A Joint Account With My Future Self: Self-Continuity Facilitates Adjustment of Present Spending to Future Income Changes

# Methodological Details Appendix

Table of Contents

Methodological Details Appendix 1

Disclosures 3

Data Exclusion 3

Conditions Reporting 3

Variables Reporting 3

Open Materials 3

Data Collection Information 3

Tables 5

Table 1 Results Without Exclusions Based on Attention Checks 5

Table 2 Sample Sizes 6

Table 3 Final Cell Sizes (Before Exclusions), Studies 1–4 7

Table 4 Final Cell Sizes (Before Exclusions), Study 5 8

Table 5 Means and Standard Deviations, Studies 1–4 9

Table 6 Means and Standard Deviations, Study 5 10

Supplemental Discussions and Analyses 11

Study 1 11

Study 2A 11

Study 3 13

Study 4 15

Study 5 16

Additional Measures 18

Study 3 18

Study 4 18

Materials 20

Study 1 20

Study 2A 24

Study 2B 26

Study 2C 27

Study 3 30

Study 4 35

Study 5 37

Additional Studies Not Reported in the Main Manuscript 41

Study WA1 41

Participants 41

Method 42

Results 42

Study WA2 44

Participants 44

Method 44

Results 44

Study WA3 44

Participants 45

Method 45

Results 46

Study WA4 48

Participants 48

Method 48

Results 49

References 49

# Disclosures

## Data Exclusion

In all our studies, except where otherwise noted, we included attention checks and screened out or excluded from the analyses participants who failed these tasks. Details are reported in Table 1.

## Conditions Reporting

We report all conditions in the manuscript.

## Variables Reporting

We report all critical measures related to our hypothesis testing. In some of our experiments, we collected additional measures after those related to the key hypotheses. These measures are listed under Additional Measures below.

## Open Materials

The materials of all studies reported in the manuscript are included in this document. Data are available on the Open Science Framework (https://osf.io/rebvp/?view\_only=626e495590ba463eb766983901d343b8).

## Data Collection Information

Data collection for Study 1 was managed by research assistants in the behavioral lab of a European university under supervision of the first author in December 2015 and in fall/winter 2017. The results of the two data collection waves show the same pattern, and a dummy for data collection wave did not interact with manipulation of future income. Data collection for studies 2A, 2B, and 2C was managed by the first author via Prolific in fall 2022, spring 2022, and fall 2022, respectively. Data collection for the survey among master’s in management students of a European university was managed by the first author in summer 2016. Data collection for studies 3 and 4 was managed by the first author in fall 2017 via Amazon MTurk and in winter 2018 via Prolific, respectively. Data collection for Study 5 was managed by the first author via Amazon MTurk in August 2021. The sample size for all experiments other than Study 1 was determined in advance. Data for all studies were analyzed by the first author under supervision of the second and third authors.

# Tables

## Table 1

## Results Without Exclusions Based on Attention Checks

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Attention check  | Survey placement | Participants screened out / data collected | Results without exclusions  |
| Study 1 | n.a. (lab study) | n.a. | n.a. | n.a. |
| Study 2A | Write the third word of a sentence | Start | Screened out | n.a. |
| Study 2B | Write the third word of a sentence | Start  | Screened out | n.a. |
| Study 2C | Write the third word of a sentence | Start  | Screened out | n.a. |
| Study 3 | Avoid clicking on a scale | End | Collected | Dummy 1 (increase vs. decrease and no-change): beta = .340, t = 9.118, p < .001Dummy 2 (decrease vs. no-change): beta = −.205, *t* = −5.491, *p* < .001Interaction Dummy 1 x Self-Continuity: beta = .072, *t* = 1.930, *p* = .054\*Interaction Dummy 2 x Self-Continuity: beta = .057, *t* = 1.543, *p* = .12 |
| Study 4 | Avoid clicking on a scale | End | Collected | Dummy 1 (increase vs. decrease and no-change): beta = .153, t = 3.802, p < .001Dummy 2 (decrease vs. no-change): beta = −.147, *t* = −4.322, *p* < .001Interaction Dummy 1 x Self-Continuity: beta = .051, *t* = 1.270, *p* = .205\*\*Interaction Dummy 2 x Self-Continuity: beta = -.002, *t* = -.056, *p* = .955 |
| Study 5 | Write the third word of a sentence | Start | Screened out | n.a. |

\*With exclusions, this result is significant, *p* = .021

\*\*With exclusions, this result is marginally significant, *p* = .083

## Table 2

## Sample Sizes

In determining sample sizes, we followed conventions at the time of data collection. As a result, studies that were conducted later in the project used larger sample sizes than those conducted earlier, especially when prior research or our pretests indicated that the effect may be small.

|  |  |  |
| --- | --- | --- |
|  | Sample size | Number of conditions |
| Study 1 | 494 | 3 |
| Study 2A | 443 | 3 |
| Study 2B | 1013 | 2 |
| Study 2C | 490 | 2 |
| Study 3 | 579 | 6 |
| Study 4 | 565 | 6 |
| Study 5 | 1805 | 6 |

## Table 3Final Cell Sizes (Before Exclusions), Studies 1–4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent measure |  | Income-decrease condition | No-change condition | Income-increase condition |
| Study 1 | Number of chocolates purchased |  | 164 | 164 | 165 |
| Study 2A | Self-continuity |  | 144  | 151  | 148  |
| Study 2B | Mental accounting | Control | 508 |
| High self-continuity | 507 |
| Study 2C | Spending adjustment to future income change | One account | 245 |
| Two accounts | 245 |
| Study 3 | Likelihood of buying | Control | 94 (101) | 97 (101) | 95 (102) |
| High self-continuity | 96 (101) | 100 (103) | 97 (100) |
| Study 4 | Likelihood of buying | Control | 101 (102) | 100 (102) | 97 (102) |
| High self-continuity | 93 (98) | 91 (96) | 83 (89) |

## Table 4Final Cell Sizes (Before Exclusions), Study 5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent measure |  | No-account condition | One-account condition | Two-account condition |
| Study 5 | Likelihood of buying | Control | 328 | 325 | 329 |
| High self-continuity | 275 | 279 | 273 |

