Poor People, Poor Accounting?

Mental Accounting and the Scarcity Mindset

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Abstract

Having too little money can make individuals behave in irrational ways, because of the 'scarcity mindset' it induces. Because of the lack of money, the poor are often more restrained to a budget and need to avoid overspending. A common way to avoid overspending is the application of mental accounting strategies, which means that individuals link money to specific mental accounts and decreases the interchangeability of money. A total of 163 participants were recruited for a 2 x 2 between subjects design with the independent variables scarcity mindset (low vs. high) and mental accounting (yes vs. no). The scarcity mindset and application of mental accounting strategies were induced by presenting different scenarios and questions regarding the scenarios. It was predicted that individuals induced with a scarcity mindset and the application of mental accounting strategies are more likely to make bad financial decisions than individuals who are not induced with a scarcity mindset and the application of mental accounting strategies. This research shows that individuals with a scarcity mindset show less characteristics of pain of paying and more focus on the bigger financial setbacks. Individuals induced with the mental accounting effect are more likely to borrow and decouple a payment. No interaction effects were found.

Keywords: scarcity mindset, mental accounting

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According to the website of the Legatum Prosperity Index (https://www.prosperity.com) the Netherlands are ranked sixth of a total of 149 countries in terms of prosperity. Still, the Dutch Institute for Social Research (SCP) found that a staggering 378,000 children lived in poverty in 2014 (Hoff, Wildeboer Schut, Goderis, & Vrooman, 2016). The Center for Big data Statistics (CBS) found that in 2016 590,000 households had to make ends meet with a low income and these numbers are slowly but steadily increasing over the years (Akkermans et al., 2018). The financial crisis of 2008 tackled many households financially and it made many households to tighten their budgets.

Avoiding overspending and holding on to a budget is necessary to make ends meet, particularly to individuals with a low income and probably even more for individuals living in poverty. Although not fully rational, a common technique to avoid overspending is making use of the mental accounting principle. The mental accounting principle was first mentioned by Thaler (1980, 1985) and suggests that individuals create mental accounts, which form psychological bonds between specific consumptions and payments. This means that individuals have a tendency to label their income into different mental accounts, and these labels influence the spending behaviour of these individuals (Raghubir & Srivastava, 2008). Kahneman and Tversky (1984) illustrated this influence in their research by presenting their participants two scenarios. At the first scenario presented in their research, Kahneman and Tversky (1984) wanted participants to imagine a situation where they have bought a ticket to see a play at the theatre, only to discover at the theatre that they have lost the ticket. The ticket had cost $10. Then the participants were asked if they would buy a new ticket to see the play. The results were ambiguous, as a slight majority (54%) decided not to buy a new ticket to see the play. However, when a second scenario is presented, a remarkable different result is

observed. The second scenario contained different wording than the first problem, but the exact same monetary outcome. In this case the participants were asked to imagine a situation where they have decided to see a play, which costs $10 per ticket. When arriving at the theatre, they discover that they have lost a $10 bill. When the participants were asked if they would still buy a ticket to see the play, the participants' preference was much clearer. A vast majority (88%) of the participants decided to buy a ticket to see the play.

Thus, as shown by the scenarios of Kahneman and Tversky (1984), individuals create mental accounts and avoid to exceed those mental accounts. This suggests that individuals prefer to stay in certain mental budgets, also when resources are not limited. Therefore the results may suggest that individuals living with limited financial resources are more likely to apply mental accounting strategies than the individuals who do not have to worry about making ends meet, as individuals with a low income are already more constrained to their budget and stick tight to it to avoid overspending (Pennings, van Ittersum, & Wansink, 2005).

However, living with limited resources does not create a better ability to handle one's finances, as poverty induces a so called 'scarcity mindset'. A scarcity mindset is induced when an individual has the experience of having less or not enough of something, which can for example be money, time or food (Shah, Mullainathan & Shafir, 2012). Having less of something makes some expenses feel more salient, and creates a focus on those expenses and prompts irrational behaviour (Shah et al., 2012). Individuals with a scarcity mindset tend to make poor decisions, such like: gambling, saving too little, borrowing too much, tend to forego small profitable investments, use less preventive health care, are less productive, are less attentive parents, and bad at managing their finances (Bernheim, Ray, & Yeltekin, 2015; Mani, Mullainathan, Shafir & Zhao, 2013; Shah et al., 2012). Also, individuals in a scarcity mindset seem to look for the economic or monetary aspect of an experience, even when this does not seem to be about money at all to others (Shah, Zhao, Mullainathan, & Shafir, 2018).

Some of these worrisome consequences are due to a decrease in self-control (Vohs, 2013), which in turn is caused by a decrease in cognitive capacity. Living in conditions where resources are scarce, individuals experience a decrease in cognitive capacity (Mani et al., 2013; Vohs, 2013) because of the limited capacity of one's working memory.

Yet, poverty can have positive effects. Individuals in the scarcity mindset are more empathy-oriented and tend to act more prosocial (Kraus, Piff, Mendoza-Denton, Rheinschmidt & Keltner, 2012). Where the scarcity mindset thwarts cognitive capacity of the working memory, it stimulates functions depending on procedural learning processes (Dang et al., 2016). In addition, a scarcity mindset makes an individual more focused on one particular aspect, typically on the aspect that is most relevant at that moment (Shah et al., 2012). However, with the positive effect of being able to focus more also comes a negative effect. The decrease of cognitive capacity means that the focus an individual has on one aspect (e.g., important expenses like next month's rent and health insurance) is at the expense of other aspects (e.g., seemingly less important expenses like home maintenance). In the examples described above, the positive effect of the scarcity mindset is that the focus of the individual will help to save up money for the larger financial payments, such as the rent. The negative effect is that when an individual neglects home maintenance, little repairs pile up and become a big project (Shah et al., 2012). Therefore, the intensified focus the scarcity mindset induces can be positive for (relatively) short-term problems, and can therefore be negative for long-term problems. Thus, being in a scarcity mindset can cause more financial difficulties in a poor individual's life, which puts them in a vicious cycle of bad financial decisions and becoming more stuck in poverty. To change this vicious cycle, it is important to get a better understanding of why individuals living in poverty are prone to make bad financial decisions and if the application of mental accounting strategies has an influence on that.

