are equally reluctant to adjust to an income increase, indicating that other factors may be in play (Parker, 1999; Shapiro & Slemrod, 1995; Souleles, 2002). It has also been proposed that some consumers may be debt averse—that they are unwilling rather than unable to access future funds (Meissner, 2016; Prelec & Loewenstein, 1998; Shefrin & Thaler, 1988; Wertenbroch et al., 2001).

In this paper we provide an experimental test for such asymmetry, controlling for liquidity constraints and debt aversion, and identify an underlying psychological process. Study 1 manipulates expectations of actual future income changes and uses a behavioral measure to show that consumers adjust discretionary spending less to future income increases than to decreases, an asymmetry that is replicated in studies 3 and 4. The asymmetric adjustment of present spending to future income increases and decreases can be explained by a process comprising three causal links. The next sections outline this process.

Future Income Changes and Self-Continuity

The first link of the process joins future income changes and self-continuity. Self-continuity describes a person's sense of psychological connectedness with their future self (Bartels & Urminsky, 2011, 2015; Hershfield et al., 2011). People commonly feel a low sense of connectedness to their future self and treat the future self as if it were a different person; for example, people use attribution and decision processes for the future self that are different from those used for the present self and that instead resemble those they use for others (Ersner-Hershfield, Wimmer, et al., 2009; Macrae et al., 2015; Pronin et al., 2008;

Pronin & Ross, 2006).

Research has shown that self-continuity is enhanced by projecting one's present self into the position of the future self via imagination (Blouin-Hudon & Pychyl, 2015; Hershfield et al., 2018; Prebble, Addis, & Tippett, 2013). We predict that this process of imagination, and the ensuing sense of psychological connectedness, occurs to a lesser extent when consumers expect an income increase compared with a decrease.

This prediction is based on previous findings according to which consumers attend less (Pratto & John, 1991) and react less strongly (Kahneman & Tversky, 1979) to a positive change than to a negative one. As a result, they engage in less imagination when they are faced with a positive, compared with a negative, change (Rozin & Royzman, 2001; Sanna, 1996). In line with this observation, people were less likely to imagine a move to a larger office (a positive change) than a move to a smaller office (a negative change; Bilgin, 2012; see also Risen & Gilovich, 2008). Similarly, consumers were less prone to imagine gaining a packet of M&Ms (a positive change) than losing one (a negative change; Dhar & Wertenbroch, 2000).

The prediction that consumers are less likely to imagine, and therefore feel less connected to, a future self whose income increases rather than a future self whose income decreases does not mean that consumers wish to be poorer rather than richer in the future, or that they believe this would be the case (Sharot, 2011; Weinstein, 1980). Instead, we propose that when faced with the reality that a change in income will occur, consumers are less likely to imagine their future with an income increase compared with a decrease, leading to lower self-continuity. Study 2A tests this prediction.

Self-Continuity and Mental Accounts

In the previous section, we argued that consumers feel lower self-continuity when

they face a future income increase relative to a decrease. In this section we present the second link of the process underlying the relationship between future income changes and asymmetric adjustment of present spending. This second link joins self-continuity and mental representation of income: specifically, we propose that lower self-continuity makes consumers represent their present and future incomes as two separate, versus combined, mental accounts.

Consumers assign cognitive labels to sources and uses of funds, categorizing them into different mental accounts based on their type (e.g., entertainment vs. clothing) and their timing (e.g., present vs. future; Read et al., 1999; Thaler, 1990, 1999). Mental accounts violate the economic principle of fungibility, the notion that money is interchangeable, because consumers are generally averse to "borrowing" money associated with one mental account to fund spending on a different mental account (Abeler & Marklein, 2017; Shefrin & Thaler, 1988; Thaler, 1990, 1999). In the face of self-control problems, for example, consumers resist the temptation of immediate consumption opportunities by precommitting to an "entertainment" budget and not borrowing from other mental accounts once the spending limit has been reached (Heath & Soll, 1996). Similarly, consumers may follow the self-imposed rule to not borrow from their future-income account to finance present consumption (Shefrin & Thaler, 2004; Thaler, 1990).

Mental accounts are, however, malleable; consumers show flexibility in the way they construe accounts and classify expenses to justify certain decisions. For instance, participants who wanted to go to a restaurant categorized this expense as "food" when they had some surplus money in their food account, but as "entertainment" when they had a surplus in their entertainment account (Cheema & Soman, 2006).

We predict that mental accounts of present and future income are also malleable, and specifically that they are influenced by self-continuity. When consumers perceive their future

self as less connected to their present self, they may also view the income belonging to the future self as less connected to the income belonging to the present self, and therefore categorize present and future income as two separate mental accounts. However, when consumers feel a stronger connection between the future and present self, they may also view the income belonging to the future self as more connected to the income belonging to the present self, and therefore merge present and future income into a single mental account. Study 2B tests this prediction.

Mental Accounts and Adjustment to Future Income Changes

So far, we have predicted that consumers feel a lower sense of self-continuity when they face a future income increase, relative to a decrease, and that lower self-continuity leads consumers to categorize their present and future income into two separate, versus combined, mental accounts. This section presents the third causal link, the one joining mental accounts and adjustment to future income changes. We predict that mentally representing present and future income as two separate accounts, rather than as a single combined account, inhibits adjustment of present spending to changes in future income because it disrupts the movement and balancing of funds from the present to the future, and vice versa.

This prediction is consistent with the view that narrower, separate mental accounts lead to reduced fungibility and fluidity of funds than a broader, combined account (Read et al., 1999). For example, study participants who had spent $25 in their first week of the month were less likely to buy a $15 concert ticket when they set narrower accounts of $25 per week for entertainment expenses rather than a broader account of $100 per month. In a similar vein, representing present and future income as separate, narrow, accounts when future income increases may inhibit adjustment of present spending.

We test the influence of mental accounts on adjustment of current spending to future income changes in Study 2C.

Self-Continuity Enhancement and Current Spending Adjustments

The previous sections have outlined the three causal links comprising the process through which future income changes affect adjustment of present spending. According to this process, future income increases, relative to decreases, are associated with lower self-continuity; lower self-continuity makes consumers represent present and future income as two separate mental accounts; and representing present and future income as two separate mental accounts causes consumers' reluctance to adjust present spending to future income increases. The expectation that lower self-continuity inhibits upward adjustments of present spending implies that enhancing self-continuity in the face of future income increases would facilitate spending.

This final prediction appears to contradict previous research, which showed that enhancing self-continuity decreases spending (Bartels & Urminsky, 2011, 2015; Hershfield et al., 2011). This previous work, however, did not examine situations in which future income changes; instead, it studied situations in which financial resources are fixed, and focused on how present spending reduced the pool of money available to the future self (Bartels & Urminsky, 2015; Frederick et al., 2009). For example, in one study, participants' attention was drawn to the trade-offs between present and future—they were explicitly told that the more savings they decided to spend on a tablet at present, the less money they would have left in the future (Bartels & Urminsky, 2015). In this setting, an increase in self-continuity made consumers care more about their future self, and therefore give more weight to the consequences of present spending for the future self. Hence, enhancing self-continuity decreased their present spending.

