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Gender differences in the endowment effect: Women pay less, but won't accept less

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Abstract

We explore different contexts and mechanisms that might promote or alleviate the gender effect in risk aversion. Our main result is that we do not find gender differences in risk aversion when the choice is framed as a willingness-to-accept (WTA) task. When the choice is framed as a willingness-to-pay (WTP) task, men are willing to pay more and thus exhibit lower risk aversion. However, when the choice is framed as a willingness to accept task, women will not accept less than men. These findings imply gender differences in the endowment effect. We also find that the effect size of the gender difference in risk aversion is reduced or eliminated as the context changes from tasks framed as gambles to other domains; and that attitudes toward gambling mediate the gender effect in gambling framed tasks.

Keywords: gender, sex differences, risk aversion, endowment effect, risk attitudes, gambling attitudes

1 Introduction

It is well-accepted that women are more risk averse than men (Croson & Gneezy, 2009; Eckel & Grossman, 2008). Yet, most of the research suggesting this conclusion originates from the economic literature, which normally uses known probability gambles to measure risk aversion. For example, a common experimental task used to measure risk aversion is asking a subject how much she is willing to pay (WTP) for a 50/50 chance to win $100. Anyone indicating less than the expected value of $50 (0.50*$100) for this gamble is considered risk averse. The less a subject is willing to pay for the gamble, the more risk averse the subject is assessed to be. Women normally provide lower average valuations for gambles than men (Byrnes, Miller, & Schafer, 1999; Croson & Gneezy, 2009; Eckel & Grossman, 2002, 2008; Schubert, Brown, Gysler & Brachinger, 1999), resulting in the conclusion that women are generally more risk averse than men. However, it should be noted that not all studies find a gender difference in risk aversion (Carr & Steele, 2010; Demaree, DeDonno, Burns, Feldman & Everhart, 2009; Fehr-Duda, De Gennaro & Schubert, 2006).

Additionally, even though the majority of published research on gender and risk aversion does find statistically significant differences, effect sizes necessary to determine if the difference is large enough to be practically important (Hyde, 2005; Miller & Rodgers, 2008; Nelson, 2012; Ziliak & McCloskey, 2004) are normally not reported. The published research may also suffer from a false-positive bias (Simmons, Nelson & Simonsohn, 2011; or "file drawer" problem as described by Rosenthal, 1979), such that significant gender differences are more likely to be published (Hyde, 2005). These factors may lead to biased conclusions about the magnitude and generality of gender effects.

We therefore sought to explore the gender difference in risk aversion: What are its boundary conditions? What are the mechanisms driving it? Is it a large effect worthy of policy interventions, or a minute effect with little practical importance? This research explores these questions.

1.1 Elicitation method: WTP vs. WTA

Most studies on gender and risk aversion utilize gambling tasks, in which payment is required to play some gamble with a known probability outcome. These tasks are termed "willingness to pay" (WTP) tasks. However, risky decisions occur in a much broader set of circumstances which are not framed as gambles and do not necessarily require subjects to pay; rather, some decisions concerning risk involve subjects being willing to accept (WTA) payment in exchange for something risky, e.g., selling an inherited risky investment.

Economic theory suggests the gap between WTP and WTA should be small or nonexistent (Willig, 1976, Hane-

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man, 1991). Kahneman, Knetsch, and Thaler (1990) showed that subjects are willing to pay a lot less for a coffee mug (or to forego a gain in return for the mug) than they would accept to sell the same mug. Knetsch and Sinden (1984) showed similar results for a risky lottery ticket. Much subsequent research has confirmed that required payments in WTA tasks tend to be considerably higher than offered payments in WTP tasks (see Sayman & Öncüler, 2005 for a meta-analysis).

Although there are competing hypotheses, the WTP/WTA discrepancy is commonly interpreted as an ownership phenomenon termed the *endowment effect* (Thaler, 1980). The endowment effect refers to the well-established finding that individuals are willing to pay less for something than the amount they require to sell the same item if they own it. The endowment effect is thought to be due to loss aversion: when we sell something it's a loss of a possession (and a gain of money), when we buy something it's a gain of a new possession, (and a loss of money). According to prospect theory, *loss aversion* arises because losses hurt more than gains make us happy. Thus sellers require higher compensation for losing the possession than buyers are willing to pay for acquiring it.

Active risk-taking has been referred to as an "attribute of the masculine psychology" (Wilson & Daly, 1985), and is suggested to be a means for a man to gain positions of power. As such, men may be more comfortable taking risks, as may be required in WTP tasks. Since no strong theories suggest that protecting against losses would appeal more to one gender than the other, we have no reason to expect gender differences in WTA tasks. As such, we would expect a gender difference in WTP tasks involving risk, but not necessarily in WTA tasks with risk. Yet, an alternative expectation is that if women are truly more risk averse, it follows that they would also require a smaller payments in WTA tasks to sell a risky option.

A competing hypothesis to the endowment effect explaining WTP/WTA differences argues that ownership of a good creates an association between the item and the self and this link increases the value of the good owned (Belk, 2010; Pierce, Kostova & Dirks, 2003). The stronger the link between the self and the item, the more one would be willing to pay or require to sell an item. A recent study (Dommer & Swaminathan, 2013) of how gender and identity influences buying and selling prices found that while both genders exhibited the endowment effect, men were actually *less susceptible* to the effect in conditions where the item was not congruent with their identity. Women on the other hand, were equally susceptible to the effect in both the identity congruent and incongruent conditions (Dommer & Swaminathan, 2013). However, buying gambles, and options with risk, versus buying non-risky goods are very different contexts and may have differential effects on men and women.

1.2 Domain: Gambling vs. non-gambling frames

As predicated by much prior research, we expect that the domain and frame of the task affects risk aversion (Blais & Weber, 2006; Byrnes et al., 1999; Powell & Ansic, 1997). A meta-analysis by Byrnes and colleagues (1999) found that different contexts produced different effect sizes in *risk-taking* behaviors between genders. Since risk-taking varies by domain, it is probable that *risk-aversion* also varies by domain (e.g., Weber, Blais & Betz, 2002). Thus, we explore the domains that are more versus less likely to result in gender differences in risk aversion.