Mental Accounting and the Scarcity Mindset

The two problems mentioned above show that spending behaviour is influenced by the state of the mental account, depending on a surplus or a deficit in the mental account. When a mental account is in a deficit, the money reserved for that particular consumption in that mental account is already spent. When a mental account is in a surplus, there is still money in that mental account and can be spent to the consumption the mental account was intended for. This can explain why the participants were not as unanimous in answering the first scenario as they were at answering the second problem. In the first case participants seemed to feel that by buying another ticket their 'mental account for theatre tickets' would end up in a deficit. However, the money lost in the second case was not linked to the 'mental account for theatre tickets', so buying a theatre ticket probably would not end up in a deficit in that account. Depending on the state of the mental account, an act of consumption can cause pain or pleasure (Prelec & Loewenstein, 1998). Mental accounting shows that individuals use their money differently, depending on how it is categorized. Once money is connected to a mental account, money in one category cannot simply substitute money in another category (Kahneman & Tversky, 1984). Money is therefore not fungible or interchangeable (Thaler, 1999).

Raghubir and Srivastava (2008) suggest that mental accounting helps to make financial decision making simpler and that it is an assistance in making trade-offs between different acts of spending. For individuals with the scarcity mindset, making these trade-offs is particularly difficult. Besides a decrease in cognitive capacity, scarcity also causes certain trade-offs to be more difficult and makes opportunity costs more salient (Boyce-Jacino, 2017). Bertrand, Mullainathan, and Shafir (2006) state that this salience is caused by the strict budgets of the poor individuals, which leave no room for error. This means that the same bad

financial decision can have a relatively bigger impact for the poor individual compared to the rich individual (Plantinga, Krijnen, Zeelenberg, & Breugelmans, 2018).

Hence, poor people tend to be more aware of opportunity costs and trade-offs. These findings make it hard to rationalize why scarcity induced individuals tend to borrow too much (Shah et al., 2012), as borrowing also includes opportunity costs and the need to make a trade-off in the future. Mani et al. (2013) found that scarcity decreases an individual's cognitive function by taking up much space from the working memory, and the findings of Shah et al. (2012) support this suggestion by stating that inducing scarcity makes an individual more focused on the most relevant aspect at that moment. These findings suggest that individuals in a scarcity mindset focus on the trade-off at that moment, but not consider the opportunity costs in the future. This can be explained by Thaler (1999), who found that individuals living with a lower income also tend to have shorter budgets, such as weekly budgets or monthly budgets. The richer individuals tend to have budgets over longer periods, such as annual budgets.

Only seeing the consequences of borrowing in the present and not considering the opportunity costs of borrowing in the future can be due to the difference in scope of the mental account in the scarcity mindset. The scope of the mental account addresses to the precise benefits and expenses that comprise a mental account (Soman & Ahn, 2011). Thaler (1999) stated that in the case of a scarcity mindset the scope seems to have a narrow frame, which means that a certain financial decision is made by only considering that day or week rather than considering the mental account of the whole month or year. For example, when an individual stays under budget a certain week, it is more likely to be spend that same week (i.e., considering weekly mental account) than put on a savings account (i.e., considering monthly or annual mental account).

Prelec and Loewenstein (1998) found that every payment causes pain of paying. Pain of paying helps individuals to control spending, and prevents chronic overspending. With a low income, the trade-offs that have to be made are extra difficult and increase the pain of paying. When the experienced pain of paying is high, individuals tend to decouple the payment from consumption. The degree of coupling is important for experiencing benefits from mental accounting. When the link between consumption and cost is ambiguous, the pain of paying will be decreased and the heightened focus mental accounting brings will also be decreased (Prelec & Loewenstein, 1998). This suggests that individuals with a scarcity mindset have to choose between a high pain of paying and precise accounting and low pain of paying and imprecise accounting.

Current Research

The main question examined in this research is to which extent the combination of the scarcity mindset and the application of mental accounting strategies influence financial decision making. Mental accounting helps avoiding overspending and the scarcity mindset induces individuals to borrow more, partly caused by the narrow scope of their mental budget. In addition, exceeding a mental account causes displeasure. Consequently, an individual induced with a scarcity mindset and the application of mental accounting strategies will be more inclined to exceed their mental account. It is therefore hypothesized that individuals with a scarcity mindset and the application of mental accounting strategies will be more likely to choose a payment method, which will not exceed the mental account than individuals not induced with a scarcity mindset and/or the application of mental accounting strategies; even if that means that the individual will have to borrow.

The scarcity mindset induces the pain of paying, so it is more likely that an individual induced with the scarcity mindset will be more annoyed by the loss of money and experience payments as relatively higher. Additionally, the individual will decouple his payment which

creates an ambiguous link between payment and consumption and decreases the pain of paying.

H1: Individuals induced with a scarcity mindset are more likely (a) to buy a (new) theatre ticket after losing money (or a theatre ticket), (b) to be annoyed by the loss of the ticket (or money), (c) to experience the price of the ticket as relatively higher and (d) to borrow and decouple the payment of a consumption than individuals who are not induced with a scarcity mindset.

H2: Individuals induced with the application of mental accounting strategies are less likely (a) to buy a new ticket to see the play at the theatre after losing the theatre ticket and (b) to borrow and decouple the payment of a consumption, but more likely (c) to be annoyed by the loss of the theatre ticket and (d) to experience the price of the new ticket as relatively higher than individuals who are not induced with the application of mental accounting strategies.