By contrast, we focus on settings where financial resources are not fixed: future decreases or increases in income contract or expand the overall pool of money and therefore reduce or increase the ability to withdraw from this pool of resources for present discretionary spending. In this context, our prediction is that enhancing self-continuity triggers a joint mental representation of present and future income, making consumers more likely to incorporate a future income change into present spending decisions. That is, in case of an income increase, enhancing self-continuity should boost present spending.

As a preliminary test of this prediction, we surveyed master's in management students who expected an increased income because they had accepted postgraduation jobs. Participants first indicated the amount of money they had spent on discretionary purchases in the past month and then reported their feeling of connectedness to their postgraduation self by rating the extent to which they were "mentally time-traveling" into the future (Prebble et al., 2013; Pronin et al., 2008). Consistent with our prediction, higher self-continuity was associated with higher discretionary spending ($\beta = .352$, $t(40) = 2.369$, $p = .033$): the more psychologically connected students felt to their richer future selves, the more they spent on discretionary purchases at present.

We therefore predict that enhancing self-continuity boosts present spending when future income increases. Studies 3 and 4 test this prediction by manipulating both future income changes and self-continuity. Study 5 manipulates self-continuity and mental accounting to show that the effect of self-continuity on adjustment to a future income increase occurs because enhancing self-continuity leads to representing present and future income as a single combined mental account.

Study 1: Asymmetric Adjustment of Present Spending to Future Income Decreases and Increases

Study 1 manipulates expectations of actual income changes and uses a behavioral measure to demonstrate that consumers adjust present spending less when anticipating a future income increase than a decrease. This study, like the following ones, examines discretionary spending on items such as indulgent foods or drinks, massage treatments, or entertainment events (Bartels & Urminsky, 2015; Tully et al., 2015). All study materials are provided in the Web Appendix.

Participants

Four hundred ninety-four participants from a European university's subject pool (60.3% female, 38.3% male, 0.2% indicated "other," 6 missing values; M_{age} = 29.40, *SD* = 10.96, range: 18–77) participated in this lab study for £10.

Method

Participants were assigned to one of three future-income conditions created by a one-factor design with three levels (future income: decrease vs. increase vs. no change).

Upon arriving at the lab, participants were asked to complete a form that was ostensibly unrelated to the study. The form stated that the university had decided to decrease, increase, or maintain the level of hourly payment for study participation in the future. Specifically, participants learned that, after a period of 4 months, payment would change from the current £10 to either £5 (income-decrease condition) or £15 (income-increase condition), or that payment would remain the same (no-change condition). To ensure that participants would not consider the difference in payment as a small, one-off change in remuneration but as a factor that would affect their future income in a more substantial way, the form further informed each participant that "you will be able to earn less [more; an equal

amount of] money in the future through lab participation than you do now. For example, if you complete 2 hours of lab studies per week, you currently earn £20/week but will earn £10 [£30; and you will earn £20] per week next year." We also asked participants to indicate how often they participated in research studies in the university lab and how much money they earned per month on average through study participation to draw their attention to the impact of the future payment. Posters with the information on future payment were displayed throughout the lab.

After participants returned the completed forms, the lab assistant handed them a £2 bonus payment for reading the form and answering the related questions; the lab assistant told participants that they could use some or all of the bonus payment to buy handmade luxury chocolates, displayed on a tray, for £0.50 each. The lab assistant noted the number of chocolates each participant bought, which constituted the main dependent variable of this study.

Results

A one-factor analysis of variance (ANOVA) with future-income condition as independent variable and number of chocolates purchased as dependent variable showed a significant effect of future income change; $F(2, 490) = 3.085$, $p = .047$, $\eta^2 = .01$. Contrasts showed that participants who had learned that their lab-related income would decrease in the future bought fewer chocolates on average ($M = .46$, $SD = .77$) than participants who were told that it would remain the same ($M = .73$, $SD = 1.11$); $F(1, 490) = 6.121$, $p = .014$, $d = 0.22$. However, participants expecting their lab-related income to increase did not buy more chocolates than those anticipating no change ($M = .61$, $SD = 1.02$); $F(1, 490) = 1.099$, $p > .29$).

Because participants bought less than one chocolate on average, we conducted a robustness check by categorizing the dependent variable (purchase of any chocolates: 0 = *no*, 1 = *yes*) and using a binary logistic regression. The omnibus test was marginally significant; χ^2 (2) = 4.711, p = .095. Participants expecting an income decrease were less likely to buy any chocolates (31.7%) than those expecting no change (43.3%); B = −.497, SE = .230, *Wald* (1) = 4.667, *Exp(B)* = .608, p = .031; however, participants expecting an income increase (37.6%) were not more likely to buy any chocolates than those expecting no change; B = −.238, SE = .225, *Wald* (1) = 1.115, *Exp(B)* = .788, p = .29.

Discussion

The results of Study 1 revealed an asymmetry in adjustment of present spending to future income changes: participants were less likely to increase spending when anticipating an income increase than to reduce spending when anticipating an income decrease. We replicate this result in an online experiment included in the Web Appendix (Study WA1).

Studies 2A, 2B, and 2C: Three Causal Links Explaining the Asymmetric Adjustment

Studies 2A, 2B, and 2C test the three causal links underlying the asymmetry observed in Study 1. Study 2A tests the first link: future income increases, compared with decreases, lead to lower self-continuity. Study 2B tests the second link: lower, compared with higher, self-continuity results in representing present and future income as separate, versus combined, mental accounts. Study 2C tests the third link: separate, versus combined, mental accounts inhibit adjustment of current spending.

Study 2A: Future Income Changes and Self-Continuity

Participants. Four hundred forty-six participants located in the US were recruited through Prolific. Three participants failed an attention check (Oppenheimer et al., 2009);

these were screened out at the beginning of the study, and no further data were collected from them. Four hundred forty-three participants completed the study for monetary compensation (54.6% female, 45.4% male; M_{age} = 35.45, SD = 12.11, range: 18–79).

Method. Participants were randomly assigned to one of three conditions created by a one-factor design with three levels (future income: decrease vs. increase vs. no change) and were asked to imagine that 3 years into the future their income would for sure either decrease, increase, or remain the same. We also provided a paragraph describing the future income level. Participants read that in the future, after paying for necessities, they would not have much money left (income-decrease condition), a lot of money left to live pretty much how they like (income-increase condition), or the same budget available as at present (no-change condition).

