Global Journal of Arts Humanity and Social Sciences
ISSN: 2583-2034

GSAR PUBLISHERS
GLOBAL SCIENTIFIC AND ACADEMIC RESEARCH

OPEN ACCESS

Global Journal of Arts Humanity and Social Sciences
ISSN: 2583-2034
Abbreviated key title: Glob.J.Arts.Humanit.Soc.Sci
Frequency: Monthly
Published By GSAR Publishers
Journal Homepage Link: https://gsarpublishers.com/journal-gjahss-home/

Volume - 5 | Issue - 7 | July 2025 | Total pages 562-569 | DOI: 10.5281/zenodo.16419860

Intertemporal Choices of new generation college students in Varying Spatial Distance: Insights from a Behavioral Study

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Article History
Received: 12- 07- 2025
Accepted: 19- 07- 2025
Published: 22- 07- 2025

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Abstract

Objective: To explore whether spatial distance affects intertemporal decision-making and how it affects intertemporal decision-making, so as to provide new research evidence for the impact of spatial distance on intertemporal decision-making and give play to the correct guiding role of decision-making in real life. **Methods:** through the situational experiment, focusing on the impact of spatial distance on intertemporal decision-making, it mainly includes two scenarios, one is the situation of savings and financial products, and the other is the situation of supermarket shopping. **Results:** there were significant differences among different spatial distance groups, and the far spatial distance group preferred shorter and fewer SS options; There were significant differences in subjective perception of spatial distance between the experimental groups; The RPI value of risk preference had no significant difference among the experimental groups; Gender has no significant effect on intertemporal decision preference. **Conclusion:** spatial distance has influence on intertemporal decision-making; With the increase of spatial distance, decision-makers prefer short-term options; The relationship between the spatial distance perception of different gender individuals and intertemporal decision-making; Individual risk preference did not prevent the occurrence of this influence relationship.

Key words: spatial distance；intertemporal decision-making；situational experiment

1. Introduction

In the past, people's communication activities were limited by spatial distance. With the popularity of mobile communication and social networking sites, the innovation of transportation modes and the rapid development of transportation tools, the spatial scope involved in People's Daily work and life has been expanded [1]. In fact, because of the rapid development of technology, many situations in daily work and life now take place at a distance in space. Even in some decision-making situations, the location of the decision and the result of the decision are separated by a large spatial distance, which is especially common in the field of investment decision-making. Intertemporal decision making refers to the judgment or choice people make about the outcome that will happen at different times in the future. This kind of situation is also very common in daily life and work, people will weigh and choose between short-term and long-term interests. Technology allows individuals to make behavioral decisions without worrying too much about the obstacles created by distance. Some studies believe that the spatial distance in interpersonal communication and interaction with external things is no longer an important issue [2]. However, more studies have found that spatial distance still has a great impact on the interpersonal communication process such as life and work. People are more willing and more frequent to interact with people who are close to them, while they have less interaction with people who are far away from them [3]. Some studies have also found that investors have low investment intention for investment places or projects with a longer spatial distance [4]. These research evidences show that, whether in daily interpersonal communication or project investment activities, although technology makes the impact of spatial distance no longer obvious. However, people's decision preferences are still affected by the spatial distance of decision results. In terms of economic and social development, the constraints of space on business activities of enterprises are mainly reflected in space cost. Analyzing space cost and its impact on location decision of

enterprises can establish a more general framework of enterprises' OFDI. However, most current organizational behavior theories ignore the spatial background of organizational activities and may have logical paradoxes [5]. The influence of spatial distance on decision-making, especially intertemporal decision-making, has become an inevitable topic. Exploring whether spatial distance can affect decision preference and intertemporal decision making can provide practical guidance for decision makers. Therefore, this study is of great practical significance. Based on this, this paper attempts to select the intertemporal decision-making situations that people often face in daily life: supermarket shopping and fund saving and financial management situations, and discusses the impact of spatial distance on individual intertemporal decision-making.

