MENTAL ACCOUNTING AND RELATED CATEGORIZATIONS IN THE CONTEXT OF SELF-REGULATION

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ABSTRACT
Purpose: The concept of mental accounting is part of a new scientific discipline that integrates insights psychology into the area of economic decision-making – behavioral economics. The problem of this research evolves around questions whether mental accounting is kind of universal process as well as around question whether the tendency for mental accounting serves as a function of different mind-sets – deliberative and implemental. The notion of different mind-sets comes from self-regulation theory of action phases and that in relation to goal setting and pre and post decision phase.
Design: All research questions are addressed in the experimental design, conducted on 200 participants. The tendency for mental accounting is measured using five hypothetical situations within context of different mind-sets.
Findings: The research showed that mental accounting is robust phenomenon, which might play a self-regulatory role in the context of saving decision making but not in the condition of experimentally induced manipulation but in the real world decision making.
Originality/Value: The usage of experimental design in analysis of mental accounting and related categorizations; Approach to mental accounting in the context of self-regulation theories
Keywords: mental accounting, framing, self-regulation, deliberative mind set, implemental intentions

1.INTRODUCTION

Mental accounting is as a way of categorization of money within different situational contexts where situations serve as frames that direct economic decisions. Using mental accounting, individuals help themselves to facilitate judging about economic decisions. Nevertheless, some situations lead to activation of different mental accounts and thus different judgments, although these differences are not accounted by economic theory of rational decision-making. Judgment under influence of framing is not supported by mainstream economic theory, which posits that rational behavior is guided by narrow economic rules, among which of them is the context independence of choice.

Openness for various information as well as unbiased and objective valuation of information characterizes rational reasoning, if under "rational" we assume symmetric information. Individual, who reasons, takes into account all available information in the process of reaching a rational decision. According to self-regulation theory of action phases, when a decision is made, individual "closes" himself to available information selectively processing information compatible with his goal. Selective perception includes susceptibility to using heuristics in addition with specific mind-set that encompasses this phase of self-regulation. Different mind-sets – deliberative and implemental, are properties of the pre-decision and after-decision phase. Research done with different modes of thinking has shown that inducing individuals into certain mind set, frames their way of thinking, making them pay more attention to information congruent with the elicited mind set. Induced to deliberative mind set, individual objectively perceives information about goal feasibility, while in implemental mind set individual is biased towards overestimating this feasibility and thus protecting himself from the distractions found out of the goal focus.

Considering all this, it gives us right to assume that subjects induced to deliberative mind set will be less prone to heuristics like mental accounting and related categorizations, compared to the subjects induced to implemental mind set who might show greater susceptibility to heuristical reasoning. In the latter, subject is encouraged to make implemental intentions which help him protect his goal and be more focused to achieving the goal. In the following research, we shall propose that mental accounting existing phenomenon. In addition, in the case of implemental mind set, we assume subjects will be more susceptible to mental accounting as a tool supporting the appointed goal - in our case "saving". In the economic sense, implemental mind set will lead to less rational behavior.

2. THEORETICAL FRAMEWORK

2.1 BEHAVIORAL ECONOMICS

The 1979 paper by Daniel Kahneman and Amos Tversky titled " Prospect theory: An analysis of decision making under risk", published in most popular economic journal at the time - *Econometrica*, went on to become the most cited paper in social sciences (Kahneman & Tversky, 1979). One could argue that Kahneman and Tversky have provided the most important contributions to the growth of behavioral economics – a scientific discipline that aims at improving economics explanatory and predictive power by providing it with reliable psychological foundations (Camerer & Loewenstein, 2002), as a separate scientific discipline. The main contribution of behavioral economics to mainstream classic (neoclassic) economics is the provision of empirically tested understandings of individual behavior that deviates greatly from the rational assumptions held by orthodox economics found in majority of economic textbooks. At the onset of their careers Kahneman & Tversky were studying intuitive beliefs and choices and limited rationality and their prime goal was to advance the field of decision making in psychology (Kahneman, 2003).

2.1.1 FRAMING AND PROSPECT THEORY

One of the central findings of Kahneman & Tversky is applied to the susceptibility of people to be influenced by the way a situation or choice is presented. The authors equate the term "frame" with a "reference point", and in the function of that reference point, people change their preferences. According to Kahneman and Tversky (1981), decision-making "frame" involves personal view of the possible options, their outcomes, and the probability of linking options with their outcomes or consequences. The frame may have external or internal source whereby it could be provided by formulation of a problem or it could arise from personal characteristics such as beliefs, attitudes, or habits.