We then assessed self-continuity using a five-item measure. The first three items asked: "To what extent could you relate to the self experiencing what was described as the future?"; "To what extent could you relate to what this future experience would feel like?"; and "To what extent could you identify with the self experiencing what was described as the future?" For the last two items, participants saw seven images of pairs of circles with varying degrees of overlap, representing their present and future selves, and were asked to "click on the picture that best describes to what extent you felt that, when you thought ahead to this future, you were mentally 'pre-experiencing,' i.e., mentally simulating, this life that was described" and to "click on the one picture that best describes how similar you felt your future self (…) would be at core to the person you are now, in terms of personality, temperament, major preferences, beliefs, values, ideals, etc." (Bartels & Urminsky, 2011; Ersner-Hershfield, Garton, et al., 2009). All items used 7-point scales (α = 85; a factor analysis revealed one factor with Eigenvalue > 1, as intended).

Results. A one-way ANOVA comparing levels of self-continuity between participants in the income-decrease, income-increase, and no-change conditions was significant; $F(2, 440) = 8.706$, $p < .001$. In the income-increase condition ($M = 4.69$, $SD = 1.28$), self-continuity was lower than in the income-decrease condition ($M = 5.13$, $SD = 1.15$; $F(1, 440) = 9.558$, $p = .002$, $\eta^2 = .01$). We also found that in the no-change condition, self-continuity was higher than in the income-increase condition ($M = 5.25$, $SD = 1.25$; $F(1, 440) = 15.772$, $p < .001$, $\eta^2 = .04$) and similar to the income-decrease condition ($F(1, 440) = .700$, $p = .40$). Hence, Study 2A showed that, as predicted, consumers experience lower self-continuity with a future self whose income increases relative to a future self whose income decreases. Because our theory concerns future income changes, we did not have a prediction for self-continuity when future income does not change, but we provide an interpretation for the finding in this condition in the Web Appendix.

Study 2B: Self-Continuity and Mental Accounting of Present and Future Income

Participants. One thousand thirty-six participants located in the US were recruited through Amazon MTurk. Twenty-three participants failed the attention check; these were screened out at the beginning of the study, and no further data were collected from them. One thousand thirteen participants completed the study for monetary compensation (62.5% female, 36.5% male, 0.7% other, 0.3% did not indicate gender; $M_{age} = 38.43$, $SD = 12.42$, range: 18–75, 0.4% did not indicate age).

Method. This study manipulates self-continuity through projecting the present self into the position of the future self via imagination (Blouin-Hudon & Pychyl, 2015; Hershfield et al., 2018; Prebble et al., 2013). In the first part of the study, participants were asked to think about their income a few years in the future. In the high-self-continuity condition, participants were then instructed to picture themselves in these future circumstances,

visualizing what it would be like to live in this way and imagining their living conditions (e.g., the building in which they will live). In the control condition, participants were not instructed to imagine their present self in the position of their future self. Because research has shown that people commonly feel a low sense of connectedness to their future self (Ersner-Hershfield, Wimmer, et al., 2009; Hershfield et al., 2011; Pronin & Ross, 2006), this control condition tests how consumers with lower self-continuity mentally represent income.

In the second part of the study, we relied on past research (Soman & Cheema, 2011) and measured mental accounts through a reference to physical objects. Participants read that people may view their present and future income as two separate pools of money, which are used independently, or one combined pool of money, which can be used for either present or future spending, and they saw corresponding illustrations of one large or two smaller pools of water. Participants then rated the extent to which their present and future income feel like two separate pools or one combined pool of money (1 = *definitely two separate pools of money*, 7 = *definitely one combined pool of money*).

Results. Participants in the high-self-continuity condition, whose self-continuity was enhanced via imagination, were more likely to view their present and future income as one pool of money, or as a combined mental account, than those in the control condition, whose self-continuity was not enhanced ($M_{\text{high-self-continuity}} = 3.88$, $SD = 2.36$ vs. $M_{\text{control}} = 3.43$, $SD = 2.25$; $t(1011) = 3.090$, $p = .002$, $d = .19$). Hence, Study 2B confirmed our prediction that when self-continuity is not enhanced through an external intervention, consumers are more likely to use two separate mental accounts, rather than a single combined account, for present and future income.

We replicated this result in an experiment that manipulated self-continuity in a different way, via varying the perceived similarity in important traits across the present and

the future selves (Bartels & Urminsky, 2011, 2015; Ersner-Hershfield, Garton, et al., 2009; Hershfield, 2011). This study is included in the Web Appendix (Study WA2).

Study 2C: Mental Accounting of Present and Future Income and Spending Adjustment

Participants. Four hundred ninety-one participants located in the US were recruited through Prolific. One participant failed the attention check; this participant was screened out at the beginning of the study, and no further data were collected. Four hundred ninety participants completed the study for monetary compensation (49.4% female, 49.0% male, 1.6% other; M_{age} = 36.55, SD = 13.03, range: 18–85, 0.2% did not indicate age).

Method. Participants were instructed to think about their present and future income either as two separate pools of money (two-account condition), or as a single combined pool (one-account condition) and were shown the corresponding illustrations of water containers as in Study 2B. Participants then read two scenarios of discretionary purchasing opportunities (a massage and a concert ticket, in randomized order), imagined that 2 years in the future their income would increase or decrease, and rated the extent to which such a future income change would influence their decision to spend at present on each discretionary purchase using a 9-point scale (1 = *not at all*; 9 = *very much*). We created an average score across the two products to form our main dependent measure (r = .773, p < .001).

Results. A t-test showed that in the two-account condition present-spending decisions were influenced by a future change in income to a lesser degree than in the one-account condition ($M_{\text{two-accounts}}$ = 4.02, SD = 2.46 vs. $M_{\text{one-account}}$ = 4.77, SD = 2.43; $t(488)$ = 3.398, p < .001, d = .31). Hence, Study 2C supported our prediction that holding two separate mental accounts for present and future income, versus a single account, makes consumers less likely to adjust current spending to future income changes.

Discussion. Studies 2 A through C tested the three proposed causal links underlying the asymmetric adjustment of present spending to a future income increase relative to a future income decrease. These studies showed that a future income increase leads to lower self-continuity than a decrease (Study 2A); that lower self-continuity results in a greater tendency to use separate, versus merged, mental accounts for present and future income (Study 2B); and that the use of separate mental accounts for present and future income reduced the tendency to adjust present spending to a future income change (Study 2C).

The next studies test the overall process by showing that the asymmetric adjustment to future income increases and decreases observed in Study 1 can be mitigated by manipulating the two process variables, self-continuity and mental accounts. Studies 3 and 4 manipulated self-continuity; Study 5 manipulated both self-continuity and mental accounts.

