

Copyright page:

©2012

Swati Bhattacharya

ALL RIGHTS RESERVED

How perception of status differences affects our decision making

By Swati Bhattacharya

A Dissertation submitted to Graduate School-Newark,

Rutgers, The State University of New Jersey

in partial fulfillment of the requirements for the degree of Doctor of Philosophy

Graduate Program in Psychology

Written under the direction of Dr. Mauricio R. Delgado

and approved by:

Dr. Paul Boxer

---

Dr. Mauricio R. Delgado

---

Dr. Kenneth Kressel

---

Dr. John Schiemann

---

Dr. Elizabeth Tricomi

---

Newark, New Jersey

October 2012

## ABSTRACT OF THE DISSERTATION

How perception of status differences affects our decision making

By: Swati Bhattacharya

Dissertation Director: Dr. Mauricio Delgado

As human beings, we aspire higher to achieve greater security in our lives. We assess our standing in society in relative terms. Past studies have shown that our subjective social status relative to society can determine health consequences (Operario et al, 2004). Yet, we have a limited understanding of how to measure our subjective status and how that affects our decision making and behavior. Understanding these may reveal important information about how perception of status differences affects behavior. Therefore, the primary goal of this dissertation is to closely examine perception of status in order to evaluate its subsequent effect on decision making.

Four studies were conducted to examine the relationship between status perceptions and decision making. In the first study, we established a laboratory manipulation of status, designed and validated appropriate questionnaires, and probed its effects on decision making via an economic game called the Ultimatum Game. In study 2, we examined how perception of status affected choice of an experimental status

symbol. Both of these studies showed a negative relationship with decision making. In study 1, the low status subjects, who felt inferior to their partner, shared more with their high status partners. And in study 2, we observed that in certain contexts, the low status subjects, who felt inferior to their partner, chose the experimental status symbol more. However, in study 3, when we made the experimental situation riskier, subjects who perceived themselves to be inferior to their partner chose the status symbol less than their high status counterparts. In addition, low status subjects showed more affinity for risk at specific levels. In study 4, we examined if these effects were due to self-esteem and found no effect of self-esteem.

Together, these studies showed that laboratory manipulations of status can capture psychological aspects of the status experience and may induce a compensatory tendency. These compensatory tendencies may vary depending on both status of the subject and riskiness of the situation. Studying status in a laboratory setting allows researchers to understand these behaviors more closely and speculate on how to best address status concerns for the betterment of society.

## **Dedication**

To my grandmother, Anila Guha Dutt, a pioneer,  
who introduced me to Plato, Freud and the nature-nurture debate

To my mother, Shubhra Bhattacharya, an inspiration,  
for her pursuit of excellence and making me the beneficiary of her good- will

To my Dad, Sankar Bhattacharya, for his untold love and generosity  
And importantly, to my Mom, Juthika Dutt Bhattacharya, for her presence and  
persistence

## **Acknowledgments**

All this work could be accomplished because of the valuable support and guidance of the many professors who shaped my understanding of Psychology spanning from its history, its present challenges to its future possibilities. I thank my advisor, Mauricio Delgado, Ph.D., for giving me an excellent topic to work on and think about during my doctoral training. I thank him for fostering a hospitable laboratory atmosphere and providing me ample resources to pursue the questions in my dissertation. I also thank my committee members for pointing out the many nuances of engaging in this challenging topic and for giving me excellent statistical direction and interpretive perspective. Additionally, this work could not have been accomplished without the time contribution of the many undergraduate students who participated in my studies for R-points and also the excellent infrastructure of the Sona systems which allowed me to avail of their participation. I thank my professors from my undergraduate years at York

College, CUNY and at Rutgers Newark for engaging me in Psychology and for expanding my understanding of psychological work.

On a personal level, I would like to acknowledge Dr. Maggie Shiffrar, Dr. Harold Siegel, Dr. Kenneth Kressel, and Dr. Mauricio Delgado for their support and understanding over the years. I also thank the wonderful members of the Delgado lab for their support. Last but not the least, I would like to convey my heartfelt thanks to my husband, Smit Sharma, for his love, encouragement and incredible care.

## Table of Contents

<b>Abstract .....</b>	<b>ii</b>
<b>Dedication &amp; Acknowledgements .....</b>	<b>iv</b>
<b>Table of Contents .....</b>	<b>vi</b>
<b>List of Tables .....</b>	<b>xvi</b>
<b>List of Figures .....</b>	<b>xviii</b>
<b>List of Appendices .....</b>	<b>xix</b>

### 1. Chapter 1

#### **Introduction**

1.1 Conceptualizing social status .....	2
1.2 How is status studied? .....	6
1.3 “Keeping up” – Influence of status on behavior .....	8
1.4 Limitations of past research and reconceptualization of status ...	12
1.5 Goal of dissertation studies .....	15

### 2. Chapter 2

#### **General Methods**

2.1 Operationalization of Status .....	17
2.2 Experimental Checks .....	17
2.3 Card Game .....	18
2.3.1 Learning Phase .....	18
2.3.2 Status Assignment Phase .....	19





3.1.3.2.2	Independent analyses for experimental and control condition .....	34
3.1.3.3	Ultimatum Game .....	35
3.1.3.3.1	By status .....	36
3.1.3.3.2	Independent analyses for experimental and control condition .....	37
3.1.3.3.3	Subjective score .....	39
3.1.3.3.4	Exploratory analysis ...	42
3.1.4	Discussion .....	42
3.1.4.1	Status and ladder questionnaires by status .....	43
3.1.4.2	Independent analyses of status and ladder questionnaire within experimental and control condition .....	43
3.1.4.3	Decision making analyses overall .....	44
3.1.4.4	Independent analyses for the experimental and control condition ...	44
3.1.4.5	Grouping by status vs. subjective score .....	45
3.1.4.6	Potential reason for observed negative relationship .....	47

3.1.4.7 General points .....	47
3.1.4.8 Summary .....	49

#### 4. Chapter 4

##### **Influence of Status on Choice between Status Symbol and Money**

##### **(Study 2)**

4.1 Method .....	53
4.1.1 Participants .....	53
4.1.2 Materials .....	53
4.1.2.1 Status symbol .....	53
4.1.3 Design and Procedure .....	54
4.2 Results .....	56
4.2.1 Status questionnaire .....	56
4.2.1.1 By status .....	56
4.2.1.2 Independent analyses for each condition .....	57
4.2.2 Ladder questionnaire .....	58
4.2.2.1 By status .....	58
4.2.2.2 Independent analyses for each condition .....	58
4.2.3 Decision making .....	59
4.2.3.1 By status.....	59
4.2.3.2 Independent analyses for each condition .....	60
4.2.3.3 Baseline data acquired from individual subjects .	61
4.2.3.4 Mid-range of dollar values .....	61

4.2.4 Subjective score .....	62
4.2.4.1 Exploratory analysis .....	66
4.3 Discussion .....	67
4.3.1 Status and ladder questionnaire by status .....	67
4.3.2 Independent analyses of status and ladder questionnaire within experimental and control condition .....	67
4.3.3 Decision making analyses overall .....	68
4.3.4 Independent analyses for experimental and control condition .....	68
4.3.5 Grouping by status versus subjective score .....	69
4.3.5.1 Subjective score .....	70
4.3.6 General points .....	71
4.3.7 Summary .....	72

## 5. Chapter 5

### **Influence of Status on Choice between Status Symbol and Money under conditions of Risk (Study 3)**

5.1 Method .....	77
5.1.1 Participants .....	77
5.1.2 Materials	
5.1.2.1 Status symbol .....	78
5.1.2.2 Money option .....	78
5.1.3 Design .....	78

5.1.4	Procedure .....	79
5.2	Results .....	80
5.2.1	Status questionnaire .....	80
5.2.1.1	By status .....	80
5.2.1.2	Independent analyses for experimental and control condition .....	81
5.2.2	Ladder questionnaire .....	82
5.2.2.1	By status .....	82
5.2.2.2	Independent analyses by experimental and control condition .....	82
5.2.3	Decision making .....	83
5.2.3.1	By probability .....	83
5.2.3.1.1	By status .....	83
5.2.3.1.2	Independent analyses for experimental and control condition .....	84
5.2.3.2	By expected value .....	85
5.2.3.2.1	By status .....	85
5.2.3.2.2	Independent analyses by experimental and control condition .....	85
5.2.3.2.3	Baseline data acquired from individual subjects .....	86

5.2.3.3 Subjective score .....	86
5.2.3.3.1 Exploratory analyses ..	88
5.3 Discussion .....	89
5.3.1 Status and ladder questionnaire by status and condition .....	89
5.3.2 Independent analyses of status and ladder questionnaire with the experimental and control condition .....	89
5.3.3 Post-experimental questionnaire .....	90
5.3.3.1 Thoughts influencing decision during choice between Golden Ticket and Money ....	90
5.3.3.2 Reason for choosing the Golden Ticket	91
5.3.3.3 Prior preference for Golden Ticket .....	91
5.3.3.4 Influence by probability or the dollar value presented .....	92
5.3.3.5 When did you choose the money option vs. the Golden Ticket option ? .....	92
5.3.3.6 Impact of the card game on choice of Golden Ticket or money .....	93
5.3.4 Decision making analyses overall .....	93
5.3.5 Independent analyses for experimental and control condition .....	94
5.3.6 Grouping by status vs. subjective score .....	95
5.3.6.1 Subjective score .....	95

5.3.7	General points .....	98
5.3.8	Summary .....	100

## 6. Chapter 6

### **Role of Self-esteem in modulating status perceptions and decision making (Study 4)**

6.1	Method .....	104
6.1.1	Participants .....	104
6.1.1.1	Overall .....	105
6.1.1.1.1	Condition 1 .....	105
6.1.1.1.2	Condition 2 .....	106
6.1.1.1.3	Condition 3 .....	106
6.1.1.1.4	Condition 4 .....	107
6.1.2	Design .....	108
6.1.3	Materials .....	108
6.1.3.1	Raffle ticket .....	108
6.1.3.2	Rosenberg's Self-esteem inventory ...	108
6.1.4	Procedure .....	109
6.1.4.1	Status Assignment .....	109
6.1.4.1.1	Achieved status .....	109
6.1.4.1.2	Ascribed status .....	109
6.1.4.2	Modified Ultimatum Game .....	110



6.2.3.3 Assessing the status manipulation using the	
ladder questionnaire .....	119
6.2.3.3.1 By status .....	119
6.2.3.3.2 Independent analyses for	
each condition .....	119
6.2.3.4 Self-esteem .....	120
6.2.3.5 Ultimatum Game .....	120
6.3 Discussion .....	121
 7. Chapter 7	
<b>General discussion</b>	
7.1 Status beliefs can be generated in the laboratory .....	125
7.2 Relative concerns are important .....	127
7.3 Relative concerns about status may be basic to human nature ....	129
7.4 Low status compensation theory .....	131
7.5 Limitations .....	133
7.6 Overall conclusions .....	139
 References .....	141
Tables .....	148
Figures .....	169
Appendices .....	183
Curriculum vitae .....	187



## List of Tables

Table 1. Descriptives on ratings of status and ladder questionnaire in Study 1 (Mean $\pm$ SD) .....	148
Table 2. Descriptive statistics of items for the first and second administration of status questionnaire (Mean $\pm$ SD) .....	149
Table 3. Item analysis for 9 items on the status questionnaire prior to status manipulation .....	150
Table 4. Item analysis for 9 items on the status questionnaire post manipulation (High status) .....	151
Table 5. Item analysis for 9 items on the status questionnaire post manipulation (Low status) .....	152
Table 6. Factor Loadings on the first factor reduced from nine items on the status questionnaire using Principal Components Analysis with Varimax Rotation .....	153
Table 7. Eigen values and percent of variance explained by components 1 and 2 .....	154
Table 8. Descriptives on percent shared for each dollar value for high and low status subjects in Study 1 (Mean $\pm$ SD) .....	155
Table 9. Correlation Matrix showing significant negative correlations between rating difference score (self-partner rating) and percent shared with partner in the Ultimatum Game (Study 1) .....	156
Table 10. Descriptives on ratings of status and ladder questionnaire in Study 2 (Mean $\pm$ SD) .....	157

Table 11. Proportion value representing the likelihood of choosing the Golden Ticket at each dollar value in Study 2 (Mean $\pm$ SD). Higher the value, greater the likelihood of choosing the Golden Ticket .....	158
Table 12. Correlation Matrix showing significant negative correlations between rating difference score (self-partner rating) and proportion value of choosing the Golden Ticket at different price points (Study 2) .....	159
Table 13. Likelihood and odds ratio of choosing the Golden Ticket as obtained from the estimated model at varied difference score values in Study 2 .....	160
Table 14. Descriptives on ratings of status and ladder questionnaire in Study 3 (Mean $\pm$ SD) .....	161
Table 15. Descriptives on the likelihood of choosing the Golden Ticket as a function of Risk (Mean $\pm$ SD). Higher the value, greater the likelihood of choosing the Golden Ticket in Study 3 .....	162
Table 16. Descriptives on the likelihood of choosing the Golden Ticket as a function of Expected Value (Mean $\pm$ SD). Higher the value, greater the likelihood of choosing the Golden Ticket in Study 3 .....	163
Table 17. Correlation Matrix showing significant negative correlations between rating difference score (self-partner rating) and proportion value of choosing the Golden Ticket at different probability levels (Study 3) .....	164
Table 18. Correlation Matrix showing significant positive correlations between rating difference score (self-partner rating) and proportion value of choosing the Golden Ticket at different expected value levels (Study 3) – experimental and control conditions combined .....	165

Table 19. Descriptives on ratings of status and ladder questionnaire

in Study 4 (Mean $\pm$ SD) .....	166
----------------------------------	-----

## List of Figures

Figure 1. Schematic representing status manipulation block by block .....	167
Figure 2. Layout for each trial showing sequence of displays .....	168
Figure 3. Ratings of Self and Partner on Ladder Questionnaire .....	169
Figure 4. Ratings of Status Questionnaire Pre and Post manipulation .....	170
Figure 5. Scree Plot of the first administration of Status Questionnaire .....	171
Figure 6. Scree Plot of the second administration of Status Questionnaire (low status) .....	172
Figure 7. Scree Plot of the second administration of Status Questionnaire (high status) .....	173
Figure 8. Percentage of dollar shared with partner in Study 1 .....	174
Figure 9. Regression of difference score on overall percent shared in the Ultimatum Game (Study 1) .....	175
Figure 10. Regression of difference score on proportion value of choosing the Golden Ticket at dollar values ranging from \$3 to \$5 (Study 2) .....	176
Figure 11. Proportion value of choosing the Golden Ticket at varied dollar values .	177
Figure 12. Proportion value representing the likelihood of choosing the Golden Ticket at varied levels of risk .....	178
Figure 13. Proportion value representing the likelihood of choosing the Golden Ticket at varied expected dollar values .....	179
Figure 14. Overall probability of choosing the Golden Ticket as a function of the difference score (self-partner rating) under conditions of risk (Study 3) ....	180

## **List of Appendices**

Appendix A. Ladder Questionnaire .....	181
Appendix B. Status Questionnaire .....	182
Appendix C. Rosenberg's Self Esteem Inventory .....	183
Appendix D. Study 3 Post-experimental questionnaire .....	184

## Chapter 1: Introduction

Over a century ago, William James (1890) said:

Properly speaking, *a man has as many social selves as there are individuals who recognize him* and carry an image of him in their mind.

To wound any one of these his images is to wound him. But as the individuals who carry the images fall naturally into classes, we may practically say that he has as many different social selves as there are distinct *groups* of persons about whose opinion he cares. He generally shows a different side of himself to each of these different groups. Many a youth who is demure enough before his parents and teachers, swears and swaggers like a pirate among his 'tough' young friends. We do not show ourselves to our children as to our club-companions, to our customers as to the laborers we employ, to our own masters and employers as to our intimate friends (pp. 294).

William James (1890) rightly observed that human beings are concerned about themselves not only in absolute terms but also in relative terms. Such social concerns permeate every aspect of human life. The choices we make serve not only basic needs but importantly our social need to belong to a group while asserting our individual identity in the group. Like the youth who is demure enough in front of his parents, but swears like a pirate in front of his friends, we demonstrate our status by asserting our individuality, thereby forming relationships with group members that are defined by our esteem and deference for the group. We are able to gauge the scope of our influence within the group and consequently shape our behavior and decisions accordingly. For example, entering

college freshmen may choose to buy a fancy tech-gadget and sport updated fashion accessories in their new college setting to assert their status. But some seniors in college may forgo the tech-gadget and fashion accessories and display their high grade-point average to display their status. This example demonstrates that, whether it was the more insular society of William James or today's modern global village, people continue to be concerned and influenced by their relative status – perhaps because status concerns are basic, potent and influential in our daily decision making.

### **Conceptualizing social status**

To address the question of how important social status is, we first need to conceptualize social status. Social status refers to rank, reflecting hierarchical order within a group. This order entails not just an ordinal social arrangement but a meaningful pattern of influence and deference among members of a group. Status represents both, the extent of influence on members of a group, and the constraints on individual behavior within a group. Persons with high social status, such as the rich, well-educated and the powerful tend to have wide influence and lesser constraints in society. In contrast, the impoverished, marginally educated, and dis-empowered, representing lower social status, experience limited influence and more constraints within society (Ridgeway, 2002). For example, in a corporate structure, the Chief Executive Officer, representing the highest status, has extensive reach over employees, the ability to influence decisions, and can direct the corporation towards its goals. At the opposite end, representing lower status, are entry-level employees who have limited ability to influence others and have a highly restricted job structure. Therefore, one of the hallmarks of a hierarchical structure is the

status individual members hold, representing the pattern of influence and constraints experienced by members of the group.

People have a natural tendency to compare, evaluate, affiliate with each other, and not only conform to group norms in order to form stable groups (Sherif, 1936), but they also have an “upward drive” to show themselves as better than other members of their group (Festinger, 1954). This interplay between the upward drive to better themselves as individuals and group pressure to conform to norms churns the wheel of social comparison, bringing about emergent and more individualized status characteristics for members within the group. Status characteristics are natural and surface due to our tendency to individuate within groups (Festinger, 1954). People can become attuned to status differences in a given situation as early as by the first minute of the interaction (Fisek & Ofshe, 1970) and importantly, dominant or submissive statuses can be detected in an automatic manner (Moor & De Houwer, 2004).

In a hierarchical group structure, members tend to have shared beliefs and representations about status. There is common knowledge about who has high influence over outcomes of the group, what represents a favorable outcome for the group and how to gain favor using that favorable outcome. Importantly, there also exists a common understanding of the symbols that represent status (Darley J., 2002). Ridgeway (2002) suggests that anything that is of value within a culture, or society, or any given context, can become a symbolic representation of status. It is important to note here that such symbols are shared representations and are highly context driven. A sports car, a tech gadget, or a title limited to even a specific context can become a symbolic representation of status for a group that ascribes such value to it. In the United States, being rich, well-



educated, employed as a doctor or engineer, owning a house and a fancy car, represent some of the symbols of high status.

Early work by Hyman (1942) made two important observations about the nature of status perceptions. First, he suggested that what people construe as their subjective status depends on who they are comparing themselves to, and second, that these comparative measures are not in the domain of wealth or occupation directly, but on measures of overall competence. Perceptions of status are less affected by distant and impersonal comparisons of who leads a nation, or who heads a multinational corporation, or who wins a prized acting award. Rather, perceptions of status are affected by variations within their own social setting such as their employers, family members, friends, and other members of their social group, along a dimension that represents some form of ability. Therefore, relative perceptions of proximate members of the social group influence perceptions of status. Across cultures also, a strong correlation has been noted between how capable, intelligent and competent an individual is perceived to be, and their social status, such that high status individuals are perceived to be relatively more endowed in those qualities than low status individuals (Fiske & Cuddy, 2002). Therefore, perception of status is related to the perception of competence in relative terms, and depends on who is being compared to whom within a given context. In this manner, individuals within a group gain a sense of their place, in relative terms, within the social setting and become endowed with a degree of flexibility to modulate behavior in accordance with the person or persons they are interacting with.

Incorporating social status information, in social interactions, is adaptive and desirable as it allows the actor to incorporate the constraints of influence. Factoring in

subjective and relative aspects of status gives the advantage of having a reasonable set of expectations about self and other (Ridgeway & Diekema, 1989). For example, when interacting with a superior, one might take a formal and deferential stance, whereas when interacting with an equal, one might behave more casually. Therefore, being able to incorporate relative standing allows one to tune social interactions more carefully. Also, having higher position in the hierarchical structure provides better access to resources and to the advantages of the community, and allows one to present qualities such as the extent of capability, intelligence, and competence. Thus, being able to factor in social status information provides the advantage of being able to signal ability, adjust behavior to members of the group, and access resources in accordance to the situation. Status confers health, prosperity, and adaptability on the bearer of high status. Not only do human beings value status, but animals such as non-human primates also take their hierarchical position into account before they fight over resources such as food, mate or anything else (Sapolsky, 2004). They assert their hierarchical position through dominance and deference acts such as staring or strutting by the dominant member, and averting eyes or running away by the submissive member (Mazur A. & Cataldo M, 1989). Additionally, loss of rank or status is associated with negative health outcomes for both human and nonhuman primates (Sapolsky, 2004).

Status is important because like food and water, it has the property of reinforcing behavior and therefore a title or a symbolic representation of status can function as such, motivating different choices. Huberman, Loch, & Onculer (2004) suggest that the pursuit of status may be an emotional goal in itself because people trade off financial gain to achieve status that is limited to the experimental context. They reported that the average

financial investments, made by subjects to gain status in four countries, were higher in conditions where status can be gained versus in the no status condition, suggesting that social status is highly coveted for itself. Primary rewards such as food and water, for example, are desired for themselves, whereas status is desired not only for itself but also for other secondary purposes such as social advantages it confers. This is true not only in humans but also in animals who seek status at risk to themselves to oust a competitor, mark a larger territory or to acquire a more desirable mate. Therefore, status is important because it serves as a motivational force that guides expectations about the group and shapes behavior conferring greater adaptability to the organism.

### **How is status studied?**

In animals such as primates, where the social structures have strong dominance hierarchies, status concerns elicit a variety of behaviors such as averted gaze, crouching, aggression etc. Wilson et al (2008) and Arce, Michopoulos, Shepard, Ha & Wilson (2010) used social subordination in female rhesus monkeys to model status. Status positions were assessed by the outcome of interactions between the paired female monkeys. The dominant female monkeys maintained their status hierarchies through harassment and threat of aggressive acts. Submissive females showed submission behaviors such as grimacing, squealing or avoiding when the dominant females approached or threatened them. Deaner, Khera & Platt (2005) housed male monkeys in their study in pairs or small groups with unidirectional status relationships. All monkeys were situated within visual and auditory range of each other but were not allowed to interact with each other. However, when male monkeys from different pairs were introduced to each other, low status monkeys averted gaze from the high status monkeys.

High status monkeys, on the other hand, were observed to look directly at the low status monkeys.

In humans, status is studied in a variety of ways. Sociologists have studied status by using socio-economic status as an approximate measure (Adler & Ostrove, 1999). Diffuse characteristics such as gender and race have been used as representations of status, with males representing higher status than females (Ridgeway, 2002) or Whites representing higher status than minorities (Ridgeway, 2002). Additionally, other manipulations involving job title (Mazur & Cataldo, 1989), confederate displays of expanded or constricted posture (Tiedens & Fragale, 2003), nominal distinctions of pay-levels such as high-pay versus low-pay (Ridgeway, Boyle, Kuipers & Robinson, 1998), and extent of influence through directing conversations (Mazur & Cataldo, 1989) have also been used to suggest status differences.

In addition to the above, status perceptions have been shown to be affected by perceptions of competence. Harvey (1953) examined the development of status relations in informal groups using adolescent cliques consisting of three members. Each of the members represented either the role of a leader, middle ranking, or lowest standing member of the clique. They were told that the experiment was about hand-eye coordination and were asked to do their best on this task. They found that the higher the individual status within the clique, the more they tended to over-estimate their performance on the task. Sherif, White & Harvey (1955) studied the development of status relationships in experimentally formed groups in order to index status, and noted that perceived differences in performance significantly related with status rankings. Specifically, they noted an over-estimation for high status members and under-estimation

for the low status members, and that these judgments were not related to the actual skill. However, this does not suggest that the actual skill is unimportant; only that the absolute measure of skill level does not index status within the group. Rather, it was the relative estimates that provided an index for status in both informal and experimentally formed groups. Ridgeway (1982) used confederates in a four-person task group and trained them to contribute to the task in a “confident and logical manner” to depict greater competence in the discussion task of the experiment. Subjects in the group ranked the confederate to be superior to other group members. Taken together, these studies suggest that perceptual biases in evaluating competence on a given task in an experimental setting can be used as a putative index to capture status perceptions within a group.

#### **“Keeping up”- Influence of Status on Behavior**

It is not surprising that status perceptions can induce biases for human beings and non-human primates given that status is desired for itself and for secondary purposes. In rhesus macaques, for example, low status males reflexively followed the gaze of all macaques presented in the task. However, high status males selectively followed the gaze of only high-status macaques (Shepherd, Deaner & Platt, 2006). Further, monkeys were willing to forgo fluid rewards when they were thirsty to view faces of high status monkeys but required over-payment of fluid rewards to view the faces of low status monkeys (Deaner, Khera & Platt, 2005). Subordinate female monkeys were shown to consume significantly more number of calories from a high caloric diet than their dominant female counterparts during the three week period that they experienced status related overtures from their conspecifics (Arce M., Michopoulos V., Shepherd K.N., Ha Q., & Wilson M. E, 2010). Specifically, Wilson et al (2008) showed that subordinate

monkeys consumed more low and high fat diets in response to the social stress associated with subordination suggesting that social factors such as status can be potent enough to trigger emotional feeding behaviors. Together, these findings suggest that social status presents information of value even to primates affecting subsequent attentional mechanisms like directing gaze towards or away from a conspecific of a particular status, sacrifice of rewards in order to view high status monkeys and can provoke emotional and anxiety related behaviors in subordinate monkeys such that their feeding patterns can be disrupted.

In human beings also, perceived differences in status in experimental settings have been shown to elicit negative affect and changes in systolic pressure providing physiological evidence for how status related evaluations run deep. The effects of status perceptions are not only cognitive but can have affective, attentional, social, financial and sociological consequences. For example, accuracy in basic visual perception tasks can be affected by perceptions of superiority (Muller, Atzeni & Butera, 2004). More notably, a recent study found that like the non-human primates described earlier, human beings also gazed more often and longer at high status than low status individuals suggesting that the human gaze system is sensitive to not just social interaction but specifically to the social status of individuals involved in the interaction. Status information therefore can be a powerful cue providing top-down guidance to even the basic attentional system in early information processing (Foulsham, Cheng, Tracy, Henrich, & Kingstone, 2010). Other studies, examining status perceptions at the sociological level, find that early socioeconomic status best predicted adolescent blood pressure as a marker for future cardiovascular health (Marin, Chen & Miller, 2008). Importantly, subjective perception

of social status of the community was found to be inversely related to anxiety, pessimism, stress and daytime diastolic blood pressure, after controlling for objective socioeconomic status. The studies discussed above emphasize the point that status perceptions are not just simple biases in social perception, but are psychologically potent.

Status confers perception of greater abilities in a relative sense and not in an absolute sense (Koslin R.L., Haarlowl R.N., Karlins & Pargament, 1968). Status characteristics affect judgment by generating perceptual biases such that the high status person's position is exaggerated and low status person's position is minimized. So potent are these biases that studies examining financial behavior show that high status groups try to keep the advantage to themselves. For example, high status subjects tended to seek an advantage in settling negotiations and were more likely to be exploitative when they felt a sense of entitlement (Hoffman & Spitzer, 1985), and low status members tended to show more mimicking like behavior (Kumru & Vesterlund, 2008). Ball & Eckel (2001) examined the role of status in negotiating the price of a fictional good. They assigned status by using a trivia quiz to divide a group into high and low status. The high status group was awarded a star and given a round of applause while the low status group was asked to participate as the audience of the group. They found that the high status group captured more of the profit in the market than their low status counterparts regardless of whether they were in the role of a buyer or seller. Importantly, members of the high status group were perceived to be more aggressive, deserving, and bearing a desirable group membership. Therefore a high status person is motivated to maintain the advantage gained over other members of the group by asserting themselves in a more self-interested fashion.

In contrast, low status members seem to mimic the behavior of the high status members (Kumru & Vesterlund, 2008). In a design similar to the Ball & Eckel (2001) study described above, status was manipulated using a trivia quiz, following which, subjects were grouped into high and low status and given a ribbon as a symbol of status. They were then asked to make voluntary contributions towards a charitable cause. When high status members preceded low status members in voluntary contributions, low status subjects paid 80% more than when they contributed first (Kumru & Vesterlund, 2008). It is possible that high status members take on the image of a role-model motivating the low status members to imitate their behavior in the larger context. Research in the domain of social comparisons on the impact of superstars on self-perceptions suggests that an outstanding other can become a source of inspiration or discouragement if one compares self to the other. This is especially the case if the other is similar and the comparison is relevant to the situation. Assuming that all other factors are equal, people are likely to engage in defensive actions and thoughts when they are out-performed by other (Lockwood & Kunda, 1997; Tesser, 1986). In examining the impact of superstars, Lockwood & Kunda (1997) found that, when relevant and particularly attainable, role-models can exert a positive influence allowing participants to engage in prospective cognitions to enhance their self-image. Marx, Ko & Friedman (2009) examined the “Obama effect” in which over a three-month period, a verbal exam was given to four separate groups of Black and White Americans during four different pre-determined times. The scores between August 28<sup>th</sup> and September 2<sup>nd</sup>, 2008, which was in the days after his nomination, showed that for those who did not watch his acceptance speech, there was a race based difference in performance with Whites out-performing Blacks.



However and importantly, for those who watched the speech and perceived it to be an example of stereotype-defying success, there was no significant difference between the performance of Blacks and Whites. These results persisted even after adjusting for education level. Examples such as these suggest that the presence of a high status person can be powerful in motivating self-enhancing behavioral outcomes. Additional evidence for self-enhancement behaviors suggests that when people feel excluded by unknown others they are more likely to unconsciously mimic their interaction partner than if they were included, and this finding is particularly salient for an in-group member. This suggests that selective mimicry of individuals can be restorative for status and may be a viable strategy to overcome relative disparities in a situation (Lakin, Chartrand, & Arkin, 2008). The studies described above suggest that high status members become self-interested and are advantage oriented in order to maintain their status. Low status members, in contrast, engage in mimicking in order to regain status and minimize differences. These behaviors show a cyclical pattern of advantage and reparation, and are not only social in nature but thin slices of effects of status can be seen in domains that range from attentional, physical, and even to financial.

These studies illustrate the scope and extent to which relative concerns about status affect our decision making and provide some clues about the psychology of status. However, these studies are limited in their formal measurements of status perceptions and in their measurements of relative differences between self and partner. Further clarifications may enable a deeper understanding of the psychological nature of status perceptions and its manifestation in a laboratory setting. These points are addressed next.