The focal point of Prospect theory is that gains and losses are perceived very differently, meaning, they have different psychological value to an individual. The same amount of loss or gain does not have the same absolute consequences in terms of value. Losses actually hurt more than do gains feel good. Thus, in the prospect of loss, a person becomes loss averse. Further assumptions derived from the Prospect theory include directions on how to frame certain financial outcomes, assumptions that later led Richar Thaler (1990, 1999) to develop the theory of mental accounting.

2.1.2 MENTAL ACCOUNTING AND RELATED CATEGORIZATIONS

Kahneman & Tversky in their work also studied psychological accounting as a way of framing decisions. Subsequently, Thaler (1999) classified it as mental accounting and defined it as a set of cognitive operations used by individuals or households to organize, evaluate, and track their financial activities. Mental accounting is based on the assumption that people make "irrational" economic decisions because of the way they designed their schemes related to money and consumption. Mental accounting is a phenomenon, which examines the existence and the use of "mental accounts" through a set of cognitive operations that individuals use in order to organize, evaluate and monitor financial activities, specifically gains and losses (Brendl et al., 1998). In this context, they use mental categories that serve to group expenses and transactions associated with a particular event or option. The notion of mental accounting distorts the economic concept of fungibility that assumes the absolute amount of money is equally perceived regardless of the form (e.g. cheque, cash, or card) (Brendl et al., 1998; Thaler, 1999; Chatterjee & Rose, 2012; Chatterjee et al., 2000). Fungibility assumes that individuals are equally inclined to spend money regardless of the form as long as the absolute value of the form of money is equivalent. Due to different mental accounts, studies have shown that consumption associated with each account is perceived differently i.e. it is common for the same amount of money to have a different perceived value through different mental accounts.

Frisch (1993) distinguishes between several framing categories (situations): with different reference points such as gain/loss, relative/absolute value, nominally different mental accounts (the theatre ticket situation, later in the text) and the situation of irreversible costs as a separate framing category.

The method of hypothetical choices in the form of "imagine" is often referred to as the "thought experiment" and it is assumed that the choices in that context are at least a reasonable approximation of behavior that would happen in the "same" real context. Prospect theory by Kahneman and Tversky as well as Thaler's work on mental accounting is based on thought experiments. Angner and Loewenstein (2007) commented that Thaler's hypothetical situations are so real that they excuse themselves from criticism. In most cases in the study of mental accounting, experimental designs comprised of hypothetical situations are

used. The most common form of such an experimental design involves a minimum of two experimental groups that receive different manipulative instructions or are simply placed in two different framing situations. Every situation has two variants where mental accounting is proved by a statistically significant difference in the results between these two situations.

In the context of the elaboration of Prospect theory (Kahneman & Tversky, 1981) conducted a study in the situation of going to the theatre. They examined the likelihood of purchasing a ticket in the situation where there has been a loss of a previously purchased ticket as well as in the situation of previously lost sum of money equivalent to the price of the ticket. In the former scenario, after losing the purchased ticket, only 46% of participants were willing to buy a new ticket. This is significantly less than the 88% of participants who were willing to buy a ticket after losing $10 from their wallet. Mental or psychological accounting demonstrates that the "account" in a situation of losing a ticket has significantly negative balance and therefore influences the decision about not buying a new ticket. Buying new tickets in this scenario falls within the scope of an existing account where the first ticket was already purchased. Losing money is more abstract and it does not belong to any particular topical account thereby making it "easier" for people to give the new $10 for a ticket (Brendl et al., 1998).

The literature on mental accounting also mentions sunk cost fallacy which refers to the tendency of continuing efforts to an activity after investing money, time or effort (Arkes and Blumer, 1983). In the context of social psychology it refers to justifying the effort that is closely related to the notion of cognitive dissonance (Festinger, 1957). Sunk cost leads to further investment in projects and events despite new adverse conditions that reduce the effectiveness of the project as well as the attractiveness of further pursuing the same activity. Arkes and Blumer (1985) and Thaler (1980) suggest that another interesting example in which investing into something leads to the sunk cost effect and commitment to a situation in which they invest despite the adverse conditions. The authors are discussing the phenomenon of increased willingness of going to a concert for which the tickets have been bought in times of adverse financial conditions, compared to participants who received the same ticket. Participants were less likely to close the account in which they have a negative balance (they paid for the ticket) with the loss and to a greater extent, decided to go for the concert. Because money not spent on the ticket is still not part of any account, losing it did not result in any negatively affected mental account. Money per se is quite abstract notion and is hard to be perceived in absolute terms (Ariely, 2009).