Studies 3 and 4: Self-Continuity Enhancements Mitigate the Adjustment Asymmetry

Studies 3 and 4 tested whether enhancing self-continuity mitigates the asymmetry in adjustment of present spending to future income increases, versus decreases, by facilitating an upward adjustment when future income increases. In Study 3, we manipulated self-continuity via imagination (cf. Study 2B). In Study 4, we used a different manipulation of self-continuity, trait stability, as in Study WA2.

Study 3

Participants. Six hundred eight MTurk workers located in the US completed the study for monetary compensation. We excluded 29 participants who failed the attention check. Five hundred seventy-nine participants remained in the final sample (55.4% female, 44.6% male; M_{age} = 36.70, *SD* = 12.54, range: 19–81).

Method. Participants were randomly assigned to one of six conditions created by a 3 (future income: decrease vs. increase vs. no change) × 2 (self-continuity: control vs. high) design.

Participants imagined an income decrease, increase, or no change 3 years in the future, as in Study 2A. Self-continuity was manipulated through mental projection into the future via imagination. Similar to Study 2B, in the high-self-continuity condition, participants in all three future-income conditions were encouraged to take some time to "picture themselves" a few years in the future and to "visualize what it would be like to live in [the way described] in the future." To facilitate mental simulation, in the income-decrease and income-increase conditions we provided three pictures representing, respectively, a low-end or high-end living standard; in the no-change condition, participants were asked to visualize their current living situation (e.g., the building in which they live) and to imagine what it would be like to live similarly in the future. In the control condition, where self-continuity was not enhanced, participants received no further instructions.

After the manipulation of self-continuity, participants read three scenarios involving a decision to spend on discretionary purchases—a taxi ride, a concert ticket, and a massage—and reported their likelihood of making each purchase on 9-point scales (1 = *not at all likely*; 9 = *extremely likely*). We created an average score across products, representing our main dependent measure ($\alpha = .68$; a factor analysis revealed one factor with an Eigenvalue > 1, as intended). Last, participants completed some additional measures and demographic questions.

Results. Our main prediction was that for participants in the income-increase condition, enhancing self-continuity would lead to a stronger upward adjustment of present spending than for participants whose self-continuity was not enhanced. We expected to find little or no difference in downward spending adjustments for participants in the future-income-decrease condition, regardless of whether self-continuity was enhanced or not (i.e.,

the self-continuity control condition). This prediction is consistent with the results of Study 2A, which showed that self-continuity is naturally higher when future income decreases; thus, an external intervention further heightening self-continuity should have limited or no effect on spending adjustment. We did not predict an effect of enhanced self-continuity in the no-income-change condition because our theory concerns the integration of changes in future income into present spending. Therefore, we followed prior work and used contrast coding (Davis, 2010; Naylor et al., 2011; Ordabayeva & Fernandes, 2018), consistent with the prediction that the interaction would be driven by only one of the conditions.

We created two dummy variables that capture the three future-income conditions. Because we predicted the interaction of self-continuity with future income to be driven only by the income-increase condition, compared with the income-decrease and no-change conditions, we coded dummy 1 as .66 in the income-increase condition and as −.33 in the income-decrease and no-change conditions. We further coded dummy 2 as .5 in the income-decrease condition, −.5 in the no-change condition, and 0 in the income-increase condition. We performed a linear regression on the likelihood of buying with dummy 1 (income increase vs. income decrease and no change), dummy 2 (income decrease vs. no change), self-continuity (control vs. high self-continuity), as well as the interaction terms between each of the two dummy variables and self-continuity as predictors. Results showed a main effect of dummy 1 (beta = .339, $t = 8.904$, $p < .001$), indicating that participants were more likely to spend in the income-increase condition ($M = 4.66$, $SD = 2.04$) than in the income-decrease ($M = 2.78$, $SD = 1.41$) and no-change ($M = 3.76$, $SD = 1.41$) conditions, and a main effect of dummy 2 (beta = −.210, $t = -5.515$, $p < .001$), indicating that participants were less likely to spend in the income-decrease than in the no-change condition. The predicted interaction between dummy 1 and self-continuity was also significant (beta = .088, $t = 2.307$, $p = .021$). None of the other coefficients were significant (all ps > .23).

Breaking down the interaction to test our predictions (see Figure 2), we found that the asymmetry observed in Study 1 replicated when self-continuity was not manipulated: relative to the no-income-change condition ($M = 4.00$, $SD = 1.79$), the likelihood of buying was significantly lower in the income-decrease condition ($M = 2.80$, $SD = 1.45$; $F(1, 573) = 22.246$, $p < .001$, $d = 0.39$), but it was only marginally higher in the income-increase condition ($M = 4.42$, $SD = 2.10$; $F(1, 573) = 2.790$, $p = .095$). In line with our predictions, this asymmetry was mitigated when self-continuity was enhanced: relative to the no-income-change condition ($M = 3.53$, $SD = 1.77$), the likelihood of buying remained significantly lower in the income-decrease condition ($M = 2.75$, $SD = 1.37$; $F(1, 573) = 9.442$, $p = .002$, $d = 0.26$), but, importantly, it was also significantly higher in the income-increase condition ($M = 4.88$, $SD = 1.97$; $F(1, 573) = 29.217$, $p < .001$, $d = 0.45$).

Looking at the contrasts within each future-income condition, results are also in line with our predictions. These analyses showed that enhancing self-continuity, versus not, marginally increased the likelihood of buying in the income-increase condition ($M = 4.42$, $SD = 2.10$ vs. $M = 4.88$, $SD = 1.97$); $F(1, 537) = 3.255$, $p = .072$, $d = .02$), but it did not influence the likelihood of buying in the income-decrease condition ($F(1, 573) = .030$, $p = .86$). Enhancing self-continuity marginally decreased the likelihood of buying in the no-change condition ($F(1, 573) = 3.557$, $p = .060$, $d = .02$), a result that we did not predict.

Study 4

Participants. Five hundred eighty-nine participants recruited on Prolific completed the study for monetary compensation. We excluded 24 participants who failed the attention check, which left 565 participants in the final sample (66.9% female, 32.7% male, 0.4% other; $M_{age} = 38.22$, $SD = 11.95$, range: 15–73).

Method. Participants were randomly assigned to one of six conditions created by a 3 (future income: decrease vs. increase vs. no change) × 2 (self-continuity: control vs. high) design.

Self-continuity was manipulated through perceived stability of psychological traits. Participants in the high-self-continuity condition read a paragraph stating that research shows that a person's core identity, such as personality traits, major likes and dislikes, and beliefs and values, stays the same throughout adult life (Bartels & Urminsky, 2011). They were then asked to describe two aspects of their own identity that they believed would be the same a few years in the future as they are now. Finally, they continued to the future-income manipulation, which asked them to imagine a significant income increase or decrease 3 years in the future, or no income change. Participants in the control condition, where self-continuity was not enhanced, did not complete the trait-stability manipulation but went straight to the future-income manipulation.