1.3 Mechanisms

We hypothesize that women are more gambling averse than men are. Research suggests that gambling has historically been considered a male activity (McCormack, Shorter & Griffiths, 2014), and finds that the majority of pathological gamblers are men (Gonzalez-Ortega, Echeburua, Corral, Polo-Lopez & Alberich, 2013; Grant, Chamberlain, Schreiber & Odlaug, 2012; Ibáñez, Blanco, Moreryra & Saiz-Ruiz, 2003; Wong, Zane, Saw & Chan, 2013). Additionally, research related to gender stereotypes in gambling tasks indicates that women are stereotyped to be more risk averse for these tasks (Eckel & Grossman, 2002, 2008). Even research related to parental attitudes toward gambling found that fathers are more likely to engage in gambling activities (betting on competitive sports) with their sons (Shead, Derevensky & Meerkamper, 2011). To determine if attitudes toward gambling account for the gender difference in risk aversion we include various measures of this construct in all three studies. We include the gambling sub-scale of the Domain-Specific Risk-Taking Scales (DOSPERT: Weber et al., 2002). We also include a 3-item measure specifically designed to measure attitudes toward gambling in Study 3 (see Appendix A) which includes such items as "*I enjoy gambling"* and *"Gambling is fun"*.

Additionally, the gender difference in risk aversion may arise from women's lower numeracy, or self-efficacy about simple math concepts (e.g., Pajares & Miller, 1994). To determine if numeracy or math self-efficacy is an explanatory factor in women's risk aversion, we included the Math Self-Efficacy Scale (Nielsen & Moore, 2003), in Studies 1 and 2.

In summary, we hypothesize that gender differences in risk aversion may be affected by elicitation method (WTP vs. WTA) and the frame/context of the experimental task (gambling vs. non-gambling). Additionally we explore which mechanisms are implicated in these decisions.

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1.4 Empirical tests

The following three experiments explore the gender difference in risk aversion. Before commencing this set of studies we conducted a pilot study consisting of 3 within-subject gambles with probabilities of winning of 1/3, 1/2 and 2/3, replicating prior work related to gender and risk aversion (Croson & Gneezy, 2009; Eckel & Grossman, 2002, 2008; Holt & Laury, 2002; Schubert et al., 1999) and confirmed the appropriateness of a sample from Amazon Mechanical Turk (MTurk) to study this phenomena. We found that men pay roughly twice as much as women for risky options framed as gambles.[1] Building on this pilot study we sought to explore the boundary conditions of the effect. Study 1 explores interventions designed to eliminate the gender effect and tests for mediators. Study 2 clarifies the role of potential moderators (value elicitation method and gambling vs. non-gambling contexts) and tests mediation. Study 3 uses incentive compatible payments and adds a non-risky option to the domains examined.

2 Study 1: Effect sizes and domain tests

The pilot study confirmed that the effect size of the gender difference in gambling framed WTP tasks is large to very large. Study 1 was designed to determine if any of several theoretically motivated interventions might be effective in reducing or eliminating the gender effect noted in the pilot. We explored five between-groups conditions. These included three conditions framed as gambles in a WTP format: one control condition and two conditions designed to cue subjects to provide a valuation closer to the expected value. One of these conditions sought to prime subjects to think about the expected value of the gamble over the long term, and thereby avoid myopic loss aversion (Benartzi & Thaler, 1999; Venkatraman, Aloysius & Davis, 2006), and the other condition sought to avoid priming stereotype threat for women by providing the gamble information pictorially (Steele, 1997). We also included two conditions that changed the frame from gambles to non-gambling contexts, with one of these scenarios framed as WTP and the other framed as WTA. Additionally, we sought to explore the mechanisms responsible for the gender effect. As noted above, we hypothesized that attitudes toward gambling might mediate the gender effect in gambling framed valuations, and tested whether women's lower math self-efficacy may be partly responsible for the gender difference.

[1] We noted a main effect for gender, $F(1, 104) = 25.90$, $p < .001$, $\eta_p^2 = .20$, with men willing to pay about twice as much for each gamble. The gender difference was significant for all gamble probability levels (33%: $M_{P\ 1/3Women} = 10.6$, $M_{P\ 1/3Men} = 20.6$; $F(1, 104) = 15.22$, $p < .001$, $d = .77$; 50%: $M_{P\ 1/2Women} = 15.8$, $M_{P\ 1/2Men} = 29.7$; $F(1, 104) = 18.98$, $p < .001$, $d = .85$; 66%; $M_{P\ 2/3Women} = 21.4$, $M_{P\ 2/3Men} = 43.8$; $F(1, 104) = 31.95$, $p < .001$, $d = 1.11$). Cohen's d indicated that the effect size was large to very large for all gambles. A gender by condition interaction indicated that the gender effect increases as the probability of winning the gamble increases, $F(2, 208) = 16.49$, $p < .001$, $\eta_p^2 = .14$.

2.1 Method

Three-hundred and thirty-five subjects (124 women, 211 men) were recruited and paid through MTurk, and the study was administered online. After consenting to participate in the research, subjects were randomly assigned to one of the five conditions. Condition 1 was a control condition which replicated the 50/50 gamble in our pilot study. Condition 2 was an Expected Value Condition, which we anticipated would prime subjects with the expected value of the gamble and thereby encourage both men and women to value the gamble closer to its expected value ($50). This condition reframed the perception of the expected outcome from a one-time event to a repeated event in order to encourage an expected value computation (Benartzi & Thaler, 1999; Venkatraman et al., 2006). We framed this condition as follows: "*If you were to play this gamble 100 times, what would your average (per play) payoff be?*" For Condition 3 in addition to the 50/50 gamble wording from the control condition we also showed a picture of what the distribution of balls in the bag looked like. The large literature on stereotype threat suggests that math is a domain in which many women experience threat (Carr & Steele, 2010; Martens, Johns, Greenberg & Schimel, 2006; Spencer, Steele & Quinn, 1999; Steele, 1998; Steele & Aronson, 1995). We presented the information visually to avoid arousing stereotype threat which could occur when only presenting the data in numerical form.

Conditions 4 and 5 were designed to test whether the gender difference in risk aversion held for non-gambling decisions, so we changed the context to non-gambling contexts. Condition 4 reframed the decision to have the same expected value but for a restaurant gift card instead of cash. This condition was framed as, *"Imagine you are waiting for a table at your favorite restaurant with your significant other on a Saturday evening. To entertain the waiting guests on this busy evening management is auctioning off some tickets at the bar. Each ticket provides a 50% chance of winning $100 gift card for the restaurant that can be used anytime, and a 50% chance of receiving nothing. Management has assured the guests that all the proceeds will be donated to local charities. What is the* ***most*** *you will pay for a ticket?"* Condition 5 framed the risky choice as a decision related to a store credit, but in a willingness to accept (WTA) frame instead of the willingness to pay (WTP) frame that was used for Conditions 1–4. This condition was framed as follows: *Imagine you*

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Table 1: Study 1 Means, *SD* and Cohen's *d* by gender and condition.

