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Is Human Life Worth Peanuts? Risk Attitude Changes in Accordance with Varying Stakes

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Abstract

The "peanuts effect," which states that people are more willing to gamble when playing for "peanuts" (a small outcome), has been stably observed in the context of a small monetary stake. We conducted 2 experiments to verify whether the peanuts effect still occurred when the type of stakes changed. Our results showed that people tend to gamble more for a qualitatively smaller value when the stake is material in nature, but are less willing to take a risk for a smaller value when the stake is a human life. This risk attitude change may support the contingent weighting model.

Keywords: peanuts effect, life-or-death decision, contingent weighting model, risk attitude, disappointment, monetary stakes

Introduction

Risk aversion is well-known as a general and robust characteristic of people's decision making: people are less likely to gamble when they are unsure if they will obtain the expected value of the bet made. The "*peanuts effect,*" which was first noted by Markowitz (1952), is, however, an exception to this general rule: people are more willing to gamble when playing for "peanuts" (small monetary amounts).[1] People might choose to take a $100 certain gamble over a 10% chance at winning $1,000, but they might prefer to take the 10% chance at winning $10 over receiving $1 for sure.

Although Markowitz himself did not examine this effect experimentally, a number of subsequent studies showed that the peanuts effect remains stable in the context of a monetary stake (Du, Green, & Myerson, 2002; Holt, Green, & Myerson, 2003; Green, Myerson, & Ostaszewski 1999; Myerson, Green, Hanson, Holt, & Estle, 2003). In their meta-analysis of published studies on save-or-spoil situations, Kuhberger, Schulte-Mecklenbeck, and Perner (1999) stated that higher payoffs usually led to increasing risk aversion when not only money/property but also nonmonetary goods, like jobs or time, are at stake. Moreover studies, presented in the next paragraph, have revealed that a similar phenomenon to the peanuts effect occurred when a human life, which is intuitively qualitatively different from money or other material goods, was at stake.

Table 1 summarizes Wang and colleagues' research, which shows how people's attitude to risk changes when contextual group size is manipulated in a life-or-death decision situation. Generally speaking, the results showed that people's risk-seeking tendency was greater in the context of both positive and negative frames when the affected group was small (e.g., six or 60 people) than when it was large (e.g., 600 or 6,000 people). In accordance with these studies, which mainly used American or European university student samples, studies of the

[1] The name, "peanuts effect," was coined by Prelec and Lowenstein (1991).

Japanese general public (e.g., Shimizu & Udagawa, 2011a, 2011b) showed the same phenomenon (see Table 2).

Smaller group sizes leading to increased risk seeking can be interpreted as a form of the peanuts effect. However, there are two reasons to doubt this interpretation, the first of which is related to differences regarding the degree of risk seeking. As regards the peanuts effect, "it is not actually necessary to become risk seeking for very small gains, merely to become less risk averse for smaller payouts" (Weber & Chapman, 2005, p. 32). For example, Weber and Chapman (2005) showed that, when the probability of winning is 80%, 21% of subjects chose the probabilistic option when playing for $1, 14% when playing for $10, 14% when playing for $100, and 14% when playing for $1,000. On the other hand, Table 1 above reveals that people exhibited more risk seeking in small-group contexts, e.g., six or 60 people, where more than 60% of the participants chose a gambling alternative. Although Table 2 reveals that the percentage of Japanese subjects who choose the probabilistic choice is usually 10–30% smaller than that of American or European subjects, their degree of risk-seeking remains higher than that reported by usual peanuts effect studies using a monetary account as the stake. Notably, Fagley and Miller (1997) showed that for outcomes involving human lives rather than money, subjects were more likely to take a chance when the stake size was very large, e.g., between 600/36,000/21,6000 people or dollars. They suggested that "choice behavior involving human life outcomes in the positive frame is *qualitatively* different from the monetary arena" (p. 369).