After the manipulations, all participants were presented with three scenarios similar to those used in Study 3 (the items in this study were a specialty coffee or tea, a concert, and a massage) in random order. Participants were asked to indicate the likelihood of making each discretionary purchase ($\alpha = .60$; a factor analysis revealed one factor with an Eigenvalue > 1, as intended).

Results. Like in Study 3, we expected that enhancing self-continuity would facilitate upward adjustment of present spending to a future income increase and would have a limited or no effect in the income-decrease and no-income-change conditions. Thus, we used the same contrast coding as in Study 3, creating two dummy variables to capture the three future-income conditions. To test our prediction that the interaction of self-continuity with future income would be driven only by the income-increase condition (vs. by the income-decrease and no-change conditions), we coded dummy 1 as .66 in the income-increase condition and

as −.33 in the income-decrease and no-change conditions. We further coded dummy 2 as .5 in the income-decrease condition, −.5 in the no-change condition, and 0 in the income-increase condition.

We conducted a linear regression on the likelihood of buying with dummy 1 (income increase vs. income decrease and no change), dummy 2 (income decrease vs. no change), self-continuity (control vs. high self-continuity), and the interaction terms between each of the two dummy variables and self-continuity as predictors. The analysis revealed a main effect of dummy 1 (beta = .150, $t = 3.636$, $p < .001$), showing that participants were more likely to spend in the income-increase condition ($M = 3.78$, $SD = 1.85$) than in the income-decrease ($M = 2.89$, $SD = 1.69$) and no-change ($M = 3.58$, $SD = 1.64$) conditions, and a main effect of dummy 2 (beta = −.161, $t = -3.907$, $p < .001$), showing that participants were less likely to spend in the income-decrease than in the no-change condition. Importantly, the focal interaction between dummy 1 (income increase vs. income decrease and no change) and self-continuity was marginally significant (beta = .072, $t = 1.738$, $p = .083$). None of the other coefficients were significant (all ps > .58).

Planned contrasts (see Figure 3) showed that, consistent with our predictions, the asymmetric adjustment of present spending replicated when self-continuity was not enhanced: relative to the no-change condition ($M = 3.64$, $SD = 1.68$), likelihood of buying was lower in the income-decrease condition ($M = 2.92$, $SD = 1.72$; $F(1, 559) = 8.860$, $p = .003$, $d = 0.26$), but it was the same in the income-increase condition ($M = 3.58$, $SD = 1.81$; $F(1, 559) = .072$, $p = .79$). Also consistent with our predictions, this asymmetry was mitigated when self-continuity was enhanced: relative to the no-change condition ($M = 3.51$, $SD = 1.61$), likelihood of buying remained lower in the income-decrease condition ($M = 2.85$, $SD = 1.67$; $F(1, 559) = 6.553$, $p = .011$, $d = 0.22$), but, importantly, it was higher

in the income-increase condition (M = 4.02, SD = 1.88; F(1, 559) = 3.847, p = .050, d = 0.17).

Looking at the contrasts within each future-income condition, results are also in line with our predictions. These analyses showed that the high-self-continuity manipulation (compared with the control condition) marginally increased the likelihood of buying in the income-increase condition (M = 4.02, SD = 1.88 vs. M = 3.58, SD = 1.81); F(1, 559) = 2.934, p = .087, d = 0.14), but it did not influence the likelihood of buying in the income-decrease (F(1, 559) = .067, p = .80) and no-change (F(1, 559) = .303, p = .58) conditions.

Discussion. Studies 3 and 4 tested the proposed process through moderation and provided further evidence of the hypothesized role of self-continuity: they demonstrate that the asymmetry found in Study 1, with consumers adjusting their present spending less to a future income increase than to a decrease, was mitigated by enhancing self-continuity. The asymmetry replicated when self-continuity was not enhanced; but when it was enhanced, either via imagination (Study 3) or via trait stability (Study 4) manipulations, participants adjusted present spending both to income decreases and increases. This pattern of results supports our theory that the asymmetry is driven by participants' naturally lower self-continuity when facing an income increase relative to a decrease, as shown in Study 2A.

The result that enhanced self-continuity boosts spending for participants with increased future income also rules out the possibility that the results of Study 1 are explained solely by liquidity constraints and debt aversion. Even though study participants facing an income increase did not need to access cash to make spending decisions, they may have been reluctant to spend more at present due to an awareness of liquidity constraints and/or an aversion to taking on debt. However, by showing that enhancing self-continuity boosts present spending, studies 3 and 4 demonstrated that self-continuity plays a role in present spending adjustment to future income changes that goes above and beyond these factors.

The high-self-continuity conditions, but not the control conditions, of studies 3 and 4 involved an additional task, which might have placed participants under greater cognitive load. A cognitive-load account, however, is unlikely to explain the observed results. On the one hand, cognitive load should reduce normative decision-making (Frederick, 2005; Shah & Oppenheimer, 2008). In our context, this would have led participants who completed the high-self-continuity task to adjust present spending less than those in the control conditions. By contrast, we found the opposite pattern. On the other hand, cognitive load might have reduced self-control (Ward & Mann, 2000), which would have led to greater spending for those completing the high self-continuity task in all future-income conditions. By contrast, we found greater spending in the high-self-continuity condition only when income increased.

We also conducted a conceptual replication of this effect—consumers adjusting present spending to a future income increase to a greater extent under higher self-continuity—in a study which included a low-self-continuity manipulation, rather than a control condition with no intervention (Study WA3 in the Web Appendix). Additionally, this study involved naturally occurring changes in income. We recruited students, manipulated self-continuity to be either high or low, and measured present income and anticipated postgraduation income. Results showed that students who anticipated greater income increases were more likely to choose discretionary spending options, but only when high self-continuity was induced, not when low self-continuity was induced.

Study 5: Mental Accounting Moderates the Effect of Self-Continuity on Spending Adjustment

Studies 3 and 4 tested the process by manipulating only the first process variable, self-continuity. Study 5 manipulated both self-continuity and the second process variable, mental

accounting of present and future income (https://aspredicted.org/PR5_GVN), focusing solely on a future income increase.

When no mental accounts were induced, we expected to replicate the results of studies 3 and 4: participants in the high-self-continuity condition would be more likely to spend at present than those in the control condition, in which higher self-continuity was not induced, because they view their present and future income as one combined mental account. When two mental accounts were induced, we expected no difference between participants in the high-self-continuity and control conditions, because this manipulation would make the high-self-continuity participants similar to their control counterparts, who should naturally view present and future income as separate accounts. Likewise, when a single combined mental account was induced, we expected no difference between participants in the high-self-continuity and control conditions, this time because the manipulation would make the control group of participants similar to their high-self-continuity counterparts, who should view present and future income as one account.

