

Research Article

Research of the Effect of Risky Choice Framing Effect on Personal Taxpaying Decision

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Abstract: This study focuses on the effect of risky choice framing effect in the taxpaying decision process. To promote personal tax compliance, this study takes the risky choice framing effect into the research of taxpaying compliance activity, analyses taxpayers' psychological principles in decision-making and studies risky choice framing effect in framing effects. Experimental method has been adopted in this study to analyze the effect of risky choice framing effect. The analysis results show that the taxpayer's compliance decision does not exist significant risky choice framing effect when the tax rate is low, whereas it shows such character significantly when the tax rate increases to a certain degree. It also discovers the existence of withholding phenomenon. Taxpayers on the condition of tax reimbursement show a higher degree of compliance compared to those who are in the condition of paying conscience money. According to the findings of this research, considering the current situation of China's taxpaying, three policy recommendations has been proposed to increase the degree of personal tax compliance. These recommendations include the policies of taxes paid in advance and annual income tax report and decreasing the marginal tax rate.

Keywords: Personal taxpaying, risky choice framing effect, tax compliance

INTRODUCTION

The framing effect means that different presentations of the same question will lead the decision maker making different decision-making behaviours. The concept of frame was firstly originated by Hovland *et al.* (1953) in the pioneering work of Yale spread research project. As a psychological phenomenon, the framing effect reflects the irrational character of the decision maker and the theory of expected utility based on the assumption of perfectly rational decision-makers cannot describe such phenomenon. Since the birth of the prospect theory, as it has abandoned the assumption of perfectly rational decision-makers, it seems more explanatory on personal decision-making behaviours under risky condition. Therefore, scholars tend to use this theory to explain the framing effect. There have been many studies confirm that the framing effect exists in the risky decision-making behaviours such as consumers buying decision, portfolio investment decision and so on Baldry (1987), He *et al.* (2002) and Wang and Xu (2007). During recent years, many scholars abroad start to study the influence of framing effect in taxpaying decision-making behaviors and they explain this through prospect theory. However, most of their studies do not clarify the type of framing effect. According to the study of Levin *et al.* (1998), the framing effect mainly

has three types: risky choice framing effect, goal framing effect and attribute framing effect. This is primarily targeted at risky choice framing effect.

RISKY CHOICE FRAMING EFFECT

Risky choice framework means that different choices of the same decision involve different degrees of risk (Forest and Sheffrin, 2002; Alm and Mckee, 2006). The most obvious example is the deterministic choice and risky choice, in this situation, no matter decision-makers are in the positive framework or negative framework; they are faced with two kinds of choices under different kinds of risk and will make different choices (Schepanski and Kelsey, 1990; Cullis *et al.*, 2006). The typical manifestation of risky choice framing effect in tax compliance decision is withholding phenomenon. Many foreign scholars' studies have demonstrated the existence of withholding phenomenon, which describes the same tax question as that conscience money and tax reimbursement will lead taxpayers to make different tax decision. In this process of decision-making, tax reimbursement and conscience money respectively represent positive framework and negative framework. Taxpayers are faced with two choices: paying taxes honestly or dishonestly, which mean deterministic choice and risky choice (Blumenthal and Joel, 1992; Ariff *et al.*, 1994;

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Hasseldine and Hite, 2003). This shows that what the taxpayers are faced with is risky choice framework. The final decision shows that taxpayers make different choices under the positive framework of tax reimbursement and the negative framework of paying conscience money and the former tends to choose to pay taxes honestly while the latter tends to pay taxes dishonestly. From this, we can see that the existence withholding phenomenon shows the existence of risky choice framing effect in tax decision.

This work takes the experimental approach to investigate the existence of risky choice framing effect through the study on withholding phenomenon. Different from former research which adds auditing rate variables into the experiment, this study will add the variable of tax rate and investigate its functions.

DESIGN OF THE EXPERIMENT

The experiment designs two situations: tax reimbursement and paying conscience money. Assume the tax rate is T .