The second, and more substantive reason, reflects possible differences in psychological motives. Weber and Chapman (2005) suggested based on their experimental results that the peanuts effect could be caused by disappointment. *Disappointment*, as an emotion that is experienced when it is perceived that a different state of the world would have produced a better result, can engender the peanuts effect in that people may be willing to gamble when playing for small stakes, because they recognize they will not feel very much disappointed about the outcome if they lose the gamble. In contrast, for large-stakes gambles, where disappointment is much greater, the anticipated negative emotion may drive people to be more risk averse. Intuitively speaking, when we pick a 10% chance of winning $1 over a sure win of $0.10, we can say "Who cares if I lose? It's only a dime." However, is this psychological reasoning applicable to people's risk-seeking tendency in the context of a life-or-death situation when participants are in a small group size? When we give up four lives from among six people, do we still think that it is a good deal? Studies shown below have suggested that in contrast to the perceived value of a small amount of money, people might intuitively value a small-, rather than large-, sized group.

Evolutionary psychology states that the human mind consists of psychological mechanisms that are adaptive in the human environment of evolutionary adaptedness (EEA). For example, in a Pleistocene hunter–gatherer society, the maximum size was estimated to be around 100 to 200 people (Cosmides & Tooby, 1989, 2000; de Waal, 1996).[2] A considerable number of studies have indicated that numbers of around 150 are frequently observed across a wide range of contemporary human societies, like farming communities, subdisciplines of academic communities, and basic army units (Becher, 1989; Hardin, 1988; Mange & Mange, 1980). Mange and Mange (1980) demonstrated that the mean size of the 51 communities in the Schmedenleut section of the Hutterites (a fundamentalist group who live and farm communally in South Dakota and Manitoba) is 106.9 people. According to Hardin (1988), the Hutterites consider 150 individuals to be the maximum size for their farming communities; once a community reaches this limit, it is split into two daughter communities. Along the

[2] Studies of the brain have shown that the size of a social animal's neocortex is causally related to group size. Dunber (1995) calculated the size of hunter–gatherer societies by conducting a regression equation between group size and human neocortex size. The predicted group size was 147.8, and the 95% confidence limits around this prediction ranged from 100.2 to 231.1.

same line of inquiry, Caporael, Dawes, Orbell, and van de Kragt (1989) argued that small groups, as a basic form of social structure in EEA, would have given rise to selected mental adaptations, favoring emotional and cognitive mechanisms that worked well in a small-group living context. In the field of moral psychology, Slovic (2007) showed that while the misery of an individual could spark people's sympathy, mass murder or genocide could not. Further, Traulsen and Nowak (2006) used a multilevel selection model, to show that an important condition for the evolution of cooperation is a small group size. If human cooperativeness has evolved in a small group context, then it seems reasonable to suppose that a small group size reminds us of collaborative togetherness. If, on the basis of these discussions, we assume that people feel more attachment to a small group than a big one, the "disappointment" explanation of Weber and Chapman (2005) can be used to predict that people should seek fewer risks when in a small-, rather than big-, group context. Existing data, however, have not confirmed this prediction. Thus, we hypothesized that, in contrast to the peanuts effect, people will be more likely to be take risks to obtain a greater value when the stake is human lives.

These two points—differences in risk-seeking degree and psychological motive—lead us to think that the phenomenon of smaller group sizes leading to a higher risk-seeking attitude does not indicate the peanuts effect, in spite of their seeming similarity, because when a human life is at stake people may take more of a risk to obtain a greater value, whereas in the peanuts effect, people are more likely to gamble for a smaller value. Are these two phenomena essentially different? If so, how can we accommodate the difference? The main purpose of this study is to answer these questions by using an experimental method to examine the qualitative difference in monetary and human life outcomes on people's decision making.