When faced with a choice between purchasing a jacket ($125) and a pocket calculator ($15). In each frame there is an offer with an additional saving option in the form of a 20 minute walk to a nearby store where the same product costs $ 5 less ($120 jacket and $10 calculator). The results are indicating that the participants would rather choose walking in the situation of buying the pocket calculator (Tversky & Kahneman, 1981). The study showed that participants were again influenced by topical account. Greater perceived saving in the case of a pocket calculator had a greater impact on the final decision whereby 68% of the participants stated they would prefer to walk for a $5 saving in the case of a pocket calculator in contrast to 29% for the identical saving in the case of jacket (Kahneman & Tversky, 1983). The example also shows that people take into account the context and instead of absolute value, they perceive relative value of the outcome. As a result, they value money less, which encourages higher expenditure and the value of a small discount is decreased.

The effect of windfall gain is related to the house money fallacy. This fallacy is defined by different categorization and a different propensity to spend the money an individual finds not his own but received by prior gambling (Thaler & Johnoson, 1990, Milkman et al, 2009). In classical study conducted by Thaler & Johnson (1990), participants were exposed to two situations: 1) possibility to gamble after receiving $30 where by further gambling there is a 50% chance to gain $9 and a 50% chance to lose $ 9, and 2) possibility of gambling where there is a 50% chance of winning $ 39 and 50% chance of winning $ 21. Participants were willing to gamble in the first situation (77% vs. 44%), which the authors called the two step process since in the first step subject "gets money" and in the second step subject is presented with the gamble "at once". As an explanation of this phenomenon Thaler & Johnson (1990) state that after winning, gambling preference depends on the amount of potential loss. Small loss and higher income become integrated, which reduces the impact of risk aversion and risk seeking increases. According to Thaler and Johnson (1990), the second situation does not give the sense that participants were "ahead" of the potential losses in that case the assumption which stands arises from Prospect theory - the loss potentiates risk seeking

According to Chatterjee et al. (2009), mental accounting is one of the most relevant theories of decision making in the last 50 years. It is a rich and descriptive theory about the way humans make economic decisions and the way schemes about money and spending are set up. If we perceive mental accounting as a way of categorizing or grouping, it does not lead to suboptimal economic decisions but provides us with

facilitated approach to information relevant to our goal (Henderson and Peterson, 1992). In this context, mental accounting rather facilitates than undermines reasoning aligned with the goals. Furthermore, mental accounting can be a very useful strategy to organize knowledge. Given that we organize our knowledge in the form of goals, mental categories are becoming goals that include relevant information related to individual goals, their achievement, and reference points for comparison to external factors and contexts (Brendl et al., 1998). Following the logic of mental accounting as way of self-regulation and taking into account the goal of the study where we will try to connect two fields, which are dealing with mental processes and behavioral regulation it is necessary to make an introduction to the theory of self-regulation.

2.2 THE THEORY OF ACTION PHASES

Gollwitzer and Bargh (1996) in their theory of action phases breaks down the process of self-regulation on: 1) Predecision action phase, 2) Making a decision and preaction phase, 3) Action initiation and the action phase and 4) Goal achievement and the post action phase. Mind-set is based on cognitive processes that encourage task solving that is activated precisely with that mind-set. With regard to deliberative and implemental mind set, mode of thinking refers to cognitive process related to the way a person chooses between different options or how a person plans an action to reach desired goal. In the end, theory of action phases has its anchor in numerous empirical studies, experimental as well as applied (e.g. HRM) (Gollwitzer & Bargh, 1996; Heckhausen & Heckhausen, 2008).