## Table 5Means and Standard Deviations, Studies 1–4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent measure |  | Income-decrease condition | No-change condition | Income-increase condition |
| Study 1 | Number of chocolates purchased |  | .46 (.77) | .73 (.1.11) | .61 (1.02) |
| Study 2A | Self-continuity |  | 5.13 (1.15) | 5.25 (1.25) | 4.69 (1.28) |
| Study 2B | Mental accounting | Control | 3.43 (2.25) |
| High self-continuity | 3.88 (2.36) |
| Study 2C | Spending adjustment to future income change | One account | 4.77 (2.43) |
| Two accounts | 4.02 (2.46) |
| Study 3 | Likelihood of buying | Control | 2.80 (1.45) | 4.00 (1.79) | 4.42 (2.10) |
| High self-continuity | 2.75 (1.37) | 3.53 (1.77) | 4.88 (1.97) |
| Study 4 | Likelihood of buying | Control | 2.92 (1.72) | 3.64 (1.68) | 3.58 (1.81) |
| High self-continuity | 2.85 (1.67) | 3.51 (1.81) | 4.02 (1.88) |

## Table 6Means and Standard Deviations, Study 5

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dependent measure |  | No-account condition | One-account condition | Two-account condition |
| Study 5 | Likelihood of buying | Control | 4.02 (2.14) | 4.46 (2.11) | 4.09 (2.02) |
| High self-continuity | 4.51 (2.17) | 4.34 (2.03) | 4.10 (2.11.) |

# Supplemental Discussions and Analyses

## Study 1

In Study 1, we reported only the contrasts that are focal to our hypotheses. We include all contrasts in the table below.

|  |
| --- |
| Multiple Comparisons |
| Dependent Variable: Number of chocolates purchased |
| LSD |
| (I) Condition | (J) Condition | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |
| Lower Bound | Upper Bound |
| Decrease | No change | -.27\* | .108 | .014 | -.48 | -.06 |
| Increase | -.15 | .108 | .153 | -.37 | .06 |
| No change | Decrease | .27\* | .108 | .014 | .06 | .48 |
| Increase | .11 | .108 | .295 | -.10 | .33 |
| Increase | Decrease | .15 | .108 | .153 | -.06 | .37 |
| No change | -.11 | .108 | .295 | -.33 | .10 |
| Based on observed means.The error term is Mean Square(Error) = .964. |
| \*The mean difference is significant at the .05 level. |

## Study 2A

Our theory concerns the relationship between self-continuity and future income changes; thus, we did not have a prediction for self-continuity in the no-change condition. As reported in the manuscript, self-continuity was as high in the no-change condition as in the income-decrease condition, and it was lower than the income-increase condition. Participants in the no-change condition were asked to focus on how their future circumstances would be the same as they are at present; we speculate that this imagination task may have been easy to perform, leading to higher self-continuity.

One potential concern regarding Study 2A is that our manipulation of future income decrease, with a reference to constrained living conditions and the need to make trade-offs, might have resembled many MTurk participants’ current living conditions (Paolacci et al., 2010). This could potentially explain the observed similarity between the income-decrease and the no-change conditions, and the higher self-continuity in these conditions relative to income increase. To examine this possibility, we conducted analyses testing the role of participants’ personal and household income.

In the first analysis, we entered income decrease (dummy 1), income increase (dummy 2), personal income, and the interaction terms between dummies 1 and 2 and personal income as independent variables, and self-continuity as dependent variable. The results revealed only a main effect of income increase (*t*(442) = −3.457, *p* < .001; all other *p*s > .22). Hence, self-continuity was lower in the income-increase condition than in the no-change condition, but it was similarly high in the income-decrease and no-change conditions, and this was not qualified by participants’ personal income. This result does not support the possibility that the results observed in this study were driven by a subsample of participants with low income.

In the second analysis, we entered income decrease (dummy 1), income increase (dummy 2), household income, and the interaction terms between dummies 1 and 2 and household income as independent variables, and self-continuity as dependent variable. The results revealed a main effect of income increase (*t* (442) = −4.061, *p* < .001), as well as an interaction between income increase and household income (*t*(442) = 2.447, *p =*.015); the other coefficients were not significant (*p* > .26). Hence, self-continuity was similar in the income-decrease and no-change conditions, and this effect was not qualified by participants’ household income. Self-continuity was lower in the income-increase condition than in the no-change condition; we found that this effect was attenuated when participants had higher (compared with lower) household income. This is an interesting finding, not at odds with our theorizing that consumers are on average more likely to feel connected to a future in which income decreases rather than increases. It suggests that there may be some variability in self-continuity with a richer self, as addressed in the General Discussion section of the manuscript.

## Study 3

In the main manuscript, we use contrast coding followed by regression analysis to test our prediction that the interaction between self-continuity and future income is driven by the income-increase condition. Below, we include results of a two-factor ANOVA with self-continuity (control vs. high) and future income (decrease vs. no change vs. increase) as predictors and likelihood of buying as the dependent variable.

|  |
| --- |
| **Descriptive Statistics** |
| Dependent Variable: Likelihood of buying |
| Self-continuity | Income | Mean | Std. Deviation | N |
| Control | Decrease | 2.7979 | 1.44697 | 94 |
| No change | 4.0000 | 1.78989 | 97 |
| Increase | 4.4246 | 2.10057 | 95 |
| Total | 3.7459 | 1.92083 | 286 |
| High self-continuity | Decrease | 2.7535 | 1.37074 | 96 |
| No change | 3.5267 | 1.76903 | 100 |
| Increase | 4.8832 | 1.96735 | 97 |
| Total | 3.7224 | 1.92721 | 293 |
| Total | decrease | 2.7754 | 1.40541 | 190 |
| no change | 3.7597 | 1.79057 | 197 |
| increase | 4.6563 | 2.04200 | 192 |
| Total | 3.7340 | 1.92244 | 579 |

|  |  |
| --- | --- |
| **Tests of Between-Subjects Effects** |  |
| Dependent Variable: Likelihood of buying |  |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed power |
| Corrected Model | 359.234a | 5 | 71.847 | 23.168 | <.001 | .168 | 115.842 | 1.000 |
| Intercept | 8056.630 | 1 | 8056.630 | 2598.011 | <.001 | .819 | 2598.011 | 1.000 |
| Self-continuity | .056 | 1 | .056 | .018 | .893 | .000 | .018 | .052 |
| Income | 337.087 | 2 | 168.543 | 54.350 | <.001 | .159 | 108.700 | 1.000 |
| Self-continuity \* income | 21.139 | 2 | 10.570 | 3.408 | .034 | .012 | 6.817 | .641 |
| Error | 1776.917 | 573 | 3.101 |  |  |  |  |  |
| Total | 10209.111 | 579 |  |  |  |  |  |  |
| Corrected Total | 2136.151 | 578 |  |  |  |  |  |  |