Looking at the same interaction from a different perspective, we expected that when high self-continuity was not induced, participants would view their present and future income as separate accounts; thus, among these participants, the likelihood of buying in the two-account condition should be the same as that in the no-account condition, and the likelihood of buying in the one-account condition should be higher than that in the two-account and no-account conditions. Likewise, when high self-continuity was induced, participants should view their present and future income as one combined account; thus, among these participants, the likelihood of buying in the one-account condition should be the same as that in the no-account condition, and the likelihood of buying in the two-account condition should be lower than that in the one-account and no-account conditions.

Participants

We aimed to recruit 1,800 participants. Two-thousand twenty participants located in the US were recruited through Amazon MTurk. Fourteen participants failed the attention check; these were screened out at the beginning of the study, and no further data were collected from them. An additional 197 participants began the study but dropped out before responding to any of the dependent variables, and hence were also not included in the analyses. One thousand eight hundred and nine participants completed the study for monetary compensation (56.2% female, 43.1% male, 0.8% other; M_{age} = 39.50, *SD* = 13.18, range: 18–83).

Method

Participants were randomly assigned to one of six conditions created by a 2 (self-continuity: control vs. high) × 3 (mental account: no account vs. one account vs. two account) design.

Self-continuity was manipulated through trait stability, as in studies WA2, WA3, and 4. Like Study 2C, in this study we instructed participants to think about their present and future income either as two separate pools of money (two-account condition) or as one combined pool (one-account condition) and provided the corresponding illustration of water pools. Participants in the no-account condition did not receive these instructions. Like the income-increase condition in studies 3 and 4, all participants then read a scenario describing a significant income increase 3 years in the future.

Participants were next presented, in randomized order, two scenarios of discretionary purchasing opportunities similar to those in studies 3 and 4 (a concert ticket and a massage) and rated their likelihood of buying each item on 9-point scales (1 = *not at all likely*; 9 = *extremely likely*). We created an average score across products, representing our main

dependent measure ($r = .345$, $p < .001$; a factor analysis revealed one factor with an Eigenvalue > 1, as intended). Last, participants answered demographic questions.

Results

We predicted that both the two-account and one-account manipulations would attenuate the effect of self-continuity on the likelihood of buying. Thus, we expected the interaction with self-continuity to be driven by only one of the three mental-account conditions (no accounts) and again used contrast coding to reflect this expectation. We created two dummy variables that captured the mental-account conditions: we coded dummy 1 as .66 in no accounts and as −.33 in one account and two accounts; we further coded dummy 2 as .5 in one account, −.5 in two accounts, and 0 in no accounts. We performed a linear regression on the likelihood of buying with dummy 1 (no accounts vs. one account and two accounts), dummy 2 (one account vs. two accounts), self-continuity (control vs. high self-continuity), as well as the interaction terms between each of the two dummy variables and self-continuity as predictors. Results show a marginally significant main effect of dummy 1 (beta = −.058, $t = -1.812$, $p = .070$) and a significant main effect of dummy 2 (beta = .072, $t = 2.247$, $p = .025$): as expected, participants were more likely to buy in the one-account condition ($M = 4.40$, $SD = 2.08$) than in the two-account condition ($M = 4.10$, $SD = 2.06$). Importantly, the interaction between dummy 1 and self-continuity was significant (beta = .082, $t = 2.589$, $p = .010$). None of the other coefficients were significant (all ps > .19).

Breaking down the interaction first within the mental-account conditions (see Figure 4), we found that, in line with the results of studies 3 and 4, in the no-account condition, high self-continuity boosted the likelihood of buying relative to the control ($M_{\text{high-self-continuity}} = 4.51$, $SD = 2.17$ vs. $M_{\text{control}} = 4.02$, $SD = 2.14$; $F(1, 1803) = 8.234$, $p = .004$,

$d = 0.14$). As predicted, participants' likelihood of buying was the same regardless of whether they were in the high-self-continuity or the control condition, in both the two-account ($M_{\text{high-self-continuity}} = 4.10$, $SD = 2.11$ vs. $M_{\text{control}} = 4.09$, $SD = 2.02$; $F(1, 1803) = .007$, $p = .93$) and the one-account condition ($M_{\text{high-self-continuity}} = 4.34$, $SD = 2.01$ vs. $M_{\text{control}} = 4.46$, $SD = 2.11$; $F(1, 1803) = .474$, $p = .49$).

Finally, we analyzed the interaction within each self-continuity condition. In the control condition, when high self-continuity was not induced and participants were expected to naturally view their present and future income as two separate accounts, the likelihood of buying in the two-account condition ($M = 4.09$, $SD = 2.02$) was the same as in the no-account condition ($M = 4.02$, $SD = 2.14$); $F(1, 1803) = .198$, $p = .66$), whereas the likelihood of buying was higher in the one-account condition than in the other two groups ($M_{\text{one-account}} = 4.46$, $SD = 2.11$; contrast weights: control/two-account: −.5, control/no-account: −.5; control/one-account: +1; $F(1, 1803) = 8.110$, $p = .004$, partial $\eta^2 = .004$). Also consistent with our theorizing, in the high-self-continuity condition, where participants were expected to view their present and future income as one combined account, the likelihood of buying in the one-account condition ($M = 4.34$, $SD = 2.03$) was the same as in the no-account condition ($M = 4.51$, $SD = 2.17$; $F(1, 1803) = .894$, $p = .35$), whereas the likelihood of buying was lower in the two-account condition than in the other two groups ($M_{\text{two-account}} = 4.10$, $SD = 2.11$; contrast weights: high-self-continuity/one-account: −.5, high-self-continuity/no-account: −.5; high self-continuity/two-account: +1; $F(1, 1803) = 4.264$, $p = .039$, partial $\eta^2 = .002$).

Discussion

Study 5 replicated the findings from studies 3 and 4. When future income increased, enhancing self-continuity boosted present spending relative to when self-continuity was not

manipulated. Study 5 also provided additional evidence for the role of mental accounting in the asymmetric adjustment of present spending to future income decreases and increases. The effect of self-continuity was mitigated when participants were made to think about their present and future income as either two separate accounts or as one combined mental account.

In further support of our hypothesized mechanism, in the absence of a high-self-continuity intervention, participants in the two-account condition did not differ in their likelihood of buying compared with those in the no-account condition, whereas participants in the one-account condition showed increased likelihood of buying compared with those in the other two groups. This pattern suggests that in the absence of an external intervention participants naturally think of their present and future income as two accounts.

Conversely, when high self-continuity was induced, participants in the one-account condition did not differ in their likelihood of buying compared with those in the no-account condition, whereas participants in the two-account showed reduced likelihood of buying compared with those in the other two groups. This pattern suggests that when high self-continuity is induced participants naturally think of their present and future income as one account.