Hypotheses and Predictions

This study includes two experiments: "life-or-death" and "drink." The first one is designed to verify if people really choose to gamble for a greater value when the stakes are human lives, while second one is used to examine if the peanuts effect can be replicated in a material goods quality context. The first experiment is our primary area of interest, but the second is also important because although many studies examining the peanuts effect have used a monetary stake or other ordinary goods with a money-related value, little is known about whether the peanuts effect occurs with ordinary goods that vary in quality (i.e., "cheap wine" instead of "wine costing $4"). If the peanuts effect does not occur in the context of both material goods (measured qualitatively) and human lives, then this may suggest that the effect is more closely related to quantitative, rather than qualitative, outcomes. By contrast, if the peanuts effect occurs in a quality context but not in a human life context, then this may highlight a substantive difference between the effect of human lives and standard goods on people's decision making. For both experiments, we principally used the same experimental design as the life-or-death situation developed by Kahneman and Tversky (1979), apart from the number of people or items and the quality of stakes.

Following the results of previous research (e.g., Shimizu & Udagawa, 2011a, 2011b; Wang, 1996b; Wang & Johnston, 1995; Wang, Simons, & Bredart, 2001), we predicted that people will be more likely to take chances in small than in larger size contexts. We are aware that this probable replication can be explained by the peanuts effect: "I value a larger number of people more than a smaller group; thus, I will gamble more in the former condition"; hence, we examined how subjects' risk attitude changes across three groups (people in general, friends, family) in six size categories. If the peanuts effect works in these categories, then the amount of risk seeking should decrease from people in general to friends and then to family, because subjects will tend to consider family as the most important and people in general as the least important, with friends in between.[3] In contrast, we hypothesize that people will display more risk seeking for a greater value when the stake is human lives; thus, they will take few risks for people in general, more risks for friends, and the most risks for family.

In the drink experiment, we propose on the basis of previous research regarding the peanuts effect that subjects will display more risk-seeking for cans of soft drink than for expensive wine; and that the same phenomenon will be observed for cheap compared to expensive wine.

Material and Methods

Subjects and Procedure

A private research company (Nikkei research Inc.) was used to recruit subjects for the web-based experiment. These subjects had voluntarily applied for membership to the research company and could choose to answer survey questions via the Internet in their homes, because the experimental instructions were presented on their computer. After the experiment, the company randomly chose some of the respondents and paid them a fee of ¥500 (approximately US$5–6). The survey took place from February 18–23, 2011 with 1,049 subjects (483 females and 566 males). The mean age was 35.9 years (*SD*: 14.7, range: 16–69).

Design

After reading the brief instructions on the computer screen, subjects answered one of four versions of a life-or-death situation (600 people, six people, six friends, or a family of six). As shown in Appendix A, for each of these contextual group sizes the life-or-death decision situation was presented either in terms of saving lives (positive framing) or losing

[3] This supposition was confirmed with comments made by our participants after the experiment. They generally wrote that they valued family of six the most, and six people the least.

lives (negative framing). The subjects were randomly assigned to one of the eight experimental groups and were unaware of the experimental manipulation. Each version of the life-or-death situation had the same mathematical probability structure, wherein the probability of survival was always one-third. The two options were either a sure cure for one-third of the patient group (Plan A) or a one-third probability of finding a cure for the whole group (Plan B). Each subject saw one version of the life-or-death situation and was asked to rate its attractiveness on a scale ranging from 1 (*highly risk averse*) to 6 (*highly attracted to taking risks*), where higher numbers meant that the probabilistic choice was more attractive. As our interest is in subjects' attitude direction, a 6-point scale is appropriate (Francis et al., 2004*)*.

After the life-or-death experiment, through questions about academic grounds and numeracy, subjects entered in the "drink experiment" (see Appendix B). They saw one version of the drink situation (six cans of soft drink, six bottles of expensive wine, 600 bottles of cheap wine, or 600 bottles of expensive wine) and were asked to rate its attractiveness on the same 6-point scale that was used in the other experiment.[4] Last, we collected demographic details, including sex, age, marital status, residential status, profession, and annual income.