**Limitations of past research and reconceptualization of status**

Models of status in primates that incorporate dominance or territory or size present limitations in laboratory psychological research in terms of the practicality of these operationalizations. Additionally, the variables used in animal research such as size or dominance, present characteristics that may only provide limited control over the psychological underpinnings of status and its influence on behavior. Operationalizing status as in non-human primate models is therefore not practical for human research and presents limitations that undermine the psychological objectives associated with research on status perceptions.

While sociologists study social status in humans mainly as a differential variable using socio-economic status as a proxy measure, this variable does not capture the psychological aspects of what it means to have status and how it might affect behavior (Singh-Manoux, Marmot, & Adler, 2005; Pickering, 1999; Adler & Ostrove; Henry, 2009). Quasi-experimental designs such as those incorporating socio-economic status, size, or job-title present limitations in controlling and manipulating the variable of interest and assessing how the independent variable, status, can affect behavior. Studies examining the relationship between socio-economic status and health have emphasized that a subjective measure of social status on a ten-rung ladder may be a more precise measure. Subjective measures capture the individual's sociocultural circumstances and have a multidimensional quality that includes nuances associated with the individual's assessment of objective indicators. Thus, this measure provides a representation of relative social position instead of just absolute position as would be indicated by socio-economic status. Indeed, the precision of using the subjective measure is illustrated by

the fact that when objective socio-economic status and subjective measure of status are simultaneously modeled, only the subjective measure predicts health outcomes (Singh-Manoux, Marmot, & Adler, 2005). This makes a compelling point— that the psychological undercurrent of individual's experience of status needs to be captured, emphasized and examined. However, very little is known about what it means to bear status or lose status and therefore, in order to capture the psychological aspects of status perceptions and how it might affect behavior, status needs to be conceived of in a different manner.

In order to re-conceptualize status and examine perception of status more closely, three key points may be considered. First, that a reference group (whom one is being compared to) is an important criterion for assessing relative and subjective perception of status. Second, that some objective criterion (such as occupation or ability) may be sufficient in itself, to induce status (Hyman, 1942). Third, in the context of intra-group interactions, “member's judgments of each other's performance” can be indexed as their status in the group (Sherif et al, 1955). The first two points may also be viewed as sufficient conditions to generate status differences in a laboratory setting, while the third point may be viewed as a way to measure status differences thus induced. In the recent past, sociological work by Ridgeway (2002) has shown that a nominal distinction and a perception of inequality between groups can successfully generate status beliefs. Therefore, studying status in terms of perceptions of relative ability in a given experimental context can elucidate the psychological underpinnings of experiencing status. Applying such a manipulation to a decision making paradigm such as economic

games and choice behaviors can further our understanding of how it affects decision making.

### **Goal of the dissertation studies**

The goal of this dissertation is to i) establish a manipulation for status and ii) to examine how perceptions of status differences impact our behavior. This dissertation describes a novel methodology for inducing status differences within a dyad or pair in the general methods section. Following this, four experiments describe specific effects of status concluding with caveats and an overall summary.

The goal specifically is to examine how changes in perceptions of status impact decision making. The first step is to show that status differences can be induced in an experimental setting via perceptions of competence in a card game. The studies described here aim to show that perceptions of competence in the card game can manifest into differences in perception of self versus partner as a function of their status. And that the perceived performance in the game can result in overall changes in perceptions of status attributes of partner. The second step is to show that subjective perception of these relative differences can create biases in decision making in economic games. Four studies have been designed to examine how changes in perceptions of status influences decision making.

The goal of the first study is to establish that status can be induced in the laboratory in terms of perceived relative competence in a card game. Two novel measures are used as status manipulation checks. A ladder questionnaire, adapted from Operario D., Adler N. E, & Williams D. R. (2004), measuring a between subjects perception of competence on the card game provides evidence of relative disparity between self and

partner as a function of their own status. Additionally, a status attributes questionnaire administered prior to and after the manipulation measures variations in perception of status of the partner. This will show that subjective perceptions of status can bias decision making such that high and low status groups show differing patterns. Therefore, after the status manipulation, subjects will be asked to propose divisions of varied dollar amounts with each other as is done in a typical version of the Ultimatum Game (Guth, Schmittberger, & Schwarze, 1989). Having thus demonstrated that status beliefs can be generated in a laboratory setting and that these can, in turn, generate differences in decision making, the goal is to further apply this status manipulation in studies 2, 3 and 4.

Broadly, the goal of studies 2 and 3 is to examine whether status, or money, is valued differently as a function of their own status. Both of the studies will employ the same status manipulation as in study 1. In the decision making part, subjects will be asked to choose between a status symbol and money. The goal of the second study, is to examine how powerful status concerns are. Specifically, this study examines if status concerns overshadow monetary concerns. It also examines if individual choice that does not require one to consider status is influenced by the prior status experience. The goal of the third study is to enhance risk by associating the dollar value with a prospect that represents varying probabilities of winning money. The third study will expand upon the findings of study 2 by exploring if choice between status symbol and money becomes more biased due to increased risk. The fourth study begins to explore the psychological underpinnings of status by exploring if self-esteem is impacted due to status. Additionally, it also begins to explore if a different manipulation of status that involves ascribing status, instead of the method described in the general methods, may also elicit

similar differences in judgment and decision making. Taken together, studies 1, 2, 3 and 4 will illustrate that status can be experimentally manipulated in the laboratory. Further, how these status concerns create biases in decision making, in turn, may help to elucidate the psychology underlying relative status experiences.

## **Chapter 2: General Methods**

This section presents methodological details about how status will be induced and checked. These procedures will be implemented in studies 1 through 4. First, status will be operationalized, then a detailed description will be provided on how it is executed in the experiment via a card game consisting of two phases – learning phase and status assignment phase.

### **Operationalization of Status**

Status is operationalized in terms of relative differences in a pair of subjects in subjective performance on a card game. The subject performing better is conferred “high status” through a raffle ticket for a desirable item (such as IPOD Touch), a round of applause from the experimenter, and words of praise such as “Nice job”. The other subject is given neither and is assigned as the “low status” subject.

### **Experimental checks**

Prior to these phases, subjects were asked if they knew their partner. If subjects indicated, they knew each other, the experimental session was dissolved. All pairs of subjects were asked if they belonged to same classes and if they answered yes, they were asked if they had done any projects together. If subjects answered yes to having done any projects together, then the experiment was dissolved. This was done in order to avoid any bias due to prior knowledge of each other.

Subjects signed up for research-points through the R-point Sona system. Each timeslot had two spaces for subjects to randomly sign up based on their schedule and convenience. Subjects were instructed through this system to arrive at the venue of the experiment at the scheduled time. At the time of the experiment, after subjects consented, and before interacting with their partners, they were given a status questionnaire which tested the perception of their partner on nine items. This questionnaire is described in further detail in the manipulation checks section. Then subjects were asked to go to the testing room and seat themselves in front of the desktop computer. The experimenter did not assign seating so that subjects would randomly seat themselves. Then, they were given instructions for the card game beginning with the Learning Phase which is described in the following section.

### **Card Game**

To establish differences in performance, a card game was designed and modified such that one subject gained more experimental dollars than the other and thus performed better. This subject was given the aforementioned raffle ticket, praise and applause and thus assigned “high status.” In the experiment, performance differences were induced in two phases - the learning phase and the status assignment phase (See Figure 1). The experimental procedure and the phases will be described below.

**Learning Phase.** While both subjects were seated beside each other in front of the desktop computer, they were given instructions. The instructions were presented section by section on the screen as the experimenter spoke to the subjects so that both subjects could read the instructions as the experimenter went along. Subjects were told the following:

Welcome to the experiment. This experiment consists of three parts. We will begin the first part now. In the first part, you will learn the values of some symbols and in the second part you will earn some game money. In this first part, you will see two symbols and each of the symbols will be shown with either an up arrow or a down arrow. Your job is to figure out which symbol goes with which arrow. The directions of the arrows are clues which will tell you whether the symbol is a high symbol or a low symbol. There are two symbols, the sun and the snowflake symbol. We want you to pay attention to which arrow is paired with the sun symbol and which arrow is paired with the snowflake symbol. Please do not talk or remark or comment to your partner during the entire duration of the experiment. Please pay careful attention to the screen and watch the pairings like you would watch a video. I will come back when you are done and give you instructions on the second part.

After these instructions were given, the experimenter left the testing room. Both subjects saw the same displays on the computer screen. They were instructed to observe pairings of a symbol and an arrow indicating high or low. Based on the pairings, subjects inferred the value of the symbol (high/low). This was the Learning Phase of the experiment.

**Status Assignment Phase.** When the learning phase was completed, the experimenter came in and gave instructions for the status assignment phase. These instructions were presented section by section with appropriate schematics so that subjects were able to understand how to perform on the task.

Subjects were told the following:



Welcome to the second part of the experiment. In this part, you will have the opportunity to gain some experimental money by pressing some keys to the symbols you saw before. We will be conducting a raffle at the end of the study and the person who makes more money during this phase will be given a raffle ticket for an interesting prize. This time we are planning to raffle an Ipod Touch so we want you to take it seriously and play to the best of your ability. What you are seeing in front of you is two cards, a blue card and a yellow card. The blue card corresponds to subject 1 and the yellow card corresponds to subject 2. Subject 1 – your keys are 1 and 2, 1 for high and 2 for low. Subject 2- your keys are 8 and 9, 8 for high and 9 for low. You can see what is going on in your card, and you can also see what is going on in your partner's side. Here you see a fixation point, which is a plus sign. Key presses made to this will not count and will not earn you any money. Next, I am going to show you an example of a symbol. This is an example and you will *not* see this during the game. Inside the cards, you see an envelope symbol. Instead of the envelope symbol, you will see a sun or a snowflake symbol. When you see the sun or snowflake symbol, is when you should make your response. This may or may not get you some money. A dollar sign means you made money during that trial and an "x" means you did not make money during that trial. Sometimes you might see blank screens – that is part of the game. Please place your fingers on your respective keys and we can get started.

The card game of the status assignment phase consisted of 72 trials in total composed of 3 blocks with 24 trials in each block. Trials transitioned from one block to the other without any pause, as shown by the arrow in the embedded figure. Feedback for the high status subject stayed the same in each block; however, feedback for the low status subject decreased from one block to another, thus creating a disparity between the subjects.

The game was designed in such a way that each pair of subjects would begin by getting equal dollar signs or “X” on their responses in the first block. In this block, the feedback was given on a variable ratio 3 schedule to both subjects, i.e., in the first block, 8 out of 24 trials were marked for feedback and both high and low status subjects could accumulate 8 experimental dollars provided they responded correctly on those trials. In the second and third blocks, however, feedback for the low status subjects was tapered down to a variable ratio 6 schedule, i.e., 4 trials were marked for feedback out of 24 trials, and then a variable ratio 12 schedule, i.e., 2 trials were marked for feedback out of 24 trials, while feedback for the high status subject was held constant at variable ratio 3 schedule. Thus, in the second and third block, 8 trials were marked for feedback for the high status subject while for the low status subjects, 4 trials were marked for the second block and 2 trials were marked for the third block. As a result, the high status subject received 8 experimental dollars for each of the 3 blocks resulting in a maximum possible 24 experimental dollars overall. However, for the low status subject, since a maximum of 4 and 2 experimental dollars could be earned in the second and third blocks respectively, a total of  $(8+4+2)$  14 possible experimental dollars could be earned. Consequently, a disparity of experimental dollars earned was created. As a result, one of the subjects

earned less experimental dollars compared to their partner. This phase was the status assignment phase (see Figure I).

In the case that one of the subject's did not learn the associations and was not able to earn the expected experimental dollars, the experiment was dissolved.

After this phase concluded, the experimenter awarded a raffle ticket for a desirable item such as a gift card or IPOD Touch, said "Nice job", and gave a round of applause to the subject earning \$24. This subject became the high status subject. The other subject was not given any of the above and was ignored by the experimenter and became the low status subject.

**Trial layout.** The following description describes the layout of a trial. A trial began with a fixation point that was presented for 1.5 seconds (See Figure 2). Next the symbol was presented for 2 seconds during which the subjects pressed the key indicating the value of the symbol. Following this, there was an inter-trial interval of 1 second after which the subjects received either feedback of a dollar sign signifying one experimental dollar, or "X" signifying an incorrect response, or a blank screen signifying no feedback. Feedback of "X" or "\$" or blank screen lasted for 1 second and both subjects could view each other's feedback as they came up simultaneously on the screen. This marked the end of a trial. A correct response led to a dollar sign display or a blank screen, and an incorrect response led to an "X" on the screen or a blank screen.

### **Manipulation checks**

Two manipulation checks were used to assess status induction – 1) Ladder and 2) Status questionnaire. Operario et al (2004) used a ten rung ladder questionnaire to assess subjective perceptions of social standing in a study that examined the relationship

between socioeconomic standing and health. In the studies described here, the ladder questionnaire was adapted from Adler et al (2004) and subjects were asked to mark their own performance and that of their partner, after the manipulation, on the ladder scale consisting of five steps or rungs. The ladder questionnaire was coded such that the top most rung was given a value of 5 and the lowest rung was given a value of 1. Subjects were not aware of the coding scheme and were asked to give a relative assessment of how they saw their performance relative to their partners.

A status questionnaire was also employed in which subjects were asked to rate their partner on nine attributes on a scale of 1 (*Not at all*) to 5 (*A great degree*). These attributes include the following items - smart, lucky, fast, accurate, successful, cool, someone to listen to, competent, and deserving. Subjects rated *only* their partner on this questionnaire before and after the status manipulation. These partner ratings were the dependent variable of interest (the independent variable being induced status). Since this dependent variable of interest is subjective perception of status of partner, the ratings of all 9 attributes were averaged to compute a composite score reflecting the latent variable of interest, i.e., subjective perception of status of the partner.

Operationalizing status in this manner and employing the above questionnaires to assess effectiveness of the manipulation will help to demonstrate some of aspects of status experiences. The ladder questionnaire will provide evidence of relative competence perceptions and the status questionnaire will provide evidence of changes in status perceptions due to the manipulation, thus supporting the notion that status can be simulated in a laboratory environment. The following studies apply this operationalization of status and examine the effects on economic decision making games.

**Relaxing p-value.** Results reported in this dissertation explore the effect of a novel manipulation of status on varied decision making paradigms. In order to minimize the chance of making Type 2 errors and explore a wider range of plausible hypotheses and conclusions in the experiment, alpha level was relaxed from .05 to .1. The alpha level for all analyses was set to .1.

### **Chapter 3: Influence of Status on Ultimatum Game (Study 1)**

Economists assume that human beings are mainly motivated by money and have devised economic games to study variations in choices and decisions in these games. One such game is the Ultimatum Game. The objective of the Ultimatum game is to divide a certain amount of money between a proposer and a responder. The proposer divides the specified amount of money between self and the responder. For the profit oriented rational proposer, the logical decision would be to share the least possible amount and keep the maximum possible for self. The responder can either accept or reject the amount proposed. If the responder accepts, the offer is finalized as proposed. However, if the offer is rejected, neither the proposer nor the responder gains any money. The rational decision, as a responder then, is to accept any dollar amount proposed (Guth, Schmittberger, & Schwarze, 1989).

Most people deviate from the rational pattern expected by economists and reject low offers, when acting as a responder. The average amount offered varies from 37% to 42% of the stake and the mode is 50% of the stake. This suggests that people are not only motivated by absolute monetary amounts but are also concerned with relative amounts to the extent that people are willing to bear a loss if their concerns about relative amounts are violated. Therefore, when faced with the monetary amount being offered, people are

concerned not only with the profit they incur, but also with other social concerns associated with making the profit suggesting a role for social processes in sharing monetary amounts (Guth, Schmittberger, & Schwartz, 1989, Sanfey et al 2003).

Ball & Eckel (1998) examined the role of social concerns in the Ultimatum game by examining the effect of status on decision making using a trivia quiz to divide a group of students into high and low status. The high status group was awarded a star and a round of applause and the low status group was seated as the audience. Following this treatment, they were asked to play a one-shot Ultimatum Game using either 10 Hershey's kisses (low-pay treatment) or \$10 (high-pay treatment). The low pay treatment, i.e., Hershey's kisses, represented low cost of rejection since Hershey's kisses are of lower economic value and the high pay treatment, i.e., \$10 represented high cost of rejection. Their results showed that both low and high status subjects proposed evenly when they were asked to divide \$10 in one unit increments. However, when asked to divide 10 Hershey's kisses in 1 unit increments, low status subjects shared significantly higher with their high status counterparts than with their low status counterpart, while the high status subjects still shared evenly. This suggested that status became a salient discriminating feature, for the low status subjects, when the cost of rejection was low, i.e., when sharing Hershey's kisses. In contrast, when the cost of rejection is high, i.e., when sharing money, subjects did not discriminate based on status related information. The theoretical implication of the above finding is that money may be more salient than status and therefore may not be affected by situational variations of status.

The implication of the aforementioned study while being interesting and insightful has two notable limitations. First that the classes of rewards used as high and

low pay are not equivalent. Unlike money, Hershey's kisses are primary reinforcers that are not fungible and therefore value of the reward is confounded in this experiment.

Second, the ultimatum game presented here is a one shot game in which subjects do not experience both high and low pay treatment – they experience either treatment. In order to assess more clearly, whether low or high pay conditions are more sensitive to status, varied levels of pay can be used for each subject. This may provide a clearer understanding of the cost of rejection associated with sharing behavior for subjects, and may show a different pattern of how status impacts proposer behavior in the Ultimatum Game.

Given the above limitations, the goal of study 1 is to address these limitations and further examine how status concerns might affect proposer behavior in the Ultimatum Game. This study will be discussed in two parts – study 1a will examine if there are differences in offers made by high and low status groups, and study 1b (control group) will examine if there are differences in offers where there is no status disparity.

In light of the limitations of the study discussed above (Ball & Eckel, 1998), we attempt to evaluate these findings, as well as explore the alternate possibility that status concerns become salient when cost incurred to self is high. A rejection at higher dollar amounts may be more salient to low status subjects than a rejection at lower dollar amounts. Therefore, low status subjects are expected to share more than high status subjects for high dollar amounts. At low dollar amounts, since the cost of rejection may be similar for high and low status subjects, it is expected that they will share similarly. Additionally, using an equal status control may provide a baseline for sharing behavior

and might further help to clarify whether the high or low status group is driving differences in proposer behavior.

### **Method**

**Participants.** Sixty-two subjects (24 male, 34 female) from Rutgers University, Newark research pool participated in the experimental condition. 4 subjects did not report their gender. Other demographic information was not collected.

Twenty-six subjects (6 males and 20 females) also from Rutgers University, Newark research pool participated in the control condition of the study. Other demographic information was not recorded.

**Design and Procedure.** This section describes how the experiment was designed and executed. Subjects were recruited sequentially in the experimental condition first and then to participate in the control condition.

**Status Assignment.** In the experimental condition, the status assignment procedure described in the previous section was followed to assign subjects to high and low status groups. At the end of this phase, one subject had a raffle ticket entered towards a desirable item whereas the other subject did not have an entry into the raffle. Additionally, the ladder and status questionnaires were used as described to assess the efficacy of the manipulation. Following the status assignment, for the decision making part, subjects played the Ultimatum Game.

For the control condition, the card game described in the methods section to induce high and low status was modified such that both subjects received equal experimental dollars. The learning phase was conducted in the same fashion as in the experimental condition. In the status assignment phase, however, both subjects were



treated equally. This study was also conducted in two phases, the learning phase and the equal status assignment phase.

All procedures were identical to the experimental condition except that in the status assignment phase both subjects received the treatment afforded to the high status group in the control condition, i.e., raffle ticket, a round of applause and praise.

***Ultimatum Game.*** Subjects played this game after the status manipulation. After answering the status questionnaire post manipulation, subjects were seated in front of two separate laptops to play the Ultimatum Game. Subjects were told that this was another opportunity to win an additional raffle ticket. There were 14 trials in total and subjects were told that one trial would be chosen at random and the offer would be proposed to the partner. If the partner accepted the proposed amount, the proposer would get another raffle ticket but if responder refused then the proposer would not get a raffle ticket. No matter how the responder chose, he/she will not get either money or raffle ticket.

On the screen, subjects saw “how much of \$X would you share with your partner?” where X ranged from \$7.50 to \$22.50 in \$2.50 increments for total of seven dollar amounts. The dollar amounts were presented in random order. For each dollar amount, six divisions were presented to subjects for each of the 14 trials. These divisions ranged from 16% to 96% in 16% increments in either ascending or descending order. For an example, if the dollar value was \$10, then the choices of divisions were \$1.6, \$3.2, \$4.8, \$6.4, \$8 and \$9.6. Subjects were asked to choose the dollar amount they would like to share with their partner. They were told that they had as much time as they needed to make the decision.

## **Results**

In order to assess overall effects, two analyses were conducted comparing the experimental and control condition and also comparing high, low and equal status groups. Following overall comparisons, further testing was conducted within the experiment and control groups. The experimental condition refers to the group that underwent the status manipulation and was assigned high and low status. The control condition refers to the group that experienced equal status assignment. These comparisons were made on the Status questionnaire, Ladder questionnaire and the decision making which are described next.

***Status questionnaire.*** Results reported here first describe reliability measures on the status questionnaire for the experimental group, which indicate the Cronbach's alpha value and item analyses. Next, principal components analyses are reported which establish the underlying factor assessed by the status questionnaire. Analysis of variance results are reported next – first by condition, next by status grouping and finally independent analyses for each condition are indicated.

***Reliability measures.*** In order to address the question of whether the 9 items on this questionnaire consistently measure the latent variable “status”, Cronbach's Alpha testing was conducted. Cronbach's alpha measures are indicative of the degree to which items on a questionnaire are related to each other. This measure is related to a correlation but is not the same – it measures the *degree* to which items within a questionnaire are related to each other indicating internal consistency. A minimum value of .8 is deemed appropriate indicating that the items can reliably capture the measure it is intended for. High degrees of inter-correlatedness, i.e., alpha measures greater than .80 indicate that all items vary together.

The status questionnaire measured at .86 prior to status manipulation and .88 after status manipulation for both the high and low status groups suggesting that the items on the questionnaire are a reliable measure of the underlying construct and vary similarly. Table 2 shows the descriptive statistics for both the first and second administrations of the questionnaire. Table 3 shows the item-analysis output for the status questionnaire prior to status manipulation. Table 4 and 5 show item-analysis for the status questionnaire after the status manipulation for both high and low status groups. Item-total correlations were noted to be greater than .3 indicating acceptable overall correlations. Cronbach's alpha if item deleted did not indicate any values below .8. No items were deleted as alpha did not decrease below .8. These indicated good overall reliability.

*Principal components analysis.* Principal components analysis was used to determine factors underlying the composite scores on the status questionnaire. The status questionnaire was designed with the objective to capture overall changes in perception of status. Therefore, in order to ascertain if the questionnaire was tapping into one latent variable, principal components analysis was conducted.

For the first administration of the status questionnaire, data from all subjects in the experimental group was combined into one group since the manipulation had not been administered and therefore subjects could not be defined in terms of their partner. Data was screened for univariate and multivariate normality and outliers using Mahalanobis distance measures. Examination of the determinant showed a value of .02 indicating that none of the variables were a perfect linear combination of the other, confirming that principal components analysis can be executed. Bartlett's test of sphericity also showed a chi-squared value of 226.40, ( $p < .00$ ). Kaiser-Meyer-Olkin

measure of sampling adequacy was shown to be .85 meeting the minimum criterion of .6. The diagonal on the anti-image correlations showed values greater than .5 and met standards of sampling adequacy. These analyses showed that conditions of principal components analysis were met. Principal component analysis of the items on the status questionnaire showed that the first factor had an eigen-value of 4.48 and explained 49.88% of the variance and the second factor with an eigen-value of 1.19 explained 13.31% of the variance (See Table 7).

A single factor solution was preferred because the first factor explained a large portion of the variance and the eigen-value leveled off on the scree plot (See Figure 5) after the first factor. Taken together, these analyses confirm that conditions for principal components analysis were met and therefore, a single factor solution that was reduced from nine items on the status questionnaire may be considered a possible solution. For factor loadings on the first factor, see Table 6.

After the status manipulation, subjects can be defined in terms of each other and therefore separate principal components analysis was conducted independently for each status group ensuring that the independence assumption is not violated for each case in the group. This reduced the number of cases by half.

Testing of assumptions for the low status group showed a determinant value of .002, Kaiser-Meyer-Olkin measure of .66 which met the minimum criterion of .6, chi-squared value of 182.96 ( $p < .00$ ) for Bartlett's test of sphericity and a value of greater than .5 on anti-image correlations. Having met these assumptions, principal components analysis was conducted and the items on the status questionnaire were reduced to one factor based on an initial eigen-value of 4.84 explaining 53.81% of the variance in ratings

in the low status group. A second factor with eigen-value of 1.19 explaining 13.28% of the variance (see Table 7) was not preferred as the scree plot showed leveling off after the first factor (See Figure 6).

Further, assumption testing for the high status group showed a determinant value of .007, Kaiser-Meyer-Olkin measure of .79 which met the minimum criterion of .6, chi-squared value of 141.79 ( $p=.001$ ) for Bartlett's test of sphericity and a value of greater than .5 on anti-image correlations. Principal components analysis was then conducted reducing the status questionnaire items to a one factor solution based on an initial eigen-value of 4.80 explaining 53.38% of the variance in ratings in the high status group. A second factor with eigen-value of .93 explaining 10.34% (See Table 7) of the variance was not preferred as the scree plot showed an inflection after the first factor (See Figure 7).

*By status.* A repeated measures ANOVA with pre vs. post as the within subjects factor and status (high, low and equal) and gender as the between subjects factors also revealed no overall interaction of pre vs. post by gender by status ( $F(2,76) = 1.38$ ,  $p = .258$ ,  $\eta_p^2 = .04$ ). A significant interaction of status with pre vs. post ( $F(2,76) = 12.08$ ,  $p < .001$ ,  $\eta_p^2 = .24$ ) was however noted. Significant main effects of status ( $F(2,76) = 3.34$ ,  $p = .041$ ,  $\eta_p^2 = .08$ ) and pre vs. post were also noted ( $F(1, 76) = 13.32$ ,  $p < .001$ ,  $\eta_p^2 = .15$ ). Bonferroni corrected post-hoc testing showed that the overall rating prior to the manipulation ( $M = 3.41$ ,  $SD = .25$ ) was lower than the post manipulation ( $M = 3.57$ ,  $SD = .26$ ). Additionally, independent samples t-test on the overall rating for high ( $M = 3.36$ ,  $SD = .31$ ) and low status subjects ( $M = 3.38$ ,  $SD = .32$ ) did not differ significantly ( $t(56) = -.63$ ,  $p = .532$ ,  $d = -.06$ ), but the overall rating for the equal status group ( $M = 3.73$ ,  $SD$

= .35) was significantly higher than the high ( $t(53) = -2.19, p = .033, d = 1.12$ ) and low status ( $t(53) = -1.73, p = .09, d = 1.04$ ) groups.

*Independent analyses for experimental and control condition.* Analyses were also conducted separately for each condition to further localize the source of the observed effects and ascertain that the overall effects observed germinated from the status manipulation in the experimental condition where high and low status differences were induced.

Repeated measures ANOVA conducted on the experimental group with pre vs. post as the within subjects and status (high vs. low) and gender as the between subjects factor revealed a significant interaction between pre vs. post and status ( $F(1,52) = 14.33, p < .001, \eta_p^2 = .22$ ) indicating that subject's ratings depended on their status and whether they were acquired before or after the manipulation. Subjects rated each other similarly prior to the manipulation ( $M_{\text{High status}} = 3.42, SD_{\text{High status}} = .33; M_{\text{Low status}} = 3.26, SD_{\text{Low status}} = .34$ ), but differed on their ratings after the manipulation ( $M_{\text{High status}} = 3.29, SD_{\text{High status}} = .34; M_{\text{Low status}} = 3.50, SD_{\text{Low status}} = .34$ ). The overall interaction of gender by status within pre vs. post ( $F(1,52) = 2.20, p = .144, \eta_p^2 = .04$ ) and also the interaction of gender within pre vs. post ( $F(1,52) = .05, p = .826, \eta_p^2 = .001$ ) was not significant. No main effects were noted for pre vs. post ( $F(1,52) = 1.23, p = .27, \eta_p^2 = .02$ ) or status ( $F(1,52) = .032, p = .858, \eta_p^2 = .001$ ).

Similar analysis conducted on the control group did not reveal an interaction of status (equal status 1 and equal status 2) within pre vs. post ( $F(1,22) = .89, p = .357, \eta_p^2 = .04$ ), gender within pre vs. post ( $F(1, 22) = 1.22, p = .28, \eta_p^2 = .05$ ) or status by gender within pre vs. post ( $F(1, 22) = .41, p = .53, \eta_p^2 = .02$ ). A main effect of pre vs. post was

however observed ( $F(1, 22) = 16.21, p = .001, \eta_p^2 = .42$ ) indicating that ratings post manipulation ( $M = 3.57, SD = .31$ ) were higher than before the manipulation ( $M = 3.94, SD = .37$ ).

***Ladder Questionnaire.*** The results reported here are sectioned by condition first, then by status and lastly independent analyses were conducted for each condition.

*By status.* A repeated measures ANOVA conducted with self vs. partner as the within subjects factor, and status (high, low, equal) and gender as the between subjects factors showed that the interaction between self vs. partner by gender and by status was not significant ( $F(2,78) = 2.62, p = .079, \eta_p^2 = .06$ ). The interaction between self vs. partner and gender ( $F(1,78) = .42, p = .52, \eta_p^2 = .005$ ) was also not significant. However, the interaction between self vs. partner by status was noted to be significant ( $F(2,78) = 25.34, p < .001, \eta_p^2 = .39$ ). Main effect of self vs. partner was not significant ( $F(1,78) = .11, p = .74, \eta_p^2 = .001$ ) but the main effect of status was noted to be significant ( $F(2,78) = 13.36, p < .001, \eta_p^2 = .26$ ). Post hoc t-tests showed that high status subject's overall ratings ( $M = 3.84, SD = .66$ ) were higher than low status subject's rating ( $M = 3.12, SD = 1.1$ ) ( $t(60) = 3.09, p = .003, d = .80$ ) but not than the equal status group ( $M = 4.02, SD = .77$ ) ( $t(55) = -.921, p = .345, d = -.25$ ). Low status subject's ratings were noted to be lower than the equal status group ( $t(55) = -3.49, p = .001, d = -.94$ ). The overall interaction of gender and status was also noted to be significant ( $F(2,78) = 4.64, p = .012, \eta_p^2 = .11$ ).

