

# A Comparative Study of Effects of Time Priming and Money Priming on Pro-Social Behavior

Yaxue Li, Wenquan Ling

Management School, Jinan University, Guangzhou, China  
Email: [yaxue\\_L@163.com](mailto:yaxue_L@163.com)

Received 6 March 2015; accepted 18 March 2015; published 19 March 2015

Copyright © 2015 by authors and Scientific Research Publishing Inc.  
This work is licensed under the Creative Commons Attribution International License (CC BY).  
<http://creativecommons.org/licenses/by/4.0/>



Open Access

---

## Abstract

Money and time both play important roles in people's daily life. Many studies have demonstrated that even subtle reminder of money or time will influence human behaviors. Empirical researches suggested that money cues had triggered a state of self-sufficient economic mind-set while time priming can activate a kind of emotional mind-set. As a result, participants whose money concepts were primed showed less pro-social behavior than those who were not been primed of time. This paper is mainly to summarize previous research, and further discuss two problems: 1) the different mechanisms of time on pro-social behavior compared to money; 2) broadening our scope of research samples about time priming and money priming.

## Keywords

Money Priming, Time Priming, Pro-Social Behavior

---

## 1. Introduction

Money and time are two types of important resources in people's daily life, and have far-reaching influence on people's behavior and decision-making in the economic society. Therefore, the research on money and time has become a significant research subject in psychology, sociology and economics field. In previous studies about time and money, there is a type of research concerned that how people would distribute time or money when they are considered as a disposable resource (Leclerc, *et al.*, 1995; Soman, 2001) [1] [2], while the other type is trying to explore that when time or money is provided as a concept in people's minds, how it will affect people's feeling and behavior (Vohs *et al.*, 2006) [3].

Comparative studies of money priming and time priming tend to concentrate on the areas of happiness and

pro-social behavior. Researchers have completed a series of interesting researches: for example, donating money or donating time for public institutions, which kind of priming will make people more generous about money? Recalling the money or time spent on a product, which one will increase your satisfaction on the product itself? Spending time or money in order to help a friend, what kind of behavior brings more intimate feelings? In fact, this series of studies points to a similar result, which seems that money priming would undermine intimate relationships, and reduce the happiness of the individual, while the time priming makes people more social and more satisfied with the goods and happiness.

This article summarized the predecessors' research from a new perspective. Firstly, it introduced the priming effect and pro-social behavior briefly, and then described the effect of the money priming and time on the pro-social behavior, and the different methods to produce the money priming or time priming. Finally, it gave the theory explanation to the influence, and discussed the future research direction.

## 2. Priming Effect and Pro-Social Behaviour

Pro-social behavior usually refers to behaviors that are beneficial to others or have a positive impact on society, including sharing, cooperation, assistance, comforting, donations (Zhang, 1999) [4]. From the perspective of social cognition, whether individual implement pro-social behavior or not, depending on the Social Information Processing in the conflicts of his own needs and the needs of others. then the individual will make the behavioral decision based on reasoning or judgment, and a variety of subjective and objective factors that may affect this social information processing and decisions (Yu, 2012) [5].

In the studies of pro-social behavior, the psychologists have already applied the priming effect into helping behavior. Such as Garcia, Weaver and Moskowitz's (2002) [6] study, by asking subjects to imagine themselves in a group or alone, and then measuring their willingness to help others. The results showed that the subjects who imagined themselves in a group had performed less helping behaviors. So researchers found that activating the message "living in large groups" affects helping behaviors automatically, even it seems unrelated.

Nelson and Norton (2005) [7] first applied the priming effect on the volunteering, to study the influence of unconscious factors on volunteering with the sample priming and the class priming, and compared the differences in the priming effect. In Nelson and Norton study, subjects were presented the priming task first (the most common task is scrambled-words task, which requires subjects choose words from the clutter to organize some grammatical sentences, and the priming stimulation is contained in the words), and then the subjects were asked to complete tasks and related measurements make the subjects feel unrelated with the previous priming task.

Li (2010) [8] adopted scrambled-words task and used moral vocabulary as the priming stimulation, carrying out experiments about whether the moral vocabulary had influence on the tendency and behavior of volunteering, and confirmed in a real scenario. The results were that priming the moral vocabulary will affect subjects' willingness of helping others and making a commitment to volunteer service, and subsequent voluntary behavior.

In contrast with the time-priming and money-priming, most of the experiments are around the pro-social behavior, happiness and so on.