In pre-decision phase, deliberative mind set is activated while in preaction and action phase volitional implemental mind set is implied. In the last phase, we return to the motivational process, this time evaluative. Pre-decision and post-action phase imply motivational, while pre-action and action phase imply volitional process – the mere core of self-regulation process. Since motivational and volitional processes activate different mind-sets, there is a strong distinction between mental account assigned to pre-decision deliberation and mental account activated to forming intentions. Different cognitive orientations are adaptive inasmuch as the context of decision making and available cognitive resources. When motivational process is activated, a person is cognitively oriented to deliberation. Individual is thinking about his need and wants to choose the ones which are desired and achievable. The focus is set on reasoning about positive and negative information concerning the goals one is deliberating about. It is shown that experimental induction to deliberative mind set leads to greater openness for information, objective evaluation of the options, cognitive priming to information relevant for goal desirability and lesser susceptibility to self-serving (Gollwitzer et al, 1990, Gollwitzer and Kinney, 1989, Armor and Taylor, 2003; Brandstaetter et al, 2001, Gollwitzer and Oettingen, 1998).

In a phase where a decision about the goal is reached, the individual is planning the action and is focused on information supporting his goal. This includes committing to the favourable opportunities for action and creating implementation intentions. Implemental mind set is characterized by focusing to goal achievement, to questions such as “when”, “where” and “how” to initiate, attain and finish behaviors directed to achieving the goal. Focusing himself to the implementations, individual creates positive illusions and heightens his expectations related to the goal achievability (Taylor i Gollwitzer, 1995). By doing this, a person is assuring itself with an active goal approach.

The key concept in the context of volitional process is making implementation intentions, which in comparison to just deliberating about the goal, have greater influence on the volition toward reaching the goal (Gollwitzer i Bargh, 1996). Implementation intentions are subordinated to goal intention and can be found in the form of “If situation X happens, then I’ll do Y”. This form is relevant in the case that a problem of volition in reaching the goal arises. In their classical study, Gollwitzer and Brandstatter (1997) were looking at the degree in which two groups of students will fulfil their assignment on time. Participants were induced to two different mind-sets and the task included writing a report about their holiday times. The deadline was 48 hours. The research showed that two thirds of participants that planned details on how and when to write the report really submitted the report due to the deadline. On the other hand, only one third of participants who did not write their implementation intentions submitted the task on time.

Taking all into account, the main research question of this paper is to explore if there is a mental accounting effect, or in other words, do the differently framed hypothetical situations elicit different responses and if activating different mind-sets leads to greater susceptibility to mental accounting. We expect that the framing effect exist to acknowledge the construct of mental accounts. Furthermore, we expect to find that by inducing subjects to deliberative mind set will lead to less mental accounting. In the situation of implemental mind set, subjects will be more susceptible to mental accounting since some frames of the situations will be more compatible with their goal than this will be the case in the deliberative condition. The

goal about which our subjects will deliberate or plan action is saving. Activities that people are not at ease with usually involve short-term costs and only long-term benefits and therefore require an intensive self-regulation of behavior and commitment (Gollwitzer and Oettingen, 1998). Saving is just one of those activities. It requires a high degree of self-control and commitment, and assumes that the behavior towards people is neither inherent nor easily conducted (Laibson et al., 1998). If we manage to confirm the assumption about the existence of mental accounting in relation to implemental mind set, it could mean that mental accounting indeed serves as a way of self-regulating behavior. In this line of thought, these findings could be helpful in creating policies that help direct people to certain economic goals that benefit their financial well-being.

The main goal of this research is to verify the existence of mental accounting phenomena and their relation to different self-regulatory mind-sets. Research objectives are:

1. To test the existence of mental accounting and related categorizations by using hypothetical decision scenarios with different situation frames
2. To analyse whether susceptibility to mental accounting can be related to different self-regulatory mind-sets induced by experimental manipulation

3. RESEARCH METHODOLOGY

3.1. RESEARCH DESIGN

Experimental research design consists of two independent measures. Independent variable refers to different mind-sets and has two levels or conditions (IV):

1) Deliberative mind-set that is induced by using questionnaire instructions to deliberate about reasons against and for the goal of saving (IV1)
2) Implemental mind set induced by using questionnaire instructions to make implemental intentions about the goal of saving (IV2)

Dependent variable represents mental accounting scenarios measured by using hypothetical decision-making situations, all of which are related to some kind of money transaction. To provide evidence for the existence of mental accounting there need to be two versions of the situation, and consequently two questionnaire versions. Two different versions of the situations differ in the frame of situation, meaning that situations are economically equivalent but not in the sense of context they describe. The difference in participants' answers indicates that frames elicit different types of mental environment and thus different judgment and response. Participants respond in the range from 0 to 100% of probability of required action. Since there are two levels of independent variable and every situation requires two versions of the frame, we used four versions of questionnaire. Therefore, we had four independent measures or groups.