2. The present research

Spatial distance is a kind of psychological distance, which refers to an individual's perception of distance on a spatial level. Studies have revealed that spatial distance has an impact on people's cognitive representation, thinking and decision judgment [6]. Intertemporal decision-making refers to the decision-making process of individuals at different time points, which is mainly reflected in the judgment and choice of current and future alternatives [7]. Intertemporal decision making can be summarized briefly by two options: one is the option with less gain or loss but shorter time delay (" shorter and less ": smaller-sooner, i.e. SS option); The second is the option with more gains or losses but a longer time delay (" long and much ": larger-later, that is, LL option). In fact, intertemporal selection is not only at different time points, it can also mean that it occurs at different time periods. Mandler[8] mentioned in his article that human beings tend to conceptualize the mental world by analogy to the physical world. Therefore, it can be speculated and analyzed that human perception and understanding of spatial distance may be the basis for the subsequent conceptualization of the psychological world, including the formation and development of psychological distance [6]. Fujita et al. [9] believe that people are more inclined to describe the purpose of the behavior rather than the method of realizing the behavior when they understand the behavior occurring at a distant spatial distance. When recalling events that took place at a distance in space, we tend to use more abstract language.

The level of interpretation varies with psychological distance, which affects decision making [12]. Intertemporal decision making involves two explanatory level dimensions, time and outcome. The single-dimensional dominant model holds that decision makers will compare and make decisions based on these two dimensions [1]. Spatial distance has a wide influence on daily life, such as influencing consumption desire and online comment effect [13-15]. The experience of exclusion can have multiple negative effects [16]. From the perspective of sense of control, some studies have found that the increase of spatial distance will lead to the bias of intertemporal decision making towards SS option [17-18]. Time perception also affects intertemporal decision-making, which requires consideration of time attitude motivation and psychological attributes [19]. Most of the existing researches are conducted in the award setting, which has limited relevance to real life. Therefore, it is of academic significance to design reasonable situational experiments in this field. Based on this, this study hypothesizes that spatial distance affects intertemporal decision making, and that distance may make decision makers prefer SS options.

The existing studies on the influence of spatial distance on representation and judgment provide ideas and reference for this study. In this study, the research hypothesis is proposed: spatial distance will affect intertemporal decision making, and the longer spatial distance will affect the preference for SS option in intertemporal decision making.

3. Research design

3.1 Research idea

This paper explores the influence of spatial distance on intertemporal decision making according to the basic logic of "literature collection and collation - experimental design - situational experiment - discussion and summary". Based on the interpretation level theory, this paper discusses the two dimensions of intertemporal decision time and outcome, and then combines the theory of unidimensional dominant model with the new perspective of control. The risk appetite questionnaire compiled by Hsee and Weber(1999) was used to calculate the risk appetite index (RPI) of subjects through their behavior choices in risk situations, and to measure the level of risk appetite of decision makers. Combined with literature, experiments on savings and financial products and supermarket shopping situations were carried out to explore the impact of spatial distance on intertemporal decision-making.

3.2 Research method

3.2.1Literature survey method

Literature investigation method refers to the investigation method of reviewing and sorting out existing literature data and obtaining relevant information. This paper makes extensive use of literature survey to discuss and analyze the research process of spatial distance and intertemporal decision making.

3.2.2Situation experiment method

The situational experiment method refers to the observation of how the subjects complete the given task in the real life environment or the artificially set specific environment. In this paper, the risk preference level, spatial distance perception,intertemporal decision-making and other personality characteristics of the subjects were evaluated in the context of supermarket shopping and fund saving.

3.2.3Statistical analysis

After the data were obtained through the situational experiment, SPSS23.0 software was used to carry out relevant statistical analysis of the experimental data results.

4. Experiment 1: The influence of spatial distance on intertemporal decision-making in the context of savings and financial products

4.1 Experimental purpose

Some situational experiments conducted by predecessors contain information that is difficult to control, such as time cost and money cost. In order to control irrelevant external information as much as possible, this experiment refers to online savings and financial products and income existing in real life, aiming to explore the influence of spatial distance on intertemporal decision-making in the field of savings and financial management after controlling irrelevant information.

4.2 Experimental method

4.2.1Subject

A total of 274 subjects with an average age of 20.70±1.03 years old, all of whom were undergraduates in a university in Sichuan Province. There were 132 males, accounting for 48.18%; There were 142 women, accounting for 51.82%. All subjects participated in the relevant situation experiment for the first time.

4.2.2Experimental design

This experiment draws on the investment financial product scenario designed by He Miao (2019), and adopts the 2*2 inter-subject design after optimization and adjustment. Independent variable 1 is the spatial distance between the savings financial product provider and the subjects, which is divided into two levels: near (100 km) and far (1000 km), and independent variable 2 is gender. The dependent variable was the number of times subjects chose SS in five intertemporal decisions. Before the experiment, the risk appetite questionnaire compiled by Hsee and Weber(1999) was used to measure the decision risk appetite of the subjects. The scale has been proved to have good reliability and validity, and has been widely used in related studies. At the end of the experiment, the subjects' perception level of spatial distance was measured, and the influence of different profit difficulty caused by distance on the result was excluded as far as possible. In the formal experiment, the subjects were divided into two experimental groups, the near-space distance group and the far-space distance group, with 137 people in each group.