H3: Individuals induced with a scarcity mindset and the application of mental accounting strategies are less likely (a) to buy a new ticket after losing a theatre ticket, but more likely (b) to be annoyed by the loss of the theatre ticket, (c) to experience the price of the new ticket as relatively higher and (d) to borrow and decouple the payment of a consumption than individuals not induced with a scarcity mindset and the application of mental accounting strategies.

Method

Research Design

The data was collected for a 2 x 2 between subjects factorial design. The independent variables were scarcity mindset (high/low) and mental accounting (yes/no). The dependent variables were likeliness of going to the play, degree of annoyance of the loss, the degree to

which they thought they were paying too much, and the attractiveness of the four financing options (i.e., pay full amount, pay monthly amount with interest, pay weekly amount with interest, don't buy smartphone) of the borrowing and decoupling scenario.

Participants

A total of 163 participants (30% male, 68% female and 2% rather not say) were recruited online via convenience sampling. The survey was conducted in English (n = 21) and in Dutch (n = 142). The age of the participants ranged from 20 years old to 64 years old (M = 31.9, SD = 12.3). Two participants failed to respond to all the items and their data was not included in the analyses. The majority of the participants recruited was highly educated, which means they have a Bachelor's degree or higher (n = 131). The remaining participants completed high school (n = 19) and intermediate vocational education (n = 11). The participants were mainly employed for wages (n = 77) or student (n = 79), and a few were unemployed (n = 3), self-employed (n = 1), or retired (n = 1). The participants were randomly assigned over the four conditions.

Materials and Procedure

Scarcity mindset. First, to induce the scarcity mindset the scenarios (2 x 4) created by Mani et al. (2013) were used (see Appendix A). Each participant is presented four scenarios, either four scenarios linked to the low scarcity mindset condition or four scenarios linked to the high scarcity mindset condition. The four scenarios linked to the low scarcity mindset condition represented relatively minor financial setbacks and were expected to induce no or a low scarcity mindset. The four scenarios linked to the high scarcity mindset condition represented bigger financial setbacks and were expected to induce a high scarcity mindset. At each scenario presented the participant was asked to imagine the financial setbacks represented, and to write down how the participant would feel or act when the scenario would

actually happen. The participant had at least one minute to write down their answers before continuing to the next scenario.

Manipulation check one. Then the first manipulation check question is asked (i.e.,"If I experienced any of the situations described before it would be a financial burden to me") to measure the effectiveness of the scarcity manipulation, which was answered on a 7-point scale ranging from 1 (*totally disagree*) to 7 (*totally agree*).

Mental accounting. Subsequently, the application of mental accounting principles were induced by 2 x 2 scenarios, two scenarios in the mental accounting condition and two scenarios in the no mental accounting condition.

Theatre ticket scenarios. The first two scenarios are the mental accounting scenarios by Kahneman and Tversky (1984), see Appendix B. The theatre ticket problem has an mental accounting condition (scenario A) or a no mental accounting condition (scenario B), where the framing of the financial decision that has to be made was different, but that has the exact same monetary outcome. Each participant is assigned to either the mental accounting condition or the no mental accounting condition. After reading the problem the participants answered questions regarding the problem, based on the research of Liu, Liu and Mu (2017). First was asked how likely it was that the participant would buy a (new) ticket on a 7-point scale ranging from 1 (*very unlikely*) to 7 (*very likely*). Second it was asked if the loss of the ticket (money) was annoying on a 7-point scale ranging from 1 (*not annoying at all*) to 7 (*very annoying*). Third it was asked if the (new) ticket was considered too expensive on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Borrowing and decoupling scenarios. Consequently, another two scenarios are presented, the borrowing and decoupling scenarios (see Appendix C). Likewise, the remaining two scenarios contain a mental accounting condition or a no mental accounting condition. The mental accounting condition of this scenario is linked to scenario A of the

Kahneman and Tversky (1984) theatre ticket scenarios. The no mental accounting condition of this scenario is linked to scenario B of the Kahneman and Tversky (1984) theatre ticket scenarios. Hence, if a participant was randomly assigned to scenario A of the theatre ticket scenario, the participant also was presented the mental accounting condition of the borrowing and decoupling scenario.

These scenarios describe a situation where a new smartphone has to be bought and four financing options are presented (i.e., pay full amount, pay monthly amount with interest, pay weekly amount with interest, don't buy smartphone). The participant is asked to determine the attractiveness of each financing option on a 7-point scale ranging from 1 (*not attractive at all*) to 7 (*very attractive*).These scenarios test the degree of coupling and the borrowing tendency of the participants. When the participant chooses one of the two borrowing options, the degree of desired decoupling was assessed. If the participant chooses the monthly option, the decoupling of payment is weak. If the participant chooses the weekly option, the decoupling of the payment is high.

Manipulation check two. Thereafter, the second manipulation check question was asked (i.e. "I have a high income compared to my peers") to measure the effectiveness of the scarcity manipulation, which was answered on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Demograpic questions. Lastly, questions regarding age, education and occupation were asked, see Appendix D.

Results

Manipulation check

To assess if the scarcity manipulation worked, the two manipulation check questions (i.e., degree of financial burden and subjective income) were asked. An independent samples t-test was conducted on both manipulation questions. The degree of financial burden question

was marginally significant for the low scarcity condition (M = 3.72, SD = 1.98) and the high scarcity condition (M = 4.25, SD = 1.90), $t(161) = -1.74$, $p = .083$. These results indicate that the participants in the high scarcity condition experienced the 'scarcity mindset' more than the participants in the low scarcity condition. Similarly, the subjective income question was marginally significant for the low scarcity condition (M = 4.15, SD = 1.56) and the high scarcity condition (M = 3.63, SD = 1.70), $t(139) = 1.86$, $p = .064$. These results indicate that the participants in the high scarcity condition experienced the 'scarcity mindset' more than the participants in the low scarcity condition (see Figure 1).