3.2. SAMPLING

Research was conducted during 2013. Participants were selected using no probabilistic method. Main criteria for the participant selection were permanent employment or retirement. This criteria is selected because of the assumption that people who have experience with money also have more developed money schemes, therefore, being more appropriate as participants in a research that analyses mental accounting.

Two hundred participants (N=200) participated in this research. Each experimental group consisted of hundred participants (N=100). Age ranged from 21 to 80 years, with a mean of 34 (M=33,80, SD=9,46). There were 57% of males and 43% of females. Majority of participants had some kind of college degree (54%), about one third had master or doctoral degree (31%) while 15% had only high school degree. Average personal income was 7776 kunas (equivalent of 1140 USD) per month. Participants mostly save (72%)

3.3. PROCEDURE

To participants who agreed to take part in this research, the purpose of the research was explained with the notion that their response to it was anonymous. Participants filled out the questionnaires individually and delivered them sealed in provided envelopes. All participants were randomly assigned to the experimental conditions. They had a chance to select the envelope they wanted. Duration for filling the questionnaire was estimated to be 10 minutes.

3.4. INSTRUMENT

Instrument for this research had four versions. Each questionnaire version had different manipulative instruction that was responsible to induce different mind-sets. The instructions were created by modifying the instructions used in original studies conducted by Gollwitzer and his colleagues.

Deliberative mind set (IV11): "Imagine you are thinking about saving. Take your time and think of two reasons of why say YES to saving and two reasons of why NOT to save. Write down your reasons in the lines below" (same instruction to QV1 and QV2). Implemental mind set (IV12): „Imagine that you have decided to save. Take your time and think of at least four key steps or actions you are willing to take so you can stick to your decision about saving. Write down your answers in the form of "In situation …, I'll try to ..." or "I'll put effort to…" (Same instruction to QV1 and QV2). The control question with regards to inducement of different mind-sets was: "How committed do you feel to behave accordingly to the goal of saving in certain situations?" Participants answered using probabilities in range from 0 to 100%.

After manipulative instructions and control question, participants responded to 5 hypothetical situations using probabilities (0 to 100%) while giving answers to these situations. Every mental accounting situation implies to specific mental accounting phenomena and represents nominal category. Different frames are needed to help demonstrate existence of mental accounting and the effect of these frames. All situations are taken from original studies and/or are in certain degree adjusted or/and changed (Appendix)

4. RESULTS

4.1. TEST OF INITIAL COMPARABILITY OF EXPERIMENTAL GROUPS

When using experimental research design it is necessary to assure random assignment in experimental conditions or groups. This precondition is necessary to ensure that the groups are comparable according to relevant traits so the effects of known and unknown variables are equally distributed to all experimental conditions. Participants in all 4 experimental situations are comparable to all tested demographic characteristics. The test of comparability of experimental groups in relation to gender (χ^2=2,693, p>0,01), education (χ^2=4,972, p>0,01) and saving (χ^2=4,275, p>0,01) are conducted and revealed that all groups do not statistically differ in terms of these variables. (More detailed data can be requested from the authors).

4.2. TESTING THE EXISTENCE OF MENTAL ACCOUNTING AND RELATED CATEGORIZATIONS

In Table 1, for every situation there is an indication of the direction of framed answer. Since participants answered these situations using the level of probability of certain action, sign "less" or "more" indicates the direction of answer in relation to mean average of the group. In the case of sign "less" (<), framed answer is the one that in this version has smaller (absolute) value.[1]

Table 1

Direction of answers within situational frames

	QV 1		QV 2	
	Frame	Response direction	Frame	Response direction
Theatre	Loss of ticket	<	Loss of money	>
Concert	Received ticket	<	Bought ticket	>
Walk	Greater relative saving	>	Smaller relative saving	<
Gambling	Prior gain	>	Prior loss	<
Coin	House money	>	No house money	<

[1] For clearer picture please read full situation descriptions and its frames in Appendix

Table 2

Descriptive statistics and ANOVA for effects of frames of all situations of mental accounting

	QV 1 M	SD	QV 2 M	SD	SD	F	p
Theatre	61,97	36,8	93	13,85		59,613	0,000
Concert	28,09	29,4	61,5	35,85		50,805	0,000
Walk	91,64	15,73	82,77	27,37		7,282	0,008
Gambling	32,37	34,71	10,05	16,26		31,923	0,000
Coin	27,19	36,41	15,11	24,22		7,289	0,008