Results

Drink Experiment

Table 3-1, 3-2 and Figure 1 reveal that the peanuts effect was observed in the drink experiment (which measured quality) when subjects were assigned to the positive framing

[4] One possible drawback of this design is the possible existence of a carry-over effect, whereby the subject's choice in the life-or-death experiment might affect her/his choice in the drink experiment. However as the possible carry-over effect cannot influence results of the life-or-death experiment and the aim of the drink experiment was to replicate the results of previous research in a different context, we believe that this possible effect will not adversely affect the main purpose of this study.

condition; however, in the negative framing condition, the peanuts effect did not occur. This is likely because the framing effect was so strong that there was a ceiling effect of risk seeking. As the peanuts effect should be examined in a positive framing context, we can disregard this nonoccurrence and state that the peanuts effect exists not only in a quantitatively less valuable condition but also in a qualitatively less valuable condition.

Life-or-Death Experiment

First, to focus on the subject's binary choice, the rating answers were converted to choice responses by determining which option had been given the higher rating, that is, ratings from 1 to 3 were considered as a deterministic choice and ratings from 4 to 6 as a probabilistic choice. Table 4-1,4-2 and Figure 2 show that the peanuts effect did not occur across all three categories, that is, six people, six friends, and a family of six in either framing condition.[5] The amount of risk the subjects were willing to take increased from six people to six friends and then to family of six; people were willing to make a riskier choice for a greater value. To closely examine this possible preference reversal, we used the following ordinal logistic regression model:

$$log\left({Prob(y \le j)} \Big/ {Prob(y > j)} \right) = Intercept_j + \beta_1 \times Positive\_Frame + \beta_2 \times 600\_People + \beta_3 \times Family + \beta_4 \times Friends$$

for $j = 1, 2, 3, 4, 5, 6$[6]

In this model, the dependent variable was the log of the odds of being less, as opposed to more, attracted by a gambling choice. The intercept$_j$ changed as a function of the jth cut-off

[5] Subjects exhibited increased willingness to take risks with decreasing group size; the differences in risk-seeking degree between the 600 people context and three groups of six contexts were significant in both framing conditions.

[6] It is also worth noting that neither sex nor age significantly affected subjects' decision making.

point. As regards the independent variables, *Positive_Frame* was dummy variable coded as 1 if the subject answered the positive framed situation or 0 for the negative framed situation; *600_People* was dummy variable coded as 1 if the subject answered the 600 situation or 0 for all other contexts. *Family* was dummy variable coded as 1 if the subject answered the family of six situation or 0 for all other contexts; *Friends* was dummy variable coded as 1 if the subject answered the six friends situation or 0 for all other contexts. In this model, regarding the three group size dummy variables, the base line was subjects who answered the six people situation.

Table 5 shows the estimation of this model along with the results of the life-or-death experiment.[7] A positive value of a coefficient, such as β_2 (p = .014), means that subject is more risk averse in the 600 people context than in the six people context. For example, the predictive probability of a subject who saw the 600 people situation in the positive framing condition and rated the attractiveness as 1, mostly attracted by a sure choice, was calculated as logit{Prob(1)} = -2.254 + 0.553 + 0.388 = -1.313; thus, the subject's predictive probability of rating the attractiveness as 1 is calculated as follows: Prob(1) = 1/{1 + exp (1.313)} = 0.21. By the same procedure, the predictive probability of a subject who saw the six people situation in the positive framing condition and rated the attractiveness as 1 is equal to 1/{1 + exp (1.701)} = 0.15. In the 600 people situation, the predictive percentage of subjects who preferred the probabilistic choice to the deterministic one was 29% (= Prob(4) + Prob(5) + Prob(6)), while in the six people situation it was 38%(= Prob(4) + Prob(5) + Prob(6)).

Following this procedure, the negative value of β_3 (p = .022) indicates that the subjects were significantly less risk averse in the family of six than for the six people situation. The predictive percentage of subjects who preferred the probabilistic choice to the deterministic one was 38% for the six people situation, while in the family of six situation it was 46%.