4.2.3Experimental material

The experiment was carried out in a relatively closed space field using pen and paper test. Before the formal experiment, the subjects took risk appetite measurement, and after the experiment, the spatial distance perception level was measured. In the formal experiment, the subjects read the instruction first, and the purpose of setting the instruction was to arouse the subjects' situational hypothesis; Second, let subjects understand the type of situational experiment; The third is to clarify the choices that the subjects need to complete in the situational experiment. Instructions are as follows:

At present, your mock savings account has 10,000 yuan in principal, you can choose a financial product for regular savings (can not withdraw in advance before maturity), financial management and interest are carried out through the network. Before making a formal decision, we will present you with several alternative financial products, which are offered in cities about 100 km or 1,000 km away from you in China, where the financial environment is similar.

Please choose which of the two benefits of each product you prefer. Please make each choice independently, without interference from the previous choice.

In this scenario experiment, each savings financial product has two profit schemes, and the savings term and interest rate of the two profit schemes are different. In a savings financial product, only one scheme can be selected to obtain profits, as shown in Table 1.

Table 1 Sample profit table of savings and financial products

Financial products	SS program	LL program
1	A：A: A profit of 150 yuan after 1 year	B：A profit of 420 yuan after 2 years

In the experiment, each subject needs to complete five times of intertemporal selection of savings and financial products. The five groups of savings and financial profit schemes presented in the experimental materials are shown in Table 2. The annual returns of the five profit schemes are set according to the savings and financial products in the current market, as shown in Table 3. The two options of each group were roughly the non-differential options, and the subjective feelings of the subjects were roughly equivalent.

Table 2 Profit schemes of five groups of interperiod savings and financial products

Serial number	SS Scheme	LL Scheme
1	A：A profit of 150 yuan after 1 year	B：A profit of 420 yuan after 2 years
2	A：A profit of 195 yuan after 1 year	B：A profit of 470 yuan after 2 years
3	A：A profit of 175 yuan after 1 year	B：A profit of 450 yuan after 2 years
4	A：A profit of 225 yuan after 1 year	B：A profit of 546 yuan after 2 years
5	A：A profit of 200 yuan after 1 year	B：A profit of 480 yuan after 2 years

Table 3 Sources of setting the annual interest rate of the five groups of interperiod savings financial products

Serial number	One-year interest rate	Two-year interest rate	Interest rate source
1	1.5%	2.1%	Benchmark interest rate
2	1.95%	2.35%	Minsheng Bank
3	1.75%	2.25%	China Merchants Bank, Bank of Communications, etc
4	2.25%	2.73%	Hebei Bank
5	2%	2.4%	Ningbo Bank

After completing five times of intertemporal selection of savings and financial products, the subjects filled in personal information such as age and gender, and were asked to evaluate the subjective distance on a 9-point scale (" How far do you think the location of these financial product providers is from you? "). 1 = very close, 5= moderate distance, 9 = very far).

4.3 Results and analysis

4.3.1Operational test of risk appetite

In order to prevent the result of intertemporal decision from being affected by individual decision risk preference, the decision risk preference of the subjects was measured before the formal experiment. The risk preference results of the two groups are shown in Table 4. According to ANOVA, subjects with different spatial distances do not show significant differences in RPI(risk preference index) (F=0.108, P=0.743), which means that the characteristics of subjects' risk preference do not affect the process of spatial distance's influence on intertemporal decision preference.

Table 4 Results of RPI measurement of risk preference in experimental decision-making of savings financial products

Item	Spatial distance		Total	F	*P*
	Space distance 100 km	Space distance 1000 km			
Average	8.13	7.95	8.039	0.108	0.743
Standard deviation	2.53	2.36	2.430		

4.3.2Analysis of intertemporal selection results and significance difference

In each subject's five inter-period choices of savings and financial products, each SS choice was marked as 1 point, while LL choice was not scored. The score of the five choices in the experiment is added and the total score is the intertemporal decision preference score of the subject. The score of intertemporal decision preference ranges from 0 to 5, with a larger number representing a greater preference for SS profit scheme and a smaller number representing a greater preference for LL profit scheme. Two-factor analysis of variance was used to explore the relationship between subjects' gender and spatial distance on intertemporal decision preference. Spatial distance had a main effect (F=20.216, P=0.000,η^2=0.219), indicating that spatial distance had an experimental preference for savings and financial products. It was significantly lower than the mean value (3.05) in the far spatial distance group. The main effect of gender was not significant (F=0.314, P=0.577), indicating that gender had no influence on experimental preference for savings and financial products. Spatial distance × gender had no interaction effect (F=2.477, P=0.120). See Table 5 for details.