The data in Table 2 is showing that in all situations of mental accounting we found statistically significant difference in average situation frame means. These results indicate that different frames result in difference in responses and, respectively, indicate the existence of mental accounting. Participants are, in general, more inclined to buy theatre ticket after losing amount of money equivalent to the price of ticket rather than after losing already purchased ticket ($F=59,613$, $p<0,05$), more apt to go to the concert during a thunderstorm when they have bought their ticket rather than after receiving it for free ($F=50,805$, $p<0,05$), more ready to walk for relatively larger amount of savings while buying a smaller product ($F=7,282$, $p<0,05$), more willing to gamble after prior gain instead of prior loss ($F=31,923$, $p<0,05$) and more prone to gamble in the situation of gambling with house money instead of their own ($F=7,289$, $p<0,05$). Greatest difference in responses between different frames was found in the case of concert situation, where the difference in values between two frames amounts 33%, following theatre situation, where the difference between frame response values equals 31%. Frames in these situations result in most significant mental accounting where judgment is influenced by decision context and where deciding in present moment depends heavily on past events. In the Concert situation ones answer is influenced by sunk cost and in the Theatre situation ones answer is influenced by different perception of money presented in different forms. The smallest difference in responses is found in two versions of Walk situation where high mean average value indicates great readiness to walk additionally for additional saving in both frames. Rather low mean averages are found in situations that include some kind of gambling – Coin and Gambling situation. In general, participants are more risk averse, especially in the frame of gambling after prior loss and when gambling with own money. In addition, it is interesting to notice the values of standard deviations. High standard deviations in one of the version inside one hypothetical situation might indicate that those frames elicit intensive mental accounts.

4.3. TESTING THE MAIN EFFECT OF MINDSET TO SUSCEPTIBILITY TO MENTAL ACCOUNTING AND INTERACTION EFFECT OF MINDSET AND DIFFERENT SITUATION FRAMES

One of the basic assumptions in this research is that participants induced to implemental mind set and thus more oriented to the goal of saving will be more prone to be influenced by certain situation frames. That is, we anticipate interaction effects between different modes of thinking (mind-sets) and different versions of situations.

Table 3

Test of main effect of mind set on goal commitment (control question)

Mind-set	M	SD	N
Deliberative	60,24	31,6	100
Implemental	69,40	23,2	100
df	1		
F	5,233		
p	0,023		

Related to our theoretical assumptions, manipulative instructions led to statistically significant difference in the level of commitment to saving, following the assumption that different mind-sets will lead to different level of susceptibility to mental accounting. Participants induced to implemental mind set and thinking about

the decision to save show statistically higher level of commitment to saving (M=69%) compared to participants induced to deliberate about saving (M=60%) (F=5,233, p<0,05 (Table 3). Although this difference in mean averages is significant, it is important to notice that on average, most participant estimate relatively high level of commitment to saving irrespective of manipulative induction (around 65%).

The effect of different mind-sets on susceptibility to mental accounting appeared to be insignificant, meaning that different mind-sets have no relation to susceptivity to mental accounting (Table 4). From looking at the significance of interaction effects, we conclude that in each situation of mental accounting there is no difference in mean averages in different mindset conditions. Frames, equally in deliberative and implemental mindset condition, influence participants.

Table 4

Test of main and interaction effects for different mind-sets across different versions of mental accounting situations

		Theatre		Concert		Walk		Gamble		Coin	
Mindset	QV	M	SD	M	SD	M	SD	M	SD	M	SD
Deliberative	1	28,16	38,42	28,47	30,64	89,57	17,38	32,30	38,15	28,16	38,42
	2	19,13	26,81	66,74	34,85	84,85	23,55	11,49	18,05	19,13	26,81
	Total	23,78	33,45	47,80	37,91	87,18	20,75	22,22	31,75	23,78	33,45
Implemental	1	26,22	34,65	27,70	28,38	93,82	13,66	32,44	31,28	26,22	34,64
	2	10,82	20,54	56,26	36,42	80,60	30,98	8,62	14,28	10,82	20,54
	Total	19,01	29,78	42,42	35,62	87,13	24,80	20,90	27,21	19,01	29,78