A potential alternative account for the results of Study 3 is that the manipulation used to induce higher self-continuity led participants to imagine more extreme levels of wealth. This alternative account predicts that in the case of a future income increase, higher, versus lower, self-continuity would boost both present and future spending. By contrast, our account predicts an effect of high self-continuity on present but not future spending. To test the alternative account, before answering demographic questions, each participant was shown at random one of the three discretionary purchase options for a second time. This time, participants indicated how likely they were to make the same purchase if they had faced the buying opportunity after the income change in the income-increase and income-decrease conditions had materialized (1 = not at all likely; 9 = extremely likely).

We ran a linear regression on future purchase intentions 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. We observed only two significant main effects of dummy 1 (beta = .569, t = −17.519, p < .001), indicating that future purchase intentions were higher in the income-increase condition (M = 6.81, SD = 2.63) than in the no-change (M = 4.04, SD = 2.77) and the income-decrease (M = 2.01, SD = 1.84) conditions, and of dummy 2 (beta = −.265, t = −8.157, p < .001), indicating that future purchase intentions were lower in the income-decrease than in the no-change condition. No other coefficient was significant (all ps > .11). The absence of an interaction (p = .247) indicates that the effect of a future income increase on future purchasing intentions was not qualified by self-continuity. Thus, the alternative account according to which the self-continuity manipulation affected extremeness of imagined wealth was not supported.

## Study 4

In the main manuscript, we use contrast coding followed by regression analysis to test our predictions that the interaction between self-continuity and future income would be driven by the income-increase condition. Below, we include results of a two-factor ANOVA with self-continuity (control vs. high) and future income (decrease vs. no change vs. increase) as predictors and likelihood of buying as the dependent variable.

|  |
| --- |
| Descriptive Statistics |
| Dependent Variable: Likelihood of buying |
| Self-Continuity | Income | Mean | Std. Deviation | N |
| Control | Decrease | 2.9175 | 1.72202 | 101 |
| No change | 3.6433 | 1.68259 | 100 |
| Increase | 3.5773 | 1.80759 | 97 |
| Total | 3.3758 | 1.76268 | 298 |
| High self-continuity | Decrease | 2.8530 | 1.67207 | 93 |
| No change | 3.5055 | 1.60813 | 91 |
| Increase | 4.0201 | 1.88011 | 83 |
| Total | 3.4382 | 1.77723 | 267 |
| Total | Decrease | 2.8866 | 1.69417 | 194 |
| No change | 3.5777 | 1.64466 | 191 |
| Increase | 3.7815 | 1.84950 | 180 |
| Total | 3.4053 | 1.76828 | 565 |

|  |  |
| --- | --- |
| Tests of Between-Subjects Effects |  |
| Dependent Variable: Likelihood of buying |  |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed power |
| Corrected Model | 93.217a | 5 | 18.643 | 6.239 | <.001 | .053 | 31.197 | .996 |
| Intercept | 6577.135 | 1 | 6577.135 | 2201.172 | <.001 | .797 | 2201.172 | 1.000 |
| Self-continuity | .904 | 1 | .904 | .302 | .583 | .001 | .302 | .085 |
| Income | 85.508 | 2 | 42.754 | 14.308 | <.001 | .049 | 28.617 | .999 |
| Self-continuity \* Income | 9.148 | 2 | 4.574 | 1.531 | .217 | .005 | 3.061 | .326 |
| Error | 1670.300 | 559 | 2.988 |  |  |  |  |  |
| Total | 8315.333 | 565 |  |  |  |  |  |  |
| Corrected Total | 1763.517 | 564 |  |  |  |  |  |  |

## Study 5

In the main manuscript, we use contrast coding followed by regression analysis to test our prediction that the interaction between self-continuity and mental accounts would be driven by the no-account condition. Below, we include results of a two-factor ANOVA with self-continuity (control vs. high) and future income (decrease vs. no change vs. increase) as predictors and likelihood of buying as the dependent variable.

|  |
| --- |
| Descriptive Statistics |
| Dependent Variable: Likelihood of buying |
| Self-continuity | Mental accounts | Mean | Std. Deviation | N |
| Control | No accounts | 4.0168 | 2.14402 | 328 |
| One account | 4.4585 | 2.11161 | 325 |
| Two accounts | 4.0897 | 2.02244 | 329 |
| Total | 4.1874 | 2.09995 | 982 |
| High Self-continuity | No accounts | 4.5091 | 2.17209 | 275 |
| One account | 4.3405 | 2.03402 | 279 |
| Two accounts | 4.1044 | 2.10634 | 273 |
| Total | 4.3186 | 2.10852 | 827 |
| Total | No accounts | 4.2413 | 2.16900 | 603 |
| One account | 4.4040 | 2.07526 | 604 |
| Two accounts | 4.0963 | 2.05920 | 602 |
| Total | 4.2474 | 2.10431 | 1809 |

|  |  |
| --- | --- |
| Tests of Between-Subjects Effects |  |
| Dependent Variable: Likelihood of buying |  |
| Source | Type III Sum of Squares | df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed power |
| Corrected Model | 66.944a | 5 | 13.389 | 3.041 | .010 | .008 | 15.203 | .870 |
| Intercept | 32481.394 | 1 | 32481.394 | 7376.643 | .000 | .804 | 7376.643 | 1.000 |
| Self-continuity | 7.551 | 1 | 7.551 | 1.715 | .191 | .001 | 1.715 | .258 |
| Mental accounts | 27.461 | 2 | 13.731 | 3.118 | .044 | .003 | 6.237 | .601 |
| Self-continuity \* Mental accounts | 30.850 | 2 | 15.425 | 3.503 | .030 | .004 | 7.006 | .655 |
| Error | 7939.106 | 1803 | 4.403 |  |  |  |  |  |
| Total | 40640.750 | 1809 |  |  |  |  |  |  |
| Corrected Total | 8006.050 | 1808 |  |  |  |  |  |  |

# Additional Measures

In some experiments, we collected additional measures after those related to the key hypotheses (all items are included in the data sets available on the Open Science Framework; https://osf.io/rebvp/?view\_only=626e495590ba463eb766983901d343b8).