[7] The parallel lines assumption is nonsignificant, $\chi^2(df = 16, n = 1{,}079) = 20.202$, $p = .211$, suggesting that this model is probably valid for these data.

Further, the differences in the risk-seeking degree between the six friends and family of six situations was significant at the 10% level ($\beta_5 = \beta_3 - \beta_4 = -297$, $p = .056$). However, the difference in risk-seeking degree between the six people and six friends situations was nonsignificant ($p = .661$) although the negative direction of the related coefficient (β_4) is consistent with our expectation. Overall, subjects, attributing the highest value to family, are most likely to take a chance, which is entirely contrary to the peanuts effect.

Discussion and Conclusions

Considering the results of previous research on the peanuts effect and those of our experiments above, we can conclude that the decision maker's risk attitude may vary with the type of stakes: while people tend to be willing to take a risk for a greater value when the stake is human lives, they tend to gamble more (take a higher risk) for a smaller value (either quantitatively nor qualitatively) when the stake is monetary/material in nature. The contingent weighting model of Tversky, Sattath, and Slovic (1988), which was designed to describe the systematic change in outcome and probability prominence between choice and bidding tasks, may support this risk attitude reversal.

Suppose there are two lotteries: lottery (a), in which q_a is won with probability p_a and is otherwise 0, and lottery (b), in which q_b is won with probability p_b and is otherwise 0. The contingent weighting model assumes that under a condition that the value of one attribute (p) is independent from the fixed value of the other attribute (q), each lottery's value is represented by $q_a \times p^{\theta}_a$ and $q_b \times p^{\theta}_b$. θ is the weight imposed on the probability and the more θ exceeds 1 by, the greater is the relative weight assigned to the lottery's probabilities. Assuming that the expected values of both lotteries are same, $\theta > 1$ means that the lottery with the higher probability is preferred. In contrast, $0 < \theta < 1$ means that the lottery with the higher outcome is preferred because more weight is given to the outcome dimension than to the chance dimension.

By using this model, we can accommodate the risk attitude reversal observed in our experiment as follows: on the one hand, while subjects facing the drink situation gave more weight to the quantity of stake when the stake was *less valuable* (cheap), they gave more weight to the probability when the stake was *more valuable* (expensive). On the other hand, while subjects facing the life-or-death situation gave more weight to the quantity of stake when the stake was *more valuable* (family), they gave more weight to the probability when the stake was *less valuable* (people in general).

We would be more disappointed to spoil six bottles of expensive wine than to spoil six canned juices; hence, we tend to make a surer choice in the expensive wine context than in the cheap drink context. This disappointment explanation of the peanuts effect, which was given by Weber and Chapman (2005), seems to be compatible with the outcome to probability weight shift that is suggested by the contingent weighting model, because it can be assumed that the more valuable quality (expensive) stake makes the sure saving more prominent than the probable saving is. This is, however, not the case when human lives are at stake. We would be more disappointed not to save all six members of a family than not to save six people in general, but in this case we would be more likely to take chances in the family context than in the people in general context. In the life-or-death situation, according to contingent weighting model, a more valuable quality (family) of stake may make the outcome more prominent.

Further investigation is necessary to shed light on this phenomenon. First, instead of the disappointment, we should clarify the psychological mechanism that makes us willing to take risks for a greater value when the stake is human life. Second, if this mechanism can be identified, we should examine whether it is coherent with the weight shift whereby θ decreases with an increasing value of stake in the case of a life-or-death situation. Third, our first and second research directions, along with the assumption about the weighting hypothesis, are possibly flawed because in these directions we assume that the life-or-death situation, which can consist of multidimensional aspects (not only outcome and probability, but also relatedness, membership, etc.), can be transformed into two-dimensional scalars of outcome and probability. If human life as the stake is characterized by multiple criteria that may be qualitative, quantified with different units of measure, and conflict with each other, then reduction of these multiple dimensions into the two-dimensional scalars may not exactly reflect people's perception of the choice situation. In this case, the *cue priority hypothesis* (e.g., Shimizu & Udagawa, 2011; Wang, 1996a, 2008), in which it is stated that the primary cue in the situation description, on which subjects may focus among multiple criteria, can principally influence people's decision making, would be helpful. In addition, if this cue is more strongly related to the quantity of the stake (six or 600) rather than its substance (family or strangers), the intuitive number argument would be valid because it suggests that humans' basic "number sense" can influence the valuation of decision options (e.g., Peters, Slovic, Västfjäll, and Mertz, 2008).