The correlation between the degree of the financial burden and subjective income was assessed. Results of the Pearson correlation indicated that there was a significant negative association between degree of the financial burden and subjective income, r (141) = -.323, $p < .001$. These results indicate that a higher experienced financial burden results in a lower subjective income, which indicates that the scarcity manipulation had an effect right after the manipulation and suggests the effect lasted until after the borrowing and decoupling scenarios were completed.

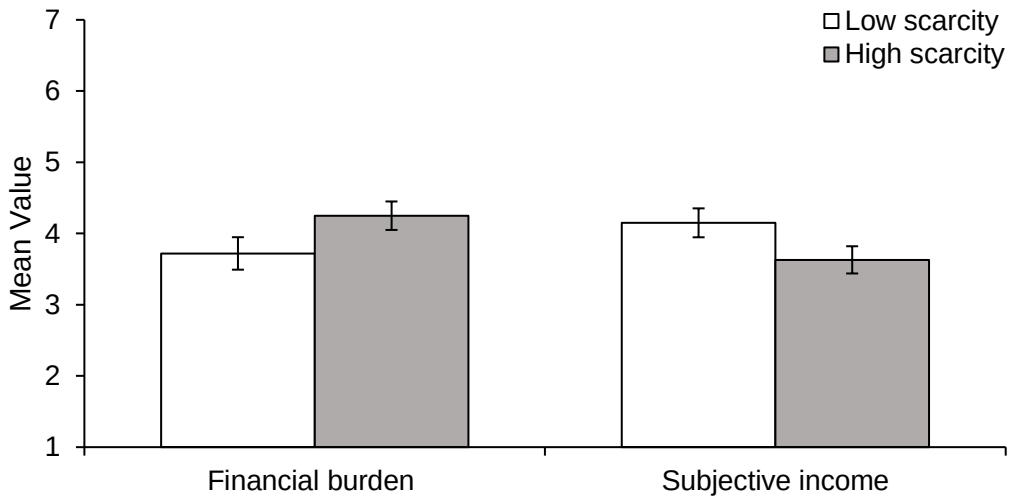

Figure 1. *Mean values of the manipulation check questions. Error bars denote one standard error around the mean.*

Going to see a play

Three separate two-way ANOVAs were run on the with the two independent variables – scarcity and mental accounting – and three dependent variables – the likeliness of buying a new ticket, the degree to which the loss was annoying, and the degree to which the new ticket was too expensive. See Figure 2 for the mean values of the three dependent variables.

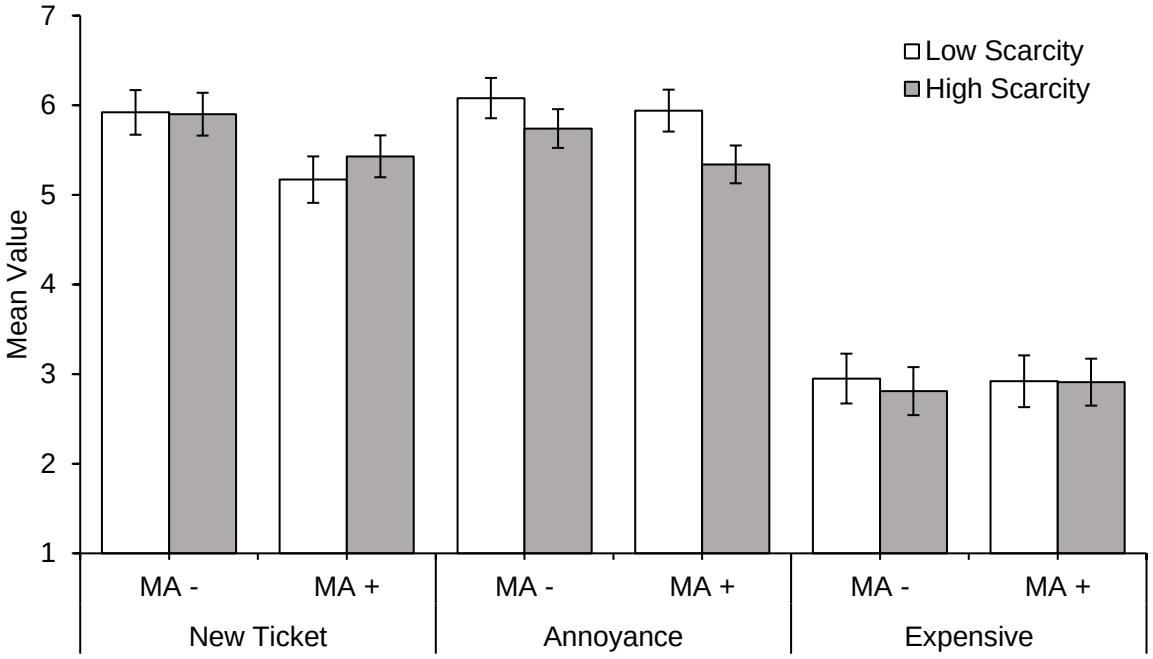

Figure 2. *Mean values of the likeliness of buying a (new) ticket, the degree to which the loss was annoying, and the degree to which the new ticket was too expensive per condition (i.e., no mental accounting (MA -) or mental accounting (MA +), and low scarcity or high scarcity). Error bars denote one standard error around the mean.*

Likeliness of buying a (new) ticket.

There was no statistically significant main effect of scarcity for the likeliness of buying a new ticket, $F(1, 157) = .25$, $p = .616$. A statistically significant main effect of mental accounting for the likeliness of buying a new ticket was found, $F(1, 157) = 6.28$, $p = .013$, partial $\eta^2 = .038$, which indicates that the participants in the mental accounting condition ($M = 5.30$, $SD = 0.17$) were less likely to buy a new ticket after losing the theatre ticket than the participants in the no mental accounting condition ($M = 5.91$, $SD = 0.17$). Similarly, it shows

that the application of mental accounting strategies was successfully induced by the theatre ticket scenario. There were no statistically significant interaction effect of scarcity and mental accounting on likeliness of buying a (new) ticket, $F(1, 157) = .33$, $p = .564$.