In the condition of tax reimbursement, experimental subjects are faced with the following situation: They have paid their taxes of this year, which is $6000 \times T$, in advance according to last year's taxable income of 6000 RMB. However, the actual taxable income of this year is 5000 RMB, which means that the actual amount of taxable money is $50000 \times T$. That is to say the prepaid tax is more than the actual amount of taxable money and the tax office will refund the excess tax paid before to the taxpayers and the amount of such money is $60000 \times T - 50000 \times T = 10000 \times T$. Taxpayers need to decide whether to declare their actual taxable income honestly. If they do this honestly, they will gain tax reimbursement of $10000 \times T$. If they do this dishonestly, that means they declare their taxable income below 5000 RMB, they will gain more tax reimbursement and are faced with the risk of being seized by the tax office at the same time. Once being caught by the tax office, taxpayers not only cannot gain more tax reimbursement, but also have to face fines.

In the condition of paying conscience money, experimental subjects are faced with the following

situation: They have paid this year's taxes, which is $40000 \times T$, according to last year's taxable income of 4000 RMB. However, their actual taxable income this year is 5000 RMB, so the actual amount of payable tax is $50000 \times T$. That means the taxpayers' taxes paid in advance is under the actual amount and tax office will require them to make up the part of payable tax, which is $50000 \times T - 40000 \times T = 10000 \times T$. Taxpayers need to decide whether to declare their actual taxable income honestly. If they do this honestly, they have to pay conscience money of $10000 \times T$. If they do this dishonestly, the conscience money they need to afford is less, but they are faced with the risk of being seized and fined at the same time.

We can see that in either case, taxpayers' actual payable tax is $50000 \times T$. The difference is that the situations they are in are described as paying conscience money and getting tax reimbursement. Whether taxpayer's level of tax compliance will be different is the key research content, also is the evidence of the existence of risky framing effect in the taxpayer's tax decision.

To investigate the level of taxpayer's tax compliance, experimental subjects should choose whether declaring their actual taxable income honestly. Their answers will be measured by points scale from 1 (absolutely will) to 9 (absolutely will not). The smaller the figure is, the higher level of compliance is, while the bigger the figure is, the higher the level of incompliance is.

This experiment also designs three kinds of tax rate. They are respectively 10, 20 and 40%, respectively. Experimental subjects in either situation should complete the tests in each tax rate. Table 1 sums up situations the experimental subjects face up in each situation.

DATA ANALYSIS AND CONCLUSION

This experiment chooses two hundred of MBA students who have actual experience of paying taxes in Central China as experimental subjects. Then arrange them into the two conditions randomly. Rejecting the one who did not complete the experiment, the final effective numbers reflect that ninety-four people are in the condition of tax reimbursement and one hundred

Table 1: Situations in the experiments

Condition	Tax rate (%)	Taxes paid in advance	Actual payable taxes	Tax reimbursement gained	Conscience money should be handed in
Tax reimbursement	10	6000	5000	1000	
	20	12000	10000	2000	
	40	24000	20000	4000	
Paying conscience money	10	4000	5000		1000
	20	8000	10000		2000
	40	16000	20000		4000

Table 2: Inspection result of tax compliance

Tax rate	Levene test of variance equation		T test of mean equation				
	F	Sig.	T	Df	Sig. (two-tailed)	Difference of mean value	S.D.
10%	0.272	0.602	0.679	197	0.498	0.262	
20%	0.782	0.378	2.005	197	0.046	0.743	0.370
40%	1.797	0.182	3.560	197	0.000	1.420	0.399

Table 3: The mean value of tax choice under different tax rates

Tax rate (%)	Mean value in the condition of paying conscience money	Mean value in the condition of tax reimbursement
10	3.4	3.14
20	4.2	3.46
40	5.05	3.63

and five people are in the condition of paying conscience money. The result of experimental data analysis is as follows:

The existence of the risky choice framing effect:

- **The results of data analysis:** By the use of SPSS 7.0 statistical software and Independent Samples *T* Test, this experiment compares the average of the figures which show the level of their tax compliance under the same tax rate. The results of *T* test and tax mean value are shown in Table 2 and 3.

From Table 2, we can see that *P* value of homogeneity test of variances is all bigger than 0.05 under three tax rates, so both of the samples variances have homogeneity. Specific *T* test results will be analyzed below.

When the tax rate is 10%, the *T* value is 0.679. Its corresponding *P* value is 0.498, there is no significant difference between the two samples' mean value.