Appendix A: Versions of the Decision Situation in the Life-or-Death Experiment

Positive Framing Version

Imagine that six people (six friends, a family of six, 600 people) are infected by a fatal disease. Two alternative medical plans to treat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the plans are as follows:

If plan A is adopted, two people (two friends, two of family, 200 people) will be saved.

If plan B is adopted, there is a one-third probability that all six people (six friends, family of six, 600 people) will be saved, and a two-thirds probability that none of them will be saved.

To what extent would you prefer each of these plans?

1. I prefer plan A to plan B very strongly.
2. I prefer plan A to plan B strongly.
3. I prefer plan A to plan B somewhat strongly.
4. I prefer plan B to plan A somewhat strongly.
5. I prefer plan B to plan A strongly.
6. I prefer plan B to plan A very strongly.

Appendix B: Versions of the Drink Decision Situation in the "Drink Experiment"

Positive Framing Version

Imagine that in a warehouse there are six cans of juice (six bottles of expensive wine, 600 bottles of cheap wine, 600 bottles of expensive wine) that will be totally spoiled without prompt remedy. Two alternative remedy plans to treat this situation have been proposed. Assume that the exact scientific estimates of the consequences of the plans are as follows:

If plan A is adopted, two cans of juice (two bottles of expensive wine, 200 bottles of cheap wine, 200 bottles of expensive wine) will be saved.

If plan B is adopted, there is a one-third probability that all six cans of juices (six bottles of expensive wine, 600 bottles of cheap wine, 600 bottles of expensive wine) will be saved, and a two-thirds probability that none of them will be saved.

To what extent would you prefer each of these plans?

1. I prefer plan A to plan B very strongly.
2. I prefer plan A to plan B strongly.
3. I prefer plan A to plan B somewhat strongly.
4. I prefer plan B to plan A somewhat strongly.
5. I prefer plan B to plan A strongly.
6. I prefer plan B to plan A very strongly.

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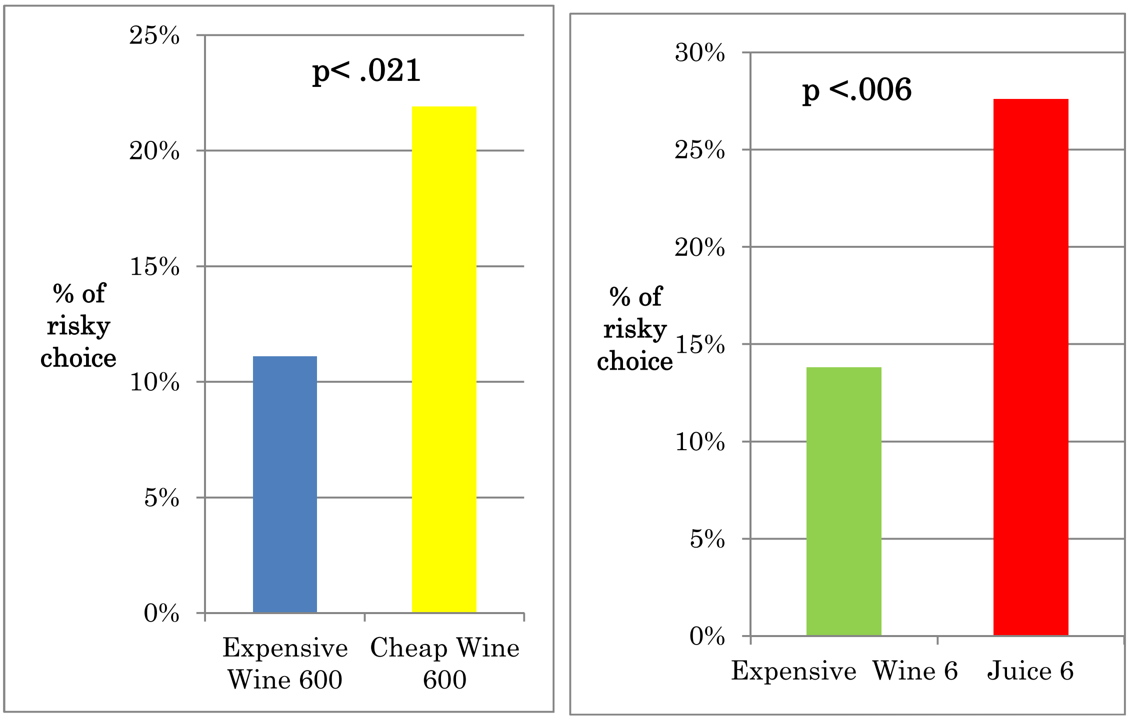