Annoyance of the loss.

There was a statistically significant main effect of scarcity for the level of annoyance of the loss, $F(1, 157) = 4.51$, $p = .035$, partial $\eta^2 = .028$. This indicates that the participants in the high scarcity condition ($M = 5.54$, $SD = 0.15$) were less annoyed at the loss of the ticket (or money) than the participants in the low scarcity condition ($M = 6.01$, $SD = 0.16$). No statistically significant main effect of mental accounting for the level of annoyance of the loss was found, $F(1, 157) = 1.43$, $p = .234$. Similarly, no significant interaction effect of scarcity and mental accounting on the level of annoyance of the loss was found, $F(1, 157) = .36$, $p = .551$.

Degree to which the (new) ticket was too expensive.

There was no statistically significant main effect of scarcity for the degree to which the (new) ticket was too expensive, $F(1, 157) = .07$, $p = .789$. No statistically significant main effect of mental accounting for the degree to which the new ticket was too expensive was found, $F(1, 157) = .15$, $p = .902$. Similarly, no significant interaction effect of scarcity and mental accounting on the degree to which the new ticket was too expensive was found, $F(1, 157) = .06$, $p = .811$. These results indicate that there was no difference in the degree to which the new ticket was considered too expensive between the conditions.

Summary.

Individuals in the low scarcity condition were more likely to be annoyed by the loss of the theatre ticket or money. However, individuals in the mental accounting condition were less likely to buy a new theatre ticket after losing the initial theatre ticket, which indicates that the application of mental accounting strategies was successfully induced by the theatre ticket

scenario. There was no difference found between the conditions to which the (new) ticket was considered too expensive.

Buying a new smartphone

Four separate two-way ANOVAs were run on the two independent variables – scarcity and mental accounting – and four dependent variables, namely the four different financing options of buying the smartphone (e.g., paying full amount, paying monthly, paying weekly, or don't buy the smartphone). See Figure 3 for the mean values of the four dependent variables.

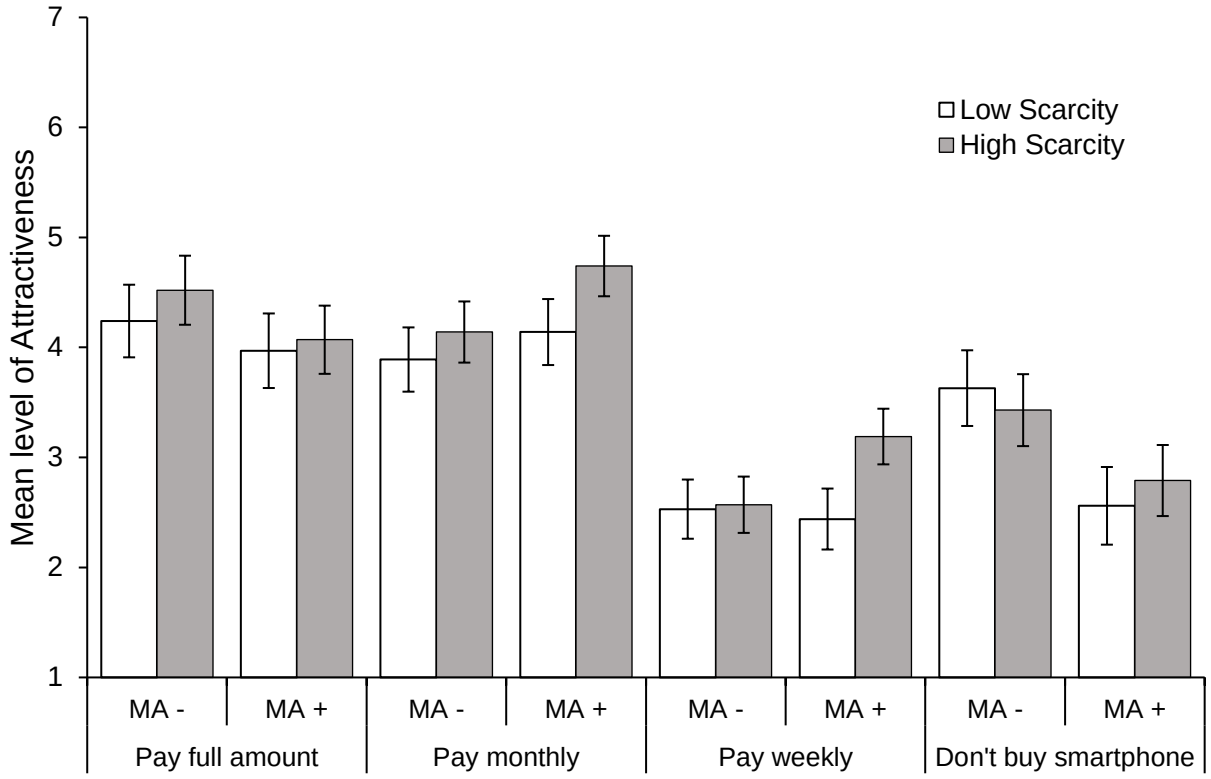

Figure 3. *Mean attractiveness of the four financing options (e.g., paying full amount, paying monthly, paying weekly and don't buy the smartphone) of buying the new smartphone expensive per condition (i.e., no mental accounting (MA -) or mental accounting (MA +), and low scarcity or high scarcity). Error bars denote one standard error around the mean.*

Option one: paying the full amount.

There was no statistically significant main effect of scarcity for the first financing option, $F(1, 157) = .27$, $p = .602$. No statistically significant main effect of mental accounting

for the first financing option was found, $F(1, 157) = 1.41$, $p = .237$. Similarly, no significant interaction effect of scarcity and mental accounting on the first financing option was found, $F(1, 157) = .13$, $p = .714$. These results indicate that there was no difference in the level to which the participants found the first financing option attractive between the different conditions.

Option two: paying monthly.