In the savings and financial products experiment, compared with the near-space distance group, the subjects in the far-space distance group preferred the scheme with less profit but shorter savings term, that is, the far-space distance group preferred the "short and few" SS scheme.

Table 5 Results of two-factor analysis of variance of savings and financial products

	Sum of squares	Mean squared	F	*P*
Space distance	33.155	33.155	20.216***	0.000
Gender	0.514	0.514	0.314	0.577
Space distance×Gender	4.062	4.062	2.477	0.120
Error	118.081	1.640		

Note：* ：p<0.001**

4.3.3Operational test of spatial distance

Subjective spatial distance perception uses a nine-level scale ranging from 1 to 9. The smaller the number, the closer the subjective perceived distance, the larger the number, the farther the perceived distance, and the middle digit 5, the moderate perceived distance. According to the analysis of variance, subjects with different spatial distances showed significant differences in subjective distance perception (F=165.767, P=0.000, η^2=0.691). The specific comparison difference shows that the mean value of the near spatial distance group (4.16) is significantly lower than that of the far spatial distance group (7.42). This means that the subjective spatial distance perceived by the subjects in the far spatial distance group is significantly greater than that in the near spatial distance group, indicating that the setting of the experimental spatial distance plays a role and causes the spatial distance perception of the subjects. The subjective evaluation of subjects' subjective spatial distance perception in the two groups is shown in Table 6.

Table 6 Subjective spatial distance perception results of savings and financial products experiments

Item	Spatial distance		F	*P*
	Space distance 100 km	Space distance 1000km		
Average	4.16	7.42	165.767***	0.000
Standard deviation	1.08	1.13		

Note：* : p<0.0**

4.4 Result discussion

The experimental results of intertemporal decision making of savings and financial products show that in this situation, spatial distance has an impact on intertemporal choice. With the increase of spatial distance, decision makers are more inclined to choose the SS scheme with earlier profit. According to the theory of explanatory level, in intertemporal decision making, decision making has two typical dimensions of high and low explanatory level, namely time and result. According to the single-dimensional dominant model [1], decision makers will compare the options of the two different explanatory level dimensions of time and result, judge the more advantageous dimension according to the actual situation, and make decisions accordingly. In the scenario experiment of savings and financial products, the subjects are basically college students who have not yet worked and have no fixed income. In fact, the living expenses of college students are usually measured in monthly units. In the scenario of savings and financial products delayed for one year, the delay in time dimension becomes the main thinking dimension. The result dimension (amount) with a high interpretation level is not the dominant dimension compared to the time delay because the benefits are all of the same order of magnitude. Therefore, in the savings and financial products, the long spatial distance may aggravate the decision makers' preference for the time delay dimension as the main advantage dimension. Therefore, when the spatial distance is far, the decision makers tend to choose the SS option of "short and few". In addition, Liu Qianqian (2021) mentioned in the study on the impact of price accuracy and spatial distance on purchase intention that when the result is the exact amount, the purchase intention of the near spatial distance group is greater than that of the far spatial distance group. It is believed that when the spatial distance is relatively close, more attention is paid to the feasibility of the event, while when the spatial distance is relatively far, more attention is paid to the desirability of the event [20]. In this paper, all scenarios of savings and financial products provide exact amount returns. The far-space group may be more concerned about whether the return plan is desirable, while the short and few SS options are more desirable for college students.

5. Experiment 2: The effect of spatial distance on intertemporal selection in super market shopping context

5.1 Experimental purpose

As mentioned above, some of the contextual experiments conducted by predecessors involved fields that were not reflected in the intertemporal selection situations in daily life and were not widely representative. In order to reflect the intertemporal selection situations in real life as much as possible, the supermarket shopping situations at different spatial distances were adopted in this experiment. Experiment 2 aims to explore the influence of different spatial distances of supermarket shopping on intertemporal decision making in the context of daily life, aiming to explore whether the influence of different spatial distances on intertemporal decision making in a broader experimental context is consistent with the results of experiment 1.