	Female		Male			
	M	(SD)	M	(SD)	F/t	d
Control 50/50 Gamble WTP	9.75	(9.85)	23.27	(16.26)	13.97^{***}	.89
Expected value WTP	14.78	(14.23)	34.18	(27.42)	11.06^{**}	.87
Picture Prime WTP	8.88	(9.94)	20.00	(17.59)	8.79^{**}	.70
Restaurant WTP	16.88	(16.90)	24.71	(19.15)	2.76^{+}	.43
Shoes WTA	47.52	(23.42)	48.76	(19.15)	.05	.06

*** $p < .001$, ** $p < .01$, * $p < .05$, $^{+}$ $p < .10$.

are about to buy a $100 pair of shoes. You get the checkout counter and the cashier informs you that you are the lucky 100th shopper of the day and then hands you a scratch off ticket. The cashier tells you that it is equally likely (a 50% chance of each) that the ticket will say: "You will receive $100 off your purchase", or, "Thanks for being our 100th customer today, we appreciate your business". The customer behinds you says, "Wow, I wish I had that scratch off ticket. How much would you be willing to sell me the scratch off ticket for?"

In all conditions the expected value of the risky option is consistent: a 50% probability of winning $100 (cash or value). This design allowed us to explore whether some conditions/contexts mitigate the gender effect.

After subjects responded to the above randomly assigned condition, they responded to the questions designed to test mediation. Specifically, we created a composite measure of 4-items to test gambling attitudes. Two items were used from the DOSPERT Gambling subscale(Weber et al., 2002), (likelihood of '*Betting a day's income at the horse races*' and '*Betting a day's income at a high-stake poker game*') and the two additional items included to specifically measure gambling attitudes "*I enjoy gambling because I have the chance to multiply my money"* and "*I believe gambling is a waste of money because the odds are against me for most games"* (reverse scored). To test whether women's math self-efficacy mediated the gender effect we included the Math Self-Efficacy Scale (Nielsen & Moore, 2003), and a self-report measure of math competence. After subjects responded to the above measures, they were asked to provide some demographic information, thanked and provided a code for MTurk payment.

2.2 Results and discussion

Table 1 shows the means, standard deviations and effect sizes by gender and condition. ANOVA showed significant effects for condition, $F(4, 324) = 33.06$, $p < .001$, $\eta_p^2 = .29$, and gender, $F(1, 324) = 26.21$, $p < .001$, $\eta_p^2 = .08$, while the interaction is almost significant, $F(4, 324) = 2.02$, $p = .092$, $\eta_p^2 = .024$. To test for gender differences within conditions we use a series of simple effects tests. There was a significant difference in the WTP tasks between genders in Conditions 1, 2 and 3 and the effect size is large: men provided valuations which are about twice the amount of women's valuations in the gambling conditions. Interventions designed to improve calibration (Conditions 2 and 3) did not substantively reduce the gender effect but did increase valuations for both genders in Condition 2 (Expected Value). A smaller gender difference, approaching statistical significance, was found for Condition 4 (Restaurant) (M_{men} = $24.71 vs. M_{women} = $16.88; $p = .095$). However, in Conditions 5 (Shoes) men and women provided essentially identical valuations (M_{men} = $48.76 vs. M_{women} = $47.52; $p = .80$), and the effect size is zero. The average valuation of $48.36 in Condition 5 (Shoes) is quite close to the risk neutral value of $50, suggesting that both genders are much less risk averse when the risky option is owned and they are in a position to sell it, perhaps implicating the endowment effect (Kahneman et al., 1990; Thaler, 1980).[2]

Table 1 illustrates the systematic decline of the gender difference in valuations across conditions. As the task moves from gamble valuations to non-gambling contexts and finally, to a decision in a willingness to accept (WTA) frame, both the significance and the effect size of the gender difference diminishes until it disappears. These results suggest that the gender difference in risk aversion is robust in gambling framed decisions, but less so in other contexts.

We examined whether attitudes toward gambling and math self-efficacy mediated the gender difference in risk

[2] Although the standard deviations varied substantially across the different cells of the design of Study 2, Levene's $F(9, 324) = 5.68$, $p < .001$, re-analysis of pairwise comparisons using Welch's F test confirmed the above results without exception. An alternative analysis, in which four outliers with standardized residuals greater than 3 were removed (3 from the Expected Value condition, and 1 from the Restaurant condition) also confirmed the above pattern, except that the sex difference for Restaurant WTP became significant, $F = 5.40$, $p = .023$, $d = .64$.

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aversion observed in the gambling frames. We found support that the composite measure of gambling attitudes did, in fact, mediate the gender difference in risk aversion in gambling framed decisions. In other words, women's less favorable attitudes toward gambling are driving the gender effect in all the conditions framed as gambles. However, we did not find any support to suggest that numeracy, or math self-efficacy was related to the gender effect in risk aversion. Please see Appendix A for a full discussion on the mediation analysis.

3 Study 2: Moderator testing: Elicitation method or decision domain

Study 1 presented evidence that the gender effect may be due to the decision domain, gambles vs. non-gamble contexts, or could possibly be due to the value elicitation method used (WTP or WTA). Study 2 was designed to identify whether the gender difference in risk aversion arises from either or both of these factors. Therefore, the study design was 2 (elicitation method: WTP vs. WTA) x 2 (decision domain: gamble vs. shoe discount) x 2 (gender) factorial design. Following Study 1, we hypothesized that the gender difference would arise in gambling framed decisions, and not in non-gambling contexts. Our expectations regarding the elicitation method differential were less clear because, in spite of the immense amount of research on the endowment effect (Kahneman et al., 1990), only one study we came across noted a gender difference, in which women named larger sums in general regardless of whether they were buyers or sellers (Dommer & Swaminathan, 2013). That noted, the results of Study 1 indicate that the gender effect in the WTA (Shoes) condition was not even close to significance. Therefore, Study 2 explores whether men and women respond differently depending on the elicitation method employed.

3.1 Method

Four hundred and fifty-four (180 women, 274 men) were recruited and paid via MTurk, and the study was administered online. All subjects are included in the analysis. Using a 2 (elicitation method) x 2 (decision domain) x 2 (gender) factorial design, subjects were randomly assigned to one of the four following conditions: (1) the control condition, the 50-50 bag of balls gamble (50% chance to win $100) used in Studies 1 and 2 with the WTP elicitation method, (*What is the **most** you would pay for this gamble?*); (2) the same 50-50 bag of balls gamble with a WTA elicitation method (*Imagine someone wanted to buy this opportunity from you. What is the **minimum amount** you would accept to **sell** this gamble?*); (3) the shoe buying scenario used in Study 1, with the WTP elicitation method (*What is the **most** you'd be willing to pay for the scratch off ticket?);* and, (4) the shoe buying scenario with the WTA elicitation method *(What is the **minimum** amount you'd be willing to sell the scratch off ticket to the customer behind you for?).*

After providing their valuation, subjects completed the gambling subscale of the DOSPERT (Weber et al., 2002), and answered demographic questions. The items in the DOSPERT Gambling Subscale ask the likelihood of: *Betting a day's income at the horse races, Betting a day's income at a high-stake poker game*, and *Betting a day's income on the outcome of a sporting event.* Subjects were then thanked and provided a code for MTurk.