When the tax rate is 20%, the *T* value is 2.005. Its corresponding *P* value is 0.046, there is significant difference between the two samples' mean value.

When the tax rate is 40%, the *T* value is 3.560. Its corresponding *P* value is 0.000, there is great significant difference between the two samples' mean value.

In general, when the tax rate is 10%, there is no significant difference in the level of tax compliance under the condition of tax reimbursement and paying conscience money, so there does not exist the risky choice framing effect. However, when the tax rate is 20 and 40%, the level of tax compliance has great difference. Furthermore, we can see from the mean value of tax choice in the Table 3 that means values in condition of tax reimbursement all lower than those in condition of paying conscience money. That is to say the levels of tax compliance in the condition of tax reimbursement are significantly higher than those in the condition of paying conscience money and there is risky choice framing effect in the decision behavior of the taxpayer.

- **Explanation of the results from prospect theory:** When the tax rate is 20 and 40%, taxpayers under different conditions show a significant difference in the level of compliance whose behavior is in accordance with prospect theory. Opinions in this theory connected with cost function deem that decision-maker in the condition of gaining show the tendency of avoiding risks, while seek for risks when in the condition of losing. When in the condition of tax reimbursement, taxpayers regard the tax reimbursement as a kind of gaining, so they show the character of avoiding risks and so the level of compliance is higher; when they are in the condition of paying conscience money, they regard paying conscience money as a kind of losing, so they show the character of seeking risks and so the compliance level is lower

The effect of tax rate on framing effect:

- **Results of data analysis:** From the test results in Table 2, with the rising of tax rate, the *P* value decreases gradually and the difference of the mean value changes from inconspicuous (*P* = 0.498) to significant (*P* = 0.046) and then to very significant (*P* = 0.000), which shows the effect of risky choice framework grows gradually. The following content will be the effect of the increasing tax rate on the tax compliance of the taxpayers in the condition of tax reimbursement and paying conscious money and the cause of such phenomenon.

As every experimental subject has to complete tests of three kinds of tax rate in the given situations, we can use the paired-sample *t* test to respectively analyze whether there is significant difference in taxpayers' tax compliance in the condition of tax reimbursement and paying conscious money. Through SPSS, we can get the result of paired-sample test as Table 4.

From Table 4, we can see that the *P* value of both pairs P1 and P2, P2 and P3 is 0.000, representing that the mean difference for each pair of the sample is very significant. And we can see from the negative *t* value that mean value of P2 is higher than P1 and so are P3 and P4. The higher the mean value is, the lower the tax compliance is. This shows that in the condition of paying conscious money, as the rising of the tax rate, significant change appears in taxpayer's tax

Table 4: The results of paired-sample T test

		Pairs difference			Difference of 95% confidence interval				
		Mean vale of the differentials	S.D	S.E. mean	L.L	U.L.	T	Df	Sig.(two-tailed)
Pair 1	P1-P2	-0.800	1.718	0.168	-1.132	-0.468	-4.773	104	0.000
Pair 2	P2-P3	-0.848	2.102	0.205	-1.254	-0.441	-4.132	104	0.000
Pair 3	R1-R2	-0.319	1.574	0.162	-0.642	0.003	-1.966	93	0.052
Pair 4	R2-R3	-0.170	2.118	0.218	-0.604	0.264	-0.779	93	0.438

compliance: it decreases greatly. However, P value of the two pairs of sample R1 and R2, R2 and R3 is bigger than 0.05, showing that each pairs of sample has no significance. This suggests that in the condition of tax reimbursement, as the rising of the tax rate, there is no significant change in taxpayers' level of compliance.

In general, with the rising of tax rate, on the one hand, there is no change in taxpayers' level of compliance in condition of tax reimbursement; on the other hand, taxpayers in condition of paying conscious show significant decrease in compliance level, which makes the difference between taxpayers in the two conditions become bigger and the significance of the difference more and more strong. This is why the higher the tax rate, the stronger the significance of risky choice framing effect.