5.2 Experimental method

5.2.1Subject

There were a total of 258 subjects with an average age of 20.63±1.11 years. Among them, 130 were males, accounting for 50.39%; There were 128 females, accounting for 49.61%. All the subjects were undergraduates in a university in Sichuan Province. All the subjects participated in the experiment in similar situation for the first time.

5.2.2Experimental design

This experiment is based on the supermarket shopping situation designed by Wang Yuan (2012). The supermarket shopping situation designed by Wang Yuan has the following deficiencies: the amount of the intertemporal options is small in order of magnitude, and the difference is not large (50 yuan and 100 yuan). According to the experimental material conclusions used for the amount effect, the interpretation is not strong [17]. After optimization and adjustment, the single-factor inter-subject design

was adopted. The independent variable was the spatial distance between different supermarkets and subjects, including near (50 meters) and far (5000 meters). The dependent variable is the subject's specific choice of intertemporal decision in the supermarket shopping situation. The optimization and adjustment scheme is as follows: In order to ensure that the SS option and LL option in the situation are non-differential options as far as possible, that is, the subjective feelings of the subjects are roughly the same. According to the titration procedure experiment carried out by He Miao (2019), the purpose of this experiment is to determine the SS profit-making scheme and LL profit-making scheme with the same subjective feelings in the intertemporal decision-making by roughly matching the proportion of SS options and LL options selected by the subjects under natural conditions. Taking the near space distance group as an example, the experimental material "A shopping coupon: Face value 50 yuan, effective date is the same day (that is, you can use this shopping coupon today), this supermarket is 50 meters away from your home" is adjusted to "A shopping coupon: The value is $93, the effective date is one month later (that is, one month later today can use this shopping voucher), the supermarket is 50 meters away from your residence "; Adjust the experimental material "B shopping coupon: Face value 100 yuan, effective date is three months later (that is, you can use this shopping coupon today after three months), this supermarket is 50 meters away from your residence" to "B shopping coupon: The value is $275, the effective date is three months later (that is, three months later today you can use this voucher), and the supermarket is 50 meters away from your residence."

At the same time, before the experiment began, the risk appetite of the subjects was measured, and the risk appetite questionnaire prepared by Hsee and Weber(1999) was adopted, which has been proved to have good reliability and validity in domestic studies. At the end of the experiment, the spatial distance perception level of the subjects was measured to check whether the situational experimental distance operation design reached the expected purpose, and to eliminate the profit difficulty imbalance caused by different distance perception. In the formal experiment, the subjects were divided into two experimental groups, the near-space distance group and the far-space distance group, with 129 people in each group.

5.2.3Experimental material

The experiment was conducted in a relatively confined space by using paper questionnaires and experimental materials (pen and paper test). Before the formal experiment, the subjects took risk appetite measurement, and after the experiment, the spatial distance perception level was measured. In the formal experiment, the subjects read the instruction first, and the purpose of setting the instruction was to arouse the subjects' situational hypothesis; Second, let subjects understand the type of situational experiment; The third is to clarify the choices that the subjects need to complete in the situational experiment. Instructions are as follows:

Imagine that you win a prize in a promotion lottery. The prize is two coupons offered by a large general supermarket, and you can only choose one.

Participants were given a choice between supermarket coupons that were valid at different times and locations. For example:

A Coupon: $93, effective one month later (that is, one month later today you can use this coupon), the supermarket is 50 meters away from your residence.

B Coupon: $275, effective after 3 months (that is, you can use this coupon today after 3 months), the supermarket is 50 meters away from your residence.

The experimental materials in the long-distance group were different only in spatial distance, and the others were the same, that is, 50 meters was changed to 5,000 meters.

After completing the intertemporal selection of supermarket shopping coupons, participants were required to fill in personal information such as age and gender, and their subjective distance level was measured on the 9-point scale (" How far do you think the supermarket is from you? "). 1 = very close, 5= moderate distance, 9 = very far).

5.3 Result

5.3.1Operational test of risk decision preference

As mentioned above, in order to prevent the results of intertemporal decision making from being affected by the risk preference of individual decision making, the influence of additional factors on the experimental results in the experimental process is reduced, and the results of intertemporal decision making are only affected by spatial distance. Before the formal experiment, the participants' decision risk appetite was measured. The decision risk preference results of the two experimental groups are shown in Table 7. According to the analysis of variance, subjects with different spatial distances do not show significant differences in RPI of decision risk preference (F=1.350, P=0.249), which means that the characteristics of subjects' risk decision preference do not affect the results of spatial distance on intertemporal decision preference.