		F	p
Theatre	Mindset	0,219	0,64
	QV*Mindset	0,008	0,927
Concert	Mindset	1,439	0,232
	QV*Mindset	1,073	0,302
Walk	Mindset	0	1
	QV*Mindset	1,638	0,202
Gambling	Mindset	0,12	0,73
	QV*Mindset	0,145	0,703
Coin	Mindset	1,283	0,259
	QV*Mindset	0,459	0,482

Since the attempt of inducing participants to different levels of commitment to saving had its effect, there is still possibility that this result is influenced by the fact that some participants save *a priori*. Therefore, we could assume that the act of saving in real life might interfere with our manipulative instructions and/or influence participants in their susceptibility to frames and mental accounts. Therewith, if we control for the variable of saving we might miss out the difference found in the level of commitment between different mindset conditions. Test of this assumption can be found in Tables 5 and 6.

Table 5

Descriptive statistics for the level of dedication to the goal of saving for respondents who save and those who do not save

	M	SD	N
Don't save	49,49	30,425	51
Save	69,2	25,209	134
Total	63,77	28,087	185

Table 6

ANCOVA for mind-sets and the level of dedication while controlling for saving

Source	df	Mean Square	F	Sig.
Mindset	1	2522,129	3,578	0,06
Saving	1	12800,81	18,161	0,00

We ran ANCOVA while controlling for variable of mindset induction and obtained the result that participants who save have higher level of goal commitment independent of manipulative priming ($F=18,161$, $p<0,05$). Participants who save feel more committed to saving (M=70%) compared to ones who are not saving (M=50%). In this analysis, difference in the commitment level between participants in different mindset condition is not statistical significant any more ($p>0,05$). This result indicates that the manipulation effect is mediated by the saving in real life. Furthermore, we assumed that participants who save in real life will, consequently, in certain mental accounting situations show more susceptibility to mental accounts (Table 7).

Table 7

Test of main and interaction effects for different versions of mental accounting situations and different saving behavior

		Theatre		Concert		Walk		Gamble		Coin	
QV	Saving	M	SD	M	SD	M	SD	M	SD	M	SD
1	No	57,62	37,93	41,50	32,04	84,71	18,83	27,62	29,94	25,38	35,56
	Yes	61,96	36,78	24,37	28,46	92,47	15,39	36,39	36,22	29,39	37,26
	Total	60,94	36,89	28,26	30,00	90,84	16,36	34,36	34,91	28,46	36,72
2	No	89,43	16,38	64,16	35,19	90,43	20,41	10,65	16,57	19,66	26,82
	Yes	95,38	12,15	60,25	36,35	79,06	29,61	9,76	16,22	12,98	22,82
	Total	93,46	13,85	61,50	35,85	82,77	27,37	10,05	16,26	15,11	24,22

		F	p
Theatre	QV	49,691	0,000
	Saving	1,235	0,268
	QV*Saving	0,03	0,862
Concert	QV	28,39	0,000
	Saving	3,667	0,057
	QV*Saving	1,449	0,230
Walk	QV	0,933	0,335
	Saving	0,206	0,651
	QV*Saving	5,795	0,017
Gambling	QV	23,509	0,000
	Saving	0,769	0,382
	QV*Saving	1,152	0,285
Coin	QV	4,478	0,036
	Saving	0,065	0,799
	QV*Saving	1,042	0,309

Considering all the data from Tables 7 and 8, we can conclude that the assumption about the effect of saving on responses in different framing situations is not wholly justified. Nevertheless, there is interesting result in the Concert situation where participants who save show greater sensitivity to the context since there

is an average of 24% probability of going to concert after buying the ticket and an average of 60% probability of going to concert in the frame of receiving the ticket. In the case of participants who don't save, we found that, on average, there is 42% probability of going to concert in the former condition and average of 64% of probability of going to concert in the later condition ($F=3,667$, $p<0,06$). In addition, a difference in susceptiveness to context is significantly greater for participants who save when it comes to version of Walk situation. We found significant interaction effect between saving and frames of this situation ($F=5,795$, $p<0,05$). Participants who save are more prone to walking for additional discount when it is perceived as larger relative to original price (M=36%) compared to participants who don't save (M=28%). This difference is not found in the other frame of this situation where the amount saved after walking is the same but its relative share in original price is smaller (M=10% vs. M=11%). In the rest of the situation frames we found no significant results.