### 2.1. Money Priming and Pro-Social Behavior

The study found that money priming will reduce the altruistic behavior like helping others or donations, Vohs *et al.* (2006) [3] conducted three experiments to find that the money priming made the individual insensitive to the needs of others, and have less willingness helping others. The subjects were randomly divided into Money group and control group, using scrambled-words task in two groups for priming. After the scrambled-words task, subjects were asked willing or not to help fill out the questionnaire and the quantity of copies. It was found that compared with the control group, the subjects of money group were willing fewer inputs. The researchers further advance the experiment—to verify the subjects will show what kind of behavior in the face of immediate helping situations, and in accordance with expectations, subjects of money priming performed a lower degree of helping behavior.

Similarly, the subjects of the money priming are more reluctant to contribute to charity. their charitable willingness and the actual amount of the donation are low (Vohs *et al.*, 2006; Liu *et al.*, 2008) [3] [9]. Money as a social resource can meet people's material needs better and improve their physical independence. However, psychologists found that money brings not only material independence and psychological independence, but also a decline in demand for more social activities, resulting in the reduction of pro-social behavior. On the one

hand, money increases the demand for the individual's sense of independence and autonomy, reducing the cooperative willingness. Despite working with others to complete tasks means alleviating their workload, compared to the control group, the money group prefer accomplishing tasks independently, and being solely responsible for the work, they prefer playing alone to be with friends and family (Vohs *et al.*, 2006, 2009) [3] [10].

On the other hand, money reduces the social needs of individuals, and also weaken their perceived social relationships with others. Vohs (2006) [3] found that the money priming group seems to keep a farther physical distance with strangers, and shows lower social aspirations.

Analgesic effect of money is also a good example, Zhou (2009) [10] found that money can ease the pain caused by social exclusion, because money can be used as a substitute of social care, reducing the demand of social relations, thus easing the pain and fear from social exclusion.

## 2.2. Time Priming and Pro-Social Behavior

Time-priming makes individuals be concerned more about the social bonds, which is a key factor in individual happiness. So by promoting social bonds, time priming also promotes the improvement of individual happiness. Mogilner (2010) [11] studies show that the activation of time concept made individuals tend to spend more time with friends and family, and less time at work. Specifically, after the scrambled-words task which includes time related words, individuals tend to spend more time in participating in social interaction instead of working during following distribution tasks.

Time priming also promotes the individual to providing more altruistic behaviors (Liu & Aaker, 2008) [9]. Liu and Aaker's research found that when asked how much time subjects would like to spend on the volunteer, they would donate more money than the control group, and also contributed more volunteer time. Thus, the time priming also improve the individual happiness by promoting the altruistic behavior.

For the individual, time has a variety of meanings, such as time is life experience (Huang, 2014) [12], compared with money, life experiences includes much more emotional factors. Time priming may activate one kind of emotional mental set, which makes the individual pursuit of goals more emotional and significant (Liu & Aaker, 2007) [13]. Individual that under the emotional mental set will spend more time with family and friends, and participate in more pro-social behavior, thereby also affecting the happiness of the individual.

## 3. Methods of Money/Time Priming

There are a few methods of priming that commonly used, including conceptual priming, material priming and mindset priming, and they all belong to supraliminal priming, and many researchers tend to use several methods in the same study. Now there are commonly used methods to manipulate money priming and time priming as follows:

### 3.1. Scrambled-Words Task

Scrambled-words task belongs to conceptual priming. In this task, subjects were presented with a few word group (such as 30), each group contains four or five disorder words. Subjects should use the words in the group to form a correct sentence. Within the specified time, they were asked to make sentences as many as possible. For example, in Vohs's (2006) [3] Experiment 1, each group of subjects got 30 word groups. Control group get 30 word groups, and all of them are neutral words, they need to make the words like "cold, it, desk, outside" compose a sentence like "it is cold outside". Money priming group got 30 word groups, and 15 groups included words concerned about money, such as "high, a, salary, desk, paying", to composed "a high-paying salary"; in order to avoid the subjects guessing experimental purposes, and the other 15 word groups are neutral words.

### 3.2. Questions Related to Time and Money

Another common way of priming is to ask questions about money or time. For example, how much time or money you are willing to spend for the American Lung Foundation Service? (Liu & Aaker, 2008) [9], or how much time or money you spend on this ipad? (Mogilner & Aaker, 2009) [14]. Depending on the different questions, the subjects were divided into money priming group and time priming group.

### 3.3. Other Methods of Money Priming

Compared to the time priming, money have more methods to prime, such as setting things about money (but

unrelated with the current tasks) in the environment, like money-itself, money images, or slogans of money, or recall/reading with money-related experience/story, these methods may be collectively referred to material priming (Kay, Wheeler, Bargh, & Ross, 2004) [15]. In this context, the subjects are aware of the existence of these money incentives, but these stimuli are not in conscious processing center of the subjects, or the participants could not realize the goal of the experiment.