These additional measures include manipulation checks of the self-continuity manipulation, some of which did not succeed. Because we used well-established manipulations used in prior work (Bartels & Urminsky, 2011, 2015; D’Argembeau, Lardi, & Van der Linden, 2012; Hershfield, 2011; Hershfield, John & Reiff, 2018), we suspect that adding these manipulation checks at the end of the survey may have weakened their ability to capture the effect of the manipulation (Perdue & Summers, 1986).

## Study 3

Likelihood of buying in the future (results reported in the Additional Analyses section):

To what extent did manipulation help someone….

….put themselves in the position,

…..simulate in their mind

….pre-experience in their mind

Manipulation check: To what extent could you….

…..relate to yourself experiencing what was described as future

…..relate to what this future experience would feel like

….identity with yourself experiencing what was described as the future

## Study 4

Manipulation check: To what extent could you….

…..relate to yourself experiencing what was described as future

…..relate to what this future experience would feel like

….identity with yourself experiencing what was described as the future

# Materials

## Study 1

**Forms handed to participants**

*Future-income-decrease manipulation*

**Important Notice /** **Lab Participation Survey**

Dear [School Behavioral Lab] participant,

We would like to inform you that the [School Behavioral Lab] will **decrease payment for participation in research studies starting in the new budget period (April 2016)**.

At that point, payment will be **decreased** **from the current hourly rate of £10 to an hourly rate of £5**. We want to inform participants of this change ahead of time, so that you are aware that you will be **able to** **earn less 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/week next year.

Please sign on the line below to confirm that you have received this information.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To help us get a better understanding of our participants please complete this short participant survey form:

1. How often do you currently participate in studies in the [School Behavioral Lab], on average? Please circle the appropriate answer.

One hour per week or more

One hour every 2 weeks

One hour every 3 weeks

One hour a month

Less than one hour a month

1. Based on your answer to Question 1, how much money do you currently earn per month, on average, through participation in studies in the [School Behavioral Lab]?

\_\_\_\_\_\_£

*No-income-change manipulation*

**Important Notice /** **Lab Participation Survey**

Dear [School Behavioral Lab] participant,

The [School Behavioral Lab] is currently **paying an** **hourly rate of £10 for study participation**. It has recently been decided that this **level of payment will be maintained in the new budget period (starting April 2016).**

We want to inform participants of this decision ahead of time, so that you are aware that you will be **able to earn an equal amount of money in the coming year through lab participation** as you do now.

For example, if you complete 2 hours of lab studies per week, you currently earn £20 and will continue to do so.

Please sign on the line below to confirm that you have received this information.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To help us get a better understanding of our participants please complete this short participant survey form:

1. How often do you currently participate in studies in the [School Behavioral Lab], on average? Please circle the appropriate answer.

One hour per week or more

One hour every 2 weeks

One hour every 3 weeks

One hour a month

Less than one hour a month

1. Based on your answer to Question 1, how much money do you currently earn per month, on average, through participation in studies in the [School Behavioral Lab]?

\_\_\_\_\_\_£

*Future-income-increase manipulation*

**Important Notice /** **Lab Participation Survey**

Dear [School Behavioral Lab] participant,

We would like to inform you that the [School Behavioral Lab] will **increase payment for participation in research studies starting in the new budget period (April 2016)**.

At that point, payment will be **increased** **from the current hourly rate of £10 to an hourly rate of £15**. We want to inform participants of this change ahead of time, so that you are aware that you will be **able to earn more 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 £30/week next year.

Please sign on the line below to confirm that you have received this information.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

To help us get a better understanding of our participants please complete this short participant survey form:

1. How often do you currently participate in studies in the [School Behavioral Lab], on average? Please circle the appropriate answer.

One hour per week or more

One hour every 2 weeks

One hour every 3 weeks

One hour a month

Less than one hour a month

1. Based on your answer to Question 1, how much money do you currently earn per month, on average, through participation in studies in the [School Behavioral Lab]?

\_\_\_\_\_\_£

**Posters displayed throughout the lab**

*Future-income-decrease manipulation*

It has recently been decided that the [School Behavioral Lab] will decrease payment for participation in academic studies.

We will pay **£5 per hour (instead of the current £10 per hour)** starting **April 2016.**

*No-income-change manipulation*

It has recently been decided that the [School Behavioral Lab] will **maintain its current payment** for participation in academic studies in the new budget period starting **April 2016.**

We will continue to pay **£10 per hour.**

*Future-income-increase manipulation*

It has recently been decided that the [School Behavioral Lab] will increase payment for participation in academic studies.

We will pay **£15 per hour (instead of the current £10 per hour)** starting **April 2016.**

## Study 2A

*Future-income-decrease manipulation*

Imagine that you know for sure that your income will remain the same as it is now for the next three years, but that it will decrease significantly at that point.

This means that starting three years in the future, you will earn significantly less money than you earn now. After paying for necessities, you will not have much money left in the future. You will have to make significant trade-offs, in the sense that spending on one thing will mean there is less money left for other things.

*No-income-change manipulation*

Imagine that you know for sure that your income will remain the same as it is now in the future, i.e., that it will neither decrease nor increase.

This means that e.g., three years in the future, you will earn the same amount of money as you earn now. This means that you will have the same budget available in the foreseeable future as you do now, and will be able to afford the same things in the future that you can afford at the moment.

*Future-income-increase manipulation*

Imagine that you know for sure that your income will remain the same as it is now for the next three years, but that it will increase significantly at that point.

This means that starting three years in the future, you will earn significantly more money than you earn now. After paying for necessities, you will have a lot of money left in the future to live pretty much the way you like. Even when you buy what you want in your daily life, you will not really have to worry about running out of money for other things.