Figure 1: % of risky choice at “Drink problem”

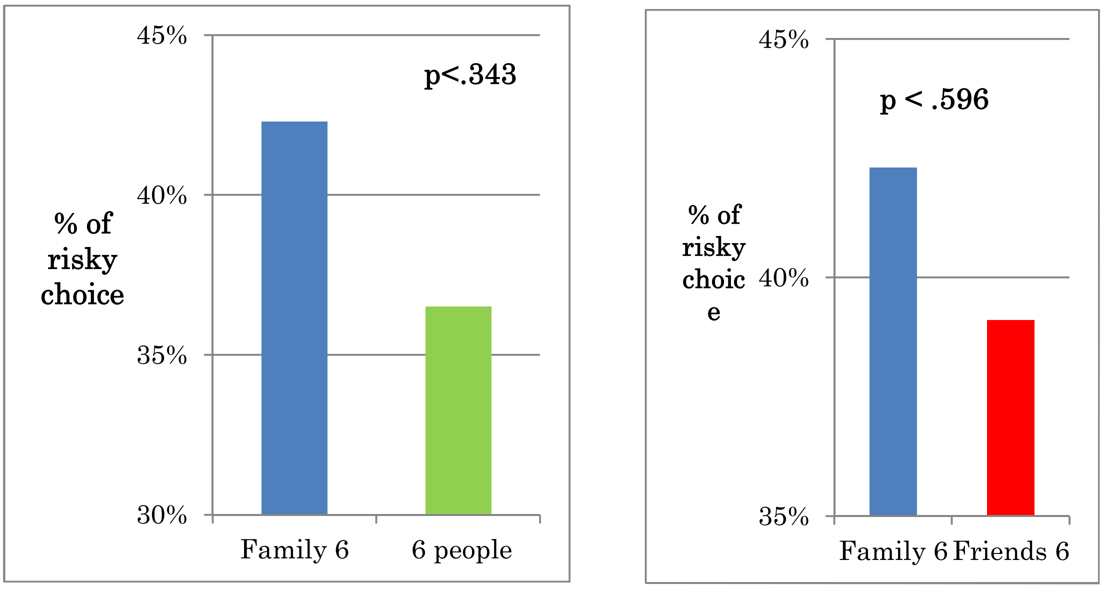

Figure 2: % of risky choice at “Life=Death problem”