*Independent analyses for experimental and control condition.* Analyses conducted separately within each group to determine whether the overall effects originated due to the status manipulation conducted in the experimental group. Results showed that for the

experimental group there was a significant interaction of status (high vs. low) within self vs. partner ( $F(1, 54) = 44.97, p < .001, \eta_p^2 = .45$ ). When subject's rated themselves, high status subjects gave themselves higher rating ( $M = 4.29, SD = .40$ ) than the rating they gave to their partner ( $M = 3.33, SD = .44$ ). On the other hand, low status subjects rated themselves lower ( $M = 2.57, SD = .41$ ) than their partner ( $M = 3.34, SD = .44$ ). No such significant interaction was noted for the control group for status within self vs. partner ( $F(1,22) = .52, p = .479, \eta_p^2 = .02$ ). In contrast with the overall analysis, in the experimental group, the interaction of gender within self vs. partner was not significant ( $F(1, 54) = 1.31, p = .258, \eta_p^2 = .024$ ), but the interaction of status by gender within self vs. partner was noted to be significant ( $F(1, 54) = 3.95, p = .052, \eta_p^2 = .07$ ). Similar effects were not noted in the control group for the interaction of gender by status within self vs. partner ( $F(1, 22) = .93, p = .345, \eta_p^2 = .04$ ), or for gender within self vs. partner ( $F(1,22) = 1.70, p = .206, \eta_p^2 = .07$ ). Overall, these results suggest that subjects rated themselves and their partner differently as a function of their status after the status manipulation. These effects were pronounced in the experimental condition, where subjects were assigned to high and low status, and not in the control condition, where both subjects received the same treatment.

***Ultimatum Game.*** In order to assess the effect of the status manipulation on decision making, a repeated measures ANOVA was performed to see if there are between groups effects or any status x dollar value interactions in decision making. In addition, a continuous measure of status, a self – partner difference score, was derived from the measures on the ladder questionnaire and used to assess the influence of status on decision making. For descriptives based on groups, see table 8.



*By status.* Analyses conducted with status (high, low, and equal) as the between subjects factor instead of condition. Mauchy's test revealed that sphericity had been violated ( $\chi^2(20) = 69.7, p < .001$ ), therefore Greenhouse-Geisser adjusted degrees of freedom were used ( $\epsilon = .75$ ). Analyses did not reveal a significant interaction for status within dollar value ( $F(8.93, 339.50) = 1.18, p = .309, \eta_p^2 = .03$ ) suggesting that the decisions subject's made did not depend on their status and dollar value. The main effects for both dollar value ( $F(4.47, 339.50) = 1.79, p = .122, \eta_p^2 = .02$ ), and status ( $F(2, 76) = .72, p = .492, \eta_p^2 = .02$ ) were also not significant. The main effects suggest that dollar value, or status that subjects were afforded did not affect decision making. The interaction of status and gender was also not significant ( $F(2, 76) = 1.34, p = .269, \eta_p^2 = .03$ ) suggesting that status and gender together did not influence decisions of subjects. Post-hoc testing that was adjusted using Bonferroni corrections did not reveal any significant differences in sharing behavior of high, low, and equal status groups (all  $p$ 's  $\geq .536$ ). Overall, these results suggest that subject's decisions did not depend on what status they were afforded, their gender or the dollar value.

In order to comprehensively assess interaction of status and dollar values, percent of money shared for \$7.5, \$10, and \$12.5 were averaged ( $M_{high\ status} = 41.52, SD_{high\ status} = 16.25; M_{low\ status} = 45.23, SD_{low\ status} = 9.96; M_{equal\ status} = 44.41, SD_{equal\ status} = 18.13$ ) to determine the low values. And, \$17.5, \$20, \$22.5 were averaged ( $M_{high\ status} = 39.90, SD_{high\ status} = 15.59; M_{low\ status} = 47.04, SD_{low\ status} = 10.72; M_{equal\ status} = 45.94, SD_{equal\ status} = 16.32$ ) to determine high values. This averaging incorporated a range of low and high dollar values using \$15 as the reference point. A repeated measures ANOVA was conducted with gender and status (high, low, and equal) as between subjects factor and

high vs. low dollar values as the within subjects factor. Analyses revealed no overall significant interaction of gender by status within dollar values ( $F(2,76) = 1.56, p = .217, \eta_p^2 = .04$ ) suggesting that decisions did not depend on a combination of status with gender and dollar value. However, a significant interaction of status within high vs. low dollar values ( $F(1,76) = 3.86, p = .025, \eta_p^2 = .092$ ) was observed which suggests that decisions made across high and low dollar values depended on a combination of status and dollar values.

The main effect of high vs. low dollar values was not significant ( $F(1,76) = .14, p = .709, \eta_p^2 = .002$ ). The main effect of status ( $F(2,76) = .749, p = .476, \eta_p^2 = .02$ ), and the interaction of status by gender was also not significant ( $F(2,76) = 1.42, p = .248, \eta_p^2 = .04$ ). As noted before, status or dollar values did not impact decision making. Overall, the decisions made by subjects did not show a relationship with their status and gender and the dollar value they were sharing. However, sharing behavior over high and low dollar values depended in part on their status.

*Independent analyses for experimental and control condition.* A repeated measures ANOVA was conducted with gender and status (high vs. low) as between subjects factors and dollar values as the within subjects factor. Mauchy's test showed that sphericity had been violated ( $\chi^2(20) = 65.56, p < .001$ ) and therefore degrees of freedom were adjusted ( $\epsilon = .71$ ) and results showed no significant interaction of gender by status within dollar values ( $F(4.28, 222.4) = .56, p = .702, \eta_p^2 = .01$ ). There was no significant interaction of status within dollar value ( $F(4.28, 222.4) = 1.59, p = .174, \eta_p^2 = .03$ ) or gender within dollar value ( $F(4.28, 222.4) = 1.32, p = .263, \eta_p^2 = .03$ ). No main effects

were noted for dollar value ( $F(4.28, 222.4) = 1.62, p = .14, \eta_p^2 = .03$ ) or status ( $F(4.28, 222.4) = .58, p = .448, \eta_p^2 = .03$ ).

When similar analyses were conducted on the experimental condition only, again a significant interaction was noted for status (high vs. low) within high vs. low dollar values ( $F(1, 52) = 11.58, p = .001, \eta_p^2 = .18$ ). The overall interaction of gender by status within high vs. low dollar values ( $F(1, 52) = .20, p = .655, \eta_p^2 = .004$ ) and the interaction of gender within high vs. low dollar values ( $F(1, 52) = .001, p = .969, \eta_p^2 = .00$ ) were not significant. There were no main effects of high vs. low ( $F(1, 52) = .057, p = .812, \eta_p^2 = .00$ ) or status ( $F(1, 52) = 1.67, p = .200, \eta_p^2 = .03$ ). Independent samples t-test between high and low status subjects showed no significant differences for low dollar values ( $t(58) = -.86, p = .393, d = -.22$ ), but high status subjects shared significantly less than low status subjects for the high dollar values ( $t(58) = -1.87, p = .066, d = -.49$ ). Also, independent samples t-test comparing high and low status groups at \$22.5 showed that percent shared by high status subjects ( $M = 39.47, SD = 13.93$ ) was significantly less than low status subjects ( $M = 48, SD = 12.95$ ) ( $t(58) = -2.46, p = .017, d = .65$ ).

In the control condition, notably, there was no interaction of status (equal status 1 and equal status 2) within high and low dollar values ( $F(1, 22) = .71, p = .41, \eta_p^2 = .00$ ). The overall interactions of gender by status within high vs. low dollar values ( $F(1, 22) = .71, p = .41, \eta_p^2 = .00$ ), and gender within high vs. low dollar values ( $F(1, 22) = 1.51, p = .232, \eta_p^2 = .06$ ) were also not found to be significant. There were no main effects of status ( $F(1, 22) = .503, p = .486, \eta_p^2 = .02$ ) or high vs. low dollar values ( $F(1, 22) = .13, p = .727, \eta_p^2 = .006$ ).

*Subjective score.* In order to assess the influence of status on decision making more closely, a subjective score of status was used. This score reflected a subjective level of how status differences were perceived and was calculated using the self and partner ratings on the ladder questionnaire. A difference score was determined by subtracting the partner rating from the self rating. A positive value on the difference score indicated subjective perception of high status whereas a negative value indicated subjective perception of low status. This subjective score was used as a predictor in the regression analysis reported below. Alpha level was set at .1 for this analysis.

Assumption testing showed that the distribution was slightly negatively skewed and transformations did not sufficiently correct for the skew. Therefore, the bootstrapping option, which does not assume a distribution and estimates coefficients based on repeated sampling, was used to regress the amount shared using gender and difference score, i.e., self-partner rating as the predictors.

The differences between the parametric model and bootstrapped estimates were evaluated to assess the model. Results of the bootstrapped estimates showed that gender ( $B = -1.88$ ,  $SE_B = 3.24$ ,  $p = .551$ , 90%  $CI [-7.231, 3.536]$ ) did not have an effect but the difference score predicted overall sharing behavior significantly ( $B = -3.01$ ,  $SE_B = 1.15$ ,  $p = .009$ , 90%  $CI [-4.67, -.881]$ ).

The parametric model with assumed normality also showed that gender ( $B = -1.88$ ,  $SE_B = 3.32$ ;  $\beta = -.062$ ,  $t(83) = -.568$ ,  $p = .572$ , 90%  $CI [-7.404, 3.637]$ ) did not contribute significantly to the model but the difference score ( $B = -3.01$ ,  $SE_B = 1.33$ ;  $\beta = -.25$ ,  $t(83) = -2.27$ ,  $p = .026$ , 90%  $CI [-5.219, -.798]$ ) predicted overall sharing behavior. The overall model was also noted to be significant ( $R^2 = .062$ ,  $(F(2,79) = 2.61, p = .080)$ ).

Based on the standardized residuals, three cases were examined further as possible outliers. One case was noted to have an absolute standardized residual of greater than 3.29 which should occur less than .1% of the time in the sample. Since this value (3.69) occurred in this sample of 86 subjects, it was further investigated. We noted that this case corresponded to a single subject belonging to the control group where status was not manipulated, and shared at the highest possible rate without any variation at different levels of dollar value raising concerns about the validity of responses made by this subject. This subject was therefore excluded from the analysis. Two cases showed an absolute standardized residual of greater than 2.58 which exceeded the single case allowed for this sample size, however, the Cook's distance obtained from the parametric model was noted to be less than 1 suggesting that these cases may not be uniquely influential in the model. Hence, these cases were retained.

Since the previous model with difference score and gender as predictors indicated that gender was not a significant predictor, the next model included only the difference score as a predictor. Results of the bootstrapped estimates, after adjusting for standard errors, showed that the difference score predicted overall sharing behavior significantly ( $B = -2.72$ ,  $SE_B = 1.08$ ,  $p = .023$ , 90%  $CI [-4.65, -.852]$ ). These results were noted to be similar to the parametric model ( $B = -2.72$ ,  $SE_B = 1.17$ ,  $p = .023$ , 90%  $CI [-4.67, -.773]$ ). In the parametric model, DFBeta for none of the observations for either the constant or the explanatory variable was greater than 1. Thus, no observation substantially influenced the model parameters. Outliers were checked in the parametric model using Mahalanobis distance measure which did not indicate any outliers. Cook's distance for all observations was less than 1, indicating that no single observation influenced the

model's ability to predict sharing behavior. Covariance ratios were all close to 1, indicating that none of the observations had a significant influence on the variance of the model parameters. Specifically, guidelines suggest that covariance ratios should be less than  $1 + [3(k+1)/n]$  and greater than  $1 - [3(k+1)/n]$ , where  $k$  is the number of explanatory variables and  $n$  is the number of observations. Five cases were marginally outside the limits of 0.93 to 1.07, but met the Cook's distance criterion ( $< 1$ ) and hence were retained. Removing gender from the model and performing the regression revealed an improvement in the model F-statistic from 2.61 to 5.40 ( $R^2 = .061$ ,  $F(1, 79) = 5.402$ ,  $p = .023$ ). The residual versus fitted plot was also screened and did not show funneling or curved patterns and was therefore deemed acceptable. The model was also noted to be consistent with the bootstrapped estimates. Overall, the model was observed to sufficiently meet assumption testing criteria and therefore was retained as the final model.

Correlations conducted on the difference score and percent shared at each level of dollar value showed significant correlations at \$7.5, and at all dollar values greater than \$15 (See Table 9). In the experimental condition, significant correlations were observed at \$7.5 ( $r(60) = -.24$ ,  $p = .065$ ), \$15 ( $r(60) = -.27$ ,  $p = .037$ ), \$17.5 ( $r(60) = -.21$ ,  $p = .108$ ), \$20 ( $r(60) = -.308$ ,  $p = .017$ ) and \$22.5 ( $r(60) = -.453$ ,  $p < .001$ ). However, in the control condition, the difference score was not found to be correlated with percent shared at each of the dollar values ( $p \geq .18$ ). Together these data suggest that the observed relationship between the subjective score and percent shared with partner may be due to the subjective perception of status differences in the experimental condition. In summary, an increase in the subjective perception of status was observed to show a decrease in sharing behavior.

*Exploratory analysis.* Further, correlation analyses were conducted with self rating, partner rating with percent shared at each dollar value. The objective of these exploratory analyses was to explore if the self or partner ratings had a stronger influence on sharing behavior. Overall results showed that the self rating on the ladder questionnaire did not correlate with overall percent shared and at most dollar values (all  $p$ 's  $> .182$ ) except \$22.5 ( $r(86) = -.214$ ,  $p = .048$ ). Partner ratings were correlated more significantly at \$10 ( $r(86) = .176$ ,  $p = .105$ ), \$17.5 ( $r(86) = .178$ ,  $p = .101$ ), and \$20 ( $r(86) = .116$ ). These correlations suggest that partner ratings were more influential on sharing decisions. When the experimental group was examined separately, only at \$22.5, a correlation was noted ( $r(60) = -.271$ ,  $p = .037$ ) with self rating. Partner rating, however, correlated significantly overall ( $r(60) = .231$ ,  $p = .076$ ), at \$10 ( $r(60) = .251$ ,  $p = .053$ ), \$12.5 ( $r(60) = .248$ ,  $p = .056$ ), \$20 ( $r(60) = .239$ ,  $p = .066$ ), and \$22.5 ( $r(60) = .241$ ,  $p = .064$ ). These results also confirm the pattern observed in the overall analyses suggesting that partner ratings were more influential on decision making. In contrast to the experimental condition, in the control condition, the self rating was significantly correlated with percent shared only at \$15 ( $r(26) = -.331$ ,  $p = .099$ ) but all other correlations were non-significant ( $p > .361$ ). Partner ratings also showed non-significant correlations (all  $p$ 's  $> .343$ ) at all dollar values except \$15 ( $r(26) = -.325$ ,  $p = .105$ ). In summary, the pattern observed here suggests that how subjects shared with their partner may have depended on how they perceived their partner.

## **Discussion**

Study 1 showed that when making decisions, people take not only objective information such as absolute performance in a game (experimental dollars earned) into

consideration, but also include relative concerns such as status relationships (Is my performance better or worse than my partner?).

**Status and ladder questionnaires by status.** We found overall that subjects reported a difference in the ratings of the status questionnaire as a function of their status ( high, low or equal).. Subjects rated the status questionnaire differently post manipulation compared to before the manipulation. Additionally, on the ladder questionnaire, subject's overall rating differed by status. . The overall rating given by the equal status group was higher than the overall rating given by the low status group. These results observed in the status and ladder questionnaire showed overall differences but did not clarify if these differences were specific to the experimental group. The *litmus test* for the success of the status manipulation was to observe effects in the experimental group and not in the control group, and therefore independent analyses were conducted for the experimental and control groups. These are discussed next.

**Independent analyses of status and ladder questionnaire within the experimental and control condition.** In order to further clarify the effects of status, the experimental group was examined more closely. In the experimental condition where we placed subjects in a high versus low status position by creating a disparity via a pre-determined card game, subjects reported a change in their ratings of their partner on the status questionnaire after the manipulation depending on their status. Specifically, high status subjects rated their partners lower and low status subjects rated their partner higher after the manipulation than before. On the ladder questionnaire, it was noted that subjects perceived their performance to be different as a function of their role and status. High status subjects reported themselves to be better than their partner and low status subjects



perceived themselves to be worse off than their partner on the card game. Similar interactions were not noted in the control group where status disparities were not induced.

Item analyses conducted on the status questionnaire showed that the items were consistent in measurement and the principal components analyses reflected that the latent structure of the status questionnaire mainly reflected one underlying construct.

Based on the combined analyses described above and the individual analyses described here, it may be suggested that the construct being measured here is likely to be status perceived in the experimental context. This is limited to the context of the experiment and intended as such in order to have high control over the independent variable of interest.

**Decision making analyses overall.** In the decision making portion, when asked to share dollar amounts ranging from \$7.5 to \$22.5 with their partners, no significant overall effects were observed when examined by status (high, low and equal). However, when dollar values lower and higher than \$15 were collapsed and analyzed, a significant interaction of status within high and low dollar values was noted. At lower than \$15, high, low and equal status subjects shared similarly. At higher than \$15, however, low status subjects shared more than high status subjects.

**Independent analyses for the experimental and control condition.** When examining decision making by condition, no overall interaction effects were observed in sharing behavior when experimental and control conditions were examined separately also. However, when dollar values above and below \$15 were collapsed, a significant interaction was noted in the experimental group showing that for low dollar values, high and low status groups shared similarly. However, for higher dollar values, high status

subjects shared less than the low status subjects. A marked difference was noted specifically between high and low status subjects at the highest dollar value, \$22.5.

Additionally when examining the experimental group and control groups separately, the difference score was correlated with the percent shared in the experimental group, and significant negative correlations were observed across all the higher dollar values ( $> \$15$ ). For the lower dollar values, the pattern was not as consistent. These results suggest that subjects who experienced higher status tended to share less with their low status counterparts. Notably, in subjects who were in the control condition and did not experience a status difference, the difference score was not correlated with percent shared with partner.

**Grouping by status vs. subjective score.** The results reported above showed that when subjects are grouped by status, such that every subject within the group is assigned the same status value, a clear picture of how status perceptions affect decision making cannot be ascertained. When grouped by status, our hypothesis that high dollar values would show more overall differences based on status was not supported. An exception was found for \$22.5 where high status subjects shared significantly less than their low status counterparts. However, when the lower and higher than \$15 values were grouped together, a significant interaction was noted and our hypothesis was supported and the categorical grouping by status showed a relationship with percent shared.

When the status variable was changed to a more continuous variable that incorporated relative perception of status, by subtracting the partner rating from the self rating on the ladder questionnaire, a clearer picture of the relationship emerged. Significant negative correlations, and the negative beta observed in the regression model

suggest that subjects who perceived themselves to be higher in status shared less with their low status counterparts, and low status subjects shared more with the high status subjects. The results of the regression suggest that every unit increase in perception of status corresponded with a 2.72% decrease in sharing behavior across dollar values, suggesting that the subjective perception of relative differences was predictive of subsequent decisions.

Based on the analysis of group differences and subjective ratings, two key points may be made. First, it may be noted that relative concerns are important. This is evidenced by the fact that the self-partner rating, indicative of subjective perception of status, was significantly correlated with sharing behavior. If relative concerns were not important and influential to decision making, this subjective rating would not show a relationship with sharing behavior. Therefore, in addition to the objective status grouping, the subjective perception of status was also influential to decision making. Therefore, it is important to consider in evaluating the effects of status on decision making. Second, it may also be noted that perceived value of money may vary by social factors such as status. Notably, the interaction of status and dollar value when collapsed into high and low explored how perception of monetary value varies by status. At higher prices, low status subjects shared at a higher percent than their high status counterparts. At these higher values (greater than \$15), the difference score was significantly and also negatively correlated with percent shared for the group where status differences were induced. These results raise the possibility that the value of money may vary by factors such as subjective perception of status.

**Potential reason for observed negative relationship.** It is speculated that the negative relationship observed between subjective perception of status and percent shared might be because the amount shared reflects the means to procure an extra raffle ticket. Subjects were told that one of the trials would be randomly chosen and offered to the partner. If accepted, they would get a raffle ticket and if the offer was rejected, they would not get the raffle ticket. In the experiment, subjects who perceived themselves to be lower in status received nothing during the status assignment, and during the decision making did not have an entry into the raffle for a desirable item. Subjects who were higher in status, on the other hand, already had an entry into the raffle and were therefore in an advantageous position. By sharing at a higher percent, low status subjects may be increasing the likelihood of having their offer accepted. Higher percent shared at larger dollar values translated to larger amounts and may serve to further bolster their partner's motivation to accept their offers. High status subjects, on the other hand, may not be as motivated as low status subjects to get another ticket, given that they had secured an entry into the raffle, and hence may not offer higher amounts to their low status partners. This may be a potential rationale explaining the underlying negative relationship between subjective status and percent shared.

**General points.** The findings discussed above, therefore, suggest that relative concerns about status are important and that these status concerns can shape how we value money, thus influencing sharing behavior. The findings in this study also resonate with findings in the social comparison literature that suggests that as a result of making social comparisons and perceiving status differences, a tendency towards assimilative (Fenchel, Monderer & Hartley, 1951; Lockwood & Kunda, 1997) or contrasting behavior

can be elicited (Suls, Martin & Wheeler, 2002). By sharing at a higher percent with their high status counterparts, low status subjects may be displaying assimilative behavior. And by sharing less with the low status counterparts, high status subjects may be displaying contrasting behavior. This may be viewed as another potential reason for the negative relationship observed between subjective status and percent shared.

These findings also support Ball & Eckel (1998) in making the point that status perceptions can influence subsequent decision making behavior. However, the results of study 1 contrast with the findings of the Ball & Eckel study (1998) which showed that status plays a role when cost of rejection is low, i.e., in the case of Hershey's kisses. If their interpretation was correct, then differences should have been observed in the low dollar values, and high and low status subjects should have behaved similarly for the higher dollar values. The findings observed in this study do not support their interpretation and suggest that perhaps status plays a role in decision making when the stakes are high. This difference in the outcome of Study1 vs. Ball & Eckel (1998) may be due to the confounding nature of the rewards used in their study. Specifically, Hershey's kisses and money are not comparable since Hershey's kisses are primary reinforcers while money is a secondary reinforcer. Studying the impact on decision making along a varying scale in the same class of rewards may perhaps be a more consistent way to capture the effect.

It is interesting to note that even though no real dollar amounts were exchanged, subjects made decisions as if the dollar amount was real. The dollar amounts on which subjects decide, function akin to tokens in a token economy, where the real value is not in the token but in what can be exchanged for that token. Here, subjects are motivated not

by the dollar value which they are being asked to divide but in how favorable divisions will earn them an additional raffle ticket. The money in the experiment is hypothetical, but subjects respond to it because of the salience it holds in the context of the experiment. Using tokens, such as hypothetical money, have been widely used to study behavior in a variety of settings (Tarr, 1976). They have been used in class-rooms to manage inappropriate behavior (Kazdin, 1982) and motivate students to participate in class-room activities, in patient training programs for behavior modification (Moss & Rick, 1981), and in simulating market economies to better understand the evolution of capitalism (Kagel, 1972). These tokens are powerful because they operate like secondary reinforcers, motivating and shaping behavior in specific situations. The findings of this study further attest to how tokens can reflect variations in behavior.

**Summary.** In sum, the experiment and the analyses discussed above suggest that the manipulation described in the general methods section can induce a perception of status, and its effects can be studied in a subsequent decision making task. This experiment establishes the validity of the status manipulation, and the questionnaires used to capture perception of status. This study showed that using a referent to compare one's performance on a pre-determined game can present sufficient conditions to study the psychology of how status affects decision making in the laboratory. Further, the principal components analysis and reliability analysis shown here validate the use of the status questionnaire as a means to capture changes in perception of status in this experimental situation, and are used as such in the following experiments. Additionally, the decision making results demonstrate that status perceptions can influence decision making, i.e., sharing behavior. Given that sharing behavior was modulated in part by dollar value, a

closer examination of how social factors such as status influence perceived value of money was merited. The following study, therefore, makes an attempt to answer this question with greater clarity and is discussed next.

#### **Chapter 4: Influence of Status on Choice (Study 2)**

Status concerns can be a powerful influence on our choices. For example, one might buy a regular bottle of wine for about \$7 to \$9 but the Chateau Margeaux 1787, which belonged to Thomas Jefferson, was reported to have been purchased for \$225,000 and estimated to be valued at \$500,000 (<http://www.rediff.com/business/slide-show/slide-show-1-the-worlds-most-expensive-wines/20110512.htm>). Objects such as these are not owned for the contents, or in economic terms, its utility, but for its rarity. The inflated price for the wine does not reflect the exquisite quality of the wine or its ingredients but the value of possessing something so rare that no one can own another. The ownership of such items is a reflection of high status, and the premium amount paid for such item may reflect the degree to which people are motivated by status concerns. The goal of this study is to show that status symbols can be a persuasive source of influence in decision making.

What are status symbols? Status symbols are shared representations about status (Darley J., 2002) and are context-driven. Economists term such symbols as “positional” goods and the act of buying them “conspicuous consumption” (Frank 1999). Since direct indicators of wealth are not visible in society, individuals signal their wealth and prosperity through their choices by displaying the use of desirable items such as fancy cars, updated electronic gadgets, and fashion accessories. Economist Robert Frank (1999) observes that people are willing to pay premium amounts for items that are advertised as

heirlooms, or goods that reflect luxury such as six-figure vacations, richly detailed luxury cars, vacation homes and even cosmetic surgery. These goods bear a “charm premium” and are desired not for their actual value but for their projection of high status.

In the past decades, the phenomenon of luxury consumption has gained unprecedented momentum, primarily because the growth of income levels for those near the top of the income ladder has been rapid compared to average income levels, thus enhancing relative disparity of incomes. Higher spending by the richest has set a high standard for what it means to project status, triggering more spending in the middle and lower income families. This pattern of luxury pursuit has led to reduced savings and increased debt suggesting that people have a powerful desire for status over money (Frank, 1999).

While this phenomenon of pursuing status can be observed in the ecological manifestation of luxury consumption, no systematic studies have explored if this is a basic aspect of human behavior and if low status subjects are more likely to pursue status. Huberman et al (2004) suggest that people pursue status as an emotional goal, but they do not examine if high or low status groups are more likely to pursue this goal. Ecological evidence presented by Frank (1999) suggests that low status groups might be more likely to pursue status by imitating high status groups in luxury consumption. Sivanathan & Pettit (2010) examined the psychological purpose of status goods, and suggest that it may serve an affirmational purpose especially when self-integrity is threatened. This suggests that people who experience low status are more likely to consume status goods in order to affirm themselves. Status goods may provide several ego-boosting rewards such as greater sense of power, increased self-esteem, and a greater sense of connection between



self and owned objects, therefore making the pursuit of status a rewarding experience (Sivanathan & Pettit, 2010). To explore the aforementioned, this study examines if low status subjects are more likely to pursue status symbols in a forced choice paradigm.

This study examines if status symbol is more valuable than money, specifically as a function of subjective status. Here status and money are presented as mutually exclusive choices. A specific choice towards either, as a function of subjective status would clarify how status concerns affect perception of money versus status. Further, given the affirmational account of Sivanathan & Pettit (2010), low status subjects would be more likely to choose the status symbol in order to repair the experienced threat to self. Using a status symbol designed specifically for the context of the experiment provides a novel way of studying status symbols, and the relationship between status and choice in a high constraint experimental paradigm.

While in study 1, the decision making task compelled subjects to take their partners into consideration, in this study subjects were just asked to make a simple binary choice that bore no consequence to the partner. Observing status effects on decision making under such stringent conditions, may suggest that status motives are basic and can be potent. It is hypothesized that for low and high dollar amounts, high and low status subjects will choose similarly. Specifically, for low dollar amounts, both groups will choose the status symbol but for high dollar amounts, both groups will choose money. Additionally, subjective status ratings would be predictive of choice for the middle range of dollar values. Subjects who rate themselves higher than their partner would be less likely to choose the status symbol designed for the experimental situation (Golden

Ticket-details are provided in the methods section). The opposite pattern would be observed for subjects who rate themselves lower than their partner.

## **Method**

### **Participants**

One hundred and twelve subjects were recruited to participate in the study. 48% of the subjects were male and 52% were female. Age ranged from 18-44 years of age. 62.7% of the subjects were between 18 to 19 years of age, 34.3% were between 20 to 29 years of age, and 3% were between 31 and 44 years of age

### **Materials**

**Status Symbol.** A Golden Ticket was designed to serve as a proxy for a status symbol or a positional good within the experimental context. It consisted of ten raffle tickets displayed in an attractive transparent cover. Examples of status symbols include rare items such as diamonds, a sports car, or an item autographed by a celebrity. Such items are owned for their uniqueness which in turn allows the owner to project status (Frank, 1999). Here the Golden Ticket represented a higher positional value because it provided an enhanced chance of winning the raffle that would bestow a significant lead for the possessor.

Pilot testing showed that students valued the Golden ticket at about \$5.6 and this value did not differ by gender. During pilot testing, subjects were shown a raffle ticket and told that the raffle ticket represents ten tickets towards an IPOD touch. Then they were asked to place a monetary value on the raffle ticket. They were shown range of prices from 50 cents to \$10 and were asked to circle the number that best represents the value of the Golden Ticket. Additionally, subjects were shown a visual analog scale, and

were asked to mark a line where they saw the value of the Golden Ticket. The monetary value averaged at \$5.6. The value of the Golden Ticket was subjective and moreover, subjects could not ascertain the total number of tickets available in the raffle. Therefore, the probability of winning the raffle cannot be assessed thus making it an ambiguous choice. And, because the Golden ticket is ambiguous, we were interested to know if the value of the Golden Ticket would be too low such as \$2. Because the Golden Ticket represented a dollar value that was close to the mid-value of the range presented, and provided an enhancement to the bearer, the Golden Ticket may be considered as a proxy for a status symbol serving the purpose of a status good within the experimental context.

After the status assignment or equal status procedure, subjects were introduced to the Golden Ticket and instructed on the decision making task, as described below. In the individual control condition, subjects will only be given the decision making task – no questionnaire or additional treatment was given.

### **Design and Procedure**

This study had two conditions – an experimental condition where high and low status assignment was made, a control condition where both subjects were treated equally. A baseline was also recorded.

The decision making part was programmed using Eprime 1.1 and consisted of 40 trials with 10 dollar values ranging from 50 cents to \$9.50. A trial began with the presentation of dollar value for 2 seconds. Then, subjects saw a picture of the Golden Ticket and the dollar value simultaneously. They were given unlimited time to make their choice, which was then presented for 1 second. Following this, the next trial commenced.

Unlike the status assignment phase, subjects were *not* seated beside each other or faced the same screen. They were given separate laptops and faced each other on either ends of the table during the choice task. This ensured that they were not able to see each other's choices. Subjects were also told that their choices bore no consequence to their partner or vice versa. At debriefing, we ensured that both subjects had an equal chance in the raffle in accordance to IRB rules.

After subjects signed consent forms, they underwent either status induction, equal status procedure or provided baseline individually. Subjects were assigned to these conditions randomly. Only in the status induction and the equal status conditions, the ladder and status questionnaires were administered. As in study 1, participants were recruited in pairs for the experimental and control conditions. If one of the subjects did not show up at the time of the appointment, the subject who showed up was then assigned to the individual condition and provided a baseline for the decision making. The procedure for status assignment in the experimental and control conditions was carried out as described in the general methods section.

Subjects were told that the forthcoming task would be to make a choice between the Golden Ticket and dollar values presented on the screen. If they chose the Golden ticket, they would forgo the money but if they chose the money then they would forgo the ticket for that trial. Each trial was important because only one of the trials would be randomly chosen as the trial that counted towards the outcome. This was done to ensure that subjects treated all the trials equally. Additionally, subjects were told that in the trial that would be chosen, if they picked the money, it would be given on the day of the raffle and not immediately after the experiment. This was to control for any immediacy effects

that might skew their choices. After subjects made their choices, one trial was chosen at random and their choice was recorded.