*Instructions to all participants*

Sometimes when we think of something that will happen to us in the future, this **experience feels close** **and immediate** - it feels like it is **happening to us now**. We spontaneously relate more strongly to such future experiences.

Other times, the future experience feels **removed from us** and less immediate - it feels almost like it is **happening to another person**. We spontaneously relate less strongly to such future experiences.

We are interested in how you felt when you read the scenario that three years from now, **your income will decrease significantly/will be the same as it is now/will increase significantly.**

*Self-continuity measure (5 items)*

To what extent did you relate to the self experiencing what was described as the future? (1–7; 1 = not at all, 7 = completely)

To what extent did you relate to what this future experience would feel like? (1–7; 1 = not at all, 7 = completely)

To what extent did you identify with the self experiencing what was described as the future? (1–7; 1 = not at all, 7 = completely)

Please 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.
The **more the circles overlap, the more you were pre-experiencing** in your mind this future life that was described.
Current self = you now                                                     Future self = you in three years



Please click on the one picture that best describes how similar you felt your future self—the self experiencing this future—would be at core to the person you are now, in terms of personality, temperament, major preferences, beliefs, values, ideals, etc.

The **more the circles overlap, the more similar the current and future self** would be.

Current self = you now                                                     Future self = you in three years



## Study 2B

*Instructions in both conditions*

Please think about what your income will be like a few years in the future.

*High-self-continuity manipulation*

Please **take some time to picture yourself a few years in the future, living in the financial circumstances you will have then.**
**Visualize what it would be like to live in the way you will in the future.** For example, imagine your future living conditions, and picture them in your mind (e.g., the building in which you live; your apartment)

*Mental-account measure*

People may view their present income and their future income as **two separate pools of money,** or **one combined pool of money.**This is illustrated by the figures below.
 Two separate pools of money means that present income is used for present spending, and future income is used for future spending.
 One combined pool of money means that present income and future income are combined and can be used for either present or future spending**.**

****

**Do your present and future income feel like two separate pools of money, or like one combined pool of money?** (1 = definitely two separate pools of money, 9 = definitely one combined pool of money)

## Study 2C

*One-account manipulation*

Please think about your income.

Research shows that people can think of their present income and future income either as **two separate pools of money**or as **one combined pool of money,**as illustrated by the figures below:



**Please think about your present and future income as one combined pool of money, like the image on the right. This means that, when you think of your finances, you combine the income you earn in the future with the income you earn at present.**

**Continue to think about the present and future in the following way:**

**Your present and future income are one combined pool of money.**



With this in mind, please answer a few questions on the next pages.

*Two-account manipulation*

Please think about your income.

Research shows that people can think of their present income and future income either as **two separate pools of money**or as **one combined pool of money,**as illustrated by the figures below:

****

**Please think about your present and future income as two separate pools of money, like the image on the left. This means that, when you think of your finances, you keep the income you will earn in the future separate from the income you earn at present.**

**Continue to think about the present and future in the following way:**

**Your present and future income are two separate pools of money.**

****

With this in mind, please answer a few questions on the next pages.

*Adjustment to future income scenarios*

Massage

A massage practice has opened in your neighborhood. They offer relaxing and wellness-enhancing treatments, such as hot stone or aroma massages. You are considering whether to spend on a massage.

Now, imagine that you knew that **your income will change two years in the future: it will either increase or decrease**. To what extent would such a future change in income **influence your decision**to spend on a massage **now?** (1 = not at all, 9 = very much)

Concert ticket

You just found out that there will be a concert of a new, popular group in your town. There are still tickets available; however, the only ones still available are in the more expensive seat categories. You are considering whether to buy a ticket to this concert.

Now, imagine that you knew that your **income will change two years in the future: it will either increase or decrease**. To what extent would such a future change in income **influence your decision**to spend on a concert ticket**now?** (1 = not at all, 9 = very much)

## Study 3

*Future-income-decrease manipulation*

Imagine that you know for sure that **your income will remain the same that it is at the moment for the next three years, but it will decrease significantly at that point.** This means that you will have to live on a tight budget a few years in the future.

After paying for necessities, you will not have much money left in the future. You will have to make significant trade-offs, in the sense that spending on one thing will mean there is less money left for other things.

*No-income-change manipulation*

Imagine that you know for sure that **your current income will remain stable, i.e. it will neither decrease nor increase, in the foreseeable future**.

This means that you will have the same budget available in the foreseeable future as you do now, and will be able to afford the same things in the future that you can afford at the moment.

*Future-income-increase manipulation*

Imagine that you know for sure that **your income will remain the same it is at the moment for the next three years, but it will increase significantly at that point**. This means that you will have no significant budget constraints a few years in the future.

After paying for necessities, you will have a lot of money left in the future to live pretty much the way you like. Even when you buy what you want in your daily life, you will not really have to worry about running out of money for other things.

*High-self-continuity / Future-income-decrease manipulation*

Please **take some time to picture yourself a few years in the future, living with stronger financial constraints. Visualize what it would be like to live in this way in the future.**

For example, imagine that your future living conditions will be like what you see in the pictures below.

|  |
| --- |
| The building you will live in in the future |
| A tall building in a city  Description automatically generated |
| Your hallway in the future |
| A large empty room  Description automatically generated |
| Your bedroom in the future |
| A bedroom with a bed and a window  Description automatically generated |

*High-self-continuity / No-income-change manipulation*

Please **take some time to picture yourself a few years in the future, living in the same financial circumstances you are in now. Visualize what it would be like to live the same way in the future as you currently live.**

For example, imagine that your future living conditions will be similar to what they are at the moment, and picture them in your mind (e.g., the building in which you live; your apartment).

*High-self-continuity / Future-income-increase manipulation*

Please **take some time to picture yourself a few years in the future, living practically without financial constraints. Visualize what it would be like to live in this way in the future.**

For example, imagine that your future living conditions will be like what you see in the pictures below.

|  |
| --- |
| The building you will live in in the future |
| A large building  Description automatically generated |
| Your hallway in the future |
| A large room  Description automatically generated |
| Your bedroom in the future |
| A bedroom with a large window  Description automatically generated |

*Discretionary spending scenarios*

You will now be presented with different experiences and products, and you will be asked to answer questions relating to them.