## 4. Psychological Mechanism and Theoretical Explanation

### 4.1. Self-Sufficiency Theory and Social Resource Theory

Self-sufficiency theory is the first theory about money priming by Vohs *et al.* (2006) [3], and this theory was validated through nine experiments. The theory shows that the money priming make an individual feel self-sufficient, that means compared with the control group, money priming will show more independence and numbness in the social behavior. Vohs defined this state of self-sufficiency as an insulating state, meanwhile individual trying to obtain personal goals, and pursuit of freedom. For instance, compared with the control group, the money priming group believes they can solve the problem by themselves, so they can persist longer in the difficult task, and more reluctant to seek help, because money priming induces a kind of autonomous motivation. While the individuals in the insulating state preferred to alienate others, and would think that others can solve problems independently like themselves, and therefore offered to help others with less time and money. The money priming group also preferred to separate activity, and to keep a longer distance from others, because the money priming induce interpersonal insensitivity motivation.

Another experiment tested that in the individual decision-making process, whether the money priming would affect their attitudes on the social impact (Liu, Smeesters and Vohs 2011) [16]. To verify this hypothesis, in three experiments subjects need to make decisions when presented a variety of different social impact, such as the request from the authority or the common people' suggestion. It was found that the money priming group shows more exclusion of others affection, Liu thought it was because the social impact brought a sense of threat to the money priming, which is also confirmed in the influence from the money priming groups, the autonomous motivation play a dominant role. But not in all the environmental and social impact, this threat would result in rejection and exclusion for this money priming group, the researchers found that when the decision is relatively less important (e.g. making decisions for others, rather than to make their own decisions) the individuals of money priming will behave more indifference on the social impact, exhibiting interpersonal insensitivity motivation.

Self-sufficiency theory does illustrate the impact of the money priming on the individual, but "why money can make people self-sufficient?" is still a problem. Zhou put forward a theory about money as social resources (Zhou, Feng & Gao, 2008) [17] to explains this problem, they believe that money provides people a sense of self-confidence that the problem can be solved, and this confidence has also led to less individual attention to the views of others, so the money may be used as a social resource, making individuals have the ability to manipulate the social system in order to get their own community interests.

### 4.2. Mind-Set Theory

J. Aaker from Stanford Graduate School studied different influence of money priming and time priming, bringing the mind-set theory. The theory point that the concept of maximizing the value closely linked with money, so the money priming will activate the individual Utility Set (Loewenstein, Read, & Baumeister, 2003) [18], so they regard maximizing the utility as their goals; and time closely tied with the emotional meaning, so time priming will activate an individual's emotional stereotype (Liu, W. & Aaker, 2007) [13], which will promote them to pursue long-term goals that have emotional meaning.

Liu and Aaker (2008) [9] studied how concerning money or time will lead to two distinct set and then affect consumer willingness to charitable donations. As previously mentioned, it was found that the money priming group are more reluctant to contribute to charity, their charitable willingness and the actual amount of the donation are lower. According to mind-set theory, researchers believe that the concept of time will activate individual emotional set, making it easier for individuals to establish the relationship with individual happiness and pro-social behavior, thus promoting the increase of the actual number of donations; and money priming activate individual utility set, so that the individual seeking to maximize the value of the target, and therefore they cannot

establish the contact of individual happiness and charitable donations, and more tend to find the link between effectiveness and charitable donations, but what the charitable donations brought to the utility is not clear, and therefore the money of individual contributions will be reduced.

Mogilner (2010) [11] study also found that in a real environment, the money priming group will spend more time at work, and the time priming group will spent more time on social activities, and score higher when filled the questionnaire of happiness. Mogilner think money contact more with the utility so that individuals can obtain the necessities of survival and reduce dependence on others, and therefore the concept of money will reduce the likelihood of interacting with others; and time linked more with the emotions, carrying more personal meaning (Mogilner & Aaker, 2009) [14], so the time priming will increase the social interaction. Because interaction with others is an important source of happiness, so time priming make people feel happier.

## 5. Recommendations

For the past five years, there are more and more researches on time priming and money priming; compared with money priming, many scholars agreed that time priming activates a positive impact on individual. However, we believe that the following points are also worthy of future research and exploring:

Firstly, psychological mechanism is explored deeply that how time priming affects pro-social behavior. According to the mind-set theory, time is always associated with a certain degree of experience; activating the concept of time will activate individual emotional mindset to promote helping behavior and interpersonal relationships (Mogilner, 2010) [11]. But is it sure that the emotional mindset will produce a positive effect? Would the experience of satisfaction have different effects on emotional mindset? Since time is always associated with a certain degree of experience, activating the concept of time will activate individual emotional mindset, and then we speculate that if the activation of experience brings negative experience or feelings, time priming probably activates negative emotional mindset which is perhaps not a promotion to the pro-social behavior. So whether mind-set theory can really explain the influence on pro-social behavior from time priming still needs further discussion.