## Results

In order to assess overall effects, analyses were conducted by status comparing high, low and equal status groups. Following overall comparisons, further testing was conducted within the experiment and control groups. These comparisons were made on ratings of the Status questionnaire, Ladder questionnaire and the decision making which are described next.

**Status questionnaire.** The results described below report on the effects of the status manipulation on ratings of the status questionnaire, by status. Independent analyses are reported for the experimental and control conditions next. Given that the paradigm is novel, an alpha level of .1 was used for these analyses in order to consider more results as possible conclusions.

*By status.* A repeated measures ANOVA revealed no overall interaction of pre vs. post by gender by status (high, low, equal) ( $F(2,95) = .33, p = .968, \eta_p^2 = .001$ ). The interaction of age ( $F(1,95) = .55, p = .462, \eta_p^2 = .01$ ) or gender ( $F(1,95) = .16, p = .695, \eta_p^2 = .002$ ) within pre vs. post was also not significant. A significant interaction of status within pre vs. post ( $F(2,95) = 20.59, p < .001, \eta_p^2 = .30$ ) was however noted. A significant main effect of status ( $F(2,95) = 4.33, p = .016, \eta_p^2 = .08$ ) was noted, however pre vs. post was not significant ( $F(1, 95) = 1.14, p = .289, \eta_p^2 = .01$ ). Bonferroni corrected comparisons showed that the overall rating given by low status subjects ( $M = 3.62, SD = .26$ ) was significantly higher ( $p = .025, d = 1.04$ ) than the rating given by high status subjects ( $M = 3.35, SD = .26$ ). Equal status subjects ( $M = 3.63, SD = .35$ ) were not

significantly different ( $p = .14$ ,  $d = .03$ ) in rating their partners compared to high status subjects but differed significantly ( $p = 0.1$ ,  $d = .91$ ) from low status subjects. Tests of between subjects effects showed a significant effect of gender ( $F(1,95) = 3.43$ ,  $p = .067$ ,  $\eta_p^2 = .04$ ), but notably, the interaction of status by gender was not significant ( $F(2,95) = .57$ ,  $p = .567$ ,  $\eta_p^2 = .01$ ).

*Independent analyses for each condition.* Analyses were also conducted separately for each condition to evaluate the source of the observed effects. Repeated measures ANOVA conducted on the experimental group with pre vs. post as the within subjects, age as a covariate and status and gender as the between subjects factor, revealed a significant interaction of status within pre vs. post ( $F(1,81) = 24.55$ ,  $p < .001$ ,  $\eta_p^2 = .23$ ). Subjects rated the questionnaire similarly before the manipulation ( $M_{\text{Low status}} = 3.51$ ,  $SD_{\text{Low status}} = .28$ ;  $M_{\text{High status}} = 3.50$ ,  $SD_{\text{High status}} = .28$ ) but after the manipulation, high status subject's ratings ( $M_{\text{High status}} = 3.19$ ,  $SD_{\text{High status}} = .29$ ) were lower than low status subject's ratings ( $M_{\text{Low status}} = 3.72$ ,  $SD_{\text{Low status}} = .29$ ). The overall interaction of gender by status within pre vs. post ( $F(1,81) = .02$ ,  $p = .892$ ,  $\eta_p^2 = .00$ ), age within pre vs. post ( $F(1,81) = .78$ ,  $p = .379$ ,  $\eta_p^2 = .01$ ) and also the interaction of gender within pre vs. post ( $F(1,81) = .36$ ,  $p = .553$ ,  $\eta_p^2 = .004$ ) were not significant. No main effects was noted for pre vs. post ( $F(1,81) = .56$ ,  $p = .456$ ,  $\eta_p^2 = .01$ ), however, the main effect for status ( $F(1,81) = 7.03$ ,  $p = .01$ ,  $\eta_p^2 = .08$ ) was significant such that low status subjects ( $M = 3.62$ ,  $SD = .26$ ) rated their partners higher than high status subjects ( $M = 3.34$ ,  $SD = .26$ ).

Similar analyses conducted on the control group did not reveal a significant interaction of status within pre vs. post ( $F(1,11) = .33$ ,  $p = .577$ ,  $\eta_p^2 = .03$ ), age ( $F(1,11) = .41$ ,  $p = .535$ ,  $\eta_p^2 = .04$ ) or gender within pre vs. post ( $F(1, 11) = .01$ ,  $p = .938$ ,  $\eta_p^2 = .001$ )

but the overall interaction of status by gender within pre vs. post was noted to be significant ( $F(1, 11) = 8.18, p = .02, \eta_p^2 = .43$ ). A significant main effect of pre vs. post was also observed ( $F(1, 11) = 4.49, p = .058, \eta_p^2 = .29$ ) such that the overall ratings given prior to the manipulation ( $M = 3.43, SD = .34$ ) were less than the ratings given post manipulation ( $M = 3.86, SD = .33$ ).

**Ladder questionnaire.** The following results report the effects of status on the ladder questionnaire by, status and then separately for each condition.

*By status.* Analysis with self vs. partner as the within subjects factor, age as a covariate, and status (high, low, and equal) and gender as the between subjects factors showed that the interaction between self vs. partner by gender and by status was not significant ( $F(2,95) = .60, p = .549, \eta_p^2 = .01$ ). The interaction between self vs. partner and gender ( $F(1,95) = .04, p = .838, \eta_p^2 = .00$ ) was also not significant. However, the interaction between self vs. partner by status was noted to be significant ( $F(2,95) = 33.45, p < .001, \eta_p^2 = .41$ ). Main effect of self vs. partner was not significant ( $F(1,95) = .17, p = .68, \eta_p^2 = .002$ ) but the main effect of status was noted to be significant ( $F(2,95) = 2.85, p = .063, \eta_p^2 = .063$ ). Pairwise comparisons conducted using Bonferroni corrections showed that equal status subject's overall ratings ( $M = 3.90, SD = .45$ ) were significantly higher ( $p = .059, d = 1.41$ ) than low status subject's rating ( $M = 3.33, SD = .35$ ), but were not different ( $p = .172, d = 1.09$ ) from high status subject's ratings ( $M = 3.46, SD = .35$ ). The overall interaction of gender and status was not noted to be significant ( $F(2,95) = 1.59, p = .21, \eta_p^2 = .03$ ).

*Independent analyses for each condition.* Analyses were also conducted

separately within the experimental and control group with gender and status as the between subjects factors, age as a covariate and self vs. partner as within subjects factor.

In the experimental group, where one subject was treated as the high status subject and other as the low status subject, there was a significant interaction of status within self vs. partner ( $F(1, 81) = 64.81, p < .001, \eta_p^2 = .44$ ), but the overall interaction ( $F(1,81) = .90, p = .346, \eta_p^2 = .01$ ), and the interaction of age ( $F(1,81) = .04, p = .837, \eta_p^2 = .001$ ) or gender ( $F(1,81) = .05, p = .832, \eta_p^2 = .001$ ) within self vs. partner was not significant. The main effects of self vs. partner ( $F(1,81) = .024, p = .877, \eta_p^2 = .00$ ), or status ( $F(1,81) = .51, p = .48, \eta_p^2 = .006$ ) were not significant.

In the control group, where both subjects were treated equally, no interaction effect of status within self vs. partner ( $F(1, 11) = 2.62, p = .134, \eta_p^2 = .19$ ) was noted. Gender ( $F(1,11) = .19, p = .671, \eta_p^2 = .02$ ) and age ( $F(1,11) = .01, p = .946, \eta_p^2 = .00$ ) also did not impact ratings of self vs. partner. No main effects were noted for status ( $F(1,11) = .18, p = .682, \eta_p^2 = .02$ ) or self vs. partner ( $F(1,11) = .014, p = .91, \eta_p^2 = .001$ ).

**Decision making.** The following results describe the effects of status on decision making, first by status (high, low, equal), and then individually by each condition. Finally, analyses by subjective score, i.e., self-partner rating are reported.

*By status.* Similar analyses were conducted using status (high, low, equal) as the between subjects factor instead of condition. Degrees of freedom were Greenhouse-Geisser corrected ( $\epsilon = .44$ ) for sphericity violations ( $\chi^2(44) = 372.45, p < .001$ ). There was no overall interaction of status by gender within dollar value ( $F(3.95, 374.82) = 1.11, p = .357, \eta_p^2 = .02$ ). The interactions of status ( $F(7.89, 374.82) = 1.29, p = .249, \eta_p^2 = .03$ ), or gender ( $F(3.95, 374.82) = 1.69, p = .153, \eta_p^2 = .02$ ), or age ( $F(3.95, 374.82) =$



1.47,  $p = .213$ ,  $\eta_p^2 = .02$ ) within dollar value were also not significant. A significant main effect was noted for dollar value ( $F(3.95, 374.82) = 4.81$ ,  $p < .001$ ,  $\eta_p^2 = .05$ ), but not for status ( $F(2, 95) = 1.18$ ,  $p = .312$ ,  $\eta_p^2 = .024$ ) or the interaction of status by gender ( $F(2, 95) = .30$ ,  $p = .74$ ,  $\eta_p^2 = .006$ ).

*Independent analyses for each condition.* Analyses were then conducted within the experimental and control group to examine the effect of status on choice more closely. Sphericity was violated ( $\chi^2(44) = 331.46$ ,  $p < .001$ ) and therefore Greenhouse-Geisser corrections were applied to degrees of freedom ( $\epsilon = .43$ ). In the experimental group, where perception of status differences were induced, the overall interaction of gender by status within dollar value was not significant ( $F(3.84, 310.94) = 1.31$ ,  $p = .27$ ,  $\eta_p^2 = .02$ ). Age ( $F(3.84, 310.94) = .72$ ,  $p = .573$ ,  $\eta_p^2 = .01$ ) or gender ( $F(3.84, 310.94) = 1.10$ ,  $p = .358$ ,  $\eta_p^2 = .01$ ) or status ( $F(3.84, 310.94) = 1.48$ ,  $p = .211$ ,  $\eta_p^2 = .02$ ) also did not show a significant interaction. There was a significant main effect of dollar value ( $F(3.84, 310.94) = 2.165$ ,  $p = .076$ ,  $\eta_p^2 = .03$ ) but not of status ( $F(1, 81) = .453$ ,  $p = .503$ ,  $\eta_p^2 = .004$ ).

In the control group, where perception of equal status was induced, the overall interaction effect of gender by status within dollar values was not significant ( $F(2.93, 32.20) = 1.0$ ,  $p = .424$ ,  $\eta_p^2 = .08$ ). Age ( $F(2.93, 32.20) = .6$ ,  $p = .616$ ,  $\eta_p^2 = .05$ ), gender ( $F(2.93, 32.20) = .77$ ,  $p = .516$ ,  $\eta_p^2 = .07$ ) and status ( $F(2.93, 32.20) = .65$ ,  $p = .586$ ,  $\eta_p^2 = .06$ ) individually also did not have an effect on decision making. There was no main effect for dollar value ( $F(2.93, 32.20) = 2.0$ ,  $p = .135$ ,  $\eta_p^2 = .15$ ) and status ( $F(1, 11) = .34$ ,  $p = .572$ ,  $\eta_p^2 = .03$ ). The degrees of freedom reported here were Greenhouse-Geisser adjusted ( $\epsilon = .31$ ) due to violations of sphericity ( $\chi^2(44) = 120.32$ ,  $p < .001$ ).

*Baseline data acquired from individual subjects.* Baseline data was acquired from subjects whose partner missed the experiment at the appointed time. These subjects were not included in any analyses because they did not experience any status manipulation but were waiting for their partners. These data mainly served to gain some understanding of how subjects decided when there was no status related information. Baseline information was acquired from 10 subjects. These subjects chose the Golden Ticket with a likelihood of ( $M = .74$ ,  $SD = .26$ ). For the dollar values, the proportion of choosing the Golden Ticket was ( $M = .95$ ,  $SD = .11$ ) at 50 cents, ( $M = .98$ ,  $SD = .08$ ) at \$2, ( $M = .88$ ,  $SD = .24$ ) at \$3, ( $M = .88$ ,  $SD = .32$ ) at \$4, ( $M = .75$ ,  $SD = .41$ ) at \$5, ( $M = .65$ ,  $SD = .43$ ) at \$6, ( $M = .68$ ,  $SD = .41$ ) at \$7, ( $M = .6$ ,  $SD = .43$ ) at \$7.5, ( $M = .58$ ,  $SD = .43$ ) at \$8, and ( $M = .45$ ,  $SD = .48$ ) at \$9.5.

*Mid-range of dollar values.* In order to evaluate as to whether the hypothesized mid – range of dollar values were most sensitive to the effects of status, analyses were also conducted only on choices between \$4 and \$7. Overall analysis within the \$4 to \$7 range showed no significant interaction of gender by status within the dollar values with age as a covariate ( $F(5.34, 253.47) = .73$ ,  $p = .612$ ,  $\eta_p^2 = .02$ ). Interaction of age within dollar value ( $F(2.67, 253.47) = .58$ ,  $p = .609$ ,  $\eta_p^2 = .01$ ), or gender ( $F(2.67, 253.47) = .298$ ,  $p = .804$ ,  $\eta_p^2 = .003$ ) within dollar value, or status within dollar value ( $F(5.34, 253.47) = .67$ ,  $p = .658$ ,  $\eta_p^2 = .01$ ) was not significant. There was no main effect of dollar value ( $F(2.67, 253.47) = 1.77$ ,  $p = .153$ ,  $\eta_p^2 = .02$ ) or status ( $F(2,95) = 1.74$ ,  $p = .181$ ,  $\eta_p^2 = .04$ ). These values were corrected for sphericity violations ( $\chi^2(5) = 16.68$ ,  $p = .005$ ) using Greenhouse-Geisser adjustment ( $\epsilon = .89$ ).

Individual analysis for the experimental condition showed no significant interactions for the overall model ( $F(2.70, 219.02) = .17, p = .904, \eta_p^2 = .002$ ), the influence of age ( $F(2.70, 219.02) = .692, p = .543, \eta_p^2 = .01$ ), gender ( $F(2.70, 219.02) = 1.47, p = .225, \eta_p^2 = .02$ ), or status ( $F(2.70, 219.02) = 1.22, p = .301, \eta_p^2 = .02$ ). No main effects were observed for dollar value ( $F(2.70, ) = 1.39, p = .249, \eta_p^2 = .02$ ) and status. These values were corrected for violations of sphericity ( $\chi^2(5) = 13.25, p .02$ ) using Greenhouse-Geisser values ( $\epsilon = .90$ ). Independent samples t-test revealed that low status subjects ( $M = .802, SD = .34$ ) chose the Golden Ticket significantly more than high status subjects ( $M = .64, SD = .45$ ) at \$4 ( $t(84) = -1.88, p = .063, d = -.41$ ).

Individual analysis in the control condition revealed no overall interaction effect for status by gender with age as a covariate within the mid-range of dollar values ( $F(1.88, 20.66) = .87, p = .427, \eta_p^2 = .07$ ) age ( $F(1.88, 20.66) = .22, p = .788, \eta_p^2 = .02$ ), gender ( $F(1.88, 20.66) = .02, p = .973, \eta_p^2 = .002$ ), status ( $F(1.88, 20.66) = .44, p = .64, \eta_p^2 = .04$ ) within the mid-range of dollar values. There was no main effect ( $F(1.88, 20.66) = .72, p = .492, \eta_p^2 = .06$ ) of dollar or status ( $F(1, 11) = .75, p = .40, \eta_p^2 = .06$ ). These results were Greenhouse-Geisser corrected ( $\epsilon = .63$ ) for sphericity violations ( $\chi^2(5) = 9.33, p = .098$ ).

**Subjective score.** In order to assess whether the subjective perception of status influenced choice, self-partner rating was regressed on the overall proportion of choosing the Golden Ticket. The proportion values of choosing the Golden Ticket were noted to be negatively skewed and could not be transformed to a more normal distribution and hence a linear regression was not deemed appropriate. We therefore modeled choice as a function of the difference score using generalized linear model (GLM) with binomial as

the distribution family and logit as the link function. Standard errors were estimated using the robust method.

The overall proportion of choosing the Golden Ticket across all values was regressed against the subjective score. The difference score did not predict choice (Intercept = .63, B = .19, Robust SE<sub>B</sub> = .12, Odds Ratio = .83, SE<sub>Odds ratio</sub> = .09, p = .11) and the Nagelkerke's R<sup>2</sup> value was .015. The change in the model deviance (1.06) with and without the predictor variable was compared to a Chi-squared distribution and found to be non-significant ( $\chi^2(1) = 1.06$ , p = .303). Akaike's Information Criterion (AIC) indicating goodness of fit increased from 1.08 to 1.09 when the difference score was added to the model suggesting that adding the difference score did not improve the model. Together these suggested that the model was not an adequate fit, and the difference score showed only a trend when predicting choice over all the dollar values.

In order to assess if the subjective perception of status influenced decision making at specific dollar values, the difference score, i.e., the self – partner rating was correlated with the proportion value of choosing the Golden ticket at each dollar value. Significant correlations were observed at \$3 ( $r(100) = -.24$ , p = .016), \$4 ( $r(100) = -.25$ , p = .01) and \$5 ( $r(100) = -.17$ , p = .097) only (See Table 12). These correlation results showed that the hypothesized mid-range of dollar values (\$4 to \$7) that were expected to show effects of status were shifted towards lower values ranging from \$3 to \$5. Given this finding, a post-hoc analysis was performed on the average obtained from these dollar values in order to quantify the influence of the difference score on choice at this range only by using GLM with binomial as the distribution family and logit as the link function,.

The overall proportion of choosing the Golden Ticket across \$3, \$4 and \$5 was averaged and then regressed against the subjective score. The difference score significantly predicted choice (Intercept = 1.03,  $B = -.38$ , Robust  $SE_B = .15$ , Odds Ratio = .69,  $SE_{\text{Odds ratio}} = .10$ ,  $p = .012$ ) with a Nagelkerke's  $R^2$  value of .054. The change in the model deviance (3.61) with and without the predictor variable was compared to a Chi-squared distribution and found to be significant at .1 level ( $\chi^2(1) = 3.61$ ,  $p = .057$ ) indicating that the difference score explained significantly more variability compared to the intercept-only model. Akaike's Information Criterion (AIC) indicating goodness of fit for the model decreased from 1.06 in the intercept only model to 1.04 when the predictor was added, indicating an improvement in the model. The overall -2Log likelihood value for the model, approximately chi-square distributed, was non-significant ( $-2LL = 102$ ,  $\chi^2(100) = 102$ ,  $p = .43$ ) implying that the model provided an adequate fit and cannot be rejected. The deviance residuals were calculated and plotted against the fitted values as well as the predictor variable, which showed no evidence of a funneling or curved patterns. Only 1 absolute deviance residual was larger than 1.96. Together these suggested that the model was an adequate fit and that the difference scores significantly predicted average choice across \$3 to \$5 values.

Next, the model was evaluated for influence of demographic characteristics. Age and gender were then added to this model. The change in the model deviance (2.05) after adding age and gender was compared to a Chi-squared distribution and found to not be significant at .1 level ( $\chi^2(2) = 2.05$ ,  $p = .35$ ). Age ( $B = -.08$ , Robust  $SE_B = .05$ , Odds Ratio = .92,  $SE_{\text{Odds ratio}} = .05$ ,  $p = .104$ ) and gender ( $B = -.1$ , Robust  $SE_B = .36$ , Odds Ratio = .91,  $SE_{\text{Odds ratio}} = .33$ ,  $p = .79$ ) were not found to be significant in the model.

These indicated that age and gender did not add to the explanatory power of the model beyond what was explained by the difference score. The difference score therefore was noted to significantly predict choice at these dollar values (Intercept = 1.03,  $B = -.38$ , Robust  $SE_B = .15$ , Odds Ratio = .69,  $SE_{\text{Odds ratio}} = .10$ ,  $p = .012$ ) with a Nagelkerke's  $R^2$  value of .054.

The regression equation obtained represents the natural log odds of the dependent variable. By using the log function, values between 0 and 1 can be estimated with greater accuracy. The regression equation obtained was  $\ln\left(\frac{y}{1-y}\right) = 1.03 - .38x + \varepsilon$  (where unstandardized  $B = -.38$ ). The ratio  $\frac{y}{1-y}$  represents the odds ratio. In this study,  $y$  represents the proportion value of choosing the Golden Ticket and the ratio represents odds of choosing the Golden Ticket versus not choosing it. Since the decision making task was a forced choice task, not choosing the Golden Ticket, by experimental design implied choosing money. Therefore, the odds ratio provides an estimate of the proportion of choosing the Golden Ticket over money.

Using odds ratio, the above equation can be interpreted as – if  $x$  increases by 1 unit, the predicted odds gets multiplied by the exponentiated coefficient, i.e.,  $\exp(-.38) = .69$  in the \$3 to \$5 range of dollar values. The odds ratio in this model suggests that for each unit increase in the status experience, as captured by the self-partner-rating, the odds of choosing the Golden Ticket decreased by 31% ( $1 - .69$ ). Expressed another way, as self-partner score increases by 1 unit, the odds of choosing the Golden Ticket changes to .69 times the previous value. Therefore, compared with subjects who did not experience a status difference, i.e. subjects who had a difference score of 0, subjects who

experienced themselves to be higher than their partners by 1 unit were approximately .69 times as likely to choose the Golden Ticket. When self-partner rating is 0, i.e., when subjects do not experience status differences relative to their partner, the odds of choosing the Golden Ticket equaled the exponential of constant, i.e.,  $\exp(1.03) \sim 2.8$ . One unit increase in the self-partner rating, thus corresponded with an odds of  $.69 \times 2.8 = 1.93$ . Therefore, in approximate terms, at a self-partner rating of 0, for every one time they chose the money option, subjects chose the Golden Ticket 2.8 times. At self-partner rating of 1, the odds was 1.93 suggesting that for every one time they chose the money option, they chose the Golden Ticket 1.93 times. Therefore, we see here that an increase in the self-partner rating corresponded with a decrease in the odds of choosing the Golden Ticket. (See Figure10).

Additionally, when correlational analyses were performed for the experimental and control group separately, specificity in correlations were noted for the experimental group at \$3 ( $r(84) = -.24, p = .029$ ), \$4 ( $r(84) = -.28, p = .009$ ) and \$5 ( $r(84) = -.18, p = .108$ ) but not for the control group (all  $p$ 's  $> .312$ ).

*Exploratory analysis.* Further analyses were done to examine whether the self or partner rating was contributing to the correlations observed between subjective score and choice. Self rating did not correlate with choice of Golden Ticket overall and at most of the price levels (all  $p$ 's  $> .448$ ) except at 50 cents ( $r(100) = .18, p = .064$ ). In contrast to the findings of the self rating, partner rating showed positive correlations with choice overall ( $r(100) = .22, p = .024$ ) and at \$ .50 ( $r(100) = .23, p = .019$ ), \$2 ( $r(100) = .29, p = .003$ ), \$3 ( $r(100) = .34, p = .001$ ), \$4 ( $r(100) = .29, p = .003$ ), and \$5 ( $r(100) = .21, p = .033$ ).

## Discussion

The goal of study 2 was to examine if status concerns can be more salient than monetary concerns. This study also examined if these concerns are specifically salient for low status subjects. In order to ascertain these questions, first we examined the efficacy of the status manipulation in this study.

**Status and ladder questionnaire by status.** Subjects in this study showed that how they rated their partners depended in part on the condition they were placed in. When analyses were conducted using status as the between subjects factor, an interaction effect was observed showing that how they rated their partner depended on their status. Further, the ladder questionnaire showed that how subjects rated the questionnaire overall depended on the status they experienced. Equal status subjects provided ratings that were similar to high status subjects but higher than low status subjects.

**Independent analyses of status and ladder questionnaire within experimental and control condition.** Individual analyses within each condition showed that, as in study 1, subjects who underwent status assignment rated their partners differently on the status questionnaire after the status manipulation than before. Low status subjects gave higher ratings to their partner, and high status subjects gave lower ratings to their partner after the manipulation than before. Importantly, when examined by condition separately, the ladder ratings also showed that subjects rated themselves higher than their partner if they were placed in the high status group, and rated themselves lower than their partner if they were in the low status group. These ratings suggest that the status manipulation was successfully induced in study 2 as well. Subjects in the equal status group do not show similar patterns of interactions and therefore status differences were not induced.



**Decision making analyses overall.** In the decision making portion, when the effects of status were examined between all status groups and within dollar values, no significant results were found. The relationship between status and choice could therefore not be ascertained from the ANOVA analyses conducted.

**Independent analyses for experimental and control condition.** When the experimental group was examined separately, significant results were not noted between status and all the dollar values taken together. While no overall interaction effects were noted for the proportion value of choosing the Golden Ticket between status and dollar value, a specific effect was noted at \$4 in the experimental group. Low status subjects were more likely to choose the Golden Ticket than high status subjects at this dollar value. The descriptives showed that low status subjects were choosing the Golden Ticket at \$3 and \$4 at a proportion of about 80% whereas the high status subjects showed a marked dip from 77% at \$3 to 64% at \$4. These values suggest that at \$4, low status subjects continued to choose the Golden Ticket at approximately 80%, and shifted to choosing money at a higher dollar value. Contrastingly, the high status subjects, showed a shift to choosing money at lower dollar values creating the observed difference at \$4.

We note that at low dollar values ( $< \$4$ ), both low and high status subjects chose the Golden Ticket equally. At higher dollar values ( $> \$7$ ) where the monetary amounts were relatively more enticing, low and high status subjects chose money at about 50%. However, at \$4 specifically, the low status subjects chose the Golden ticket more often than the high status subjects. This specific effect lends only limited support to the hypothesis that low status subjects are more likely to choose the Golden Ticket. Higher rate of choosing the Golden Ticket presented an advantage for the low status subjects. By

choosing the Golden Ticket at \$4, low status subjects increased the overall proportion of trials in which the Golden Ticket was the chosen option compared to high status subjects who shifted to choosing money at \$4. At dollar values below \$4, high, low and equal status subjects choose the Golden Ticket at about 83%. At \$4, high status subjects choose the Golden ticket 64% whereas low and equal status subjects continue to choose the Golden Ticket at 80%. Low status subjects dropped to about 65% at \$5. Continuing to choose the Golden Ticket over a wider range of dollar values (50 cents to \$4) as opposed to 50 cents to \$3 for high status subjects, thus provided the low status subjects a slightly greater chance that the randomly selected trial may be one with the Golden Ticket option. This suggests the possibility that the Golden Ticket may have been more desirable to the low status subjects. A similar specific effect was not noted for the equal status group. These findings were limited to grouping of subjects by the status they were accorded.

**Grouping by status versus subjective score.** Grouping subjects by their status, as discussed above, did not reveal a strong relationship on decision making. Further, it presented limitations and did not capture the subjective and relative experience of status. In order to assess how the subjective experience impacted decision making, the difference score between the self and partner rating, was correlated with the proportion value indicating the likelihood of choosing the Golden Ticket. The correlations between the difference score and proportion value were not significant for 50 cents and \$2 in the lower range, and \$7, \$7.5, \$8 and \$9.5 in the higher range, signifying that subjective perception of status did not bear a relationship with the likelihood of choosing the Golden Ticket at these low and high values. However, significant correlations observed at \$3, \$4, and \$5 suggested that at these dollar values, subjective status may be a determining factor

in choosing the Golden Ticket. Since these subjective ratings showed a relationship with choice over a wider range of dollar values as compared to the status grouping, it is suggested that subjective ratings are a better predictor of choice. It should be noted here that the status grouping of subjects into high and low, captures situational aspects of the experimental condition and assigns all members of that group the same value, but the subjective ratings are more nuanced and capture some aspects of the psychological perception of the status manipulation and may therefore be more effective in characterizing the relationship with decision making.

*Subjective score.* Focused analyses conducted on the \$3 to \$5 range of dollar values showed that for these dollar values, every unit increase in status decreased the odds of choosing the Golden Ticket by 31%. This illustrated that the non-linear relationship characterized here between status and choice was demonstrative of how perception of relative position relates to choice of the Golden Ticket. Table 13 suggests that the odds of choosing the Golden Ticket over money when no status differences are perceived is 2.79, i.e, Golden Ticket is chosen approximately 3 out of 4 times, and the proportion value is 0.74. It is interesting to note that subjects showed a propensity towards choosing the Golden Ticket, and this may be viewed as supportive of the notion that the Golden Ticket may have functioned as a proxy for a status symbol in the context of the experiment. A caveat may be that the higher propensity may be in part due to the high desirability of the IPOD associated with the raffle and not only due to its function as a status symbol in the context of the experiment. While we note this as a possibility, high desirability of the IPOD may not fully account for variability in choice as a function of subjective status. If this was indeed the case, subjective status would not be predictive of

choice. Further, random assignment of subjects to status and random presentation of trials during decision making also further mitigates the possibility that subjects who desired an IPOD may have been inadvertently been placed in low status condition.

We therefore note that within the \$3 to \$5 dollar range, one unit decrease in the perception of status corresponded with an approximately 45% increase in the odds of choosing the Golden Ticket compared to subjects who perceived equal status. On the other hand, one unit increase in the perception of status corresponded with a 31% decrease in the odds. These data suggest a possible sensitivity to loss of status. The observed enhanced odds of choosing the Golden Ticket for subjects who experience themselves to be lower than their partner, i.e., low status, suggests that Golden Ticket may be more valuable to them. We speculate that, in part, this enhancement in value may be because gaining the Golden Ticket allows them to gain an entry into the raffle, thereby removing their disadvantage compared to their partner. These also provide further supportive evidence to the notion that the psychological and subjective perception of status may be important element in understanding how status affects decision making.

**General points.** Overall, this study showed limited support for the hypothesis that low status subjects are more likely to prefer the Golden Ticket over money. As hypothesized, at low and high dollar values, no differences were observed in choice behavior between low and high status groups. When grouped as high or low status, a difference emerged only at a specific dollar value, rather than the hypothesized range of values. High status subjects showed a shift towards money at lower dollar values than low status subjects, suggesting that the low status subjects choose the Golden Ticket more and may, therefore, be motivated to increase their chances of getting the Golden

Ticket. Therefore, they continued to choose the Golden Ticket at more dollar values.

Notably when status was coded as a difference score between self and partner, a clearer picture emerged, showing a range of dollar values (\$3, \$4, and \$5) to be more sensitive to status concerns. Status perceptions may therefore be viewed to provide contextually salient information guiding choice as a function of status.

So far, studies 1 and 2 show that relative concerns are important and influential in decision making. However, the results of study 2 suggest another key point - that status concerns may become salient in specific contexts, as demonstrated by the specificity of the effect in the \$3 to \$5 range of values. A closer examination of the average likelihood of choosing the Golden Ticket at each dollar value showed that for \$2 to \$9.50, low status subjects showed mostly higher rate of choosing the Golden Ticket but this was significant only at \$4 (See Table 11). This suggests that status concerns may have a more potent effect due to the specific context of the dollar value. It is possible that when dollar values are low ( $< \$4$ ) or high ( $> \$7$ ), the subject's perceive a clearer trade-off between the dollar value and the change of winning the raffle. They may value money more than the chance of winning the raffle when dollar values are high and, vice versa for lower dollar values. However, when the tradeoff between choices presented is less clear, such as at \$4 as observed in the study, they may tend to incorporate socially contextual information to aid in decision making.