Imagine that you are faced with these decisions **now**, i.e. in your current financial situation. **While responding to these scenarios, continue to imagine that you expect your income to decrease [stay the same size; increase] significantly three years in the future.**

Taxi ride

You are at a friend’s house until late at night. When you leave, you realize that regular public transportation is not running anymore. Night buses would take you more than an hour to get home. Instead, you could take a taxi for about $25, which would be much faster.

How likely would you be to take a taxi? (1 = not at all likely, 9 = extremely likely)

Concert ticket

You just found out that there will be a concert of a new, popular group in your town. There are still tickets available; however, the only ones still available are in the more expensive seat categories.

How likely would you be to buy a ticket to this particular concert? (1 = not at all likely, 9 = extremely likely)

Massage

A massage practice has opened in your neighborhood. They offer relaxing and wellness-enhancing treatments, such as hot stone or aroma massages.

How likely would you be to get a massage now? (1 = not at all likely, 9 = extremely likely)

*Future discretionary spending scenarios*

Participants saw one out of the same three scenarios (taxi ride, concert ticket or massage) again, and rated their likelihood to make the same purchase four years in the future.

## Study 4

*High-self-continuity manipulation*

Day-to-day life events change appreciably throughout adult life, but what does not change significantly is a person’s core identity, such as your personality traits, major likes and dislikes, beliefs and values. Many of the characteristics that make you the person you are now, are likely to remain the same over the years.

Several studies conducted with adults over the course of their adult life have shown that the traits that make up personal identity remain remarkably stable.

Please think about and briefly describe **one or two such aspects of your identity—specifically, aspects of your identity that may be the same a few years from now as they are at present**.

*Future-income-decrease manipulation*

Imagine that you know for sure that **your income will remain the same it is at present for the next three years.**

You further know for sure that **three years from now your income will decrease significantly**, and it will remain low for the foreseeable future after that. This means that starting three years from now, you will earn significantly less money than you earn now. After paying for necessities, you will not have much money left in the future. You will have to make significant trade-offs, in the sense that spending on one thing will mean there is less money left for other things.

*No-income-change manipulation*

Imagine that you know for sure that **your income will remain the same it is at present for the next three years.**

You further know for sure that **your income will also remain similar for the foreseeable future after that**. This means that three years from now and beyond that, you will earn a similar amount of money as you earn now. You will have a similar budget available in the future as you do now, and will be able to afford pretty much the same things that you can afford at the moment.

*Future-income-increase manipulation*

Imagine that you know for sure that **your income will remain the same it is at present for the next three years.**

You further know for sure that **three years from now your income will increase significantly**, and it will remain high for the foreseeable future after that. This means that starting three years from now, you will earn significantly more money than you earn now. After paying for necessities, you will have a lot of money left in the future to live pretty much the way you like. Even when you buy what you want in your daily life, you will not really have to worry about running out of money for other things.

*Discretionary spending scenarios*

You will now be presented with different experiences and products, and you will be asked to answer questions relating to them.

You will now be presented with different experiences and products, and you will be asked questions relating to them.

Imagine that you are faced with these options **today**.

Continue to imagine that you know your income will remain the same it is now for the next three years, but will decrease significantly [and will also remain similar after that; but will increase significantly] three years from now.

Specialty coffee or tea drink

Every day, you pass by a specialty coffee and tea shop. It offers drinks with a variety of nice flavors. The coffee and tea are of particularly high quality and exotic origin and accordingly, the drinks are more pricey than regular coffee and tea.

How likely would you be to buy a coffee or tea drink there? (1 = not at all likely, 9 = extremely likely)

Massage

A massage practice has opened in your neighborhood. They offer relaxing and wellness-enhancing treatments, such as hot stone or aroma massages.

How likely would you be to get yourself a massage? (1 = not at all likely, 9 = extremely likely)

Concert ticket

You just found out that there will be a concert of a new, popular group in your town. There are still tickets available; however, the only ones still available are in the more expensive seat categories.

How likely would you be to buy a ticket to this concert? (1 = not at all likely, 9 = extremely likely)

## Study 5

*High-self-continuity manipulation*

Think about yourself – your character and identity. Day-to-day life events change appreciably throughout adult life, but what does not change significantly is a person’s core identity, such as your personality traits, major likes and dislikes, beliefs and values. Many of the characteristics that make you the person you are now are likely to remain the same over the years. Several studies conducted with adults over the course of their adult life have shown that the traits that make up personal identity remain remarkably stable. Please think about and briefly describe one or two such aspects of your identity - specifically, aspects of your identity that may be the same a few years from now as they are at present.

*One-account manipulation*

Please think about your income. Research shows that people can think of their present income and future income either as **two separate pools of money**or as **one combined pool of money,**as illustrated by the figures below:



**Please think about your present and future income as one combined pool of money, like the image on the right. This means that, when you think of your finances, you combine the income you earn in the future with the income you earn at present.**

*Two-account manipulation*

Please think about your income. Research shows that people can think of their present income and future income either as **two separate pools of money**or as **one combined pool of money,**as illustrated by the figures below:



**Please think about your present and future income as two separate pools of money, like the image on the left. This means that, when you think of your finances, you keep the income you will earn in the future separate from the income you earn at present.**

*High-self-continuity / One-account manipulation*

**Continue to think about the present and future in the following way:**

* **Your core identity is likely to remain stable.**
* **Your present and future income are one combined pool of money.**

**

*High-self-continuity / Two-account manipulation*

**Continue to think of the present and future in the following way:**

* **Your core identity is likely to remain stable.**
* **Your present and future income are two separate pools of money.**



*High-self-continuity / No-account manipulation*

**Continue to think about the present and future in the following way:**

* **Your core identity is likely to remain stable.**

*Control / One-account manipulation*

**Continue to think about the present and future in the following way:**

* **Your present and future income are one combined pool of money.**

**

*Control / Two-account manipulation*

**Continue to think about the present and future in the following way:**

* **Your present and future income are two separate pools of money.**

**

*Future-income-increase scenario (all conditions)*

Now, imagine that you know for certain that **your income will remain the same as it is at the moment for the next three years.** You further know for certain that **in three years, your income will increase significantly**, and it will remain high after that. This means that starting three years from now, after paying for necessities, you will have a lot of money left to live pretty much the way you like. With this in mind, please answer a few questions on the next pages. Imagine that you are faced with these decisions today.