General Discussion

This paper examined whether consumers take future income changes into account when making present discretionary spending decisions. We found that participants in our studies displayed a weaker tendency to adjust present discretionary spending upward in response to a future income increase than to adjust it downwards in response to a future income decrease (Study 1). We identified three causal links that explain the observed relative lack of adjustment of spending to future income increases: the first link, tested in Study 2A, showed lower self-continuity when future income increases, relative to when it decreases; the

second link, tested in Study 2B, showed that lower, relative to higher, self-continuity is more likely to induce a separate, versus combined, mental representation of present and future income; the third link, tested in Study 2C, showed that separate, versus combined, mental accounts for present and future income inhibits present-spending adjustment to income changes. Our subsequent studies tested the overall process comprising the three separate links outlined above via moderation. Studies 3 and 4 enhanced self-continuity via two different external interventions and showed that enhanced self-continuity made participants adjust present spending to future income increases, in addition to decreases. Study 5 manipulated both self-continuity and mental accounting and provided evidence that high self-continuity increased adjustment to a future income increase because it made participants more likely to categorize their present and future income as one single mental account rather than two separate accounts.

Theoretical Contribution

The decision whether to adjust present spending to future income changes is likely influenced by several economic and psychological factors. Existing literature has focused on liquidity constraints, the inability to access future funds, and debt aversion, the reluctance to access future funds (see Havranek & Sokolova, 2020; Jappelli & Pistaferri, 2010; Meissner, 2016; Wertenbroch et al., 2001). By using experiments, we were able to isolate the role of a psychological factor, self-continuity, that shapes consumers' mental accounts of present and future income and operates above and beyond the inability and reluctance to access funds.

The effect of self-continuity on discretionary spending was investigated in prior research (Bartels & Urminsky, 2011, 2015; Hershfield, 2011). This research focused on settings where present spending drew from a fixed pool of financial resources, reducing savings available for the future self; in this case, enhanced self-continuity made consumers

care more about their future self and reduced present spending. Our research contributes to this previous work by focusing instead on settings where the pool of financial resources changes because of future increases or decreases in income; in this case, enhanced self-continuity made participants align their present spending with the altered finances of their future self: they were more likely to view the income of their present self and future self as one combined mental account rather than as two separate mental accounts. This combined mental representation of present and future income facilitated the movement of financial resources in the opposite direction of that observed in past research: when participants expected an income increase, higher self-continuity made them boost present spending by taking money from a richer future self.

The results of our and prior research indicate that consumer spending is likely to be influenced by the information that is salient at the decision point (Spiller, 2019). In line with this argument, Bartels and Urminsky (2015) observed that enhanced self-continuity reduced spending only when consumers actively considered trade-offs at the decision point; they did not observe this effect in the absence of such trade-off prompts. Therefore, enhanced self-continuity may reduce or boost spending, depending on which information is salient at the time of the decision: trade-offs between the present and the future or future income increases.

In addition to identifying a context in which higher self-continuity increases—instead of decreases—present spending, we showed that perceptions of self-continuity can vary based on the circumstances of the future self. Participants felt lower self-continuity when contemplating a future income increase (a positive future event) than a decrease (a negative future event). Past research linked low self-continuity to negative rather than positive changes (Molouki & Bartels, 2017); however, this prior work focused on negative and positive changes in the self, such as improving or deteriorating moral values and character traits,

whereas our research focused on the experience of negative and positive changes in external circumstances.

Finally, we contribute to prior research by drawing a connection between literature on self-continuity and that on mental accounting (Thaler, 1990, 1999). Specifically, we showed that higher self-continuity increases the likelihood that consumers represent present and future income as one combined account, whereas lower self-continuity increases the likelihood that consumers represent present and future income as two separate accounts. Self-continuity therefore represents another source of malleability in mental accounts.

Future Research

Results of our studies demonstrated that, on average, consumers felt more connected to a future self with decreased than with increased income. Nevertheless, it is possible that individual differences exist in connectedness to a future self with increased or decreased income. For example, consumers who have experienced higher income in the past may more easily feel connected to a future self with a similarly higher income (see also the additional analyses of Study 2A reported in the Web Appendix). Future research may systematically study such individual differences and their influence on adjustment of spending to lower and higher future income. Similarly, it is possible that individual differences in imagery ability (Hall et al., 1985) may influence the effectiveness of manipulations aimed at enhancing self-continuity, a possibility that should be considered when designing interventions for applied settings.

Other economic and psychological factors, in addition to self-continuity and mental accounting, could contribute to present-spending adjustment decisions and could be investigated in greater depth in future research. For example, our finding that consumers feel more connected to a future self whose income decreases, versus increases, is consistent with

loss aversion, the tendency to experience losses as more psychologically impactful than gains (Kahneman & Tversky, 1979; Tversky & Kahneman, 1991). Counter to our theorizing and findings, however, loss aversion would predict that consumers are less likely to adjust to future income decreases than increases because such decreases require cutting present consumption, a loss they may be reluctant to realize (see Shea, 1995). Future research may more systematically study conditions under which the negativity bias that underpins both our theorizing and loss aversion results in more or less adjustment to income changes.

Another potential factor is related to the way in which consumers construe their future income changes. Inducing high self-continuity may have made participants perceive the change in future income as more certain or, similarly, more concrete. In our studies, we aimed to hold this factor constant by indicating that the income change was certain; in addition, prior research showed that the trait-stability manipulation of self-continuity used in some of our studies does not affect either certainty about the future or construal levels (Bartels & Urminsky, 2011). Nevertheless, future research could investigate in greater depth the interaction between self-continuity and the extent to which income changes are seen as more or less certain and concrete.

Finally, adjustment of spending to future income changes may be influenced by pain of payment. Pain of payment refers to the psychological distress that consumers experience when they part with their money and depends on factors such as the form of payment or the balance of funds (Shah et al., 2016; Soster et al., 2014). Future research may explore whether movement of funds between different mental accounts associated with present and future selves is also psychologically painful.

Conclusion

Overspending is without question problematic for certain groups of consumers (Bartels & Urminsky, 2011; Greenberg & Mogilner, 2021; Hershfield et al., 2011). Some consumers take on crushing debt because they are overly indulgent, and our research findings do not aim to undermine this important problem. However, there are also consumers who use excessive restraint and tend to be frugal to an extent that negatively affects their life satisfaction and well-being (Heath & Soll, 1996; Kivetz & Keinan, 2006). For example, a recent series of Twitter posts discussed how medical residents and graduate students are often reluctant to spend as much money on things like nicer apartments or fancy restaurants as their lifetime income would allow (Abaluck, 2020). Our research concerns this latter case. Borrowing from future income is not inherently bad, because it can help achieving optimal utility and pleasure from one's life earnings (Friedman, 1957; Modigliani & Brumberg, 1954). Further, consumers may not only refrain from borrowing but also engage in excessive saving (*The Economist,* 2022). For example, a young professional anxious about their future financial circumstances may put whatever small amounts of money they can into a savings account, even if that means forgoing travels, concerts, or wellness treatments during this unique time in their life; by contrast, they could put aside more savings without such sacrifices once they have progressed in their career.