3.2 Results

Table 2 shows the mean valuation responses in each experimental condition by gender. A three-factorial ANOVA revealed a main effect for gender, $F(1, 451) = 4.61$, $p = .032$, $\eta_p^2 = .01$, indicating that, overall, women reported lower monetary values than men (M_{Women}= 25.88, SD = 27.16 vs. M_{Men} = 31.66, SD = 23.92). Consistent with the endowment effect, there was main effect for elicitation method, $F(1, 451) = 266.58$, $p < .001$, $\eta_p^2 = .38$; subjects indicated lower values in WTP conditions versus WTA conditions (M_{WTP} = 14.20, SD = 18.38 vs. M_{WTA} = 43.57, SD = 20.42, respectively). This effect was qualified by domain, $F(1, 451) = 17.73$, $p < .001$, $\eta_p^2 = .04$; subjects were willing to pay less for the shoe discount than the gamble (M_{Shoes} = 9.57, SD = 14.67 vs. M_{Gamble} = 18.50, SD = 20.40), pairwise $p < .001$, yet required more to sell the shoe discount than the gamble (M_{Shoes} = 48.04, SD = 23.90 vs. M_{Gamble} = 40.77, SD = 20.22), pairwise $p = .01$.

Importantly, gender interacted with elicitation method, $F(1, 451) = 8.44$, $p < .01$, $\eta_p^2 = .02$. In WTP conditions, women offered significantly less money than men (M_{Women} = 8.54, SD = 13.54 vs. M_{Men} = 18.36, SD = 20.32), pairwise $p < .001$. However, in WTA conditions, this effect disappeared (M_{Women} = 45.49, SD = 25.33 vs. M_{Men}= 43.57, SD = 20.42), pairwise $p = .53$. Neither the Gender by Domain interaction, $F(1, 451) = 2.67$, $p = .10$, η_p^2 = .01, nor the three-way interaction, $F < 1$, were significant.[3]

[3]Since the large differences in variance between cells violated ANOVA's assumption of variance homogeneity (Levene's $F(7, 452)$ = 6.38, $p < .001$), we repeated the analysis with a generalized linear model using a 2 (elicitation method) x 2 (domain) x 2 (gender) factorial design and an ordinal link function (e.g., Cohen, Cohen, West & Aiken, 2003; Fox, 2008). This type of model assumes ordinal measurement level on the part of the dependent variable, but does not make any assumptions about the homogeneity of variances across conditions. Results consistently corroborate the above findings. Critically, the gender by elicitation method interaction was reliable, Wald $\chi^2(df = 1) = 16.09$, $p < .001$, resulting in a gender difference in WTP conditions, $p < .001$, but not in WTA conditions, $p = .53$.

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Table 2: Study 2 means, *SD* and Cohen's *d* by gender and condition.

	Female		Male			
	M	(SD)	M	(SD)	F/t	d
Gamble WTP	10.67	(13.47)	24.22	(22.69)	13.88***	.73
Shoes Discount WTP	6.26	(13.38)	12.03	(15.19)	4.21*	.40
Gamble WTA	40.15	(22.84)	41.09	(18.87)	.06	.04
Shoes Discount WTA	50.34	(26.72)	46.50	(21.89)	.68	.16

*** $p < .001$, * $p < .05$.

We hypothesized that again we would find a gender difference in gambling domains due to women's less favorable attitudes toward gambling, and we wanted to further explore whether gender differences in numeracy might also be partly responsible for the gender effect in WTP conditions. As in Study 1, we found that Math Self-Efficacy did not mediate the gender effect, but the 3-item DOSPERT gambling subscale did mediate the effect. See Appendix A for detailed results of the mediation analysis.

4 Study 3: Elicitation method or decision domain with incentive payment

Study 2 presented evidence that the gender effect may be due to the elicitation method, WTA vs. WTP, while Study 1 suggested that domain of the decision may also matter. Study 3 was designed to replicate the effects of Study 2 with a larger sample size to determine whether the evidence in Study 2 was obtained by chance or if the effect was valid (Simonsohn, 2013). In addition, since Study 1 implied that decision frame matters to the WTP valuations, we sought to change the framing to a different type of gamble from the bag of balls, and include a similar risky task framed as a promotion for a Visa Gift card instead of framed as a gamble. Finally, to explore whether the gender difference noted in risk aversion in WTP conditions extended to non-risk domains (women may just be more conservative with all their purchases), we included a condition that provided subjects the opportunity to buy or sell a $100 Macy's Gift Card. Therefore, the experimental design was a 2 (elicitation method: WTP vs. WTA) x 3 (decision domain: gamble, Visa Card, or Macy's Card) x 2 (gender) factorial design. Following Study 2, we hypothesized that the gender difference would arise in WTP gambling framed decisions, and would not arise in any WTA framed decisions. However, we were less sure whether the gender difference would arise in WTP tasks not framed as gambles; Study 2 implied it might. All subjects in this study received incentive compatible payment based on their answers and valuations made during the study. Additionally, we also included a purely attitudinal measure of gambling dispositions to test for mediation with a measure theoretically distinct from the DOSPERT.

4.1 Method

Subjects. Four hundred and forty-seven (183 women, 264 men) subjects were recruited and paid via Mturk, and the study was administered online. In this study an attention check question was included. Subjects were told how they would be incentivized during the study, and the starting bonus amount (before bet payments were deducted and the outcomes of gambles owned were played) was explained to subjects. On the next page, subjects were then asked to confirm what their starting bonus payment was ($0.75). If subjects answered this question incorrectly they were excluded from the analysis for not paying attention. Forty-three subjects were excluded for answering the attention check question incorrectly. The responses of 8 subjects came from repeat IP addresses. We coded the second responses from the same IP address as repeats, and 4 additional responses were excluded. Finally, one residual value for the WTP value was more than 3 *SD* from the mean and was coded as an outlier and excluded from the analysis. The final sample included 399 subjects (155 women, 244 men). As an alternative, less restrictive analysis, we confirmed the results in the larger dataset only excluding two subjects: these cases had not only the same IP address but also the same age and sex.