[When answering these questions, please assume a world without COVID-19.]

*Discretionary spending scenarios*

Massage

A massage practice has opened in your neighborhood. They offer relaxing and wellness-enhancing treatments, such as hot stone or aroma massages.

How likely would you be to get yourself a massage? (1 = not at all likely, 9 = extremely likely)

Concert ticket

You just found out that there will be a concert of a new, popular group in your town. There are still tickets available; however, the only ones still available are in the more expensive seat categories.

How likely would you be to buy a ticket to this concert? (1 = not at all likely, 9 = extremely likely)

# Additional Studies Not Reported in the Main Manuscript

Materials of these studies are available from the authors upon request.

## Study WA1

This study provides a conceptual replication of Study 1 and tested to what extent consumers adjust present discretionary spending to future income decreases and increases.

Participants

One hundred twenty-two Amazon Mechanical Turk (MTurk) workers located in the US completed the study for monetary compensation. Four participants failed the attention check and were excluded from the analyses. This left 118 participants in the final sample: 43.2% were female and 56.8% were male (Mage = 33.29, SD = 10.43, range: 19–68).

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; the study originally included three additional conditions discussed in a separate section). Participants imagined a significant income decrease or increase, or no income change 3 years in the future.

Participants then read six scenarios involving a decision to spend on discretionary purchases—specialty coffee, designer sweater, taxi ride, laptop, concert ticket, massage—and reported their likelihood of making each purchase on 9-point scales (1 = not at all, 9 = very much), which we averaged across the six purchases (α = .75). Last, participants completed some additional measures and demographic questions.

Results

We conducted a one-factor analysis of variance (ANOVA) to examine the effect of future income on the likelihood of engaging in present spending. The ANOVA revealed a marginally significant main effect (F(2, 115)  = 2.868, p = .061, η2 = .048). Contrast analyses showed that participants anticipating a future income decrease (M = 3.10, SD = 1.64) were less likely to make the discretionary purchases than participants expecting no income change (M = 3.90, SD = 1.43; F(1, 115) = 4.850, p = .030, d = 0.41). By contrast, participants anticipating a future income increase (M = 3.80, SD = 1.71) were no more likely to make the discretionary purchases than participants expecting no change (F(1, 115) = .087, p = .769).

Additional conditions. We collected data for three further conditions in which we induced high self-continuity in addition to the income-change manipulation. The test power of the interaction was low; hence, we reran the full 2×3 design with a larger sample size (current studies 3 and 4). We report the full results pattern of Study WA1 including the additional conditions below. Note that the results pattern is parallel to that observed in studies 3 and 4.

|  |
| --- |
| Descriptive Statistics |
| Dependent Variable: Likelihood of buying |
| Self-continuity | Income | Mean | Std. Deviation | N |
| Control | Decrease | 3.1042 | 1.64329 | 40 |
| No change | 3.8974 | 1.43301 | 39 |
| Increase | 3.7906 | 1.71155 | 39 |
| Total | 3.5932 | 1.62608 | 118 |
| High self-continuity | Decrease | 2.7000 | 1.29935 | 40 |
| No change | 3.3740 | 1.53965 | 41 |
| Increase | 4.0610 | 1.63204 | 41 |
| Total | 3.3839 | 1.58692 | 122 |
| Total | Decrease | 2.9021 | 1.48591 | 80 |
| No change | 3.6292 | 1.50245 | 80 |
| Increase | 3.9292 | 1.66620 | 80 |
| Total | 3.4868 | 1.60635 | 240 |

|  |  |
| --- | --- |
| Tests of Between-Subjects Effects |  |
| Dependent Variable: Scale\_likely\_buy |  |
| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | Partial Eta Squared | Noncent. Parameter | Observed power |
| Corrected Model | 54.833a | 5 | 10.967 | 4.567 | <.001 | .089 | 22.836 | .972 |
| Intercept | 2918.423 | 1 | 2918.423 | 1215.414 | <.001 | .839 | 1215.414 | 1.000 |
| Self-continuity | 2.879 | 1 | 2.879 | 1.199 | .275 | .005 | 1.199 | .193 |
| Income  | 44.531 | 2 | 22.266 | 9.273 | <.001 | .073 | 18.546 | .977 |
| Self-continuity \* Income | 7.325 | 2 | 3.663 | 1.525 | .220 | .013 | 3.051 | .323 |
| Error | 561.875 | 234 | 2.401 |  |  |  |  |  |
| Total | 3534.583 | 240 |  |  |  |  |  |  |
| Corrected Total | 616.708 | 239 |  |  |  |  |  |  |

We conducted a further conceptual replication of the asymmetry; details and results of this study are available from the authors upon request.

## Study WA2

The purpose of this study was to replicate the effect of self-continuity on mental accounts observed in Study 2B using a different manipulation: trait stability.

Participants

One thousand-eight MTurk workers took part in this online study (1083 started the survey; 22 failed the attention check; 53 dropped out).

Method

All participants were first asked to think of the income they earned at present and the income they would earn a few years in the future. Participants in the high-self-continuity condition were administered a trait-stability manipulation—they read a paragraph stating that a person’s core identity is stable over time and wrote about two aspects of their own identity that they believed were stable (Bartels & Urminsky, 2011)—whereas those in the control condition were not. All participants were then presented the same instructions and scale used in Study 2B to describe and measure mental accounting of present and future income.

Results

As expected, participants in the high-self-continuity condition were more likely to view their present and future income as one single combined account than those in the control condition (Mhigh-self-continuity = 3.73, SD = 3.34 vs. Mcontrol = 3.43, SD = 2.20; t(1006) = 2.069, p = .039, d = .13).