There was no statistically significant main effect of scarcity for the second financing option, $F(1, 157) = 2.21$, $p = .138$. No statistically significant main effect of mental accounting for the second financing option was found, $F(1, 157) = 2.18$, $p = .142$. Similarly, no significant interaction effect of scarcity and mental accounting on the second financing option was found, $F(1, 157) = .39$, $p = .534$. These results indicate that there was no difference in the level to which the participants found the second financing option attractive between the different conditions.

Option three: paying weekly.

There was no statistically significant main effect of scarcity for the third financing option, $F(1, 157) = 2.04$, $p = .155$. No statistically significant main effect of mental accounting for the third financing option was found, $F(1, 157) = .91$, $p = .343$. Similarly, no significant interaction effect of scarcity and mental accounting on the third financing option was found, $F(1, 157) = 2.54$, $p = .113$. These results indicate that there was no difference in the level to which the participants found the third financing option attractive between the different conditions.

Option four: don’t buy smartphone.

There was no statistically significant main effect of scarcity for the third financing option, $F(1, 157) = .00$, $p = .983$. A statistically significant main effect of mental accounting for the fourth financing option was found, $F(1, 157) = 6.69$, $p = .011$, partial $\eta^2 = .041$. This

result suggests that the participants in the mental accounting condition (M = 2.67, SD = 0.24) found the option of not to buy the smartphone less attractive than the participants in the no mental accounting condition (M = 3.53, SD = 0.24). No significant interaction effect of scarcity and mental accounting on the first financing option was found, $F(1, 157) = 2.54$, $p = .113$.

Summary.

There were no difference found in the attractiveness of the four financing options between the conditions, except for the option of not to buy the new smartphone. The individuals in the mental accounting condition found the option to not buy the new smartphone less attractive than the individuals in the no mental accounting condition.

Borrowing and Decoupling

A two-way ANOVA was conducted to examine the effects of scarcity and mental accounting on the degree of borrowing and decoupling. The main effect of scarcity was not statistically significant, $F(1, 155) = .64$, $p = .424$. The main effect of mental accounting was statistically significant, $F(1, 155) = 6.22$, $p = .014$, partial $\eta^2 = .039$ (see Figure 4). This result suggests that the participants in the mental accounting condition (M = 4.14, SD = 0.14) are more attracted to the financing options where borrowing and decoupling is included in the option than the participants in the no mental accounting condition (M = 3.66, SD = 0.13). The interaction effect between scarcity and mental accounting on borrowing and decoupling was not statistically significant, $F(1, 155) = .278$, $p = .599$.

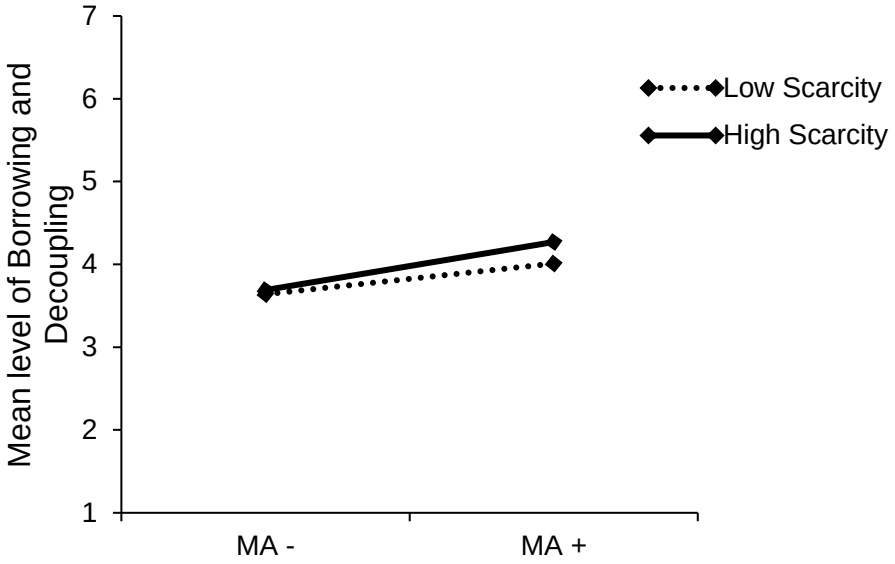

Figure 4. *The mean level of borrowing and decoupling per condition (i.e., no mental accounting (MA -) or mental accounting (MA +), and low scarcity or high scarcity).*

Discussion

In this research it was tested if individuals induced with a scarcity mindset and the application of mental accounting strategies would make different hypothetical financial decisions than individuals who are not.

This research predicted that individuals induced with a scarcity mindset are more likely to buy a (new) theatre ticket after losing money (or a theatre ticket), to be annoyed by the loss of the ticket (or money), to experience the price of the ticket as relatively higher and to borrow and decouple the payment of a consumption than individuals who are not induced with a scarcity mindset. None of the hypothesis were confirmed. The participants who were in the low scarcity condition were more annoyed by the loss than the participants in the high scarcity condition. In contrast to the prior expectations, this result suggests that the pain of paying is slightly higher for individuals who experienced a lower financial adversity than for individuals who experienced a higher financial adversity.

Furthermore, it was predicted that individuals induced with the application of mental accounting strategies are less likely to buy a new ticket to see the play at the theatre after losing the theatre ticket and to borrow and decouple the payment of a consumption, but more likely to be annoyed by the loss of the theatre ticket and to experience the price of the new ticket as relatively higher than individuals who are not induced with the application of mental accounting strategies. Similarly, none of the hypotheses were confirmed, except for the likeliness of buying a new ticket. The participants who were in the mental accounting condition were less likely to buy a new ticket after losing a ticket. These results are in line with the findings of Kahneman and Tversky (1984). This suggest the mental accounting manipulation worked and the participants were inclined to not exceed the 'theatre ticket'-mental account. Moreover, individuals who were induced with the application of mental accounting strategies were less attracted to the fourth financing option (i.e., don't buy smartphone) and more likely to borrow and decouple a payment than individuals who were not induced with the application of mental accounting strategies.