5. DISCUSSION AND CONCLUSIONS

In the first analysis, we have focused on answering to our first research goal - the test of mental accounting and related categorizations. Hereby, we have tested the effect of frames used in each hypothetical situation. Since there was a statistically significant framing effect in every pair of situation versions, different frames elicited the existence of mental accounting, which has proved to be a quite robust and constant phenomenon. Theatre situation (that is referred to as reference point situation) resulted in strongest framing effect. The other scenarios, reflecting the phenomena of the house money effect, sunk cost fallacy and loss aversion, were proven to exist since the framing effect resulted in statistically significant differences in participants' responses. By providing different answers to the frames, we can hypothesize that frames activated different mental contexts, influencing, thus, the direction of participants' responses. Within every mental accounting situation used in this research, we have a frame that elicits strong mental frame or context. From looking at the mean averages, we can notice that participants show indicative level of loss aversion and "spending" aversion. More disruptive frames include lost theatre ticket, bought concert ticket, walking for higher relative saving, gambling after prior loss and tossing a coin while not using house money. Situations that have economically equivalent values from the economic standpoint are assumed to elicit responses independent of the frames and context of a certain economic problem. These rational assumptions deviate greatly from the real life behavior of economic agents.

Concerning our second research goal, the test of the main effects of different mindset effect resulted in the absence of any significant result, suggesting that either directing participants think openly or more economically focused does not result in different susceptibility to mental accounting. Nevertheless, dividing participants to the ones who save and the ones that don't and looking at their sensitivity to mental accounting, we found some interesting data that slightly lead to a premise that saving could be related to certain uses of mental accounting. This result indicates that our manipulative instruction interacted with the saving that participants encounter in their real life. The statistically significant effectiveness of manipulative instruction has led to a greater sense of commitment to saving in the condition of implemental mindset compared to the level of commitment in the deliberative mindset condition. This result went above the range of acceptable significance level when we controlled for the variable of saving. There is a moderately high level of commitment to saving among all the participants, which can be discussed in the light of current economic situation in Croatia where people save more than before economic crisis. Our manipulative instructions only contributed slightly to already present commitment to saving. Because we found that in some situations participants more focused to save are more sensitive to mental accounting, we could argue that mental accounting can be seen as a self-regulatory strategy. Saving, in an economic context, is rational behavior since its purpose is to assure a better quality of life in the future. Therefore, the right question about the state of mental accounting is not whether it is rational or not, but whether it is useful or not. From that perspective, mental accounting is very reasonable to use if one wants to protect its goals.

In this research, we confirmed numerous violations of rational decision theory that assumes consistency of preferences independent of the way situation is presented. It seems that only one word can influence mental context and lead to different perception of situation and consequently different response. This result is in line with all the research that accentuates the contextuality of people's decision-making process. Accepting the fact that people do not make decisions in vacuum but in the real-life and very subjective context means that by creating this decision context we can influence the direction of decisions. Applications of this finding show great potential in the arena of public policy. For example, if we make salient the information about saving to people or remind them of their own saving, we could direct them to make choices that are more rational. Choice architecture that takes into account effects of situational framing can

be the tool to "push" people into making decisions that serve in their better interest. Moreover, the finding that instructing people to make implementation intentions to save actually made them feel more committed to saving, could also serve as a great tool to motivate people to be more aligned with the behavior that leads to their goals. The main problem with goal accomplishment is the lack of intentions and actual steps of actions that help achieve the set goals. There is a need to design real-life experimental research that tests these assumptions. One major contribution of this research is its greater real-life validity and experimental design used on people who earn and save their own money. Majority of the research done in the field of decision-making is conducted mostly on students.

Methodological limitations of this research are several. Firstly, making hypothetical implementation intentions is not as strong as making them in real life. Although there is stronger correlation between intention and behavior rather than between attitude and behavior, we still hold on to situations that are only present in mental context. The reason we did not confirmed the main effect of different mind-sets on mental accounting could be assigned to this methodological remark. Likewise, the measure of response might also affect the end results since we used the level of intention expressed in percentages. In most of original studies, authors used categorical responses like "yes" and "no". We decided to use the scale so we could perform parametric statistics. The way a question is asked can also lead to different answers. In the future, it is advisable to expand the analysis to individual characteristics like personality, cognitive style and similar. In addition, it is commendable to use situations that are more hypothetical or categorize them and develop more situations that represent one type of mental accounting. It would be interesting, also, to develop instrument to measure susceptibility to mental accounting.

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