Table 7 Results of RPI measurement of risk preference in supermarket shopping context

Item	Space distance		Total	F	*P*
	Space distance 50m	Space distance 500m			
Average	9.37	8.63	9.000		
Standard deviation	3.06	2.22	2.681	1.350	0.249

5.3.2Intertemporal selection results and significance analysis

When the space distance is 50 meters, the subjects are more inclined to choose LL scheme, namely B shopping coupon; when

the space distance is 5000 meters, more subjects are inclined to choose SS scheme, namely A shopping coupon. Chi-square test analysis showed that there was a significant difference in the selection of shopping vouchers at different spatial distances (X2=9.689,P=0.002). By comparison of percentage differences, it can be seen that 71.43% of shopping vouchers SS were selected in the far-spatial distance group, which was significantly higher than 34.29% in the near-spatial distance group. The proportion of the near space distance group choosing shopping coupon LL was 65.71%, which was significantly higher than that of the far space distance group 28.57%. Different genders have no significant effect on selection preferences in the intertemporal decision-making situation of supermarket shopping (X2=0.272,P=0.602), as shown in Table 8. Compared with the near space distance group, subjects in the far space distance group preferred shopping coupons with smaller denominations but earlier effective time, meaning that when the space distance was large, subjects tended to choose shopping coupons with smaller amount and effective time after one month rather than three months. That is, the far spatial distance group preferred the SS scheme more, which was consistent with the experimental results of savings and financial products.

Table 8 Inter-period selection results of supermarket shopping situation experiment[n(%)]

Item	Space distance	
	Space distance 50m	Space distance 5000m
SS Plan: Face value 93 yuan, after one month	12（34.29%）	25（71.43%）
LL Plan: Denomination $275, after 3 months	23（65.71%）	10（28.57%）

5.3.3Operational test of spatial distance

Subjective spatial distance perception uses a nine-level scale ranging from 1 to 9. The smaller the number, the closer the subjective perceived distance, the larger the number, the farther the perceived distance, and the middle digit 5, the moderate perceived distance. According to ANOVA, subjects with different spatial distances showed significant differences in subjective distance perception (F=438.270, P=0.000, η^2=0.866), and specific comparison differences showed that the mean value of the near spatial distance group (M=1.31) was significantly lower than that of the far spatial distance group (M=6.54). This means that the subjective spatial distance perceived by the subjects in the far spatial distance group is significantly greater than that in the near spatial distance group, indicating that the experimental spatial distance operation is effective and causes the spatial distance perception of the subjects. The subjective evaluation of subjects' subjective spatial distance perception in the two groups is shown in Table 9.

Table 9 Results of subjective spatial distance perception in supermarket shopping context

Item	Space distance		F	*P*
	Space distance 50m	Space distance 5000m		
Average	1.31	6.54	438.270***	0.000
Standard deviation	0.53	1.38		

Note：* ：p<0.001**

5.4 Result discussion

The experimental results of supermarket shopping intertemporal decision-making show that in this context, spatial distance has an impact on intertemporal selection. With the increase of spatial distance, decision makers are more inclined to choose SS scheme that gets preferential treatment earlier but with smaller amount, which is consistent with the experimental results of savings and financial products. According to the theory of explanation level, the processing of a certain thing has two levels of explanation. In order to more reasonably explore the influence of spatial distance on intertemporal decision-making under the dual influence of result dimension and time dimension, Miao He (2019) tested denominations with the same subjective value perception under a certain delay time effect in the supermarket shopping context. "$93 in one month is equivalent to $275 in three months." The experiment of this situation supports another interpretation perspective of the influence of spatial distance on intertemporal countermeasures proposed by He Miao, that is, the sense of control. With the increase of the spatial distance, compared with the close spatial distance, the subjects had a lower sense of control over the coupon items in the supermarket shopping situation. Of course, Wu Jie (2021) also mentioned another perspective worth thinking about, that is, the relationship between emotion and spatial distance, arguing that the spatial distance perception of emotion of high reaching motivation (decision-making behavior taken in the face of things beneficial to oneself in daily life) is closer [21]. In this paper, the supermarket shopping situation is set as coupon reward, in fact, through this situation may have induced the approach motive emotion of the subjects. In summary, subjects may have stronger perception of spatial distance when facing SS option. Affected by this effect, the subjective value perception of distant spatial distance may no longer be the same, so they tend to choose SS option.

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