**Summary.** The findings discussed here suggest that status can influence choice in a divergent fashion in a given context. Status concerns are not more salient than monetary concerns overall but can become important in a given context. In this study, the context was the \$3 to \$5 range of values. Here the choices presented offered a clearer trade-off

and the pattern of decision making diverged as a function of status. One way to study this divergence further in decision making could be to introduce risk in the monetary outcomes, which would make the tradeoff between the uncertain Golden Ticket and dollar values more conflicting. This may allow us to examine risk as a possible contextual factor influencing the relationship between status and choice. Therefore, the following study examines the role of risk in how status perceptions influence choice.

### **Chapter 5: Influence of Status on Choice under conditions of risk (Study 3)**

As human beings we are attuned to processing risk and uncertainty in the environment chiefly because of the complexity of the environment in which we operate. Even in non-social situations, like in predicting the weather, traffic, or a lottery win, we factor in the risk and uncertainty in the situation and modulate our behavior accordingly. If we find a situation risky, like walking down a dark alley or driving down an icy road, for example, we may respond to it by taking an appropriate action that minimizes the cost associated with the risk. Thus, we may be specially prepared to process and incorporate our assessment of risk into decision making.

We make choices not only based on how much we value an outcome but also based on whether the outcome can be achieved or not. When presented with risky choices, one option could be to choose the option with the highest expected value which can be expressed as a linear function, mathematically expressed as the product of the probability and the value of the outcome. For example, a gamble that has a 20% chance of winning 2000 dollars would yield an expected value of 400 dollars. The greater the probability of winning, the higher the expected value, which may serve as a guide in choosing the option with the highest expected value. However, in many situations people

do not simply choose the outcome with the highest expected value. The Expected Utility theory suggests that in addition to expected value, people also take into account individual preferences like risk aversion and different utility for the same outcome, while making choices.

Kahneman & Tversky (1979) demonstrated that people do not weigh an outcome in a linear fashion as suggested by the expected value but tend to overweigh certain outcomes compared to uncertain ones in accordance with Expected Utility Theory. Subjects in this study were first given two options between a probable prospect of winning in option A (2500 with probability of .33 or 2400 with probability of .66 or 0 with a probability of .01) and a certain prospect of winning in option B (2400 with certainty). The mathematical computation of the expected values of these options would suggest that people should choose option A because it has a higher value (option A =  $.33 * 2500 + .66 * 2400 = 2409$ , option B =  $1 * 2400 = 2400$ ). However, 82% of subjects deviated from choosing in accordance with the mathematical expectation and chose the certain win (option B) as their preferred option in accordance with risk aversion under the Expected Utility Theory. This demonstrated that people overweigh certain outcomes and therefore prefer them. Next, the expected value was reduced by equal amounts for both options. By reducing the expected utility in this manner option A became more risky but the characteristic of option B changed from a certain option to a risky one. Logically, this should not result in a shift in choices because the reduction of utility was equal for both options. However, when both options became associated with some level of risk, then subjects preferred option A, which represented higher expected value. This disfavor of a previously chosen certain prospect demonstrates that people may be more sensitive to

changes in certain outcomes than risky ones. The human bias for certain outcomes and greater sensitivity to changes in certain outcomes is termed the certainty effect. Thus, in addition, to risk, a reduction in certainty also modulates decision making.

It may be noted that risk and uncertainty are distinct concepts where risk entails some known objective probabilities while uncertainty or ambiguity involves subjective or unknown probabilities. While we may have a bias for certain outcomes, most of our day to day actions are conducted in more complex contexts that may entail both risks and uncertainty. What happens to our judgment under conditions of uncertainty, then? Kahneman & Tversky (1974) suggest that conditions of uncertainty present ripe opportunities for us to use heuristics to guide our decision making. These heuristics are adaptive as they reduce the complexity of processing cues in the environment into simpler units providing ease in decision making, but they can also lead to an oversimplification causing errors in judgment. One notable error is our insensitivity to process prior probability of outcomes. For instance, when subjects were explicitly told that the sample was drawn from a group consisting of 70 engineers and 30 lawyers, and asked to judge from brief personality descriptions if the individual was an engineer or a lawyer, they did not show a bias towards choosing engineers. Instead they chose the profession based on whether the description listed qualities of an engineer or lawyer. Even when the description of the individual was made uninformative, subjects continued to ignore prior probabilities. However, when no personality information was provided, then subjects showed the desired sensitivity to the base-rate probabilities. This bias highlights the role of social information in decision making suggesting that social information can provide cues to function like a heuristic in shaping decisions. Thus, under conditions of



uncertainty, social cues may play an important role in organizing external complexities and directing it appropriately in order to reduce cost of decision making.

In line with the above discussion, Hill & Buss (2010) examined the relationship between social comparison and risk, and found that social comparison made participants more risk seeking, particularly when it served positional motivations. In their experiment subjects were given choices, each of which had information about possible gain or loss for both self and another, which formed the social comparison information. 70% of participants in the group when given social comparison information chose the high risk monetary option compared with 34% in the control group who did not have any social comparison information. This study presented interesting results that showed the role of social information in guiding risk related decision making. It showed affinity to risk when assessing positionally favorable outcomes. Importantly, social rank was not manipulated in this study – instead in the social comparison condition subjects saw options for themselves and for others. So, each option had information for self and another, and choices made represented what subjects chose as the preference for themselves and another. Therefore, a clear picture of how status information may have impacted their choices cannot be formed. It can only be said that comparative information boosted risk seeking behavior.

Study 3 was designed in order to explore how social status information affects decision making under conditions of uncertainty and varying risk. In this study, the money choice was made risky and expressed in terms of a combination of probability and dollar amount. Subjects were asked to choose between the uncertain choice, the Golden Ticket (which did not present any known probability) and a varied probability of winning

a specific dollar amount (e.g. 15% probability of winning \$10). Of the five offered probabilities, i.e., 15%, 35%, 50%, 65% and, 80%, the extreme values such as 15% and 80% represent relatively certain pieces of information. In the case of 15% probability of winning a specific dollar amount, there is a low chance of winning money while at 80% there is a high chance of winning money. However, at the mid-values, specifically at 50%, the likelihood of winning or losing money is the same and therefore this option represents the most ambiguous tradeoff between the monetary choices and the Golden Ticket. At low probabilities, such as 15% and 35%, of winning money, it was hypothesized that subjects would prefer the Golden Ticket regardless of their status within the experiment. Similarly, at high probabilities, such as 65% and 80%, of winning money, it was hypothesized that both high and low status subjects would prefer money. However, at 50% probability of winning money, subjects were expected to use social status information. Low status subjects were expected to choose the Golden Ticket more than the high status subjects at the 50% probability.

## **Method**

### **Participants**

One hundred subjects participated in the study. They were recruited from the subject pool at Rutgers, Newark Psychology department. Approximately 35% of the subjects were male and 56% were female. Gender was not available for 8% of subjects. 78.9% of the subjects ranged in age from 18 to 21 years. 11.7 % of the subjects ranged from 22-25 years. The overall age ranged from 18-39 years.

### **Materials**

**Status Symbol.** The Golden Ticket used in study 2 also served as a proxy for a status symbol or a positional good in study 3. It consisted of ten raffle tickets displayed in an attractive transparent cover.

**Money option.** The money option in this study was not a simple dollar value as in study 2. Here dollar values were made risky by assigning a probability of winning to each dollar value. Expected values are a multiplicative combination of probability and dollar amount. For example, a \$2 expected value can equal 15% probability multiplied by \$13.33 or 35% probability multiplied by \$5.71. Varied combinations of probabilities and dollar values can yield the necessary expected values. For the purpose of study 3, five expected dollar values were generated ranging from \$2 to \$6. Five different probabilities were used. They were 15%, 35%, 50%, 65% and 80%. There were 50 trials in total.

Subjects were asked to choose between the Golden Ticket and some probability of winning money. For example, subjects saw a picture of the Golden Ticket and 15% probability of winning \$13.33 and were asked to choose which of the two they would prefer. This design allows evaluating how status affects choice between Golden Ticket and a varying probability of getting money.

### **Design**

The decision making part was programmed using Eprime 1.1 and consisted of 50 trials. Each trial consisted of a presentation of the Golden Ticket and a money option with its associated probability of winning. For example, subjects saw the Golden Ticket and the money option “80% probability of getting \$7.5”. Subjects were not explicitly told the expected value but were shown the probability of winning a said amount.

A trial began with the presentation of the Golden Ticket and a monetary option consisting of a dollar value along with its associated probability value. They were given unlimited time to make their choice, which was then presented for 1 second. Following this, the next trial commenced.

Unlike the status assignment phase, subjects were *not* seated beside each other and did not face the same screen. They were given separate laptops and faced each other on either ends of the table during the choice task. This ensured that they were not able to see each other's choices. Subjects were also told that their choices bore no consequence to their partner or vice versa. At debriefing, we ensured that both subjects had an equal chance of entry in the raffle that was chosen in accordance to IRB rules.

### **Procedure**

As in study 2, there were three conditions in this study – an experimental condition where high and low status assignment was made, a control condition where both subjects were treated equally, and an individual condition which provided a baseline for decision making. After subjects signed consent forms, they underwent either status induction, equal status procedure or provided baseline individually. Subjects were randomly assigned to these conditions. Only in the status induction and equal status conditions, the ladder and status questionnaires were administered. As in study 1 and 2, participants were recruited in pairs for the experimental and control conditions. If one of the subjects missed their appointment, the partner who showed up was then assigned to the individual condition and provided a baseline for the decision making. The procedure for status assignment in the experimental and control conditions were carried out as described in the general methods section.

Subjects were told that the forthcoming task would be to make a choice between the Golden Ticket and some probability of winning money. If they chose the Golden ticket, they would forgo the money but if they chose the money option, then they would forgo the ticket for that trial. Each trial was important because only one of the trials would be randomly chosen as the trial that counted towards the outcome. This was done to ensure that all the trials were treated equally. Additionally, subjects were told that in the trial that would be chosen, if they chose the money option, they would be entered into the money raffle to be given on the day of the raffle and not immediately after the experiment. This was to control for any immediacy effects that might influence their choices. After subjects made their choices, one trial was chosen at random and their choice was recorded.

## Results

Analyses reported here are described by status (high, low and equal) and then by independent analyses for each condition.

**Status questionnaire.** An alpha level of .1 was used for these analyses.

*By status.* A repeated measures ANOVA with pre vs. post as the within subjects factor, status (high, low, and equal) and gender as the between subjects factors, and age as the covariate also revealed no overall interaction ( $F(2,68) = 1.14, p = .327, \eta_p^2 = .03$ ). The interaction of age ( $F(1,68) = 1.17, p = .283, \eta_p^2 = .02$ ) or gender ( $F(1,68) = .005, p = .945, \eta_p^2 = .00$ ) within pre vs. post was also not significant. A significant interaction of status within pre vs. post ( $F(2,68) = 7.03, p = .002, \eta_p^2 = .17$ ) was however noted. No significant main effects were noted for status ( $F(2,68) = .49, p = .618, \eta_p^2 = .014$ ) or pre vs. post ratings ( $F(1, 68) = 1.37, p = .246, \eta_p^2 = .02$ ). Tests of between subjects effects did

not show an effect for gender ( $F(1,68) = 2.43, p = .124, \eta_p^2 = .03$ ), or the interaction of status by gender ( $F(2,68) = .39, p = .679, \eta_p^2 = .01$ ).

*Independent analyses for experimental and control condition.* Analyses were also conducted separately for each condition to evaluate the source of the observed effects. Repeated measures ANOVA conducted on the experimental group with pre vs. post as the within subjects, age as a covariate and status and gender as the between subjects factor revealed a significant interaction of status within pre vs. post ( $F(1,54) = 14.43, p < .001, \eta_p^2 = .21$ ). The overall interaction of gender by status within pre vs. post ( $F(1,54) = .12, p = .728, \eta_p^2 = .002$ ), age within pre vs. post ( $F(1,54) = 2.74, p = .104, \eta_p^2 = .05$ ) and also the interaction of gender within pre vs. post ( $F(1,54) = 1.78, p = .188, \eta_p^2 = .03$ ) were not significant. The main effect for pre vs. post manipulation ratings was noted to be significant ( $F(1,54) = 3.19, p = .08, \eta_p^2 = .06$ ), however, there was no main effect for status ( $F(1,54) = .99, p = .33, \eta_p^2 = .02$ ).

Similar analyses conducted on the control group did not reveal a significant interaction of status within pre vs. post ( $F(1,11) = .57, p = .467, \eta_p^2 = .05$ ), age ( $F(1,11) = 1.52, p = .244, \eta_p^2 = .12$ ) or gender within pre vs. post ( $F(1, 11) = 2.2, p = .166, \eta_p^2 = .167$ ), but the overall interaction of status by gender within pre vs. post was not noted to be significant ( $F(1, 11) = .28, p = .61, \eta_p^2 = .02$ ). No significant main effect of pre vs. post ( $F(1, 11) = 1.38, p = .265, \eta_p^2 = .11$ ) or status ( $F(1,11) = .34, p = .571, \eta_p^2 = .03$ ) was observed. Since subjects who did not report age and gender were automatically excluded from the analysis, a separate analysis was conducted including all subjects without entering age and gender as covarying factors, further confirming no interaction of status within pre vs. post ratings ( $F(1,19) = 1.70, p = .208, \eta_p^2 = .18$ ).

**Ladder questionnaire.** The results described here report on the differences in the overall ratings on the ladder questionnaire by status (high, low, and equal).

Independent analyses for each condition individually are reported last.

*By status.* A similar analysis with self vs. partner as the within subjects factor, age as a covariate, and status (high, low, and equal) and gender as the between subjects factors showed that the interaction between self vs. partner by gender and by status was not significant ( $F(2,68) = 1.06, p = .351, \eta_p^2 = .03$ ). The interaction between self vs. partner and gender ( $F(1,68) = .604, p = .44, \eta_p^2 = .00$ ) was also not significant. However, the interaction between self vs. partner by status was noted to be significant ( $F(2,68) = 11.60, p < .001, \eta_p^2 = .25$ ). Main effect of self vs. partner was not significant ( $F(1,68) = 1.86, p = .18, \eta_p^2 = .03$ ). The main effect of status was also noted to be non-significant ( $F(2,68) = .36, p = .702, \eta_p^2 = .04$ ). The overall interaction of gender and status was not noted to be significant  $F(2,68) = .40, p = .675, \eta_p^2 = .01$ .

*Independent analyses by experimental and control condition.* Analyses were also conducted separately within the experimental and control group with gender and status as the between subjects factors, age as a covariate and self vs. partner as within subjects factor. In the experimental group, where one subject was treated as the high status subject and other as the low status subject, there was a significant interaction of status within self vs. partner ( $F(1, 53) = 17.98, p < .001, \eta_p^2 = .25$ ) but the overall interaction ( $F(1,53) = .56, p = .457, \eta_p^2 = .01$ ), or the interaction of age ( $F(1,53) = 1.44, p = .236, \eta_p^2 = .03$ ), or gender ( $F(1,53) = .04, p = .839, \eta_p^2 = .001$ ) within self vs. partner were not significant. The main effects of self vs. partner ( $F(1,53) = 1.53, p = .222, \eta_p^2 = .03$ ), or status ( $F(1,53)$ )

$= .02$ ,  $p = .90$ ,  $\eta_p^2 = .00$ ) were not significant. Gender and status did not interact with each other ( $F(1,53) = .70$ ,  $p = .405$ ,  $\eta_p^2 = .01$ ).

In the control group, where both subjects were treated equally, no interaction effect of status within self vs. partner ( $F(1, 12) = .04$ ,  $p = .849$ ,  $\eta_p^2 = .003$ ) was noted. Gender ( $F(1,12) = 3.07$ ,  $p = .105$ ,  $\eta_p^2 = .20$ ) and age ( $F(1,12) = .50$ ,  $p = .491$ ,  $\eta_p^2 = .04$ ) also did not impact ratings of self vs. partner. No main effects were noted for self vs. partner ratings ( $F(1,12) = .11$ ,  $p = .749$ ,  $\eta_p^2 = .009$ ) or status ( $F(1,12) = .20$ ,  $p = .67$ ,  $\eta_p^2 = .02$ ).

**Decision making.** Results reported here describe the effects of status on decision making by status followed by individual analyses by each condition. Subjective score and exploratory analyses are described in the end.

**By probability.** First, analyses by probability are explored. There were five levels of probability (15%, 35%, 50%, 65%, 80%).

**By status.** Analyses were conducted using status (high, low, and equal) as the between subjects factor. Degrees of freedom were Greenhouse-Geisser corrected ( $\epsilon = .58$ ) for sphericity violations ( $\chi^2(9) = 77.34$ ,  $p < .001$ ). There was no overall interaction of status by gender within dollar value ( $F(4.64, 160) = .68$ ,  $p = .628$ ,  $\eta_p^2 = .02$ ). The interactions of status ( $F(4.64, 160) = 1.07$ ,  $p = .375$ ,  $\eta_p^2 = .03$ ), or gender ( $F(2.32, 160) = 1.02$ ,  $p = .373$ ,  $\eta_p^2 = .02$ ), or age ( $F(2.32, 160) = .53$ ,  $p = .616$ ,  $\eta_p^2 = .01$ ) within dollar value were also not significant. There was no significant effect of probability level ( $F(2.32, 160) = .13$ ,  $p = .91$ ,  $\eta_p^2 = .002$ ), or for status ( $F(2,69) = .12$ ,  $p = .885$ ,  $\eta_p^2 = .004$ ), or the interaction of status by gender ( $F(2,69) = .85$ ,  $p = .432$ ,  $\eta_p^2 = .02$ ).



*Independent analyses for experimental and control condition.* Analyses were then conducted within the experimental and control group to examine the effect of status on choice more closely. Sphericity was violated ( $\chi^2(9) = 67.1, p < .001$ ) and therefore Greenhouse-Geisser corrections were applied to degrees of freedom ( $\epsilon = .55$ ). In the experimental group, where perception of status differences were induced, the overall interaction of gender by status within probability level was not significant ( $F(2.23, 120.52) = 1.02, p = .37, \eta_p^2 = .02$ ). Age ( $F(2.23, 120.52) = .64, p = .543, \eta_p^2 = .01$ ) or gender ( $F(2.23, 120.52) = 1.10, p = .34, \eta_p^2 = .02$ ) or status ( $F(2.23, 120.52) = 1.85, p = .158, \eta_p^2 = .03$ ) also did not show a significant interaction. There were no significant main effects of probability level ( $F(2.23, 120.52) = .18, p = .856, \eta_p^2 = .003$ ) or status ( $F(1, 54) = .15, p = .704, \eta_p^2 = .003$ ). The interaction of gender by status was also noted to be non-significant ( $F(1, 54) = 1.58, p = .214, \eta_p^2 = .03$ ). Only at 15% probability level, high status subjects ( $M = .82, SD = .27$ ) were noted to choose the Golden Ticket at a higher proportion than low status subjects ( $M = .65, SD = .37$ ) ( $t(64) = 2.072, p = .042, d = .52$ ).

In the control group, where perception of equal status was induced, the overall interaction effect of gender by status within probability level was not significant ( $F(1.74, 20.85) = .32, p = .697, \eta_p^2 = .03$ ). Age ( $F(1.74, 20.85) = .27, p = .736, \eta_p^2 = .02$ ), gender ( $F(1.74, 20.85) = .58, p = .548, \eta_p^2 = .05$ ) and status ( $F(1.74, 20.85) = .44, p = .62, \eta_p^2 = .04$ ) individually also did not have an effect. No main effects were observed for probability level ( $F(1.74, 20.85) = .32, p = .861, \eta_p^2 = .03$ ) or status ( $F(1, 12) = .26, p = .62, \eta_p^2 = .02$ ). The degrees of freedom reported here were Greenhouse-Geisser adjusted ( $\epsilon = .43$ ) due to violations of sphericity ( $\chi^2(9) = 24.36, p = .004$ ).

***By expected value.*** The choices were examined as a function of expected value as well. These are reported by status and by the independent analyses for each group.

***By status.*** A repeated measures ANOVA was conducted on choice with expected value as the within subjects factor, status (high, low, and equal) as the between subjects factor, age and gender as covariates. Sphericity was violated ( $\chi^2(9) = 53.03, p < .001$ ). Hence, Greenhouse-Geisser adjustments were made ( $\epsilon = .69$ ). A significant interaction was not noted for the effect of status on expected value ( $F(5.55, 197) = 1.03, p = .406, \eta_p^2 = .01$ ). The interaction of age ( $F(2.78, 197) = .221, p = .868, \eta_p^2 = .003$ ), or gender ( $F(2.78, 197) = .69, p = .549, \eta_p^2 = .01$ ) was not significant. There were no main effects for expected value ( $F(2.79, 200.8) = .39, p = .747, \eta_p^2 = .01$ ) or status ( $F(2,71) = .36, p = .7, \eta_p^2 = .01$ ).

***Independent analyses by experimental and control condition.*** A repeated measures ANOVA was conducted on choice with expected value as the within subjects factor, status (high and low) as the between subjects factor, age and gender as covariates. Sphericity was violated ( $\chi^2(9) = 47.23, p < .001$ ). Hence, Greenhouse-Geisser adjustments were made ( $\epsilon = .67$ ). A significant interaction was not noted for the effect of status on expected value ( $F(2.68, 147.62) = 1.29, p = .28, \eta_p^2 = .02$ ). The interaction of age ( $F(2.68, 147.62) = .25, p = .837, \eta_p^2 = .01$ ), or gender ( $F(2.68, 147.62) = .17, p = .897, \eta_p^2 = .003$ ) was not significant. There were no main effects for expected value ( $F(2.68, 147.62) = .26, p = .830, \eta_p^2 = .01$ ) or status ( $F(1,55) = .365, p = .548, \eta_p^2 = .01$ ). Post-hoc independent samples T-test revealed that at the expected value of \$2 ( $t(64) = 1.753, p = .084, d = .43$ ) only.

*Baseline data acquired from individual subjects.* Baseline data was acquired from subjects whose partner did not show up to the experiment at the appointed time. These subjects were not included in any analyses because they did not experience any status manipulation but were kept waiting for their partners. These data mainly served to gain some understanding of how subjects decided when there was no status related information. Baseline information was acquired from 12 subjects. These subjects chose the Golden Ticket with a likelihood of ( $M = .74$ ,  $SD = .39$ ). For probability values, the proportion of choosing the Golden Ticket was ( $M = .83$ ,  $SD = .28$ ) at 15%, ( $M = .87$ ,  $SD = .21$ ) at 35%, ( $M = .62$ ,  $SD = .36$ ) at 50%, ( $M = .73$ ,  $SD = .26$ ) at 65% and ( $M = .65$ ,  $SD = .39$ ) at 80%. For expected values, the proportion of choosing the Golden Ticket was ( $M = .84$ ,  $SD = .14$ ) at \$2, ( $M = .83$ ,  $SD = .15$ ) at \$3, ( $M = .75$ ,  $SD = .23$ ) at \$4, ( $M = .68$ ,  $SD = .28$ ) at \$5 ( $M = .6$ ,  $SD = .28$ ) at 6, and overall ( $M = .74$ ,  $SD = .39$ ).

**Subjective score.** In order to assess if the subjective perception of status influenced decision making, the difference score, i.e., the self – partner rating, was correlated with the proportion value of choosing the Golden ticket at each probability level. Significant correlations were observed at all probability levels (See Table 17).

Next, the difference score, i.e., self-partner rating, was regressed on overall probability of choosing the Golden Ticket, which showed a positive relationship between the difference score and overall percent shared. As the difference score increased, i.e., as subjects perceived themselves to have higher status, the likelihood of choosing the Golden Ticket increased ( $B = .061$ ,  $SE_B = .02$ ,  $\beta = .32$ ,  $t(85) = 3.084$ ,  $p = .003$ , 90%  $CI [.028, .094]$ ). The overall model was also noted to be significant  $R^2 = .101$ , ( $F(1,85) = 9.509$ ,  $p = .003$ ).

The model was evaluated for normality using a normal probability plot and a slight negative skew was observed. The data was then transformed using arcsine transformation which improved normality. The regression model obtained by regressing the self – partner rating on the transformed value showed a significant positive relationship ( $B = .080$ ,  $SE_B = .028$ ,  $\beta = .29$ ,  $t(85) = 2.833$ ,  $p = .006$ , 90%  $CI [.033, .127]$ . The model was noted to be significant ( $R^2 = .086$ ,  $(F(1,85) = 8.026$ ,  $p = .006)$  (See Figure 14). Analyzing the model for outliers using absolute standardized residuals showed no values above 3. Additionally, the number of cases exceeding 1.96 and 1.64 also met the criterion. Three cases exceeded 2.58, which is more than the single case allowed for the sample size of 88. Cook's distance was evaluated for each of these cases for influence on the model and was noted to be less than .15 and were thus retained. Thus, the outlier analysis satisfied the 99.9%, 95% and 90% normality standards for the linear regression, while showing a slight deviation at the 99% level. DFBeta for both the constant and the explanatory variable was not greater than 1. Thus, no single observation uniquely influenced the model parameters. Outliers were further checked using Mahalanobis distance measure and did not indicate values greater than 15. Cook's distance for all observations was less than 1, also indicating that no unique case influenced the model's ability to predict the outcome. Covariance ratios were all close to 1 indicating that none of the observations had a significant influence on the variance of the model parameters. Specifically, general rules indicate that the covariance ratios should be less than  $1 + [3(k+1)/n]$ , 1.068, and greater than  $1 - [3(k+1)/n]$ , .932, where  $k$  is the number of explanatory variables and  $n$  is the number of observations. 5 cases were marginally outside the limits of 0.93 to 1.07, but their Cook's distance values were less than .16

meeting the criteria of less than 1, and hence were retained in the analysis presented.

Therefore based on the above tests of fit, this transformed model was retained.

Next, correlations were performed for the experimental and control group separately between the self-partner rating and proportion value of choosing the Golden Ticket at the varied probability levels. Significant correlations were again observed for the experimental group (15 % -  $r(63) = .34$ ,  $p = .006$ , 35% -  $r(63) = .28$ ,  $p = .022$ , 50% -  $r(63) = .28$ ,  $p = .022$ , 65% -  $r(63) = .42$ ,  $p = .001$ , 80% -  $r(63) = .30$ ,  $p = .01$ , and overall  $r(63) = .38$ ,  $p = .002$ ). In contrast, a similar pattern was not noted for the control group. In the control group, the overall correlation at probability values of 50% and greater were non-significant (all  $p$ 's  $> .371$ ). However, a significant negative correlation was noted at the 15% probability level ( $r(20) = -.475$ ,  $p = .026$ ) and 35% probability level ( $r(20) = -.429$ ,  $p = .047$ ). Three cases were noted to report high positive difference scores (greater than or equal to 2) and were cause for concern because the manipulation entailed inducing perception of equal status. Re-analyzing the data without these three cases revealed no significant correlations at 15% ( $r(17) = -.15$ ,  $p = .544$ ) and 35% ( $r(17) = -.09$ ,  $p = .707$ ) probability levels. The correlations overall and at greater than 50% probability levels remained non-significant.

*Exploratory analyses.* Further analysis was done to examine whether the self or partner rating on the ladder questionnaire was contributing to the correlations observed between subjective score and choice. Self rating did not correlate with choice of golden ticket overall and at most of the price levels (all  $p$ 's  $> .183$ ) except at 65% ( $r(85) = .19$ ,  $p = .075$ ). However, partner rating showed positive correlations with overall choice ( $r(85) = .28$ ,  $p = .009$ ) and at each probability level – 15% ( $r(85) = .21$ ,  $p = .057$ ), 35% ( $r(85) =$

-0.24,  $p = .028$ ), 50% ( $r(85) = -0.25$ ,  $p = .018$ ), 65% ( $r(85) = -0.3$ ,  $p = .005$ ) and 80% ( $r(85) = -0.19$ ,  $p = .082$ ).

## **Discussion**

The goal of study 3 was to examine if under conditions of uncertainty and varying risk, status concerns are more influential in decision making. As in studies 1 and 2, subjects underwent a status manipulation that successfully distinguished subjects into high and low status groups in the experimental condition. In the control condition, i.e., the equal status condition, subjects were not distinguished by any status characteristic. Subjects were then asked to make a binary decision between a Golden Ticket and some varying probability of winning money. This was done in order to make both the options more similar and ascertain if choice of Golden Ticket varied as a function of varying probability and status.

**Status and ladder questionnaire by status and condition.** When the ratings were analyzed by status, a significant interaction of status was noted. Additionally, the interaction of self vs. partner with status was noted to be significant. These results suggested that the assigned status was important towards the ratings that were given on the status and ladder questionnaires. In order to explore this further, independent analyses were conducted. These are discussed next.

**Independent analyses of status and ladder questionnaire with the experimental and control condition.** A closer examination of the results of the experimental condition, where high and low status assignment was made, revealed that subjects rated their partner different as a function of their status. In other words, subjects rated their partners similarly before the manipulation, however, after the manipulation,

high status subjects were noted to rate their partners lower than before. Low status subjects rated their partner higher than before. These results suggest that the manipulation was successful in inducing a change in the perception of the partner. Results of the ladder questionnaire further suggested that in the experimental condition, low status subjects rated themselves lower in performance on the card game than their partner and high status subjects rated themselves higher than their partner. Similar results were not noted for the control condition. Taken together, the results of the overall analyses and the independent analyses suggest that the manipulation was successful in inducing perceptions of status in study 3. We examine the post-experimental questionnaire next, to provide more subjective information about the rationale for decision making discussed thereafter.

**Post-experimental questionnaire.** In order to ascertain the thoughts that may have influenced subjects during decision making, a post experimental questionnaire was designed and administered after the decision making and prior to debriefing. The post-experimental questionnaire consisted of six questions. The sub-headings below paraphrase the question and the discussion below provides a summary of the reports. Few examples of subjects reports have been quoted to give the reader a flavor of the subject's point of view.

***Thoughts influencing decision during choice between Golden Ticket and Money.*** The objective of this question was to determine if subjects were thinking about their previous status assignment while making decisions during the choice task. The general comments made by the subjects do not indicate that overall the subjects were consciously thinking about their status assignment. The comments indicated here suggest

that subjects were thinking about dollar values, probability and their combination against the Golden Ticket while making their decisions. Therefore, it is interesting that self-partner rating is predictive of decisions made subsequently and depicts a known disconnect between self-report and behavior.

***Reason for choosing the Golden Ticket.*** In providing a reason for choosing the Golden Ticket, subjects reported comparing the Golden Ticket with dollar values and making a decision based on the comparison. While the responses varied, subjects reported that they chose the Golden Ticket because although it might be a risk, it “increased their chances of winning an IPOD touch” or because “The I-touch is more attractive than a 10% chance of winning \$10 or even \$40.” Some subjects reported that they chose it “... when the probability was less and or the money amount was less.” Overall, in providing a reason for choosing the Golden Ticket, subjects reported that the Golden Ticket was more attractive and they took a chance with the Golden Ticket when the monetary amounts were not as enticing to them. There was no indication in the responses whether the high or low status subjects preferred the Golden Ticket more.