Present study also predicted that individuals induced with a scarcity mindset and the application of mental accounting strategies are less likely to buy a new ticket after losing a theatre ticket, but more likely to be annoyed by the loss of the theatre ticket, to experience the price of the new ticket as relatively higher and to borrow and decouple the payment of a consumption than individuals not induced with a scarcity mindset and the application of mental accounting strategies. Nonetheless, none of the interaction hypotheses were confirmed.

Pain of Paying

This research suggests that individuals who are not induced with a scarcity mindset are more likely to be annoyed by the loss of money or a theatre ticket, which therefore suggests that these individuals experience a higher pain of paying. This could be explained by the loss aversion theory (Kahneman & Tversky, 1984). In the current research, the participants in the

high scarcity condition already experienced excessive losses (e.g., paying €2000 due to an unforeseen event), and this postulates that another loss of ten euros is a relative small additional loss. The participants in the low scarcity condition experienced much lower losses, such as €200 for an unforeseen event. To the participants in the low scarcity condition an additional loss of ten euros is relatively higher and this suggests that that additional loss can cause more annoyance. However, there was no difference found in the degree to which the price of a (new) ticket was too expensive to the participants. None of the participants viewed the price of the ticket (ten euros) as too expensive, which could indicate that the price assessed in the scenarios was too low and maybe not comparable enough to the current theatre admission prices.

An alternative explanation could be the greater focus the scarcity mindset instigates (Shah et al., 2012). The participants in the higher scarcity condition could be more focused on the high losses they already experienced, as opposed to the participants who experienced relatively low losses and are not that focused on those losses. This therefore suggests that the participants in the low scarcity condition are more focused on the loss of ten euros and are more likely to be annoyed by that loss. One could argue if this result is positive. On the one hand it seems logical that a small loss of ten euros would not shift one's focus from a large loss of €2000, as this focus could help that individual to overcome the loss as fast as possible. On the other hand, focus on the seemingly most important aspect (i.e., the large loss) will not prevent the smaller costs that can come with lost focus on the less important aspects and eventually those costs will pile up to a larger financial burden (Shah et al., 2012). This result shows that individuals living in poverty need help to learn to better divide their focus, also on aspects that seem to be less important aspects at that moment. This could prevent more financial difficulties in the poor individual's life, and maybe break the vicious cycle of bad financial decisions and becoming more stuck in poverty.

Borrowing and Decoupling

In the borrowing and decoupling scenario, the participants in the mental accounting condition found the option to not buy a phone the less attractive and were more likely to borrow and decouple the payment than the participants in the no mental accounting condition. These results are not in line with the expectations of this research, as there was no interaction effect found and only the applications of mental accounting strategies seemed to affect the attractiveness of the financing options. These results suggest that individuals induced with the applications of mental accounting strategies are more motivated to not exceed that particular mental account.

An explanation of the result where the participants in the mental accounting condition are more likely to borrow and decouple the consumption could be that the pain of paying will be higher when a mental account is already in the negative than when the mental account is not facing a negative balance. This suggests that the individuals who are induced with the applications of mental accounting strategies are more prone to decouple the payment from the consumption, as this creates a more ambiguous link between payment and consumption, and therefore decreases the pain of paying that consumption (Raghubir & Srivastava, 2008). In other words, the application of mental accounting strategies seems to cause individuals to borrow and decouple more, as a small monthly (or weekly) payment with interest probably does not exceed the mental account as the large payment without interest does. A small monthly (or weekly) payment therefore causes less pain of payment. This shows that not only the scarcity mindset, but also the applications of mental accounting strategies can cause individuals to make worse financial decisions than individuals who are not induced with the applications of mental accounting strategies.

Suggestions for Future Research

Although not found in this research, it was expected that the scarcity mindset would create a stronger effect on the aspect of borrowing. However, the scarcity manipulation did in some scenarios affect the results. This is a fairly positive outcome, as the manipulation by Mani et al. (2013) was clearly hypothetical and it still exhibited different outcomes between the conditions. Hence, to find the expected results on the aspect of borrowing, a recommendation for future research could be to use a stronger (different) manipulation to induce the scarcity mindset.

Another explanation for the lack of effect of the scarcity manipulation is the time the manipulation took. The participants had to wait one minute for each scenario before proceeding to the next scenario. The intention was that the participants would write down their answers in one minute, but most of them were finished earlier. As a result most of the participants had to wait before going to the next scenario, and perhaps the wait was too long for most of them. A recommendation for future research would be to let the participants wait for a shorter time or for them to not wait at all.

In the context of the applications of mental accounting strategies, the results regarding the borrowing and decoupling scenarios suggest that the scenarios should be revised before applying it in future research, as the results seemed to illustrate that the scenarios still label the money too much. After revision the scenario should have a more neutral tone, and a more neutral tone could underline the applications of mental accounting strategies more than in the current scenario.

Due to the previously discussed shortcomings of the present study, follow up research is needed to check whether the scarcity mindset and the applications of mental accounting strategies combined have an effect on making financial decisions. Follow-up research could show if the scarcity mindset increases the tendency to borrow and decouple that individuals

induced with the applications of mental accounting strategies already show. In future research it is also recommended to update the prices used in the theatre ticket scenario to a prices that are more realistic and applicable to present time. When the prices are updated, the research could show a bigger effect on the aspect of pain of paying.

In conclusion, this research shows that individuals with a scarcity mindset show less characteristics of pain of paying and more focus on the bigger financial setbacks. Individuals induced with the applications of mental accounting strategies are more likely to borrow and decouple a payment. These results show that individuals living with a scarcity mindset or a tendency of applying mental accounting strategies need help to make better financial decisions and avoid becoming in debt or other financial burdens.