Design. This was a within-subjects design with subjects first randomly assigned to 1 of 6 cells in the 2 (WTP vs. WTA) x 3 (Gamble, Visa Card, Macy's Card) design. After their first decision/valuation they received a second valuation task such that if they had seen a WTP question first, their second would be WTA and vice versa; and if they had seen a Gamble first, their second could be the Visa or the Macy's Card; such that subjects would have responses in two, non-overlapping cells of the design. All subjects re-

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ceived both a WTP and WTA valuation task (but the order in which these were shown was random), and subjects responded to 2 of the 3 domains (Gamble, Visa or Macy's Card). In addition, the mediator questions were randomly presented either before subjects were asked to respond to the dependent variables or after they had already responded to these items.

After subjects consented to be part of the study, they received the following information explaining how they would earn the incentive compatible payment: *To incentivize you, we are providing you an additional 75 cents that can be used to purchase promotions with. In the context of this survey, each cent is worth $1 (i.e. your $0.75 is equivalent to $75 in the context of the offers/promotions.) There may be gains or losses based on the decisions you make about the promotions; these will be added or subtracted from your bonus payment of $0.75 (again each $1 is worth $0.01 in bonus payment, so if you win $100 in this survey, you'll receive $1 in actual bonus payment*). On the very next page, subjects were asked the attention check question of how much their starting bonus was. After completing the attention check, subjects were randomly presented either the two WTA/WTP tasks followed by the mediator measures, or the mediator measures followed by the dependent variables (WTA/WTP tasks). The measure of gambling dispositions/attitudes in this study was composed of the following 3-items: *"I enjoy gambling", "When gambling I have the real chance to multiply my money",* and *"Gambling is fun"*. Finally, subjects provided demographic information such as sex, age and education, their Mturk Worker ID, then were thanked for their participation and provided a code for MTurk.

Dependent Measures. We told subjects that "*We are preparing a tourism study for Northern Nevada to determine the best kind of promotions that are attractive to tourists, yet reasonably priced for the local establishments. We will present you with some promotions and ask you to state how much each is worth to you.*" As such, each of the dependent measures was phrased to reflect this context, and subjects could pay up to $75 for each of the WTP conditions and request up to $100 to sell their promotion in each of the WTA conditions. The specific wording of the dependent measures is described in Appendix B.

4.2 Results

Since this study was a within-subjects design, with each subject responding to two of the six possible conditions, we included two additional factors in our initial model: The order in which the subject viewed the tasks, and the order in which the mediator variables were presented to subjects (presented first half the time). Because each subject was assigned two tasks, one WTP and one WTA, in two domains, we modeled subject as a random factor in a mixed-effects model, though responses from the same subject were not similar (intraclass correlation $r = -.03$).

An initial 2 (Gender) x 2 (Elicitation) x 3 (Domain) x 2 (Position) x 2 (Mediator Order) analysis revealed that Mediator Order was involved in two four-way interactions, though it never qualified the predicted Gender x Elicitation interaction, all $p > .18$.[4] Because this variable did not moderate critical results, mediator order was removed from the model.

The resulting four-way mixed factorial model did show a main effect for elicitation, $F(1, 379.4) = 135.13$, $p < .001$. The sum that subjects were willing to accept in exchange for their asset was consistently higher (M_{WTA}= 36.63) than what they were willing to offer (M_{WTp} = 21.00), thus replicating the endowment effect (Kahneman et al., 1990). However, a position main effect, $F(1, 379.4) = 4.53$, $p = .034$, and especially a Position x Elicitation interaction, $F(1, 384.7) = 5.50$, $p = .02$, indicated that the endowment effect was larger on the first task (M_{WTA} = 37.12 vs. M_{WTP} = 17.66), $p < .001$, than the second task (M_{WTA} = 36.15 vs. M_{WTP} = 24.36), $p < .001$.

A pronounced Domain x Elicitation interaction, $F(1, 692.26) = 16.03$, $p < .001$, showed that the endowment effect was weaker for gambles (M_{WTP} = 15.11 vs. M_{WTA} = 21.56), $p = .013$, than for the VISA card (M_{WTP} = 17.47 vs. M_{WTA} = 30.40), $p < .001$, and the Macy's card (M_{WTP} = 30.44 vs. M_{WTA} = 57.94), $p < .001$. Not surprisingly, a Domain main effect, $F(2, 546.06) = 123.26$, $p < .001$, confirmed that larger amounts were paid and demanded for non-risky (Macy's card) as opposed to risky (Gamble, VISA card) items.

There was no Gender x Elicitation interaction nor was there a Domain x Gender x Elicitation effect, both $F < 1$, even though the anticipated gender differences for WTP Gambles was reliable when subjects responded to this task first, $p < .01$ (Table 3). However, there was significant Gender x Elicitation x Position interaction, $F(1, 384.7) = 4.71$, $p = .031$. For the task that subjects worked on first, there was a gender difference for WTP, such that women made lower offers compared to their male counterparts (M_{Women} = 14.85 vs. M_{Men} = 20.47), $p = .058$. Yet, there was no gender difference in regards to willing to accept (M_{women} = 39.03 vs. M_{men} = 35.22), $p = .21$. When subjects worked on the WTP task as the second task, there was no gender difference (M_{women} = 23.74 vs. M_{men} = 24.94), $p = .68$, but when the WTA task was second, women were willing to accept lower sums of money compared to men ($M = 33.14_{Women}$ vs. M_{Men} = 39.15), $p = .04$. We caution the reader against assigning much significance to the latter effect. Recall that there were order effects in the data that anchored responses after the first task, such that it is not

[4] Note that mixed-effects models do not allow the computation of partial eta squared as indicators of effect size.

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Table 3: Study 3 means, *SD* and Cohen's *d* by gender and condition.

		Female		Male			
		M	(SD)	M	(SD)	F/t	d
1st position	Gamble WTP	8.64	(8.67)	15.85	(11.24)	8.48**	.72
	Gamble WTA	21.18	(19.75)	18.05	(16.22)	0.46	−.17
	Visa Card WTP	11.81	(13.09)	14.63	(12.94)	0.71	.22
	Visa Card WTA	32.23	(20.74)	28.11	(20.20)	0.71	−.20
	Macy's Card WTP	24.15	(18.02)	30.80	(23.46)	1.49	.32
	Macy's Card WTA	63.60	(22.68)	59.64	(23.01)	0.43	−.17
2nd position	Gamble WTP	17.08	(15.40)	18.12	(13.69)	0.08	.07
	Gamble WTA	23.44	(19.65)	23.28	(16.89)	0.001	−.01
	Visa Card WTP	21.23	(17.41)	19.76	(15.71)	0.12	−.09
	Visa Card WTA	25.86	(22.70)	35.95	(27.76)	2.54	.40
	Macy's Card WTP	33.05	(28.12)	37.38	(22.78)	0.48	.17
	Macy's Card WTA	50.10	(29.58)	58.03	(31.12)	1.14	.26

** $p < .01$. Significance test for pairwise comparisons were computed using one-way ANOVA while controlling for the effect of position (first vs. second task).

surprising to see the initial effect replicated on the second valuation task.