***Prior preference for Golden Ticket.*** Regardless of status, most subjects reported making their choices on a trial by trial basis. Five subjects overall reported a prior preference for the Golden Ticket. Most subjects however noted that the monetary amounts presented were not very enticing which may have further induced them to choose the Golden Ticket. One low status subject reported that “I had no prior preference although money was ultimately the deciding factor. Because the Golden Ticket stayed constant, I felt like it was a secure way to go instead of risking it for only a couple of bucks.” The reports on this questionnaire suggest that prior to the decision making task,



subjects did not have a prior preference overall. However, the low amounts of money combined with a probability value may have reduced the enticement of the monetary option.

***Influence by probability or the dollar value presented.*** Overall, most of the subjects reported being influenced by both the probability and the dollar value. In the experimental condition 57% of subjects reported to being influenced by both the probability and dollar amount and about 17% reported to have chosen by probability only and 19% chose based on dollar values only. When this was examined by status more carefully, we noted that 58% of the high status subjects who reported the questionnaire were influenced by both the probability and dollar value as opposed to 44% in the low status group. 17% of high status and 22% of low status subjects chose by probability only. 25% of high status and 33% of low status subjects were noted to choose by dollar values only. In the control condition, 52% of subjects reported to have been influenced by both, about 14% were influenced by dollar value and about 9% were influenced by probability. These results suggest that overall subjects weighed their decision using a combination of the dollar value and its probability.

***When did you choose the money option vs. the Golden Ticket option?*** Overall, only four subjects (three in the experimental condition and one in the control) reported categorically that they always chose the Golden Ticket. Most subjects reported choosing based on a subjective standard of whether the probability value or dollar value was acceptable to them. If that standard was met, such as dollar being high or probability being high, then they chose the money, else they chose the Golden Ticket. These reports suggest that subjects contrasted the Golden Ticket, which was ambiguous, with the risk

associated with the dollar values in making these decisions. Examples of these reports are as follows: “Money option -> when probability was high, close to high/when the amount was high. Ticket -> when probability of dollar amount was low and when face value was low,” or “I chose the money, when it was an ok amount and the chances of me getting it were high. I chose the Golden Ticket when my chances and the amount of money were low.”

***Impact of the card game on choice of Golden Ticket or money.*** Overall, subjects reported that they did not find a connection between the card game and the decision making task. In the experimental condition, where high and low status perceptions were induced, 72% of the subjects reported that they were not influenced by the previous card game. In the control condition as well, about 71% of subjects reported the same. The subjects who reported that they were influenced by the card game were examined more closely. Subjects who reported being influenced by the card game reported being influenced because the “ticket goes toward something,” or “I thought of wanting to win the tickets so I would have more chances in the raffle” or “since I had already won one raffle ticket, I would have placed my bets on winning more raffle tickets to increase my chances of winning the IPOD touch” or “because luck might be more on my side and my partner would not gamble it out after she lost to me earlier.” These reports suggest that overall subjects were not aware of whether the card game influenced their choices. However, in those that were aware, they report wanting more tickets to increase their chances of winning the raffle affirming the desirability of the Golden Ticket.

**Decision making analyses overall.** The overall analyses by status did not reveal a relationship between status and proportion value of choosing the Golden Ticket at

different levels of probability. There were no significant interaction effects or main effects noted. When similar analyses were conducted on different levels of expected value also, no significant relationship was noted between status and proportion value of choosing the Golden Ticket at different expected values.

**Independent analyses for experimental and control condition.** Independent analyses by each condition also did not show any differences in patterns of choice for the control group and experimental group. No significant interactions were observed here when subjects were analyzed based on status grouping. However, at the 15% probability level, high status subjects were noted to choose the Golden Ticket significantly more than low status subjects.

**Grouping by status vs. subjective score.** First, when grouped by status, both high and low status subjects chose the Golden Ticket similarly at all levels of probability except 15%. At the 15% probability value, high status subjects chose the Golden Ticket significantly more than the low status subjects. This finding disconfirmed the hypothesis that at 50% probability level, where the tradeoff between money and Golden is more ambiguous, low status subjects would be more likely to choose the Golden Ticket. The findings indicate that at 50% probability level, high and low status subjects chose similarly and status did not differentiate choice patterns. Thus, at the most ambiguous tradeoff, status did not predict choice of the Golden Ticket. Examining choices in terms of expected value of money showed that high status subjects chose the Golden Ticket more at \$2 expected level than their low status counterparts. At all other levels of expected values (\$3, \$4, \$5, and \$6), high and low status subjects did not choose

differently. Thus, examining choice based on high and low status grouping did not reveal any differences in patterns of behavior.

*Subjective score.* Next, when status was coded as difference score, to capture the subjective and psychological aspects of the status experience, a different picture of the relationship between status and choice emerged. The subjective score correlated significantly and positively with the likelihood of choosing the Golden Ticket at each level of probability as opposed to the specificity observed at 15% when grouped by status. This suggested that as the subjective score increased, i.e., the higher subjects rated themselves relative to their partner, the more likely they were to choose the Golden Ticket. Further, when choice at all levels of probability was combined, the subjective score significantly predicted overall choice of the Golden Ticket. Every unit increase in the subjective score corresponded to a significant increase in choosing the Golden ticket by 6%. Recall that in study 2, an increase in the differences score, i.e., status, reduced the chance of choosing the Golden Ticket (over the \$3 to \$5 range). One difference between the choices in study 2 and study 3 is that the money option in study 2 was certain, while it was made risky in study 3. Therefore, study 3 indicated that that subjects who experience higher status may be more likely to choose the Golden Ticket under conditions of increased risk.

Examining these findings under the lens of Prospect theory may provide a plausible explanation for the above findings. Briefly, prospect theory suggests that how people choose may depend on how the option is framed. For example, an option framed as 15% percent probability of winning \$x is not equivalent to 85% probability of losing \$x in psychological terms, even though they are mathematically equivalent. When

options are stated as possible wins, people choose in a risk-averse manner but when stated as a possible loss, the pattern of choice depicts risk-seeking behavior (Kahneman & Tversky, 1979).

Given that high status subjects have an advantage over the low status subjects; we speculate that it is possible that the context of the experiment may put high status subjects in a gain frame and low status subjects in a loss frame thereby triggering different patterns in decision making. When faced with increased risk, the cost of losing status may be higher for high status subjects and therefore, high status subjects may be choosing the Golden Ticket more than their low status counterparts. This may be because choosing in this manner enables the high status subjects to increase their chances of conserving the status advantage. On the other hand, the low status subjects, who may be in the loss frame, may choose differently as compared to high status subjects. For example, they choose money more often than high status subjects at 15% probability, where the chances of getting the money are low. Aggregating by expected values and examining the range of probability values, the monetary choice at 15% probability is more risky than the monetary choices at 35% to 80% level. If high and low status subjects have similar preferences, they might choose the Golden Ticket at a similar rate over the monetary choice from 15% to 80% probability level, aggregating across expected values. We notice this similar behavior (Figure 12) between high and low status subjects at all probability values except at 15% where the low status subjects choose money more often than the high status subjects. So, the low status subjects seem to be making the monetary choice, which has the most risk relative to other monetary choices, (aggregating across expected values) more often than the high status subjects.

A possible speculation for this behavior could be that the large dollar amounts associated with 15% were weighted higher than the low probability value. As noted in the method section - to get the same expected value using 15% and 80% probability, the dollar amount associated with the 15% probability was about 5 times higher than at 80% (80/15).

There is some evidence that the experimental induction may have placed the low status subjects in a loss frame and hence affected their risk aversion. Based on the post experimental questionnaire, when analyzing whether the subjects' decision was based on dollar amounts, probability, or a combination of these two, it was noted that low status subjects (33%) seemed to be influenced more than the high status subjects (25%) by the dollar amounts. These data offer limited evidence that the status treatment may have induced a bias for dollar values, when weighing dollar amounts and probability, in the low status subjects. The caveat however, is that these data are limited in this preliminary study and the risk attitudes were not fully investigated. Moreover, a further limitation of this interpretation is that the pre status-induction preferences were not recorded and hence it could be the case that the low status subjects had an inherent bias for risk. However, the fact that subjects were randomly assigned to the induced status may mitigate this concern.. In future studies, a more comprehensive testing of risk attitudes and preference biases of the subjects can be evaluated to allow for a more in-depth interpretation of these results.

The difference in observed choices is supported by the positive correlation between subjective status score and the likelihood of choosing the Golden Ticket at the 15% probability value. Additionally, as previously stated, subjective score was also

positively correlated with the overall likelihood of choosing the Golden Ticket. Every unit decrease in subjective score of status corresponded with 6% overall decrease in choosing the Golden Ticket. In other words, a decrease in subjective score in status corresponded with an increase in choosing the money option since the options presented were mutually exclusive (Golden Ticket or money). If subjects were motivated by their status concerns, then the Golden Ticket may have represented a more desirable option given that the money option may not address status concerns within the context of the experiment. The results showed that at each probability level, the Golden Ticket was chosen more often than money (See that low and high status subjects choose the Golden Ticket at higher than 50% in Figure 12), and this provides some support to the reasoning that the Golden Ticket was perhaps the more desirable option overall. Low status subjects chose this (uncertain) option less often than the high status subjects at the riskiest of the money choices (at 15% probability). However, they chose the Golden Ticket at levels similar to that of high status subjects at other probability levels where the money choice was less risky than at the 15% probability level. We speculate that this choice pattern may suggest that low status subjects were more enticed by the dollar values, and therefore choose the money option more than their high status counterparts at the 15% level, since it has the highest dollar amounts for a given expected value.

**General points.** The pattern of choices discussed above confirmed that during conditions of risk, social information can guide decision making even though it did not show the hypothesized pattern of behavior. At low (15%) and high (80%) probability levels, it was expected that no status differences would be observed and Golden Ticket and money would be the preferred options respectively. At the mid-range of probabilities,

however, it was expected that low status subjects would choose the Golden Ticket significantly more than the high status subjects. Support for the predicted pattern of results was not found. The findings discussed above are not null results but show a pattern different from our expectations. Therefore, it does not nullify the notion that social status concerns inform decision making under conditions of risk. Rather, the differences observed in the choice of Golden Ticket, both as a function of status at the 15% probability level and as a function of the subjective score, attest to the notion that risk allows status concerns to play a role in decision making.

This study presents important differences from the previous studies. *First*, we note that subjective status ratings were positively correlated with the overall likelihood of choosing the Golden Ticket. These findings contrast with previous studies which indicated that status was negatively related with decision making behavior. *Second*, this study showed that subjective status predicted choice of the Golden Ticket at each level of probability. This finding contrasts the findings in study 2 which showed that subjective status predicted choice at only specific dollar values. Taken together, this suggests that conditions of risk may trigger use of social information in guiding decision making. *Third*, this study contrasts an ambiguous choice (Golden Ticket) with a risky choice (expected value of getting money). By expressing monetary amounts in terms of expected value, the idea of value is captured with greater complexity. At all levels of expected value, both high and low status subjects chose the Golden ticket at above chance level, with high status subjects choosing the Golden Ticket at 77% versus 71% for low status subjects. Further, at the expected value of \$6 which carried the highest magnitudes of dollar values ranging from \$7.5 to \$40, high and low status subjects chose the Golden



Ticket at above chance levels, i.e., 66% and 62% respectively. Also, at the 15% probability value which also carried the highest magnitudes of dollar amounts, ranging from \$13.33 to \$40, high and low status subjects chose the Golden ticket at above chance levels, i.e., 81% and 66% respectively. These preferences for the Golden Ticket form the basis to suggest that in the conditions of risk provided in this study, the Golden ticket was a desirable item. Taken together, these findings suggest three notable points – i) that status is motivating to both high and low status groups, and ii) risk can evoke usage of social information to guide decision making and that iii) status symbols such as the Golden Ticket in this context are desirable.

**Summary.** In addition to the differences presented above, study 3 affirms two key points made by Study 2. Study 2 showed the effect of status on decision making at a specific dollar value (\$4) when grouped by status, while the subjective score predicted decision making at a wider range of dollar values (\$3, \$4, \$5). Thus, it made two important points - firstly, context is important, and secondly, that subjective score is a better predictor. Study 3 reaffirmed these two points. It demonstrated that status grouping showed specificity of effects at 15% probability level and \$2 expected value, and that the subjective score predicted choices at all levels of risk. Notably, this second finding expands the range of situations that are affected by status concerns, and thus makes the subjective perception of status an important measure under conditions of risk.

While study 3 explores how risk, a characteristic of the situation, affects decision making, it does not shed light on what aspect of the psychological experience specifically impacts decision making. Study 4 is designed to address this limitation. The next study

i.e., study 4, explores if self-esteem differences are the psychological mechanism that account for the differences observed in perception of status and decision making.

**Chapter 6: Role of Self-esteem in modulating status perceptions  
and decision making (Study 4)**

William James (1890) expressed self-esteem as the ratio of successes to pretensions. In defining self-esteem in this manner, James (1890) acknowledged that our self-esteem is governed not just by our successes but by our subjective level of claim to that success. And, in explaining success, he made another important point – that our successes are not objective but social and comparative in nature and therefore suggested that self-esteem was malleable by subjective and social processes.

I, who for the time have staked my all on being a psychologist, am mortified if others know much more psychology than I. But I am contented to wallow in the grossest ignorance of Greek. My deficiencies there give me no sense of personal humiliation at all. Had I 'pretensions' to be a linguist, it would have been just the reverse. So we have the paradox of a man shamed to death because he is only the second pugilist or the second oarsman in the world. That he is able to beat the whole population of the globe minus one is nothing; he has 'pitted' himself to beat that one; and as long as he doesn't do that nothing else counts. He is to his own regard as if he were not, indeed he *is* not. (pp.310)

The goal of this study is – first, to explore if social comparison processes combine with self-esteem to form the psychological mechanism underlying changes in status perceptions, second, to examine if merely ascribing status without any measure of competence might also elicit status beliefs.

First, we consider what self-esteem is and what factors impact it? Self-esteem may be defined as an attitude that encompasses evaluation about oneself (Rosenberg, 1965). Self-esteem reflects how an individual values oneself in a given situation. It can serve as an internal gauge for how one feels in a given situation and can thereby serve a protective function of shielding one from social feedback. Of note is that demographic factors such as gender, ethnicity or race, and also socio-economic status have been reported to have a weak or no effect on self-esteem (Emler, 2001). Specifically, a meta-analysis of socio-economic status and self-esteem (Twenge & Campbell, 2002) showed that socio-economic status had a small but significant relationship with self-esteem but that this relationship was moderated by other variables that emphasize the salience of socio-economic status within a group. These variables may be psychosocial in nature and may provide a connection between socio-economic status and one's self-concept. On the other hand, factors that have been reported to have a modest effect are not demographic variables but are more subjective in nature such as successes or failures and acceptances or rejections (Emler, 2001).

In order to explore the relationship between successes or failures and self-esteem, the relationship between self-esteem and school performance may be briefly evaluated. Baumeister, Campbell, Kreuger & Vohs (2003) suggest that correlational studies showed a "weak and ambiguous relationship between self-esteem and school performance." Further examinations of the causal direction of the effect suggest that high self-esteem may not cause improved school performance. Instead improved school performance may lead to higher self-esteem in school children. While self-esteem showed a poor direct relationship to performance on tasks, laboratory tasks showed that high self-esteem may

provide an advantage in understanding cues in the environment providing better regulation of persistence efforts. The function of self-esteem, therefore, may not be to simply evaluate performance, but to infuse confidence in judgments in the service of prospective decisions to be made in the given situation (Harber, 2005).

Sivanathan & Pettit (2010) explored the role of self-esteem in acquiring status goods among low income individuals and found a significant negative correlation between willingness to pay for a luxury car and self-esteem, suggesting that people with low self-esteem may be more willing to pay high amounts for status objects. This further suggests that self-esteem could be the psychological underpinning of their compensatory decision making behavior. It is therefore plausible that the status manipulation employed in the studies discussed in previous chapters may affect their self-esteem and thereby affect their decision making patterns. The tendency observed in the previous studies to compensate loss of status may therefore stem from a need to repair possible damage to self-esteem. The above findings motivate the expectation that self-esteem may be the psychological mechanism underlying the status perception observed thus far.

Next, we explore if a mere ascribed label may be sufficient to induce perception of status differences. Ball & Eckel (2001) had two manipulations in their study. In one manipulation, status was achieved via a cut-off score on a trivia quiz and in another status was ascribed randomly. Even though subjects in the ascribed condition knew that the assignment was random, it still impacted the price that they negotiated albeit these effects were weaker than the group that achieved their status assignment. Further, in Jane Elliott's classic experiment, a mere stereotype based on eye color was sufficient to elicit behavioral differences among children (Peters, 1985) and the literature on stereotype

suggests the considerable power of a label on person perception (Steele, 1997). These lend plausibility to the notion that a mere label of high and low status may be sufficient to elicit status beliefs. This study explores this possibility.

Study 4 primarily explores the role of self-esteem in modulating status perceptions and decision making. It is hypothesized that low status subjects will report lower levels of self-esteem after the manipulation than before and the opposite pattern will be observed for high status subjects. It is also hypothesized that in the one-shot ultimatum game, low status subjects will share higher dollar amounts with their partner in order to get a raffle ticket and address their status concerns. The opposite pattern will be observed for the high status subjects since they would be motivated to keep the advantage to themselves. A secondary objective is to explore if assigning status without the use of the card game described in the general methods section would be sufficient to elicit differences in status beliefs. In order to assess this secondary objective, a modified version of the status manipulation will also be employed.

## **Method**

### **Participants**

One hundred and forty-four subjects, which included 48 male and 93 female (3 declined to provide gender) from 18-34 years of age were recruited for the experimental condition from the research pool for this study. The demographic characteristics collected were Age, Gender, Ethnicity, Socioeconomic status, and Parental Education. The demographic data showed a variety of cultures represented, with about 17 ethnicities represented in the pool of subjects. The parental education background ranged from doctoral degree to less than high school education. Economic situations ranged from wealthy to those in

hardship. Further detailed characteristics about the sample are reported below, first at an overall level and then by each conditions.

**Overall.** 138 subjects provided age related data, while 6 subjects declined to provide this data. The mean age was 20.4 (3.31). 77.5% were between 18 to 21 years of age. The minimum age was 18 and the maximum was 45. 48 subjects (33%) were male, 93 female (65%) and 3 declined to provide gender information. 69 subjects provided ethnicity information, while 75 subjects declined to provide ethnicity information. Overall 7 subjects (10%) were Black/African-American, 9 (13%) were Asian/Asian-American, 17 (25%) were Hispanic/Latino, 3 (4%) were Arab-American, 4 (6%) were White (not Hispanic), and 4 (6%) reported mixed. Additionally, 25 subjects reported ethnicity outside of the listed categories. Self-reports of ethnicities showed representation from various cultural backgrounds. These were 1 each of arab, bengali, ecuadorian, egyptian, filipino, french-german, guyanese, Haitian, Hispanic, Portuguese, sikh, westindian, and white. 2 reported to be from pakistan, while 5 each were black and Indian. Overall 2 (1.5%) subjects reported being wealthy, 20 (14%) thought they were well off, 66 (48%) were comfortable, 35 (25%) were just getting by, 13 (9%) reported that they were struggling, and 2 (1.5%) were in hardship. 6 subjects (4%) reported that their parents had doctoral or law degrees, 27 (20%) reported that they had a Masters degree, 36 (26%) reported having an undergraduate/bachelors degree, 29 (21%) reported some college, 31 (22%) reported High school degree or GED and 9 (7%) reported less than High school education.

**Condition 1.** The 48 subjects in this condition were in the achieved status group and were assigned high and low status. The mean age was 20.2 (2.3). 79% were between

18 to 21 years of age. 15 were male, and 33 were female subjects. 14 subjects provided ethnicity information, which included 1 Bengali, 3 Black, 1 Egyptian, 1 French-german, 1 Guyanese, 1 Haitian, 3 Indian, and 1 each of Portuguese, West-indian and White ethnic background. 48 subjects provided SES information. 8 reported being well-off, 20 were comfortable, 13 reported just getting by, 5 reported that they were struggling, and 2 were in hardship. 48 subjects provided information about parental education. 1 subject reported the level of parental education to be doctoral, 4 reported having a Master's degree, 14 reported having a Bachelor's degree, 11 had some college, 12 had a high school education or GED, and 6 reported having less than high school education.

**Conditon 2.** The 24 subjects in this condition were in the achieved status group and were assigned equal status. The mean age was 19.7 (1.5). 82% were between 18 to 21years of age. There were 4 male and 18 female subjects. 20 subjects provided ethnicity information. 3 reported being Black / African-American, 4 were Asian / Asian-American, 7 were Hispanic / Latino/a, 1 was Arab-American, 2 were White (not Hispanic), and 3 identified as Other or Mixed. 21 subjects provided SES information. 1 reported being wealthy, 6reported being well-off, 8 were comfortable, 4 reported just getting by, and 1 reported to be struggling. 21 subjects provided information about parental education. 3 subject reported the level of parental education to be doctoral, 8 reported having a Master's degree, 3 reported having a Bachelor's degree, 4 had some college, 2 had a high school education or GED, and 1 reported having less than high school education.

**Conditon 3.** The 48 subjects in this condition were in the ascribed status group and were assigned high and low status. The mean age was 20.6 (4.5). 80% were between 18 to 21years of age. There were 19 male and 28 female subjects. 11 subjects provided

ethnicity information, which included 1 arab, 2 blacks, 1 each of ecuadorian, filipino and hispanic background, 2 indian, 2 pakistani and 1 sikh. 45 subjects provided SES information. 1 reported being wealthy, 6 reported being well-off, 19 were comfortable, 13 reported just getting by, and 6 reported to be struggling. 45 subjects provided information about parental education. 2 subjects reported the level of parental education to be doctoral, 9 reported having a Master's degree, 13 reported having a Bachelor's degree, 8 had some college, 11 had a high school education or GED, and 2 reported having less than high school education.

**Conditon 4.** The 24 subjects in this condition were in the ascribed status group and were assigned high and low status. The mean age was 21.1 (3.7). 67% were between 18 to 21years of age. There were 10 male, and 14 female subjects. 24 subjects provided ethnicity information. 4 reported being Black / African-American, 5 were Asian / Asian-American, 10 were Hispanic / Latino/a, 2 was Arab-American, 2 were White (not Hispanic), and 1 identified as Other or Mixed. 24 subjects provided SES information. 19 reported being comfortable, 4 reported just getting by, and 1 reported to be struggling. 24 subjects provided information about parental education. 6 subjects reported the level of parental education as a Master's degree, 6 reported having a Bachelor's degree, 6 had some college, 6 had a high school education or GED.

Subjects were required to fill a pre-screening survey prior to signing up for the study. They were pre-screened for their responses and invited to participate if they had responded to the Rosenberg's self-esteem inventory.

## **Design**



Status was manipulated by two methods in this study. The first method employed the card game as described in the general methods section and afforded subjects the opportunity to achieve their status. As in the previous studies, it included two conditions. The experimental condition resolved subjects into high and low status and the control condition resolved subjects into equal status groups. The second method involved using a concocted story regarding the pre-screening survey in order to ascribe status to individuals. Subjects in the experimental condition were resolved into high and low status groups and subjects in the control condition were ascribed as equal status based on the concocted story. Therefore, there were four conditions in this experiment and pairs of subjects were randomly assigned to these conditions.

After the status manipulation, subjects played a modified one-shot interactive Ultimatum Game. They were given hypothetical \$10 and asked to divide the amount between themselves and their partner. Subjects were told that if their partner accepted the offer, then they would get an additional raffle ticket, but if their partner rejected the offer then they would not get the raffle ticket. No money was exchanged during this game.

At debriefing, we ensured that both subjects had an equal chance of in the raffle that was chosen in accordance with IRB rules.

## **Materials**

**Raffle Ticket.** A raffle ticket for an IPOD touch was used as the outcome for the decision made by subjects. The Golden Ticket used in Study 2 and 3 was not used here.

**Rosenberg's Self-esteem Inventory.** This questionnaire was administered after the status manipulation in order to capture changes in self-esteem (Rosenberg, 1965). Subjects responded to items on this questionnaire in the pre-screening survey as well.

## Procedure

**Status assignment.** Status was assigned by two different methods. In one method, subjects were ascribed status and in another they achieved it via the card game described in the general methods section. Following the status assignment, subjects were given the second administration of the status questionnaire, the ladder questionnaire and the Rosenberg's Self-esteem Inventory (1965). Then, subjects played a modified version of a one-shot Ultimatum Game.

***Achieved status.*** In this manipulation, there were two conditions – an experimental condition where high and low status assignment was made, and a control condition where both subjects were treated equally.

After subjects sign consent forms, they achieved their status assignment via the status induction or equal status procedure. Subjects were randomly assigned to these conditions. The ladder and status questionnaires were administered in these conditions. As in study 1 and 2, participants were recruited in pairs. The procedure for status assignment in the experimental and control conditions were carried out as described in the general methods section.

***Ascribed status.*** In this manipulation, there were two conditions – an experimental condition where high and low status assignment was made, and a control condition where both subjects were treated equally.

After subjects signed consent forms, they were ascribed their status based on a concocted story about the pre-screening survey. Subjects were asked if they had filled out the pre-screening questionnaire. The procedure used to ascribe status was identical in every respect to the manipulation used for achieved status group except in the manner in

which status was assigned, i.e., using a pre-screening survey in ascribing status, versus using a card game to achieve status. In order to ascribe status, subjects were told the following:

As a part of this experiment, we will be conducting a raffle for an IPOD Touch. I examined your pre-screening survey responses in order to decide who to give the raffle ticket to. Since you scored *higher than your partner* on the responses made on the pre-screening survey, you are being awarded a raffle ticket for the IPOD Touch.

The subject who got the raffle ticket also received a round of applause and praise (Nice Job!) from the experimenter. This subject became the high status subject. The other subject was not given anything and became the low status subject. For the equal status procedure, subjects were told that both subjects scored equally and therefore both were being awarded a raffle ticket. Both were given a round of applause.

**Modified Ultimatum Game.** Subjects were told that the forthcoming task would be to make offers on a hypothetical dollar amount. Subjects were told that they are given a hypothetical \$10 and that their task was to divide the money between themselves and their partner. If the offers made were accepted by their partner, then the subject making the offer, i.e., the proposer would get a raffle ticket. If the offer was rejected, then the subject who made the offer, i.e., the proposer would not get a raffle ticket. Subjects wrote down the offered dollar amount on a sheet of paper. Then the experimenter made the offers to their respective partners. Subjects evaluated the offers and wrote down if they accepted or rejected their partner's offers. Raffle tickets were awarded according to the acceptance of the offers.

## Results

**Overall analyses.** In order to assess comprehensively assess the status manipulation, the status questionnaire, ladder questionnaire and offers made were analyzed by condition (ascribed vs. achieved) and status (high, low, and equal).

*Status questionnaire.* A repeated measures ANOVA was conducted with condition (ascribed vs. achieved) and status (high, low, and equal) as the between subjects factor within pre vs. post and demographic characteristics (age, gender, socio-economic status, and parental education) as covariates. A significant interaction between condition by status within pre vs. post ( $F(3, 124) = 4.79, p = .01, \eta_p^2 = .072$ ). A significant interaction was noted for gender ( $F(1, 124) = 4.1, p = .045, \eta_p^2 = .032$ ). No significant interactions were noted for age ( $F(1, 124) = .90, p = .345, \eta_p^2 = .01$ ), socio-economic status ( $F(1, 124) = .002, p = .968, \eta_p^2 = .00$ ), and parental education ( $F(1, 124) = .18, p = .672, \eta_p^2 = .001$ ). There was no main effect of condition ( $F(1, 124) = .468, p = .495, \eta_p^2 = .004$ ) or status ( $F(2, 124) = .035, p = .966, \eta_p^2 = .004$ ) or pre vs. post ( $F(1, 124) = .008, p = .931, \eta_p^2 = .00$ ).

*Ladder questionnaire.* A repeated measures ANOVA was conducted with condition (ascribed vs. achieved) and status (high, low, and equal) as the between subjects factor within self vs. partner with demographic characteristics (age, gender, socio-economic status, and parental education) as covariates. A significant interaction between condition by status within self vs. partner ( $F(2, 104) = 16.86, p < .001, \eta_p^2 = .245$ ). A significant interaction was noted for status within self vs. partner ( $F(2, 104) = 16.94, p < .001$ ). The interaction of condition within self vs. partner was not significant ( $F(1, 104) = .03, p = .859, \eta_p^2 = .00$ ). No significant interactions were noted for age ( $F(1,$

104) = .23,  $p = .634$ ,  $\eta_p^2 = .002$ ), gender ( $F(1, 104) = .31$ ,  $p = .579$ ,  $\eta_p^2 = .003$ ), socio-economic status ( $F(1,104) = 1.16$ ,  $p = .283$ ,  $\eta_p^2 = .01$ ), and parental education ( $F(1, 104) = .15$ ,  $p = .703$ ,  $\eta_p^2 = .001$ ). There was a main effect of condition ( $F(1,104) = 3.96$ ,  $p = .049$ ,  $\eta_p^2 = .04$ ) but not status ( $F(2,104) = .274$ ,  $p = .761$ ,  $\eta_p^2 = .005$ ) or self vs. partner ( $F(1, 106) = .07$ ,  $p = .791$ ,  $\eta_p^2 = .001$ ). The main effect for self vs. partner was significant ( $F(1,104) = 2.90$ ,  $p = .092$ ,  $\eta_p^2 = .03$ ). The overall main effect for condition ( $F(1,104) = 4.32$ ,  $p = .049$ ,  $\eta_p^2 = .04$ ) and self vs. part ( $F(1,104) = 2.90$ ,  $p = .092$ ,  $\eta_p^2 = .03$ ) was significant but not for status ( $F(2,104) = .27$ ,  $p = .761$ ,  $\eta_p^2 = .005$ ).

*Modified Ultimatum Game.* Univariate ANOVA conducted on the overall amount shared with condition (ascribed vs. achieved) and status (high, low vs. equal) as the factor and demographic variables such as age, gender, socio-economic status, and parental education as covariates showed no significant differences. The interaction of condition by status did not show a significant relationship with the offer made by subjects ( $F(2,125) = .162$ ,  $p = .851$ ,  $\eta_p^2 = .003$ ). The condition subjects were placed in did not impact the overall amount they offered ( $F(1, 125) = .054$ ,  $p = .816$ ,  $\eta_p^2 = .00$ ). Demographic variables such as age ( $F(1, 125) = .01$ ,  $p = .921$ ,  $\eta_p^2 = .00$ ), socio-economic status ( $F(1, 125) = .007$ ,  $p = .935$ ,  $\eta_p^2 = .00$ ), and parental education ( $F(1, 125) = 1.40$ ,  $p = .24$ ,  $\eta_p^2 = .01$ ) did not affect the overall amount shared. Gender was noted to impact the overall amount shared ( $F(1, 125) = 2.83$ ,  $p = .095$ ,  $\eta_p^2 = .022$ ).