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Appendix A

Scarcity mindset scenarios by Mani et al. (2013)

The following four financial scenarios were presented to each participant in a random order. The numbers in parentheses were used in the 'low scarcity mindset' condition, and those not in parentheses were in the 'high scarcity mindset' condition.

Scenario 1

The economy is going through difficult times; suppose your employer needs to make substantial budget cuts. Imagine a scenario in which you received a 15% (5%) cut in your salary. Given your situation, would you be able to maintain roughly your same lifestyle under those new circumstances? If not, what changes would you need to make? Would it impact your leisure, housing, or travel plans?

Scenario 2

Imagine that an unforeseen event requires of you an immediate €2,000 (€200) expense. Are there ways in which you may be able to come up with that amount of money on a very short notice? How would you go about it? Would it cause you long-lasting financial hardship? Would it require you to make sacrifices that have long-term consequences? If so, what kind of sacrifices?

Scenario 3

Imagine that your car is having some trouble, and requires a €1,500 (€150) service. Unfortunately, your auto insurance will cover only 10% of this cost. You now need to decide the following:

(1) Pay the full amount in cash. Would this require liquidating savings? How would you go about it?

(2) Take out a loan, which you can pay back in monthly installments. A typical such loan may require monthly payments of roughly €150 (€15) a month for 12 months, which would amount to about €1800 (€180) total.

(3) Take a chance, forego the service, and hope that the car lasts for a while longer. Of course, this leaves open the possibility of breakdown, or even greater expenses in the long run. How would you go about making this decision? Would it be an easy or a difficult decision for you to make and why?

Scenario 4

Suppose you have reached the point where you must replace your old refrigerator. The model you plan to buy offers two alternative financing options: (1) You can pay the full amount in cash, which will cost you €999 (€399). (2) You can pay in 12 monthly payments, of $100 (€40) each, which would amount to a total of €1200 (€480). Which financing option would you opt for? Would you have the necessary cash on hand? Would the interest be worth paying in this case?

Appendix B

Theatre ticket problems by Kahneman and Tversky (1984)

Scenario A

Imagine that you have decided to see a play and paid the admission price of $10 per ticket. As you enter the theater, you discover that you have lost the ticket. The seat was not marked, and the ticket cannot be recovered.

I would buy a new ticket to see the play.

1 = very unlikely 7 = very likely

The loss of the ticket is annoying.

1 = Not annoying at all 7 = very annoying

The ticket costs too much money.

1 = strongly disagree 7 = strongly agree

Scenario B

Imagine that you have decided to see a play where admission is €10 per ticket. As you enter the theater, you discover that you have lost a €10 bill. Would you still pay €10 for a ticket for the play?

I would buy a ticket to see the play.

1 = very unlikely 7 = very likely

The loss of the money is annoying.

1 = strongly disagree 7 = strongly agree

The ticket costs too much money.

1 = strongly disagree 7 = strongly agree

Appendix C

Scenario borrowing and decoupling: mental accounting version.

Imagine you have reached the point where you must buy a new smartphone. You had this smartphone for one year, and yesterday it got stolen from your bag. Because you have to keep up with university (or work/or family), it is necessary a new smartphone is purchased as soon as possible. The new smartphone doesn't have to be the newest model, because you prefer to keep the costs as low as possible. The model you chose costs €449,-. When you look at your bank account you see a total of €978,33, of which €438,33 is meant for groceries, clothing and fun activities(e.g. going to the pub or movies). The remaining €540 you received from your grandparents and is specially meant for your upcoming vacation to Tenerife.

The store where you want to buy the smartphone offers three alternative financing options:

(1) You can pay the full amount at once, which will cost you €449,- in total.

(2) You can pay €200,- now, and the €249,- that remain will be divided over 12 monthly payments of €24,90. This will cost you €498,80 in total.

(3) You can pay by weekly payments of €10,50. This will cost you €547,50 in total.

(4) You can choose not to buy the smartphone.

How attractive are the four options?

- **Option 1**

  1 = not at all attractive 7 = very attractive

- **Option 2**

  1 = not at all attractive 7 = very attractive

- **Option 3**

  1 = not at all attractive 7 = very attractive

- **Option 4**

  1 = not at all attractive 7 = very attractive

Scenario borrowing and decoupling: no mental accounting version.

Imagine you have reached the point where you must buy a new smartphone. You had this smartphone for one year, and yesterday it got stolen from your bag. Because you have to keep up with university (or work/or family), it is necessary a new smartphone is purchased as soon as possible. The new smartphone doesn't have to be the newest model, because you prefer to keep the costs as low as possible. The model you chose costs €449,-. When you look at your bank account you see a total of €438,33 on your current account, meant for groceries, clothing and fun activities(e.g. going to the pub or movies). On your savings account you'll see a total of €540, which you received from your grandparents and is specially meant for your upcoming vacation to Tenerife.

The store where you want to buy the smartphone offers three alternative financing options:

(1) You can pay the full amount at once, which will cost you €449,- in total.

(2) You can pay €200,- now, and the €249,- that remain will be divided over 12 monthly payments of €24,90. This will cost you €498,80 in total.

(3) You can pay by weekly payments of €10,50. This will cost you €547,50 in total.

(4) You can choose not to buy the smartphone.

How attractive are the four options?

- **Option 1**

  1 = not at all attractive 7 = very attractive

- **Option 2**

  1 = not at all attractive 7 = very attractive

- **Option 3**

  1 = not at all attractive 7 = very attractive

- **Option 4**

  1 = not at all attractive 7 = very attractive

Appendix D

Demographical questions

What is your age? …… years

Education: What is the highest degree or level of school you have completed? ***If currently enrolled, highest degree received.***

- No schooling completed
- Elementary school
- High school
- Intermediate vocational education (MBO)
- Bachelor's degree
- Master's degree
- Doctorate degree
- Other, namely:……

Employment Status: Are you currently…?

- Employed for wages
- Self-employed
- Out of work and looking for work
- Out of work but not currently looking for work
- A homemaker
- A student
- Retired
- Unable to work