Because of the interaction of Position with the main variables of interest, we examined these variables for the first position only, thus treating the experiment as a complete between-subject design (and using standard models that did not treat subject as a random effect). An initial model included Gender, Elicitation, Domain, the interaction of Gender and Domain, and the interaction of Gender and Elicitation. All main effects and interactions were significant at $p < .05$. In particular, the predicted Gender x Elicitation interaction was significant at $p = .007$; for the larger sample with only two exclusions, $p = .043$.[5]

5 General discussion

Quite a bit of research has indicated that women are more risk averse than men (e.g., Byrnes et al., 1999; Carr & Steele, 2010; Croson & Gneezy, 2009; Dwyer, Gilkeson & List, 2002; Eriksson & Simpson, 2010; Finger & Weber, 2011; Harris, Jenkins & Glaser, 2006). General acceptance of this conclusion may be potentially problematic because it becomes part of gender discussions on topics such as competitiveness, management style, labor markets and investment success (Booth & Nolen, 2012; Eckel & Grossman, 2008; Kahan, Braman, Gastil, Slovic & Mertz, 2007; Kristof, 2009; Wieland & Sarin, 2012). We set out to explore this effect and identify mechanisms, effect sizes and boundary conditions. We found that the Cohen's d statistic is large to very large in gambles framed as WTP, declines in WTP tasks not framed as gambles and is essentially zero in tasks framed as WTA. This interesting result gives rise to a gender difference in the endowment effect, due to women's WTP amounts being less than men's (overall) but the same as men's in WTA amounts. We include 3 studies in this manuscript and find gender differences only in WTP frames, but never in WTA frames, regardless of whether the task is risky or not. We do note that when the task is framed as WTP risky gambles, we always find a gender effect, consistent with current research in this area (Byrnes et al., 1999; Croson & Gneezy, 2009; Eriksson & Simpson, 2010); however, we do not always show this gender difference in risk aversion in other decisions with risk that are not framed as gambles. This may be a result of inadequate power in our samples to detect small effects. However, the conclusion remains that the largest effect sizes of the gender difference in risk aversion are found in WTP Gambling type tasks.

[5] Arguably, the use of the first position only is post hoc and should be corrected for multiple tests, in which case the p-value would double. However, the hypothesis should also be considered one-tailed, given that our purpose was to attempt to replicate the result of Study 2, which would divide it by two, putting it back at .043. We also noticed that women were significantly older in the larger sample (means of 35.2 and 32.7 for women and men respectively, $t = 2.41$, $p = .016$), and Age interacted with Elicitation in a way that opposed the effect of Sex. After adding the Age x Elicitation interaction to the model with the larger sample, the Age x Elicitation interaction was significant at $p = .010$, and the Gender x Elicitation interaction was significant at $p = .018$.

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We also set out to explore the mechanisms of the gender effect in risk aversion when found. We hypothesized that due to societal gender norms women are more gambling averse than men, and that perhaps gender differences in math self-efficacy could be driving the gender difference in risk aversion. In all 3 studies, with gambling attitudes measured in 3 different ways (Study 1 used a composite of DOSPERT Gambling Items with two attitudinal measures, Study 2 used the DOSPERT Gambling subscale, and Study 3 used a 3-item attitudinal measure which was randomly assigned to be presented before the dependent variable for half the sample), we find that attitudes toward gambling, which women score significantly lower on, mediate the gender difference in risk aversion in WTP gambles. Objective probability gambles have become the standard for measuring and quantifying risk attitudes (Holt & Laury, 2002); however, due to underlying attitudes toward gambling, this is the domain where gender differences are most likely to be detected. As such, gambling framed decisions should be used with caution when building general theories or conclusions about gender differences in risk aversion. We also measured subjective numeracy skills in Studies 1 and 2 with the Math Self-Efficacy scale (Nielsen & Moore, 2003), and found no support for mediation in either study, although women did score significantly lower than men on the scale. Complete details of the mediation analyses are presented in Appendix A.

What is most interesting in this research is the gender difference in the endowment effect. In our review of the published literature, we only found one study related to how gender identity issues relate to the endowment effect (Dommer & Swaminathan, 2013).[6] Our research is not qualified by issues of gender identity: because that was not the focus of this research, we did not even measure it. In each study conducted we noticed a gender difference in the endowment effect, and were surprised at the lack of published research noting it. However, these studies were designed to explore the gender effect in risk aversion. Therefore, out of the 15 total conditions contained in this manuscript, only two were not related to making a decision under risk (WTA and WTP for the Macy's Card in Study 3). Since the three-way interaction including Domain of the task was not significant for Study 3, we have no evidence to suggest that the gender difference in the endowment effect is limited to items with risk. However, since our studies were designed to investigate risk aversion, future research could replicate the effect with more non-risky items. The pairwise comparisons in our one condition without risk (Macy's Gift Card) indicated no gender differences in WTP or WTA; however, our power may not be adequate to detect a small effect, and when considering the full dataset, the three-way interaction with Domain x Gender x Elicitation is not significant.

We can only speculate why there is a gender difference in the endowment effect. If it is being driven by women being more risk averse than men, they would also sell risky options for lower prices than men would. Yet, in none of the WTA experimental conditions were women willing to accept less than men to sell the item/option. It is possible that due to differences in the utility of money, women may be revealing greater risk aversion only in situations where they would be *required to actually pay* for a risky option. Additionally, as suggested already, men may be more comfortable with taking risks to gain positions of power due to gender norms and stereotypes, but when it comes to protecting what one possess, no strong prescriptive gender norms exist.