*Self-esteem.* Univariate ANOVA conducted on the self-esteem rating given post manipulation with condition (ascribed vs. achieved) and status (high, low, and equal) as the factor and demographic variables such as age, gender, socio-economic status, and parental education as covariates showed that their self-esteem ratings were not affected

by the condition but by socio-economic status and parental education. The interaction of condition by status was not found to be significant in differentiating self-esteem ratings ( $F(2, 125) = .051, p = .951, \eta_p^2 = .001$ ). The condition subjects were placed in did not impact their self-esteem ratings ( $F(2, 125) = 2.32, p = .131, \eta_p^2 = .02$ ). Status also did not have an effect on the ratings ( $F(2, 125) = .36, p = .702, \eta_p^2 = .006$ ). Demographic variables such as age ( $F(1, 125) = 1.17, p = .281, \eta_p^2 = .01$ ) and gender ( $F(1, 127) = .67, p = .413, \eta_p^2 = .01$ ) did not affect self-esteem ratings. Socio-economic status ( $F(1, 125) = 3.11, p = .08, \eta_p^2 = .02$ ), and parental education ( $F(1, 125) = 2.81, p = .096, \eta_p^2 = .02$ ) was noted to have a small but significant effect on ratings.

**Achieved status.** The results reported below are for the experimental and control conditions that were assigned status using the card game described in the general methods section.

*Assessing the status manipulation using the status questionnaire.* We conducted repeated measures ANOVA to compare the overall ratings by status and then compared the ratings in the experimental and control condition within the Achieved status condition.

*By status.* Similar analysis was conducted by status (high, low, and equal), with gender, age, socio-economic status and parental education as covariates. A significant interaction was noted for status within pre vs. post ( $F(2, 61) = 7.84, p = .001, \eta_p^2 = .20$ ) and for gender within pre vs. post ( $F(1, 61) = 3.69, p = .059, \eta_p^2 = .06$ ). No significant interactions were noted for age ( $F(1, 61) = 2.46, p = .122, \eta_p^2 = .04$ ), socio-economic status ( $F(1, 61) = 1.025, p = .315, \eta_p^2 = .02$ ), parental education ( $F(1, 61) = .047, p = .829, \eta_p^2 = .001$ ). The main effect for pre vs. post was not significant ( $F(1, 61) = .206, p$

= .651,  $\eta_p^2 = .003$ ). The main effect of status was not significant ( $F(2, 62) = .979$ ,  $p = .382$ ,  $\eta_p^2 = .03$ ).

*Independent analyses for each condition.* In the independent analyses in each condition, a significant interaction was only noted between status and pre vs. post rating ( $F(1,41)=9.37$ ,  $p=.004$ ,  $\eta_p^2 = .19$ ) for the experimental condition. No significant interactions were noted by gender ( $F(1,41)=.20$ ,  $p=.66$ ,  $\eta_p^2 = .01$ ), age ( $F(1,41)=1.36$ ,  $p=.25$ ,  $\eta_p^2 = .03$ ), socio-economic status ( $F(1,41)=.002$ ,  $p=.96$ ,  $\eta_p^2 = .00$ ), and parental education ( $F(1,41)=.1$ ,  $p=.76$ ,  $\eta_p^2 = .002$ ). Additional post-hoc t-testing showed that no differences in the ratings were observed between high and low status conditions ( $t(24)=.04$ ,  $p=.97$ ,  $d = .01$ ) prior to the manipulation. After the manipulation, low status subjects did rated their partner significantly ( $t(23) = -2.08$ ,  $p=.11$ ,  $d= .43$ ) when compared to before the manipulation. High status subjects rated their partners significantly lower ( $t(23)=2.31$ ,  $p=.03$ ,  $d = .33$ ) after the manipulation than before. Finally, when comparing high and low status subjects post manipulation, significant differences were observed ( $t(46)=-1.91$ ,  $p=.062$ ,  $d = -.56$ ). For descriptives, see Table 18. In summary, the status questionnaire ratings indicated that subjects rated their partner as a function of their experimentally induced status and not as a function of gender, age, socio-economic status or parental education.

Similar analyses were conducted for the equal status group and no significant interactions were noted between status and pre vs. post rating ( $F(1, 15)=.44$ ,  $p=.51$ ,  $\eta_p^2 = .03$ ). A significant effect was observed in the interactions between gender and pre vs. post rating ( $F(1,15)=3.20$ ,  $p=.09$ ,  $\eta_p^2 = .18$ ), but not for age ( $F(1,15)=.48$ ,  $p=.49$ ,  $\eta_p^2 = .03$ ),

socio-economic status ( $F(1,15)=.77$ ,  $p=.39$ ,  $\eta_p^2 = .03$ ), and parental education ( $F(1,15)=.001$ ,  $p=.97$ ,  $\eta_p^2 = .00$ ).

*Assessing the status manipulation using the ladder questionnaire.* We conducted repeated measures ANOVA to compare the overall ratings and then compared the ratings in the experimental and control condition within the Achieved status condition.

*By status.* A repeated measures ANOVA was conducted on the ratings of the ladder questionnaire after the manipulation, entering age, gender, socio-economic status and parental education as covariates, self vs. partner as the within subjects factor and status as the between subjects factor (high, low and equal). A significant interaction was noted for status within self vs. partner ( $F(2,52) = 34.02$ ,  $p < .001$ ,  $\eta_p^2 = .57$ ). No significant interactions were noted for age ( $F(1,52) = .02$ ,  $p = .892$ ,  $\eta_p^2 = .00$ ), socio-economic status ( $F(1,52) = 1.852$ ,  $p = .179$ ,  $\eta_p^2 = .034$ ), parental education ( $F(1,52) = .29$ ,  $p = .595$ ,  $\eta_p^2 = .01$ ), and gender ( $F(1,52) = 1.13$ ,  $p = .294$ ,  $\eta_p^2 = .02$ ). There were no main effects of self vs. partner ( $F(1,52) = .696$ ,  $p = .408$ ,  $\eta_p^2 = .013$ ) or status ( $F(2,53) = .84$ ,  $p = .439$ ,  $\eta_p^2 = .03$ ).

*Independent analyses for each condition.* In the independent analyses for each condition, a significant interaction was noted between status and role of self vs. partner, ( $F(1,34)=68.61$ ,  $p < .001$ ,  $\eta_p^2 = .67$ ). Interactions were not significant for age ( $F(1,34)=.21$ ,  $p=.645$ ,  $\eta_p^2 = .006$ ) and parental education ( $F(1,34)=.002$ ,  $p=.961$ ,  $\eta_p^2 = .00$ ), and for gender ( $F(1,34)=2.51$ ,  $p=.123$ ,  $\eta_p^2 = .07$ ) and a significant interaction was noted between socio-economic status and role ( $F(1,34)=4.36$ ,  $p=.044$ ,  $\eta_p^2 = .11$ ). Therefore, these results indicate that the self vs. partner rating on the ladder questionnaire



was impacted by not only the experimentally induced status but also to some extent by the socio-economic status and gender.

Independent samples t-testing showed a significant difference such that the low status subject's self ratings ( $M = 3.76$ ,  $SD = .94$ ) were lower than that of the high status subjects' ( $M = 4.25$ ,  $SD = .72$ ) ( $t(39) = 1.86$ ,  $p = .07$ ,  $d = .59$ ). Contrastingly, low status subject's partner ratings ( $M = 4.38$ ,  $SD = .59$ ) were significantly higher than the high status subjects' ( $M = 3.20$ ,  $SD = .95$ ) ( $t(39) = -4.80$ ,  $p < .001$ ,  $d = -1.53$ ). Comparing within the low status group, paired samples t-test showed that low status subjects rated themselves significantly lower than their partner ( $t(20) = -3.00$ ,  $p = .00$ ,  $d = .75$ ) and high status subjects rated themselves significantly higher than their partner ( $t(19) = 7.95$ ,  $p = .00$ ,  $d = 1.23$ ).

Similar analyses were conducted for the equal status group and no significant interactions were noted between status and role ( $F(1, 13) = .76$ ,  $p = .40$ ,  $\eta_p^2 = .06$ ). No significant interactions were noted in the interactions between role and gender ( $F(1,13) = .09$ ,  $p = .76$ ,  $\eta_p^2 = .07$ ), age ( $F(1,13) = .00$ ,  $p = .98$ ,  $\eta_p^2 = .00$ ), socio-economic status ( $F(1,13) = .07$ ,  $p = .78$ ,  $\eta_p^2 = .01$ ), and parental education ( $F(1,13) = .34$ ,  $p = .39$ ,  $\eta_p^2 = .03$ ). For descriptives, see Table 18.

**Self-esteem.** Overall examination of self-esteem ratings given post status manipulation showed no differences between high, low and equal status groups ( $F(2,61) = .17$ ,  $p = .841$ ,  $\eta_p^2 = .01$ ). High ( $M = 4.27$ ,  $SD = .52$ ), low ( $M = 4.24$ ,  $SD = .63$ ) and equal ( $M = 4.3$ ,  $SD = .49$ ) status groups were noted to have reported similar ratings on the self-esteem questionnaire. Other demographic characteristics such as age ( $F(1,61) = .65$ ,  $p = .422$ ,  $\eta_p^2 = .01$ ), socioeconomic status ( $F(1,61) = .48$ ,  $p = .489$ ,  $\eta_p^2 = .01$ ), parental

education ( $F(1,61) = 1.18, p = .283, \eta_p^2 = .02$ ), and gender ( $F(1,61) = .364, p = .549, \eta_p^2 = .01$ ) were not found to have an effect on the ratings.

***Ultimatum Game.*** In order to assess the effect of status on offers made, analyses were with status as the between subjects factor and demographic variables as covariates. Results showed that status did not have a significant effect on the amount shared ( $F(1,61) = .088, p = .92, \eta_p^2 = .003$ ). With the exception of age ( $F(1,61) = 4.79, p = .033, \eta_p^2 = .073$ ), other demographic variables such as gender ( $F(1,61) = .435, p = .512, \eta_p^2 = .01$ ), socioeconomic status ( $F(1,61) = .503, p = .481, \eta_p^2 = .01$ ), and parental education ( $F(1,61) = .35, p = .557, \eta_p^2 = .01$ ) did not have an effect on the amount shared. High ( $M = 5.79, SD = 1.79$ ), low ( $M = 5.57, SD = 2.01$ ) and equal status ( $M = 5.36, SD = 2.12$ ) subjects were noted to share similarly with their partner.

As a responder, one subject out of 24 rejected their offer in the high status group and 6 low status subjects out of 24 rejected their offers. Finally, only two subjects out of 24 rejected their offers. Self-partner rating did not correlate with amount offered for the experimental ( $r(46) = -.002, p = .990$ ) or control condition ( $r(22) = -.184, p = .391$ ).

***Ascribed status.*** The results reported below are for the experimental and control conditions that were assigned status using the pre-screening survey.

***Assessing the status manipulation using the status questionnaire.*** We conducted repeated measures ANOVA to compare the overall ratings by status and then compared the ratings in the experimental and control condition within the Ascribed status condition.

***By status.*** Similar analysis was conducted by status (high, low, and equal), with gender, age, socio-economic status and parental education as covariates. A significant

interaction was not noted for status within pre vs. post ( $F(2,59) = .285, p = .753, \eta_p^2 = .01$ ). No significant interactions were noted for age ( $F(1, 59) = .023, p = .88, \eta_p^2 = .00$ ), gender within pre vs. post ( $F(1, 59) = 2.55, p = .116, \eta_p^2 = .04$ ), socio-economic status ( $F(1, 59) = 2.09, p = .153, \eta_p^2 = .03$ ), parental education ( $F(1, 59) = .265, p = .609, \eta_p^2 = .004$ ). The main effect for pre vs. post was not significant ( $F(1, 59) = .13, p = .723, \eta_p^2 = .002$ ). The main effect of status was not significant ( $F(1, 62) = 1.64, p = .203, \eta_p^2 = .05$ ).

*Independent analyses for each condition.* In the independent analyses in each condition, a significant interaction was not noted between status and pre vs. post rating ( $F(1,37) = .13, p=.723, \eta_p^2 = .003$ ) for the experimental condition. No significant interactions were noted by gender ( $F(1,37) = 1.11, p=.298, \eta_p^2 = .03$ ), age ( $F(1,37) = .101, p=.753, \eta_p^2 = .003$ ), socioeconomic status ( $F(1,37) = 2.02, p=.164, \eta_p^2 = .05$ ), and parental education ( $F(1,37) = .224, p=.639, \eta_p^2 = .01$ ). There was no main effect of pre vs. post gender within pre vs. post ( $F(1, 37) = .357, p = .554, \eta_p^2 = .01$ ) or status ( $F(1, 37) = .48, p = .494, \eta_p^2 = .01$ ). In summary, the status questionnaire ratings did not show that subjects rated their partner their experimentally induced status.

Similar analyses were conducted for the equal status group and no significant interactions were noted between status and pre vs. post rating ( $F(1, 17) = 1.32, p=.267, \eta_p^2 = .07$ ). A significant effect was observed in the interactions between gender and pre vs. post rating ( $F(1,17) = 3.04, p=.099, \eta_p^2 = .15$ ), but not for age ( $F(1,17) = .96, p=.34, \eta_p^2 = .05$ ), socio-economic status ( $F(1,17)= 1.38, p=.256, \eta_p^2 = .08$ ), and parental education ( $F(1,17)= 1.84, p=.193, \eta_p^2 = .097$ ).

*Assessing the status manipulation using the ladder questionnaire.* We conducted repeated measures ANOVA to compare the overall ratings by status and then

compared the ratings in the experimental and control condition within the Ascribed status condition.

*By status.* A repeated measures ANOVA was conducted on the ratings of the ladder questionnaire after the manipulation, entering age, gender, socio-economic status and parental education as covariates, self vs. partner as the within subjects factor and status as the between subjects factor (high, low and equal). A significant interaction was not noted for status within self vs. partner ( $F(2,48) = .177, p = .838, \eta_p^2 = .007$ ). No significant interactions were noted for age ( $F(1,52) = .02, p = .892, \eta_p^2 = .00$ ), socio-economic status ( $F(1,48) = .214, p = .646, \eta_p^2 = .004$ ), parental education ( $F(1,48) = 1.022, p = .317, \eta_p^2 = .02$ ), and gender ( $F(1,48) = .007, p = .933, \eta_p^2 = .00$ ). There were no main effects of self vs. partner ( $F(1,48) = 1.65, p = .205, \eta_p^2 = .033$ ) or status ( $F(2,48) = .74, p = .484, \eta_p^2 = .03$ ).

*Independent analyses for each condition.* In the independent analyses for each condition, a significant interaction was not noted between status and role of self vs. partner, ( $F(1,33) = .027, p = .87, \eta_p^2 = .001$ ) in the experimental condition where high and low status was assigned. Interactions were not significant for age ( $F(1,33) = .13, p = .725, \eta_p^2 = .004$ ) and parental education ( $F(1,33) = .064, p = .802, \eta_p^2 = .00$ ), and for gender ( $F(1,33) = .082, p = .777, \eta_p^2 = .002$ ) and socio-economic status ( $F(1,33) = .24, p = .625, \eta_p^2 = .01$ ). Therefore, these results indicate that the self vs. partner rating on the ladder questionnaire was not impacted by the assignment of status by the pre-screening survey.

Similar analyses were conducted for the equal status group and no significant interactions were noted between status and self vs. partner ( $F(1, 10) = .03, p = .865, \eta_p^2 = .003$ ). No significant interactions were noted in the interactions between self vs. partner

and gender ( $F(1,10) = .509$ ,  $p = .492$ ,  $\eta_p^2 = .05$ ), age ( $F(1,10) = .048$ ,  $p = .831$ ,  $\eta_p^2 = .005$ ), socio-economic status ( $F(1,10) = .024$ ,  $p = .88$ ,  $\eta_p^2 = .002$ ). A significant effect was noted for parental education ( $F(1,10) = 5.54$ ,  $p = .04$ ,  $\eta_p^2 = .35$ ). For descriptives, see Table 18.

***Self-esteem.*** Overall examination of self-esteem ratings given post status manipulation showed no differences between high, low and equal status groups ( $F(2,60) = .13$ ,  $p = .882$ ,  $\eta_p^2 = .004$ ). High ( $M = 4.06$ ,  $SD = .65$ ), low ( $M = 4.12$ ,  $SD = .62$ ) and equal ( $M = 4.19$ ,  $SD = .55$ ) status groups were noted to have reported similar ratings on the self-esteem questionnaire. Other demographic characteristics such as age ( $F(1,60) = .67$ ,  $p = .416$ ,  $\eta_p^2 = .01$ ), socioeconomic status ( $F(1,60) = 2.11$ ,  $p = .152$ ,  $\eta_p^2 = .03$ ), parental education ( $F(1,60) = 1.41$ ,  $p = .241$ ,  $\eta_p^2 = .02$ ), and gender ( $F(1,60) = 2.13$ ,  $p = .149$ ,  $\eta_p^2 = .03$ ) were not found to have an effect on the ratings.

***Ultimatum Game.*** In order to assess the effect of status on offers made, analyses were with status as the between subjects factor and demographic variables as covariates. Results showed that status did not have a significant effect on the amount shared ( $F(1,60) = .56$ ,  $p = .576$ ,  $\eta_p^2 = .018$ ). With the exception of gender ( $F(1,60) = 4.35$ ,  $p = .041$ ,  $\eta_p^2 = .068$ ) and parental education ( $F(1,60) = 9.93$ ,  $p = .003$ ,  $\eta_p^2 = .14$ ), other demographic variables such as age ( $F(1,60) = 2.20$ ,  $p = .143$ ,  $\eta_p^2 = .04$ ), socioeconomic status ( $F(1,60) = 2.17$ ,  $p = .146$ ,  $\eta_p^2 = .04$ ) did not have an effect on the amount shared. High ( $M = 5.79$ ,  $SD = 1.79$ ), low ( $M = 5.57$ ,  $SD = 2.01$ ) and equal status ( $M = 5.36$ ,  $SD = 2.12$ ) subjects were noted to share similarly with their partner.

5 out of 24 high status subjects rejected the offer and 4 out of 24 low status subjects rejected the offer. All subjects in this condition accepted the offers made to them

by their partners. Self-partner rating did not correlate with amount offered for the experimental ( $r(45) = .147, p = .325$ ) or control condition ( $r(22) = -.403, p = .51$ ).

## **Discussion**

This study entailed two main objectives. The first objective was to evaluate the role of self-esteem as the psychological mechanism by which status perception operates on decision making. The second objective was to explore if status beliefs can be generated by ascribing status instead of achieving it through a card game. This study also evaluated the role of demographic characteristics in generating the status beliefs observed in studies 1, 2 and 3.

In order to ascertain the first objective, subjects underwent the status manipulation as described in the general methods section and filled out the Rosenberg Self Esteem Scale (1965) along with the ladder and status questionnaires after the manipulation. The Rosenberg Self-esteem scale was also filled out prior to the experiment and as part of pre-screening. Following the status assignment, subjects played a modified version of the Ultimatum Game. Results showed that status was successfully manipulated only where it was achieved via the card game. If self-esteem were the psychological mechanism, then self-esteem ratings would have shown a significant difference post manipulation – this was *not* observed. The non-significant result suggests that self-esteem ratings did not vary as a result of status assigned in the experiment. Therefore, the hypothesis that changes in self-esteem might be the mechanism by which status perceptions are impacted, was not supported. Further, high, low and equal status groups rated the self-esteem questionnaire similarly after the manipulation in both the achieved and ascribed

condition further supporting the notion that self-esteem may not be the mechanism modulating these changes in status perceptions.

In order to achieve the second objective, the status manipulation was modified such that the card game was not the only means by which status was assigned. Instead, they were assigned status based on a concocted story about relative scores on the pre-screening survey. The notable aspect of this modification is that it allowed status assignment to be made based on a criterion that did not reflect competence or ability. If status related beliefs can be thus generated, then it would support the notion that competence is a sufficient but not a necessary condition for status perception. Alternatively, if status beliefs cannot be generated by eliminating perception of competence, then it would suggest that the condition of competence or ability is a necessary condition for status perception. This study supports the alternate conclusion.

Overall analyses of the data by achieved vs. ascribed status showed that for the status questionnaire, how subjects rated the status questionnaire depended on whether they were in the achieved or ascribed condition, what status they were afforded, and whether they were rating the questionnaire prior to or after the manipulation. Further analyses of the achieved condition, showed that subjects ratings of status questionnaire depended on whether they were in the control group or experimental group. Focused analyses on the experimental group suggested that subjects rated the status questionnaire differently depending on the status they were afforded. Similar interactions were not noted in the ascribed condition. For the ladder questionnaire also we noted that how subjects rated the ladder questionnaire depended on whether they were in the achieved or ascribed condition, what status they were assigned, and whether they were rating

themselves or their partner. Analysis of the experimental and control condition in the achieved condition showed that how subjects rated the questionnaire depended on what condition they belonged to. Further focused analyses showed that subjects in the condition where status was achieved via the card game rated themselves and their partner as a function of their status. These data suggest that the criterion of competence and the experience of achieving status is important to the perception of status. However, for the manipulation where status was ascribed through concocted measures of the pre-screening survey, the status effects were not noted. This suggests that removing the competence or ability condition from the manipulation may diminish the efficacy of the manipulation thereby reducing the likelihood that status related beliefs can be generated.

This study also attempted to address a limitation of previous studies by comprehensively examining demographic variables such as age, gender, socio-economic status, and parental education, as possible explanations for the status effects observed. None of these demographic variables showed a reliable relationship with status perceptions. In order to clarify this point further, the experimental condition in the achieved status manipulation (via card game) is briefly examined. Status was successfully manipulated only in this condition. If demographic variables impact perceptions of status over and above the experimental manipulation, then the same demographic variables should influence the ratings of the status and ladder questionnaires. The reasons for expecting this are i) that subjects who rated the status questionnaire also rated the ladder questionnaire, and ii) both the ladder and status questionnaire capture the subjective experience of status in the experimental situation. Therefore, any demographic variable that may impact ratings on one questionnaire should reliably impact ratings on any other



questionnaire that captures the same construct. However, this consistency was not observed in the manipulation where status assignment was achieved via the card game. For example, ratings on the status questionnaire were not affected by any of the demographic variables. However, when the same subjects rated the ladder questionnaire, gender and socio-economic status showed an interaction with the ratings. These findings present a contradictory picture. Since demographic variables do not show a reliable pattern of interaction with the status ratings that address the same underlying construct, their role in the perception of status may be difficult to ascertain with clarity. The influence of demographic variables may reflect some characteristics of the sample being studied but may not have an influence in the experimental situation over and above the manipulation employed.

In summary, study 4 investigated i) the role of self-esteem in modulating status perceptions, ii) a variation of the status manipulation in generating status perceptions, and iii) the role of demographic variables in status perception. In this study, the pattern of results does not support self-esteem as the psychological mechanism modulating status perceptions. The variation of status manipulation employed suggests that perception of competence may not only be a sufficient condition, but a necessary condition to induce status differences. Lastly, the pattern of interaction with demographic characteristics suggests, in a cautionary manner, that demographic characteristics may not be able to reliably account for the differences in status perceptions.

## **Chapter 7: General Discussion**

The experiments discussed thus far have explored if status concerns influence decision making. The results not only affirm the influence of status, but provide some

clues as to how status concerns might impact our behavior. The experiments presented in this dissertation thesis contribute to the existing literature in social psychology and decision making by showing i) that status beliefs can be generated in the laboratory, ii) that relative concerns about status inform decision making, iii) that these relative concerns may be basic to our human nature and, iv) that status disparity may lead to compensatory behavior.

### **Status beliefs can be generated in the laboratory**

The objective of designing a laboratory manipulation of status was to examine status perception in a more distilled fashion and separate it from the notion of socio-economic status, thus allowing a closer examination of its psychological underpinnings. Two basic conditions were believed to be sufficient for inducing status. These two conditions included the use of a referent, and using some competence measure to create a disparity between subjects. Additionally, in order to capture changes in status perceptions in relative terms, appropriate questionnaires were designed and used. These two conditions together allowed us to create the experience of status, and the ladder and status questionnaires allowed us to estimate changes in status perceptions in relative terms.

Experiments 1 through 4 affirm the reliability of this manipulation in creating status beliefs. The results of the status questionnaire affirm that subject's perception of their partner depended on the experimental manipulation of status. The results of the ladder questionnaire affirm that subject's perception of their competence on the card game (relative to their partner's) depended on the status they had been accorded in the experimental situation. Combined, these two results indicated that internal perception tracked variation in the social situation.

Further, we note that this manipulation of status was a strict manner of examining achieved status but did not shed light on how the perception of status might differ if status was ascribed. Removing the perception of competence as a criterion and replacing it with a concocted story in which status was assigned without attribution to competence, addressed this limitation. Here we observed that internal perception *did not* track variation in social situation. In absolute terms, the advantages afforded in the achieved status condition were identical to the ascribed condition, i.e., raffle ticket, praise and a round of applause. However, the ascribed condition did not reflect any measure of competence, which may have rendered these advantages redundant in psychological terms. Thus, we suggest that the condition of competence that was first stated to be sufficient may be amended as necessary for status induction a laboratory setting.

The close association of status and competence supports the Stereotype Content Model (Fiske, Cuddy, Glick, & Xu, 2002) which suggests that people infer competence related traits based on perceived status. They report a series of studies, which show that people who have high status such as the rich, men, the educated, and professionals to name a few are also seen as highly competent. The correlation between status and competence has been noted to be as high as .98 at the group level, and .88 at the individual level at a significance level of  $p < .001$ . To examine if this association was pan-cultural, Fiske & Cuddy (2006) examined seventeen data samples from fourteen nations and found that perceived status was highly correlated with competence ratings (average  $r = .77$ , range = .55 (Israel-Muslim) to .87 (Hong-Kong and Spain), all  $ps < .01$ ). They however note that causal direction is a limitation in these data. The findings of studies presented in this dissertation extend support to the above relationship and suggest a

possible directionality to the relationship between competence and status. We show that when status is achieved, perception of attributes reflecting status of partner also changes. The four studies presented in this dissertation suggest that competence may have a causal role in generating status perception, since eliminating competence eliminated the perception of status. All together these suggest that the competence criterion is important in inducing status beliefs and must be manipulated to generate status perceptions in the laboratory.

**Relative concerns are important**

In studies 1, 2 and 3 we noted that the difference score, i.e., self-partner rating, predicted decision making behavior. In study 1, we noted a negative correlation between the difference score and sharing behavior. This suggested that subjects who perceived themselves to be subjectively lower than their partners were more likely to share higher amounts with their partners. In study 2 also, we observed that the difference score was again negatively correlated with the probability of choosing the Golden Ticket, albeit at specific dollar values only. In this study, subjects who rated themselves lower than their partner chose the Golden Ticket at higher rates compared to those who rated themselves higher than their partner. Regression results suggest that in the \$3 to \$5 range, for each unit increase in the status experience, the odds of choosing the Golden Ticket decreased by 31%. In study 3, when the monetary amounts were associated with risk, the difference score was positively correlated and predicted choice of Golden Ticket at all levels of risk. Thus, the difference score, overall, was correlated with various levels of decision making in three separate studies. This affirms that measuring relative differences in perception of

competence can be an approximate index to measure relative differences in status in a given context.

The work discussed here assesses status in two ways, using group differences, and the difference score discussed above. Group differences represent broad differences in status from an experimenter's point of view. Grouping them as such allows only large group differences to be presented, which weakens the objective of understanding individual differences associated with the psychology of status. Hence, grouping by status, which represents an objective measure, is a limited predictor. Grouping subjects into high and low status based on assigned rewards such as a raffle ticket, praise and applause may not be sufficient to predict nuanced variations in decision making. In order to understand how behavior is influenced, subjective perception of relative differences must also be examined.

Research that examines the role of a social gradient in predicting health outcomes also echoes the finding that subjective indicators of social status outperform objective indicators of status in predicting self-rated health. Adler, Epel, Castellazo & Ickovics (2000) examined the role of subjective and objective status on psychological and physiological functioning in women. Subjective indicator of social status was a ten-rung ladder; subjects marked the rung which indicated their subjective social position. This study found that after controlling for objective indicators of status (such as education levels, and socio-economic status) and negative affectivity, subjective indicators of status predicted chronic stress, pessimism, control over life, active coping, and passive coping. Other examinations of the role of subjective status in predicting health outcomes emphasize that objective indicators such as social class, education level etc., capture only

the immediate classification of an individual within a class or a group. Subjective indicators, however, index an “individual’s socio-cultural circumstance” that measures individual differences about a sociological construct (Singh-Manoux, Marmot & Adler, 2004). In other words, subjective indicators highlight how people feel about where they stand with respect to their society and are therefore powerful in predicting behavioral outcomes. The studies presented in this dissertation uphold the view that subjective indicators of status are more powerful than objective ones, and add to the literature by suggesting that this may not only be socio-cultural, but also psychological.

### **Relative concerns about status may be basic to human nature**

It is a common cliché that humans are social beings. We have a deep need to belong to a group and when this need is violated, our psychological well-being is affected. For example, when individuals feel ostracized, the psychological need to belong to a group or the need to be recognized within one’s group may be affected (Williams, 2007). Our need to belong to a group possibly presents the extent to which individuals seek a social identity. And, by assuming a social identity, such as membership to a social class for example, we place certain boundary conditions on ourselves and assert our individuality only within those boundary conditions. Perhaps, one way in which we assert our individuality is by displaying our status within the group, and this need to display our status in order to assert our individuality may be as basic as our need to belong to a group. Our social behaviors, therefore are not only guided by our need to belong to the group but also our need to assert our individuality within the group.

The studies presented in this dissertation demonstrate that high and low status subjects display dissimilar decision making patterns. In study 1, low status subjects

shared more with their high status counterparts but the high status subjects shared less with their low status partners resulting in opposing patterns of decision making. Further, in study 2, we eliminated the need to take the partner into consideration by asking subjects to make binary choices for themselves only. Subject's choices at specific dollar values were influenced by the status manipulation such that, a negative correlation was observed at specific dollar values showing that low status subjects chose the Golden Ticket at a higher rate than their high status counterparts. These choice trials were highly simplistic and entailed simple binary choices between the Golden Ticket and varying dollar amounts of money. Subjects could not anticipate the dollar amounts that would be presented since the trial order was random and for a brief duration. While possible, it is unlikely that subjects could engage in detailed cognitive analysis of the situation when making these decisions. Further support for this notion is garnered from the findings of study 3 which showed that under conditions of risk also, individual perception of status can influence on decision making. These studies present restrictive situations that do not naturally lend themselves to incorporating status concerns and yet, we found status based differences in decision making. Relative concerns about status influenced choice even under these restrictive conditions. Further, we note in the post-experimental questionnaire that when subjects were asked to report any thoughts that they had during the decision making task, they did not refer to the card game they just played, or their partner or to the fact that their partner had a raffle ticket for a desirable item. Additionally, when explicitly asked if the card game influenced their decisions, most of the subjects reported that they saw no connection. However, we note that how they rated themselves relative to their partner, i.e., the difference score, predicted their decision making in studies 1 through 3.