- Explanation of the result from prospect theory:** The result of the data analysis shows that the rising of the tax rate has no significant influence on the tax compliance of taxpayers in the condition of tax reimbursement. While in the condition of paying conscience money, the rising of the tax rate will lead a significant decrease in the taxpayers' compliance. Such result can be explained by the prospect theory. According to the prospect theory, the decision-maker will show the trend of avoiding risks in the situation of gaining and seek risks in the situation of losing. As tax is an outflow of economic benefits, it is equal to a kind of losing. The higher the tax rates are, the more the payable tax is and the more the losing is. So taxpayers' trend for seeking risks is more serious and their tax compliance is lower. Then, in the condition of tax reimbursement, on the one hand, the rising of the tax rate leads the decrease of taxpayer' tax compliance; on the other hand, it makes the amount of tax reimbursement the taxpayers can gain become more. As taxpayers regard tax reimbursement as a kind of gaining, so they show a greater trend to avoid risks in the condition of increasing gaining. So their level of tax compliance rises. The two aspects have opposite effects on taxpayers' tax compliance, which leads no significant change of taxpayers' tax compliance as the tax rate rises. Likewise, in the condition of

paying conscious money, on the one hand, the rising of the tax rate leads to the decrease of taxpayers' tax compliance; on the other hand, it makes the amount of conscience money taxpayers should hand in become more. As taxpayers regard paying conscience money as a kind of losing, their tax compliance decreases gradually when they are in the condition of losing more. Both aspects lead the decrease of taxpayers' tax compliance, which then makes a significant change of taxpayers' tax compliance as the rising of the tax rate.

POLICY SUGGESTIONS

This thesis starts from the taxpayers' psychological principles. Through the study of framing effect's influence on taxpayers' tax compliance, it puts forward some policy suggestions without the rising of tax collection and management costs and the strengths of the punishment.

- The combination of taxes paid in advance and annual income tax report:** The influence of risky choice framing effect on tax decision behavior in this thesis shows that taxpayers who get tax reimbursement show a higher degree of tax compliance than those who have to pay conscience money. So tax office can make taxpayers in the situation of gaining as possible to change their risk preference and so decreases the incompliance behaviors. The result of this thesis also suggests that the significance of taxpayers' tax compliance's difference is strengthened as the rising of the tax rate, whether taxpayers are in the condition of paying conscience or getting tax reimbursement. That is to say, to high-income groups who are suitable for the higher marginal tax rate, withholding phenomenon is more evident. So, taking the system of paying taxes in advance can have an important effect to improve the phenomenon that high-income groups' tax incompliance in our country.
- Using the strategy of information:** Goal framing effect's influence on taxpayer's compliance decision in this thesis shows that different emphasized information leads taxpayers showing

different levels of tax compliance. Taxpayers who obtain positive information show higher level of tax compliance than those who get negative information. So, tax office can use the strategy of information to prompt taxpayers to pay taxes consciously. The Tax Office can convey persuasive communication information to taxpayers through mediums such as tax sites, T V and newspaper. Taking advantage of taxpayer's psychology that avoiding risks when they are faced with gains and emphasizing the benefits brought by paying tax in accordance with law. Then let tax office increase taxpayers' tax compliance without the increase of taxation cost through reforming taxpayers' psychological activity. Besides, this study also finds that the male show more tax incompliance behaviours than the female. So, tax office should pay more attention on the male's tax payment behavior and review them more frequently.

- **Decreasing the marginal tax rate properly:** According to the prospect theory, taxpayers will show the trend for risks in the condition of losing. Taxpayers regard paying taxes as a kind of losing. The higher the tax rate is, the more payable tax is and the greater the taxpayer will lose. Thus leads a higher degree of tax incompliance. This is demonstrated in the research of risky choice framing effect. The situation of our country's high-income groups' tax incompliance is serious and part of the reasons is the high marginal tax rate on them, which makes them feel more losing and take more incompliance behaviors. In our country's individual income tax, the highest marginal tax rate of income and salary is 45%, which is too high compared with developed countries. For example, marginal tax rate on individual income tax is only 35% in America. Very high marginal tax rate not only will irritate tax incompliance and few taxpayers can reach this point, which makes it exist in name only. So, decreasing tax rate properly has important significance in improving taxpayers' tax incompliance, especially those who belong to the high-income groups.

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