Summarizing, our results indicate that women may sometimes be more risk averse when acquiring a risky assets, *but are not* any more willing than men to trade away risk once its theirs for low offers (those much lower than the expected value). Although simple, we believe this is a novel finding which may have implications for many different types of outcomes. For example, and certainly extrapolating, the results suggest women may be less inclined to spend money on any good in which the utility is uncertain (and therefore appear more frugal than men), while they would not be willing to sell something with an uncertain utility for any lower amount. Additionally, there may be implications for women's acceptance of risky professional positions as well as business ventures; women may appear less willing to enter these tournaments, but should not have differential dropout rates. Although some research suggests that women anticipate more pain in a potential loss situation (Croson & Gneezy, 2009), and this anticipatory emotion partially mediates the gender difference in risk aversion (Eriksson & Simpson, 2010), there have not yet been any mechanisms suggested as to why the effect would disappear in WTA situations. Certainly, more research will be required to determine the mechanisms of the why women might behave differently in WTA situations, and what the broader implications may be.

[6]Many researchers have studied WTA and WTP in samples with both genders. We were initially suspicious of our results concerning gender differences in the endowment effect because nobody seems to have reported such results before, despite having relevant data. We requested such data on a mailing list and did receive one response with relevant data. Barbara Mellers (personal communication, 2014) had data from a study of participants in the California lottery, none of whom were winners. A survey presented 14 hypothetical gambles varying in stakes and probability of winning. She reported that "women showed greater endowment effects than men in a study of participants who served as controls and were later compared to winners of the CA lottery .... These effects occurred with both smaller stakes ($100) and larger stakes ($25k)." Women had both lower buying prices and higher selling prices for most gambles. This sample is quite different from our Mturk sample and thus suggests that our result is at least not a function of some idiosyncrasy of Mturk workers.

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Appendix A: Mediation results

We measured attitudes toward gambling in all studies in this manuscript. Following are the results of the mediation analyses by study.

Study 1: Mediation of gender effect

To test the hypotheses that attitudes toward gambling mediate the gender difference, we created a summary measure of *gambling attitudes* of four items, Cronbach's α = .78, from two of the DOSPERT Gambling Items (Weber et al., 2002), (likelihood of *Betting a day's income at the horse races* and *Betting a day's income at a high-stake poker game)* and the two additional items included

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Table A1: Correlations of 4-item measure of gambling attitudes and dependent variable.

	Women	Men
Control 50/50 Gamble WTP	.60**	.36*
Expected value WTP	.37	.05
Picture Prime WTP	−.08	.35*
Restaurant WTP	.32	.13
Shoes WTA	.02	.06

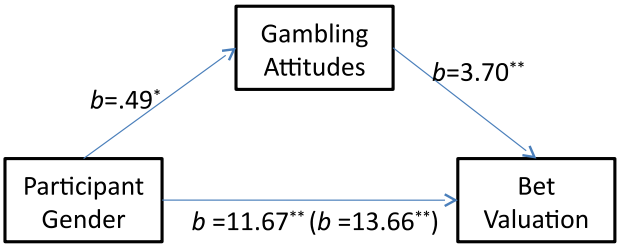
** $p < .01$, * $p < .05$.

Table A2: Correlations of DOSPERT 3-item gambling subscale and dependent variable.

	Women	Men
Gamble WTP	.47**	.15
Gamble WTA	.18	.26*
Shoes WTP	−.09	.20
Shoes WTA	−.08	.00

*** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .10$.

Figure 1: Mediation of gambling attitudes, Study 1. Results of gender difference in risk aversion for Study 2: total effects of gender on valuation b = 13.66 ($p < .01$); direct effect b = 11.67 ($p < .01$); indirect effect through mediator b = 1.80 ($p < .01$).



to specifically measure gambling attitudes ("*I enjoy gambling because I have the chance to multiply my money*" and "*I believe gambling is a waste of money because the odds are against me for most games*" (reverse scored)). See Table A1 for the correlations of this variable with the dependent variable of valuation. As noted earlier, we also included the Math Self-Efficacy Scale (Nielsen & Moore, 2003), and subjects' self-ratings of competence related to math. Including all potential mediators enables us to provide some evidence, either for or against, hypothesized mediators that may be of value to future researchers on the topic (or at least provide relevant CI's that may be used in meta-analysis).

Since we were interested only in what was driving the gender difference in the experimental conditions which involved a gambling frame, only Conditions 1, 2 and 3 were selected and a multiple linear regression was performed to determine if experimental condition was a significant predictor. Because condition was not a significant predictor, data were collapsed across conditions. In accordance with Hayes (2013), all potential mediators were investigated using a multiple mediation model (Model 6) for the PROCESS macros in SPSS, requesting 10,000 iterations for bootstrap confidence intervals. The results indicated that of the hypothesized mediators, the only statistically significant partial mediator of the gender effect on risk aversion was the subjects' attitudes toward gambling, b = 1.80, se = 0.84, 95% CI [0.45, 3.77]; $p < .001$ (Figure 1). Although women did report significantly lower math self-efficacy (M_{women}= 3.20 vs. M_{men} = 3.64, $p < .001$), and lower competence at *subjects that utilize math skills* (M_{women} = 3.27 vs. M_{men} = 3.63, $p < .01$) neither of these measures were drivers of greater risk aversion in this sample, CI's [−0.35, 2.97] and [−0.43, 1.18], respectively. Since these two measures are correlated (r = .66, $p < .01$) the above analysis was executed using each independently, but the results were essentially the same. Therefore, we conclude that these variables were not significantly related to the amount subjects were willing to pay for the gamble.

Study 2: Mediation of gender effect

To investigate the mediators in Study 2 we again created correlations of the main mediator variable with the outcome variable (See Table A2). In this study we included both the DOSPERT Gambling subscale (Weber et al., 2002), and the Math Self-Efficacy Scale as potential mediators. We conducted the mediation analysis in two parts, again using the PROCESS macro (Hayes, 2013) with 10,000 bootstrapped confidence interval iterations. Using Hayes's (2013) Model 4 and focusing only on the Gamble condition we entered both the 3-item Gambling subscale and the Math Self-Efficacy scales as potential mediators. Results indicated that while the DOSPERT Gambling subscale had a robust indirect effect b = 1.66, se = 1.06, 95% CI [.18, 4.63], the Math Self-Efficacy Scale did not b = .31, se = .53, 95% CI [−.42, 1.87]. These results replicate those of Study 1: we find evidence that a different measure of gambling attitudes also mediates the gender effect, but no support for self-reported numeracy acting as a mediator. We therefore opted not to measure Math Self-Efficacy (self-reported numeracy) in the last study.

Study 3: Mediation of gender effect

For Study 3, in response to reviewer feedback, we created a 3-item attitudinal measure of gambling dispositions and

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Table A3: Correlations of 3-item measure of gambling dispositions and dependent variable.