	Wang and Johnston (1995)			
	Group size = 6000	Group size = 600	Group size = 60	Group size = 6
Positive frame	40.9% (*n*=44)	40.0% (*n*=50)	67.5% (*n*=40)	64.0% (*n*=50)
Negative frame	61.4% (*n*=44)	68.0% (*n*=50)	65.0% (*n*=40)	70.0% (*n*=50)
Framing effects	Yes	Yes	No	No
	Wang (1995b)			
	Group size = 6000	Group size = 600	Group size = 60	Group size = 6
Positive frame	38.7% (*n*=31)	41.9% (*n*=31)	57.6% (*n*=33)	66.7% (*n*=30)
Negative frame	66.3% (*n*=30)	76.5% (*n*=34)	66.7% (*n*=30)	75.6% (*n*=33)
Framing effects	Yes	Yes	No	No
	Wang et al. (2001)			
	Group size = 6 billon			Group size = 6
Positive frame	36.0% (*n*=50)			70.0% (*n*=50)
Negative frame	66.0% (*n*=50)			70.0% (*n*=50)
Framing effects	Yes			No

Table 1: Group Size Effects: Percentages of participants choosing the probabilistic alternative

	Shimizu and Udagawa (2011)		
	Group size = 6000	Group size = 60	Group size = 6
Positive frame	31.2% (*n*=173)	32.6% (*n*=172)	43.4% (*n*=166)
Negative frame	45.5% (*n*=156)	58.4% (*n*=149)	54.0% (*n*=150)
Framing effects	Yes	No	No

Table 2: Percentages of the probabilistic choice in the life-death decision problem across three sizes in a national survey (N = 966).

	Choice of deterministic outcome		Choice of probabilistic outcome		
Drink	Percentage	Frequency	Percentage	Frequency	Sum
Expensive Wine 600	88.9%	112	11.1%	14	126
Expensive Wine 6	86.2%	112	13.8%	18	130
Cheap Wine 600	78.1%	100	21.9%	28	128
Juice 6	72.4%	97	27.6%	37	134

Table 3-1 : Percentages of choice in the Drink problem across 4 categories (positive frame)

	Choice of deterministic outcome		Choice of probabilistic outcome		
Drink	Percentage	Frequency	Percentage	Frequency	Sum
Expensive Wine 600	69.2%	90	30.8%	40	130
Expensive Wine 6	62.9%	78	37.1%	46	124
Cheap Wine 600	63.4%	97	36.6%	56	153
Juice 6	58.1%	72	41.9%	52	124

Table 3-2 : Percentages of choice in the Drink problem across 4 categories (negative frame)

	Choice of deterministic outcome		Choice of probabilistic outcome		
Group size	Percentage	Frequency	Percentage	Frequency	Sum
Family 6	57.7%	75	42.3%	55	130
Friends 6	60.9%	78	39.1%	50	128
people 6	63.5%	80	36.5%	46	126
people 600	71.6%	96	28.4%	38	134

Table 4-1: Percentages of choice in the Life-Death problem across 4 categories (positive frame)

	Choice of deterministic outcome		Choice of probabilistic outcome		
Group size	Percentage	Frequency	Percentage	Frequency	Sum
Family 6	39.5%	49	60.5%	75	124
Friends 6	45.1%	69	54.9%	84	153
people 6	47.7%	62	52.3%	68	130
people 600	58.9%	73	41.1%	51	124

Table 4-2: Percentages of choice in the Life-Death problem across 4 categories (negative frame)

Parameter	DF	Estimate	Std. Error	Wald	Pr (>|t|)
Intercept for rate 1	1	-2.254	.310	52.999	.000
Intercept for rate 2	1	-1.267	.303	17.478	.000
Intercept for rate 3	1	-.070	.301	.055	.815
Intercept for rate 4	1	1.644	.306	28.808	.000
Intercept for rate 5	1	2.893	.330	76.864	.000
β_1	1	.553***	.112	24.521	.000
β_2	1	.388*	.158	6.038	.014
β_3	1	-.365*	.159	5.286	.022
β_4	1	-.068	.155	.193	.661
$\beta_5 = \beta_3 - \beta_4$	1	-.297†	.155	3.664	.056

num. of obs. 1049

Table 5: Estimates for ordinal logistic regression model with “6 people” problem as baseline (with 6 response categories)

†: $p < .10$, *: $p < .05$, **: $p < .01$, ***: $p < .001$