A failure to adjust to future income increases can be detrimental not only at the individual but also at the societal level. For example, preannounced government initiatives such as tax reductions and increases in government benefits often aim to stimulate consumption ahead of the implementation of the policy change (Souleles, 2002; Wilcox, 1989). Economic models may overestimate the extent to which this stimulation is successful, as our findings suggest that consumers often lack a sense of identification with and

connection to a richer future self. This lack of upward adjustment to future income increases can contribute to depressing interest rates and inhibited growth (*The Economist,* 2022).

In sum, the discussion on consumer spending and saving needs to account for nuances and differences in individuals and in life circumstances. Our research suggests that some consumers whose income increases in the future might improve their own welfare, and that of society as a whole, if they were made to strengthen their connectedness to their future self and, as a result, to consume more during times of lower income.

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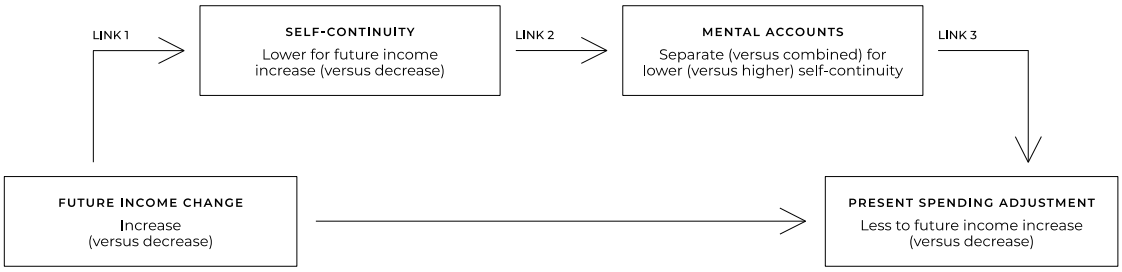

Figure 1. Theoretical model.

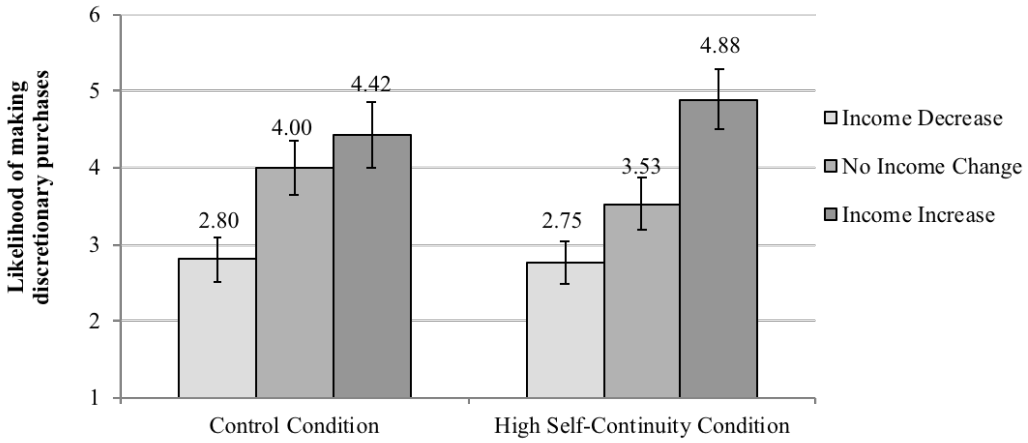

Figure 2. Study 3: Likelihood of making discretionary purchases. Error bars represent 95% confidence intervals.

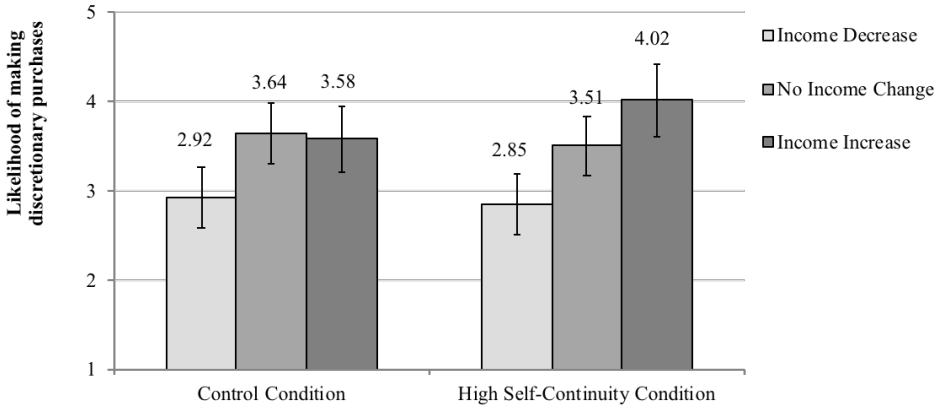

Figure 3. Study 4: Likelihood of making discretionary purchases. Error bars represent 95% confidence intervals.

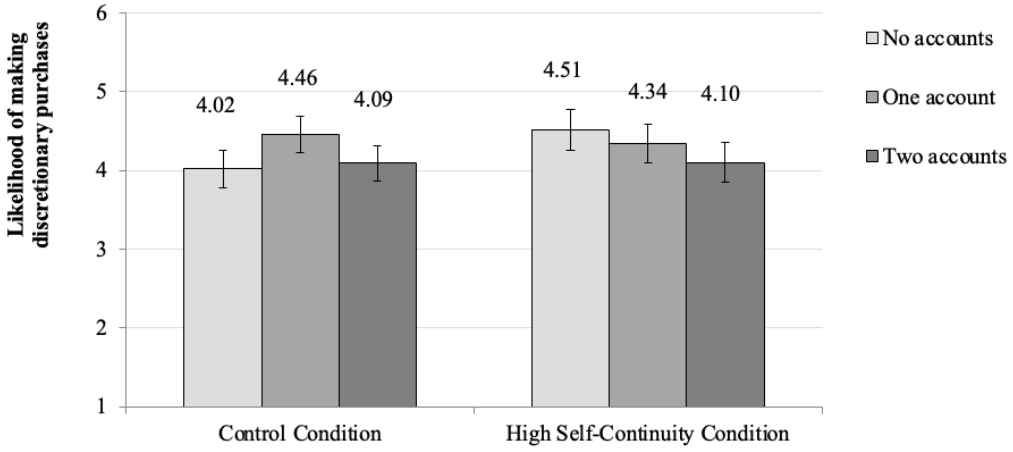

Figure 4. Study 5: Likelihood of making discretionary purchases. Error bars represent 95% confidence intervals.