	Women	Men
Gamble WTP	.28*	.41**
Gamble WTA	.03	.16
Visa Card WTP	.19	.10
Visa Card WTA	−.20	−.05
Macy's Card WTP	.23	.07
Macy's Card WTA	−.11	−.10

** $p < .01$, * $p < .05$.

Table A4: Mediation of gender effect by gambling disposition measure.

	b	s.e.	95% C.I.
Gamble WTP	.93	.48	[.20, 2.16]
Gamble WTA	.36	.34	[−.07, 1.35]
Visa Card WTP	.26	.35	[−.23, 1.26]
Visa Card WTA	−.48	.55	[−2.06, 0.28]

counterbalanced the presentation of the measure so that it was presented before the experimental tasks for half of subjects, and after the experimental tasks the other half. The 3-item measure included the following items, and had good reliability (Cronbach's α= .83): *"I enjoy gambling", "When gambling I have the real chance to multiply my money",* and *"Gambling is fun"*. As in the prior studies we created a table of correlations between this measure of gambling attitudes and the dependent variable (See Table A3).

We again sought to explore if this new measure, also mediated the gender difference noted in gambling tasks. To do this, we selected to include both conditions with risk, the gamble and the Visa Card. This allowed for the results to be presented in a 2(Elicitation) X 2 (Domain) table because the factors are treated by the program as dichotomous. We used PROCESS (Hayes, 2013), Model 19, again requesting 10,000 bootstrap itterations (Valuation as the Outcome, Subject Sex as the Independent, Gambling Dispositions as the Mediator, Eliciation and Domain as the Moderators, and Mediator Order and Position as covariates). See Table A4 for the results of the mediation analysis by condition. As shown in Table A4, the only confidence interval that does not include 0 is that for Gambles in a WTP frame, indicating that this new measure of gambling dispositions/attitudes only mediates the gender effect in risk aversion in tasks framed as WTP gambles.

Appendix B: Study 3 conditions

The final study contained in this article contained incentive compatible scenarios administered on MTurk. Below is the specific wording used for these conditions.

All subjects were told:

We are preparing a tourism study for Northern Nevada to determine the best kind of promotions that are attractive to tourists, yet reasonably priced for the local establishments. We will present you with some promotions and ask you to state how much each is worth to you.

Then subjects were randomly assigned to two of the following conditions:

Gamble WTP

We have several large Casino Hotels here in Northern Nevada. One of these hotels is considering offering guests the following promotion upon checking into the hotel:

A gamble with a 50% chance of winning $100, and a 50% chance of winning $0.

What is the *most you'd be willing to pay* for the gamble?

Your answer will be randomly matched with another MTurker who has the opportunity to sell this gamble. If they are willing to sell the gamble at a price equal to or less than what you're willing to pay for it, you will have bought the gamble and the amount you bid will be deducted from your bonus payment. The gamble will then be played and you will receive the outcome of $0 or $100. (If they are unwilling to sell at the price you offer, no transaction will occur and you will not pay for or play the gamble.) Please note the maximum you can bid on this gamble is $75 since this is the amount of bonus payment you have been given.

Gamble WTA

We have several large Casino Hotels here in Northern Nevada. One of these hotels is considering giving guests the following promotion upon checking into the hotel:

A gamble with a 50% chance of winning $100, and a 50% chance of winning $0.

What is the *least you'd be willing to sell* the gamble to another MTurker for?

Your answer will be randomly matched with another MTurker who has the opportunity to buy this gamble. If they are willing to buy the gamble at a price equal to or greater than what you're willing to sell it for, the amount they are willing to pay will be added to your bonus payment, and they will play the gamble instead of you. (If they are unwilling to purchase it at a price you'd accept, no transaction will occur and you will play this gamble with an outcome of $0 or $100.)

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Visa WTP

We have several large hotels here by Lake Tahoe. One of these hotels is considering offering guests the following promotion upon checking into the hotel:

A promotion that provides a 50% chance of winning $100 Visa Prepaid Gift Card, and a 50% chance of winning nothing. The gift card can be used at almost all restaurants, hotels and retailers in the Reno/Tahoe area.

What is the *most you'd be willing to pay* to have this promotion?

Your answer will be randomly matched with another MTurker who has the opportunity to sell you the promotion. If they are willing to sell the promotion at a price equal to or less than what you're willing to pay for it, the amount you bid will be deducted from your bonus payment and the promotion opportunity will transfer to you. We will bonus whoever has rights to this promotion it's value when we pay bonuses. (If they are unwilling to sell at the price you offer, no transaction will occur and you will not get the promotion.) Please note the maximum you can bid on this promotion is $75 since this is the amount of bonus payment you have been given.

Visa WTA

We have several large hotels here by Lake Tahoe. One of these hotels is considering giving guests the following promotion upon checking into the hotel:

A promotion with a 50% chance of winning $100 Visa Prepaid Gift Card, and a 50% chance of winning nothing. The gift card can be used at almost all restaurants, hotels and retailers in the Reno/Tahoe area.

If another MTurker was willing to purchase this promotion from you, what would be *the least you'd be willing to sell* it for?

Your answer will be randomly matched with another MTurker who has the opportunity to buy this promotion. If they are willing to buy the promotion at a price equal to or greater than what you're willing to sell it for, the amount they are willing to pay will be added to your bonus payment, and they will receive the promotion instead of you. We will bonus whoever has rights to this promotion it's value when we pay bonuses. (If they are unwilling to purchase it at a price you'd accept, no transaction will occur and you will keep this promotion.)

Macy's WTP

We're thinking of selling $100 Macy's Gift Cards when people arrive into the local airport, bus terminal or check into their hotels.

What is the *most you'd be willing to pay* for $100 Macy's Gift Card?

Your answer will be randomly matched with another MTurker who has the opportunity to sell this Macy's Card. If you are willing to buy it at a price equal to or greater than what they're willing to sell it for, the rights to this Gift Card will go to you, and the cost for it will be deducted from your bonus payment. At the end of the experiment, we'll randomly choose 10% of respondents that have rights to the gift cards to receive actual $10 Macy's Gift Cards). Please note the maximum you can bid on the Macy's Card is $75 since this is the amount of bonus payment you have been given.

Macy's WTA

We're thinking giving visitors a $100 Macy's Gift Card when people arrive into the local airport, bus terminal or check into their hotels.

What is the *least you'd be willing to sell* the $100 Macy's Gift Card to another MTurk participant for?

Your answer will be randomly matched with another MTurker who has the opportunity to buy this Macy's Card. If you are willing to sell it at a price equal to or less than what they're willing to pay for it, the rights to this Gift Card will go to them, and the price they are willing to pay will be added to your bonus payment. At the end of the experiment, we'll randomly choose 10% of respondents that have rights to the gift cards to receive actual $10 Macy's Gift Cards.

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