## Study WA3

The purpose of this study was to replicate the main finding of studies 3 and 4—that enhancing self-continuity facilitates adjustment to a future income increase—in the context of naturally occurring changes in income and a real discretionary spending choice. In this study we induced lower or higher self-continuity among a sample of students and asked them to indicate their anticipated income 3 years after graduation. We expected that students would anticipate income increases, although these increases would vary in size. In line with our theorizing and past results, after inducing lower self-continuity, a higher compared with lower future income should have little or no impact on present discretionary spending. However, after inducing higher self-continuity, higher future income should be associated with more discretionary present spending.

Participants

One hundred forty-eight student participants recruited on Prolific completed the study. The study description stated that only students were allowed to participate; participants were prescreened and only students were retained in the sample. Thirteen failed the attention check and were excluded from the analyses. Finally, we excluded one participant who failed to complete one of the main dependent measures; retaining this participant in the sample does not substantially change any of the results. Of the 133 remaining participants, 47.4% were female and 52.6% were male (Mage = 24.17, SD = 6.16, range: 18–50).

Method

This study used a continuous (future income) × 2 (self-continuity: low vs. high) design. Participants were assigned to either a low- or high-self-continuity condition. A measure of expected future income constituted the second, continuous factor.

As in Study 4, we used a trait-stability manipulation of self-continuity; the main difference was that we referred to changes in traits (low self-continuity) or stability of traits (high self-continuity) around the time of university graduation. On the next page, participants answered some demographic questions, including measures of present and future income. Specifically, the instructions stated: “Discretionary money is the money that you have to spend freely. An important component that increases discretionary money is personal income. Please answer the following questions about your personal income.” Participants then indicated their current personal income as well as the income they expected to have 3 years after university graduation (each on a scale from less than £800 to more than £4,000, with intermediate categories and with amounts indicated also in euros and US dollars).

Next, ostensibly for an unrelated study, participants were presented with five purchase choices. As in Study 4, each purchase choice was between a basic option and a discretionary option (shower gel, shirt, haircut, ready-made lunch, train ticket; α = .54), and participants indicated which option they would choose in each situation using 9-point scales. A factor analysis revealed two factors with Eigenvalues > 1; the second factor just exceeded that threshold, Eigenvalue = 1.026. The second factor primarily captured the train ticket item. Dropping this item resulted in one factor and did not meaningfully alter any of the reported effects in the following analyses, which include this item.

Next, participants were told that they would be entered into a lottery for a £40 gift card and were asked to indicate whether they would prefer to receive a gift card for groceries, usually perceived as a necessity, or for a massage, usually perceived as discretionary (Kivetz & Simonson, 2002). We presented this lottery as a token of appreciation for study participation, but it constituted our second dependent measure.

Participants also rated how much discretionary money they expected to have 3 years after graduation, compared with now, on an 11-point scale (−5 = will have much less discretionary money; +5 = will have much more discretionary money).

Results

We recoded income so that each participant was assigned the mean value of the category they selected. The lowest income category was coded as £600, and the highest income category was coded as £5,000. The median of present income was in the lowest category (below £800). The median of future income was in the £2,001–£2,500 category. One participant expected future income to be lower than present income, three participants expected future income to be equal to present income, and the remaining 129 expected income increases of different sizes. The size of expected future income was positively correlated with participants’ beliefs about how much more discretionary money they would have after graduation compared with now (M = 3.10, SD = 1.89); r(133) = .319, p < .001.

Discretionary purchases. We predicted that when self-continuity is low, the future income change would not influence the likelihood of purchasing the discretionary options, but that when self-continuity is high, the larger increase in future income would be associated with a higher likelihood of doing so. To test this prediction, we conducted a regression analysis including the continuous measure of present income (as a control variable), the continuous measure of future income, self-continuity (low-self continuity = 0; high-self continuity = 1), and their interaction between future income and self-continuity as predictors, and the likelihood of purchasing the discretionary options as the outcome variable. As expected, we observed a significant interaction (t = 2.2039, p = .029): in the low-self-continuity condition, future income did not affect the present likelihood of purchasing the discretionary options (b = −.0001, SE = .001, t = −.4134, p = .680; 95% CI = [−.003, .002]). By contrast, in the high-self-continuity condition, higher future income was positively related to the likelihood of purchasing the discretionary options at present (b = .0004, SE = .001, t = 2.611, p = .010; 95% CI = [.0001, .0007]).

Choice of gift card. One hundred eighteen participants preferred a groceries gift card, 15 preferred a massage gift card, and one value was missing. To test the effect of the independent variables on the likelihood of choosing the gift voucher for a massage over the grocery store credit, we regressed the binary choice variable on self-continuity, present income (as a control variable), future income, and the interaction of self-continuity and future income. The interaction was not significant (z = 1.511, p = .13). We nevertheless tested our specific predictions that future income would be associated with higher likelihood of choosing the massage over the groceries voucher. In line with this expectation, in the low-self-continuity condition, expected future income did not predict choice of the massage over the grocery gift card (z = .615, p = .539, 95% CI = [−.0004, .0008]), whereas in the high-self-continuity condition, higher future income was associated with a higher likelihood of choosing the massage gift card (z = 2.726, p = .006, 95% CI = [.0002, .0014]).

## Study WA4

The purpose of Study WA4 was to examine a potential alternative mechanism by which our manipulation of one single mental account (as compared to two separate mental accounts) may have increased spending in Study 5. Specifically, participants may have perceived the pool to be larger in the image representing one-account compared to the image representing two accounts; as a result, participants in the one-account condition may have felt imbued with more money than participants in the two-account condition. To test for this potential account, we conducted a post-test in which we presented the instructions from Study 5 and measured perceived total (present and future) income.

Participants

Three hundred ninety-six Prolific workers took part in this online study (403 began the survey; five failed the attention check; two dropped out).

Method

Participants were presented with the same mental-account manipulations (one account vs. two accounts) from Study 5. All participants read the same scenario about a future income increase as in Study 5. As dependent measure, participants rated the size of their total income (“My total income over time (i.e. present and future income added together) is…”) on a 7-point scale (1 =*very small*; 7 =*very large*).

Results

Participants in the one-account condition perceived their total income to be of the same size as that of participants in the two-account condition (*M*one-account = 5.32, *SD* = 1.23 vs. *M*two-accounts = 5.16, *SD* = 1.31; *t*(394) = 1.224, *p =*.222, *d* = .12), ruling out the alternative account.

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