Secondly, the scope of the study population is extended; existing studies have generally chosen the student population as subjects. But the existence of money and time in different groups always owns different amounts of time and money, so money priming and time priming may bring different psychological feelings to different groups; relatively speaking, college students have plenty of time and lack of money. An office worker may not only be short of free time, but also face the pressure of economic conditions; the elderly tend to have a lot of time for nostalgia, and material wealth has become worldly possessions. Therefore, the research on the student sample is not representative; this is a problem that researchers need to consider in the future.

## References

- [1] Leclerc, F., Schmitt, B.H. and Dube, L. (1995) Waiting Time and Decision Making: Is Time Like Money? *Journal of Consumer Research*, **22**, 110-119. <http://dx.doi.org/10.1086/209439>
- [2] Soman, D. and Gourville, J.T. (2001) Transaction Decoupling: How Price Bundling Affects the Decision to Consume. *Journal of Marketing Research*, **38**, 30-44. <http://dx.doi.org/10.1509/jmkr.38.1.30.18828>
- [3] Vohs, K.D., Mead, N.L. and Goode, M.R. (2006) The Psychological Consequences of Money. *Science*, **314**, 1154-115. <http://dx.doi.org/10.1126/science.1132491>
- [4] Zhang, W.X. (1999) Children's Social Development. Beijing Normal University Press, Beijing, 303, 256.
- [5] Xie, T., Zhou, J. and Yu, G.-L. (2012) The Theories and Methods of Money Priming Research. *Advances in Psychological Science*, **20**, 918-925. <http://dx.doi.org/10.1126/science.1132491>
- [6] Garcia, S.M., Weaver, K., Moskowitz, G.B. and Darley, J.M. (2002) Crowded Minds: The Implicit Bystander Effect. *Journal of Personality and Social Psychology*, **83**, 843-853. <http://dx.doi.org/10.1037/0022-3514.83.4.843>
- [7] Nelson, L.D. and Norton, M.I. (2005) From Student to Superhero: Situational Primes Shape Future Helping. *Journal of Experimental Social Psychology*, **41**, 423-430. <http://dx.doi.org/10.1037/0022-3514.83.4.843>
- [8] Li, L. (2010) The Influence of Voluntary Behavior on Personal Happiness. *Advances in Psychological Science*, **18**, 1122-1127.
- [9] Liu, W. and Aaker, J. (2008) The Happiness of Giving: The Time-Ask Effect. *Journal of Consumer Research*, **35**, 543-557. <http://dx.doi.org/10.1086/588699>
- [10] Zhou, X., Vohs, K.D. and Baumeister, R.F. (2009) The Symbolic Power of Money. *Psychological Science*, **20**, 700-

706. <http://dx.doi.org/10.1111/j.1467-9280.2009.02353.x>
- [11] Mogilner, C. (2010) The Pursuit of Happiness. *Psychological Science*, **21**, 1348-1354. <http://dx.doi.org/10.1177/0956797610380696>
- [12] Huang, X.T. (2014) Exploring the Psychological Time. The Commercial Press, Beijing.
- [13] Liu, W. and Aaker, J. (2007) Do You Look to the Future or Focus on Today? The Impact of Life Experience on Intertemporal Decisions. *Organizational Behavior and Human Decision Processes*, **102**, 212-225. <http://dx.doi.org/10.1016/j.obhdp.2006.02.004>
- [14] Mogilner, C. and Aaker, J. (2009) The Time vs. Money Effect: Shifting Product Attitudes and Decisions through Personal Connection. *Journal of Consumer Research*, **36**, 277-291. <http://dx.doi.org/10.1086/597161>
- [15] Kay, A.C., Wheeler, S.C., Bargh, J.A. and Ross, L. (2004) Material Priming: The Influence of Mundane Physical Objects on Situational Construal and Competitive Behavioral Choice. *Organizational Behavior and Human Decision Processes*, **95**, 83-96. <http://dx.doi.org/10.1016/j.obhdp.2004.06.003>
- [16] Liu, J., Smeesters, D. and Vohs, K.D. (2012) Reminders of Money Elicit Feelings of Threat and Reactance in Response to Social Influence. *Journal of Consumer Research*, **38**, 1030-1046.
- [17] Zhou, X.Y., Feng, C., He, L.G. and Gao, D.G (2008) Toward an Integrated Understanding of Love and Money: Intrinsic and Extrinsic Pain Management Mechanisms. *Psychological Inquiry*, **19**, 208-220. <http://dx.doi.org/10.1080/10478400802644496>
- [18] Loewenstein, G.F., Read, D. and Baumeister, R.F. (2003) Time and Decision: Economic and Psychological Perspectives on Intertemporal Choice. Russell Sage Foundation Publications, New York.