In light of these findings, we hypothesize that perhaps concerns about relative disparities may be a basic aspect of social processes.

### **Low status compensation theory**

Low status compensation theory posited by Henry (2009) finds its genesis in herding cultures which typify high degree of status disparities. While the reasons for why herding cultures have large status differences, experience greater poverty and social stigma are unknown, accounts posited include the high degree of risk associated with the lifestyle. Herding groups are prone to drought, disease, destruction of land and property due to war, and are not well-supported by governments because of their nomadic lifestyle. As a result herding cultures have high status disparities and a large number of herders experience a sense of stigma due to their low socio-economic status. Henry (2009) found that in herding cultures in the United States and worldwide, geographic amenability to herding was associated with high rates of aggression; and this relationship existed only in societies with high status disparities suggesting a status mediation hypothesis. A closer examination of the status mediation in an experimental setting further showed that when given the opportunity to repair self-worth by thinking about positive events, the inclination to aggress was diminished. Therefore these data suggested that long term experience of stigma associated with low status may be threatening and therefore trigger a need to protect the self, eliciting compensatory behavior. The key feature of low-status compensation theory then is that low status is stigmatizing and therefore, individuals may feel a lower sense of self-worth. The compensation strategies involved in addressing status disparities are in the service of protecting one's psychological worth and not economic.



Additional evidence for compensatory behavior serving a sense of personal worth comes from examination of the relationship between socio-economic status and self-esteem. Twenge & Campbell (2002) found a small overall positive effect of socio-economic status on self-esteem, but significantly, this effect was stronger in middle aged adults when socio-economic status is “most salient and *earned*”. Sivanathan & Pettit (2010) also suggest that status goods serve affirmation needs thereby assuaging one’s bruised self-esteem among low income individuals. Thus, low income individuals forgo higher amounts for status goods.

Far removed from findings on herding cultures, the laboratory experiments reported in this dissertation provide some converging evidence to lend support this theory. We observed in study 1 that low status subjects were more likely to share higher amounts with their high status counterparts possibly to gain a raffle ticket and have an entry in the raffle like the high status subject. In study 2, we observed that low status subjects sought the Golden Ticket more than their high status counterparts and this was significant at specific dollar values. We speculate here that these negative relationships provide some evidence of the compensatory behavior discussed by Henry (2009). In study 3, which presented conditions of risk, low status subjects sought the Golden Ticket over 50% of the time but less than high status subjects presenting limited support to the low status compensation theory.

It may be noted that in the experimental design employed in this dissertation, the decision making paradigms employed subsequent to the status manipulation afford the opportunity to gain entry into the raffle by making choices in the decision making phase. Therefore, these paradigms reveal patterns of behavior that may lend themselves to

different ways of compensating for falling behind as a result of the status manipulation, and may diminish the chronic or stigmatizing effects of status. This may in part explain the lack of self-esteem effects in study 4. The status manipulation conducted in this dissertation divorces the experience of status from the experience of stigma and its enduring effects. The experimental data presented here suggest that status in itself may not have negative effects, but we speculate that in combination with the stigma and continuing effects over a life-time, it may contribute to lowering self-esteem or self-worth.

Since the status manipulation was removed from stigma and its enduring experiences, self-esteem remained unchanged; some behaviors that are arguably, compensatory, were still noted. The data presented here suggest that status in itself may not be sufficient in changing self-worth: chronic and stigmatic aspects of it may also be important.

**Limitations.**

It may be questioned as to whether the manipulation employed in this dissertation is that of status; since the experience of status is a socio-economic experience with psychological implications. The objective of this status manipulation is to divorce the experience from socio-economic aspects and examine its psychological basis. Hence, it may not be status in the sense we experience it in our day to day lives. However, it is designed to resolve subjects into high and low status in the experimental context so that the psychological aspects of status experience may be better understood. Hence, a crucial effort of this dissertation has been to contribute towards that end.

In study 1, we manipulated status and noted its effects on decision making. It was noted that low status subjects tended to share higher dollar amounts than high status subjects at \$22.5. While effects of status were observed when status was coded as a difference score, group classification did not show a main effect or an interaction effect of status by dollar value. This may be in part because the manipulation of status did not yield a main effect of status. Both the status questionnaire and the ladder questionnaires showed interaction effects and did not show a main effect of status. Hence grouping subjects by status may not have been an adequate way of understanding the relationship of status grouping on decision making.

Further, in study 1, subjects were not randomly assigned to the experimental and control conditions. While they were assigned to their status randomly, i.e., based on who seated themselves in their respective seats, but they were not assigned to the respective conditions randomly. The control condition (equal status group) was conducted after experimental condition was completed. Also, only gender was recorded, other demographic variables such as age, socio-economic status, parental education, ethnicity etc. were not recorded, and hence the effect of these demographic variables cannot be ascertained in study 1. It is likely that these demographic variables may explain some of the variability in the data. Future studies will therefore ensure that the effects of these demographic variables are accounted for.

While differences in sharing behavior were noted as a function of status even though the monetary amounts were hypothetical, using real money instead of hypothetical may have led to stronger results. However, the experimental paradigm used here involved dyads and large monetary amounts may render these decision making

experiments less practical even though they may bear more real consequence.

Hypothetical money, in this sense, is a tradeoff between studying these types of questions in a cost-effective manner. However, it presents limitations in terms of the effects that are observed and the inferences that can be drawn about decision making behavior in the context of real money.

We inferred, in study 1, that a potential reason for sharing higher dollar amounts by the low status subjects was to gain an entry into the raffle like their high status partner. A post-experimental questionnaire may have been useful in determining the thoughts related to sharing behavior of low and high status subjects. This would have allowed us to gain a more careful understanding of why low status subjects shared higher amounts with their partners. Similar patterns of behavior, i.e., a negative relationship have been observed in studies 1 and 2, and the use of a post-experimental questionnaire may have further honed in on the motivations behind the choices made by high and low status subjects. We addressed this limitation in study 3.

In study 2, we examined the role of status on choice of a status symbol and noted a specific effect on decision making at \$4. Given the specificity of the effects observed, it is possible that the Golden Ticket may not be adequate as a status symbol. Status symbols in the real world are objects acquired for their positional value and need not have much utility. For example, an expensive wine previously owned by Thomas Jefferson is not coveted for the exquisite ingredients but for the rarity of possessing an item owned by an eminent historical figure. In translating a status symbol to have meaning in the experimental context, the Golden Ticket was designed to be desirable and serve some utility for the subjects as well. In that sense, it may be a status symbol akin to a rare but

usable object. An example of that type of a status symbol would be an expensive pen that one could write with. However, by making the Golden Ticket more relevant to the experimental context, we introduce the possibility that the Golden Ticket may not only be desired for being an enhanced chance in the raffle, but for the IPOD touch in itself. While we note that this interpretation is possible, we also note that such an interpretation may not show a subjective status based difference in decision making, which was observed in studies 2 and 3. Given that subjects were randomly assigned to condition and to status, it may be unlikely that all subjects who desired the IPOD touch more were in the low status group. Therefore, while the Golden Ticket may have been desired, *in part*, because of the IPOD touch, based on the status based preferences observed in studies 2 and 3, we suggest that it may *also* have been a rough approximation of a status symbol limited to the experimental context. Future studies may want to establish more rigorous criteria for what entails a status symbol in order to study how people perceive and choose status symbols.

The choice presented in the decision making portion of study 3 was between a risky option (dollar amounts and its associated probability) and an ambiguous option (Golden Ticket with unknown probability). Without enough information about the preferences of the subjects, the interpretation may be limited. As noted in the discussion section of study 3, in order to better understand the utility functions of the subjects, a more detailed analysis of their pre and post experimental attitudes need to be incorporated. This information can help in gaining a more thorough understanding of the results. Additionally, the fifty choices presented in the decision making task were spread out over five expected values, which may have made the task confusing for subjects. The

experiment may be modified to keep the choices more constant along the expected value dimension so that a clearer trade-off can be assessed for the variation of risk. Also, subjects reported in the post experimental questionnaire that the dollar values in the task were not very enticing. Using higher dollar values in this task may have made the monetary amount more desirable and shown a different pattern of decision making behavior. Future studies therefore may want to explore using higher dollar values to examine if the results would vary from study 3.

In study 4, we noted that competence may be the mechanism by which status perceptions may be generated. We concluded this based on the fact that the ascribed status manipulation did not succeed in eliciting status beliefs. However, given the vague pretext provided for assigning status, it is possible that the pretext may not have been viewed as credible. Therefore, subjects may have found the assignment of status based on the pre-screening survey to be arbitrary. This may have led to the lack of effects observed in the ascribed status condition. Future studies may want to examine other ways of ascribing status such as using a coin flip to study if status can be assigned based on arbitrary criteria.

We note that subjects in the ascribed status condition were accorded the same treatment as subjects in the achieved status condition. Only the pretext for the treatment varied across conditions. If raffle ticket (an advantage in the raffle), praise and a round of applause were sufficient to elicit changes in status perceptions, effects would be noted in the ascribed condition. However, no such effects were observed. Thus we conclude that the experience of achieving rewards is important to status perceptions. Given that such an experience was not provided in the process of ascribing status, giving praise, raffle ticket

and a round of applause may not have been deemed as salient and may *also* explain the null effects observed in the ascribed status condition.

It may also be noted that in study 4, no effects of status on decision making were observed. The decision making task here was a simple single shot task involving \$10. The dollar amount was low and hypothetical and therefore may not have been successful in eliciting status based differences in decision making. Studies 1 through 3 provide a richer context of decision making. A variety of values were presented in studies 1 through 3 providing a wider range of possibilities over which status perceptions can affect decision making. The limited context, combined with a small value that is hypothetical may not have been interesting enough for subjects. Given these limitations, we did not observe status based differences in decision making. Future studies studying sharing of hypothetical amounts may want to present a larger amount of money to observe if that may induce differences in decision making behavior.

While the studies in this dissertation have brought forth interesting perspective on the relationship between social status and decision making by distilling both status and subsequent choice, it is also limited by the use of a highly restrictive paradigm. Distilling any social phenomenon in such a manner may be helpful in revealing its psychological underpinnings, but it does not map directly into the real world where the relationships are much more complex. While we have gained some understanding of the role of competence in the perception of status, we cannot report on how gender or physical size may affect perceptions of status because the manipulation is salient only in the experimental situation. Thus, these studies are limited in their external validity.

Further, the binary nature of the choices presented to subjects may not allow us to capture the variety of options available in the natural world. While this may be true, we also note that buying and selling decisions are binary decisions and the market economy of the world is founded on such binary decisions. Therefore, while these binary choices may be limited in some ways, it can reveal important changes in economic behaviors in response to status variations.

### **Overall conclusions**

It is an incomplete cliché to say that we are social beings – we are vulnerable social beings, porous to simple changes in the environment. We are social to the extent that even strangers matter to us and how we measure up against those strangers, unbeknownst to us, may make a difference. We may sit together with another, play a card game and think we walked away unaffected by that experience – after all, it is only a card game! A moment later, we might share unequally or choose differently. We may go about our next set of chores, as if nothing happened. But, something basic might have happened – we might have measured status and adjusted our behavior accordingly. We might try to befriend the stranger if we had fallen behind or try to keep our distance to stay ahead. Thus, our behavior would be affected by the basic act of “measuring up” the other.

What is described above is not very different from the manipulation of status employed in this dissertation. The highly constrained set of studies here may be removed from our daily lives, but still have aspects that may ring true to our daily experiences. When we fall behind, we try to serve our status needs by trying to catch up, and when the situation becomes risky, we might become a gatherer of sorts collecting as many options as possible, thus widening our possibilities. On the other hand, if we are ahead of another,



status aspirations may not be motivating enough compared to other pursuits, except when situation is risky – now we may try to stay ahead, possibly intensifying status pursuits.

By being socially porous, we become flexible and more adaptable, changing as possible.

It is a testament, therefore, to our social adaptability that we see the world in terms that are relative to another.

### References

- Adler N. E. & Ostrove J. M. (1999). Socioeconomic status and Health: What we know and what weDon't. *Annals of the New York Academy of Sciences*, 896, 3-15.
- Adler, N., Epel, E. Castellazzo, G., & Ickovics, J. (2000). Relationship of subjective and objective social status with psychological and physical health in healthy White women. *Health Psychology*, 19, 586 –592.
- Arce M., Michopoulous V., Shephard K. N., Ha Q. C., & Wilson M. E. (2010). Diet choice, cortisol reactivity, and emotional feeding in socially housed rhesus monkeys. *Physiology & Behavior*, 101(4), 446-55.
- Ball S., Eckel C. Grossman P. & Zame W. (2001). Status in markets. *Quarterly Journal of Economics*, 116(1), 161-188.
- Berger J., Cohen B.P., Zelditch Jr. M. (1972). Status characteristics and social interaction. *American Sociological Review*, 37(1), 241-255.
- Baumeister R.F, Campbell J. D., Kreuger J. I., & Vohs K. D. (2003). Does high self-esteem cause better performance, interpersonal success, happiness, or healthier lifestyles? *Psychological Science in the Public Interest*, 4(1), 1-44.
- Darley J. (2002). *Social comparisons in groups*. In M.A. Hogg & R.S. Tindale (Eds.), *Blackwell Handbook of Social Psychology: Group Processes* (pp.352-375). Malden, MA. Blackwell Publishing.
- Deaner R. O., Khera A. V., & Platt M. L. (2005). Monkeys pay per view: Adaptive valuation of social images by rhesus macaques. *Current Biology* 15, 543-548.
- Eckel C. & Ball S. (1998). Stars upon thars: Status and discrimination in Ultimatum

- Game experiments. *Working paper*. University of Texas, Dallas. Department of Economics.
- Emler N. (2001). Self-esteem: The costs and causes of low self-worth. *The sources of differences in self-esteem*. Retrieved from <http://www.jrf.org.uk/publications/self-esteem-costs-and-causes-low-self-worth>.
- Fenchel G.H., Monderer J.H., & Hartley E.L. (1951). Subjective status and the equilibration hypothesis. *Journal of Abnormal Social Psychology*, 46(4) 476-479.
- Festinger, L. 1954. A theory of social comparison processes. *Human Relations*, 7: 117–140.
- Fisek M. H. & Ofshe R. (1970). The Process of Status evolution. *Sociometry*, 33(3), 327-346.
- Fiske S. T. & Cuddy A. J. C. (2002). Stereotype content across cultures as a function of group status. In Guimond S. (Ed.). *Social Comparison and Social Psychology: Understanding cognition, intergroup relations, and culture* (pp. 249-263). New York: Cambridge University Press.
- Fiske S. T. & Cuddy A. J. C. & Glick (2006). Universal dimensions of social cognition: warmth and competence. *Trends in Cognitive Sciences*, 11(2), 77-83.
- Frank R. H. (1999). *Luxury Fever: Why money fails to satisfy in an era of excess*. Free Press: New York.
- Peters W. (Producer) (1985) *Frontline: A Class Divided* [Television broadcast]. Boston, MA: WGBH.
- Foulsham T., Cheng J. T. , Tracy J. L. , Henrich J., & Kingstone A. (2010). Gaze allocation in a dynamic situation: Effects of social status and speaking. *Cognition*,

117, 319-331.

Gailliot M. T. & Baumeister R. F. (2007). Self-esteem, belongingness, and worldview validation: Does belongingness exert a unique influence upon self-esteem?

*Journal of Research in Personality*, 41, 327-345.

Guth W, Schmittberger R. & Schwarze B. (1989). An Experimental Analysis of Ultimatum Bargaining". *Journal of Economic Behavior and Organization* 3(4): 367–388.

Harber K. (2005). Self-esteem and affect as information. *Personality and Social Psychology Bulletin* 31, 276-288.

Harvey O.J. (1953). An experimental approach to the study of status relations in informal groups. *American Sociological Review*, 18(4), 357-367.

Harvey O. J. (1956). An experimental investigation of negative and positive relations between small groups through judgmental indices. *Sociometry*, 19(4), 201-209.

Henry P.J. (2009). Low status compensation: A Theory of Understanding the Role of Status in Cultures of Honor, *Journal of Personality and Social Psychology*, 97(3), 451-466.

Hill S. E. & Buss D. M. (2010). Risk and relative social rank: positional concerns and risky shifts in probabilistic decision making. *Evolution and Human Behavior*, 31, 219-226.

Hoffman E. & Spitzer M. (1985). Entitlements, rights, and fairness: An experimental examination of subjects' concepts of distributive justice. *The Journal of Legal Studies*, 14(2), 259-297.

Huberman B.A., Loch C.H., & Onculer A. (2004). Status as a valued resource. *Social*

*Psychology Quarterly*, 67(1), 103-114.

Hyman, H. H. (1942). The psychology of status. *Archives of Psychology*, 269, 5-91.

James, W. (1890). *Principles of Psychology*, New York: Holt & Company.

Kahneman D & Tversky A. ( 1974). Judgment under Uncertainty: Heuristics and Biases.

*Science*, New Series, 185(4157), 1124-1131.

Kahneman D. & Tversky A. (1979). Prospect Theory: An analysis of Decision under

Risk. *Econometrica*, 47(2), 263-292.

Koslin R. L., Haarlow R.N. Karlins M., Pargament R. (1968). Predicting group status

from members cognitions. *Sociometry*, 31(1), 64-75.

Kumru C. & Vesterlund L. (2008). The effects of status on voluntary contribution.

*WorkingPaper* 266, University of Pittsburgh, Department of Economics.

Lakin J. L., Chartrand T. L., & Arkin R. M. (2008). I am too just like you: Nonconscious

mimicry as an automatic behavioral response to social exclusion. *Psychological*

*Science*, 19(8), 816-822.

Lockwood P. & Kunda Z. (1997). Superstars and Me. Predicting the impact of role

models on self. *Journal of Personality and Social Psychology*, 73(1), 91-103.

Marin T. M., Chen E. & Miller G. E. (2008). Trajectories of childhood socioeconomic

status and markers of cardiovascular health in adolescence. *Psychosomatic*

*Medicine*, 70, 152-159.

Marx D., Ko S. & Friedman R. A.(2009). The “Obama effect”: how a salient role model

reduces race-based performance differences. *Journal of Experimental Social*

*Psychology*, 45, 953-956.

Mazur A. & Cataldo M. (1989). Dominance and Deference in conversation. *Journal of*

*Social Biological Structures*, 12, 87-99.

Moore Jr. J.C. (1968). Status and influence in small groups. *Sociometry*, 31(1), 47-63.

Moors A. & De Houwer J., (2005). Automatic processing of dominance and submissiveness. *Experimental Psychology*, 52(4), 296-302.

Muller, D., Atzeni, T., & Butera, F. (2004). Coaction and upward social comparison reduce the illusory conjunction effect: Support for distraction-conflict theory. *Journal of Experimental Social Psychology*, 40, 659-665.

Oxoby R.J. (2002). Status characteristics, cognitive bias, and incentives in teams. *Journal of Socio-Economics*, 31(3), 301-316.

Operario, D., Adler, N. E., & Williams, D. R. (2004). Subjective social status: Reliability and predictive utility for global health. *Psychology & Health*, 19(2), 237-246.

Pickering T. (1999). Cardiovascular Pathways: Socioeconomic status and stress effects on hypertension and cardiovascular function. *Annals of the New York Academy of Sciences*, 896(1), 262-277.

Ridgeway C. & Diekama D. (1989). Dominance and collective hierarchy formation in male and female task groups. *American Sociological Review*, 54, 79-93.

Ridgeway, C., Boyle E. H., Kuipers K. J., & Robinson D. T. (1998). How do status beliefs develop? The Role of Resources and Interaction. *American Sociological Review*, 63, 332-350.

Ridgeway, C. (2002). *Social status and group structure*. In M.A. Hogg & R.S. Tindale (Eds.), *Blackwell Handbook of Social Psychology: Group Processes* (pp.352-375). Malden, MA. Blackwell Publishing.

Rode, C., Cosmides, L., Hell, W., & Tooby, J. (1999). When and why do people avoid

- unknown probabilities in decisions under uncertainty? Testing some predictions from optimal foraging theory. *Cognition*, 72, 269–304
- Rosenberg (1965). *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.
- Ruz M., Moser A., Webster K. (2011) Social expectations bias decision-making in uncertain inter-Personal Situations. *PLoS ONE* 6(2): e15762.  
doi:10.1371/journal.pone.0015762.
- Sanfey A. G., Rilling J. K., Aronson, J. A., Nystrom L.E., & Cohen J. D. (2003). The neural basis of economic decision-making in the Ultimatum Game. *Science*, 300(5626), 1755-1758.
- Sapolsky R.M. (2004). Social status and health in humans and other animals. *Annual Review of Anthropology*, 33, 393-418.
- Shepherd S. V., Deaner R. O. & Platt M. L. (2006). Social status gates social attention in monkeys. *Current Biology*, 16, R119-120.
- Sherif, M. (1936). *The psychology of social norms*. New York: Harper Collins
- Sherif M, White B.J, & Harvey O.J. (1955). Status in experimentally produced groups. *The American Journal of Sociology*, 60(4), 370-379.
- Singh-Manoux A. , Marmot M. G. , & Adler N. E. (2005). Does subjective social status predict health and change in health status better than objective status? *Psychosomatic medicine*, 67, 855-861.
- Sivanathan N. & Pettit N. (2010). Protecting the self through consumption: Status goods as affirmational commodities. *Journal of Experimental Social Psychology*, 46, 564-570.

- StataCorp. (2011). *Stata Statistical Software: Release 11*. College Station, TX: StataCorp LP.
- Steele, C. M. (1997). A threat in the air: How stereotypes shape the intellectual identities and performance of women and African-Americans. *American Psychologist*, 52, 613-629.
- Suls, J., Martin, R., & Wheeler, L. (2002). Social Comparison: Why, with whom and with what effect? *Current Directions in Psychological Science*, 11(5), 159-163.
- Tesser A., Millar M. & Moore J. (1988). Some affective consequences of social comparison and reflection processes: The pain and pleasure of being close. *Journal of Personality and Social Comparison*, 54, 49-61.
- Tiedens L. Z. & Fragale A. R. (2003). Power moves: Complementarity in submissive and dominant nonverbal behavior. *Journal of Personality and Social Psychology*, 84, 558-568.
- Twenge J. M. & Campbell W. K. (2002). Self-esteem and socioeconomic status: A meta-analytic review. *Personality and Social Psychology Review*, 6, 59-71.
- Williams K. (2007). Ostracism. *Annual Review of Psychology*, 58, 425-452.
- Wilson M. E., Fisher J., Fischer A., Lee V., Harris R. B., & Bartness T. J. (2008). Quantifying food intake in socially housed monkeys: social status effects on caloric consumption. *Physiology & Behavior*, 94(4), 586-594.



Table 1

*Descriptives on ratings of status and ladder questionnaire in Study 1 (Mean  $\pm$  SD)*

	Status Questionnaire		Ladder Questionnaire	
	Pre	Post	Self	Partner
High Status	3.41(.67)	3.30(.58)	4.33(.67)	3.33(.87)
Low Status	3.34(.51)	3.55(.56)	2.88(.88)	3.96(.93)

Table 2

*Descriptive statistics of items for the first and second administration of the status questionnaire (Mean  $\pm$  SD). Subjects rated their partner on these items.*

Item	Pre		Post (High status)		Post (Low status)	
	Mean	SD	Mean	SD	Mean	SD
Competent	3.62	1.02	3.54	.93	3.81	1.01
Deserving	3.80	.92	3.75	.83	3.93	.93
Lucky	3.22	.77	2.82	.85	3.57	1.09
Someone to listen to	3.64	.97	3.60	.77	3.22	1.13
Cool	3.51	.93	3.60	.77	3.48	.88
Accurate	3.40	.66	3.42	.85	3.74	.74
Fast	3.20	1.01	3.34	.93	3.80	.93
Successful	3.70	.87	3.40	.91	3.91	.85
Smart	3.70	.73	3.57	.77	3.65	.76

Table 3

*Item analysis for 9 items on the status questionnaire prior to status manipulation*

	N	Mean	Variance	SD	
Statistics for Scale	9	31.85	30.25	5.50	
<hr/>					
	Mean	Minimum	Maximum	Range	Variance
Item Means	3.53	3.21	3.80	.59	.04
Item Variances	.78	.44	1.05	.61	.04
Inter-item Correlations	.42	.07	.62	.55	.01
<hr/>					
Item Total Statistics	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
Competent	28.22	24.93	.41	.35	.86
Deserving	28.04	23.32	.68	.50	.83
Lucky	28.62	25.31	.55	.39	.84
Someone to listen to	28.20	24.00	.55	.41	.85
Cool	28.33	23.17	.68	.62	.83
Accurate	28.45	25.76	.60	.44	.84
Fast	28.64	24.29	.49	.45	.85
Successful	28.14	23.53	.70	.58	.83
Smart	28.14	24.55	.71	.54	.83
<hr/>					

Table 4

*Item analysis for 9 items on the status questionnaire post status manipulation (High Status)*

	N	Mean	Variance	SD	
Statistics for Scale	9	31.27	30.20	5.49	

---

	Mean	Minimum	Maximum	Range	Variance
Item Means	3.47	2.82	3.76	.94	.07
Item Variances	.73	.55	.93	.38	.02
Inter-item Correlations	.46	.12	.69	.58	.02

---

Item Total Statistics	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
Competent	27.72	24.27	.55	.58	.87
Deserving	27.51	23.51	.75	.66	.86
Lucky	28.45	26.57	.31	.19	.89
Someone to listen to	27.67	24.79	.61	.53	.87
Cool	27.63	24.68	.68	.57	.86
Accurate	27.79	23.98	.68	.59	.86
Fast	27.91	23.83	.58	.48	.87
Successful	27.82	22.84	.76	.72	.85
Smart	27.67	23.54	.79	.70	.85

---

Table 5

*Item analysis for 9 items on the status questionnaire post status manipulation (Low Status)*

	N	Mean	Variance	SD	
Statistics for Scale	9	33.15	38.25	6.18	

---

	Mean	Minimum	Maximum	Range	Variance
Item Means	3.68	3.24	3.93	.69	.04
Item Variances	.91	.56	1.37	.81	.04
Inter-item Correlations	.47	.19	.74	.55	.01

---

Item Total Statistics	Scale Mean If Item Deleted	Scale Variance If Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Alpha If Item Deleted
Competent	29.33	29.29	.72	.74	.86
Deserving	29.21	30.79	.63	.64	.87
Lucky	29.57	31.06	.47	.62	.88
Someone to listen to	29.90	28.33	.68	.84	.86
Cool	29.69	30.96	.64	.80	.87
Accurate	29.39	30.80	.82	.84	.86
Fast	29.33	31.85	.51	.60	.88
Successful	29.24	31.62	.59	.59	.87
Smart	29.51	31.25	.72	.76	.86

---

Table 6

*Factor Loadings on the first factor reduced from nine items on the status questionnaire using Principal Components Analysis with Varimax rotation*

Factor Loadings			
Item	Pre	Post (high status)	Post (low status)
Competent	.50	.65	.78
Deserving	.75	.82	.74
Lucky	.65	.37	.56
Someone to listen to	.63	.68	.78
Cool	.78	.76	.72
Accurate	.70	.76	.86
Fast	.64	.68	.61
Successful	.81	.84	.67
Smart	.80	.84	.79

Table 7

*Eigen values and percent of variance explained by components 1 and 2*

	Condition					
	Pre		Post ( High Status)		Post (Low Status)	
	<u>Components</u>					
	1	2	1	2	1	2
Eigen Value	<b>4.48</b>	1.19	<b>4.80</b>	.93	<b>4.84</b>	1.19
% of variance explained	<b>49.88</b>	13.31	<b>53.38</b>	10.34	<b>53.81</b>	13.28

Table 8

*Descriptives on percent shared for each dollar value for high and low status subjects in Study 1 (Mean  $\pm$  SD)*

Status	Dollar value						
	7.5	10	12.5	15	17.5	20	22.5
High Status	42.96	46.22	44.14	44.44	42.66	45.33	<b>41.77</b>
	(15.55)	(16.80)	(17.80)	(15.89)	(17.61)	(17.04)	<b>(14.22)</b>
Low Status	45.92	46.51	43.85	47.11	44.44	48.59	<b>48.00</b>
	(13.60)	(12.36)	(10.01)	(14.43)	(10.71)	(12.53)	<b>(12.93)</b>
Equal Status 1	44.30	42.24	38.76	41.23	41.84	41.23	43.07
	(18.27)	(13.76)	(12.93)	(12.12)	(15.72)	(12.93)	(13.40)
Equal Status 2	46.76	48.59	45.53	52.92	50.46	48.61	43.07
	(24.33)	(19.58)	(23.38)	(21.59)	(17.92)	(18.92)	(21.07)



Table 9

*Correlation Matrix showing significant negative correlations between rating difference score (self-partner rating) and percent shared with partner in the Ultimatum Game for experimental and control conditions combined (Study 1)*

	Rating	\$7.50	\$10.00	\$12.50	\$15.00	\$17.50	\$20.00	\$22.50
Rating	-	<b>-0.201*</b>	-.163	-.110	<b>-.192*</b>	<b>-.218*</b>	<b>-.261*</b>	<b>-.320**</b>
\$7.50	<b>-0.201*</b>	-	.784	.771	.685	.854	.846	.770
\$10.00	-.163		-	.837	.825	.851	.842	.838
\$12.50	-.110			-	.752	.855	.78	.754
\$15.00	<b>-.192*</b>				-	.796	.749	.844
\$17.50	<b>-.218*</b>					-	.849	.786
\$20.00	<b>-.261*</b>						-	.789
\$22.50	<b>-.320**</b>							-

Table 10

*Descriptives on ratings of status and ladder questionnaire in Study 2 (Mean  $\pm$  SD)*

	Status Questionnaire		Ladder Questionnaire	
	Pre	Post	Self	Partner
High Status	3.51(.51)	3.18(.46)	3.83(.78)	2.97(.73)
Low Status	3.48(.54)	3.69(.55)	3.00(.85)	3.76(.93)
Equal Status 1	3.4(.4)	3.9(.2)	4.12(.83)	3.75(.88)
Equal Status 2	3.4(.5)	3.8(.5)	3.75(.88)	4.12(.64)

Table 11

*Proportion value representing the likelihood of choosing the Golden Ticket at each dollar value in Study 2 (Mean  $\pm$  SD). Higher the value, greater the likelihood of choosing the Golden Ticket.*

	Status			
	High Status	Low Status	Equal Status 1	Equal Status 2
\$0.50	.94(.20)	.87(.31)	.81(.37)	1.00(0)
\$2.00	.76(.36)	.80(.38)	.81(.37)	1.00(0)
\$3.00	.79(.38)	.83(.35)	.75(.40)	1.00(0)
\$4.00	<b>.63(.29)</b>	<b>.82(.31)</b>	.68(.39)	.90(.26)
\$5.00	.55(.36)	.61(.38)	.56(.49)	.68(.37)
\$6.00	.54(.39)	.66(.35)	.50(.53)	.78(.20)
\$7.00	.52(.29)	.55(.33)	.56(.47)	.78(.41)
\$7.50	.49(.36)	.50(.37)	.53(.50)	.53(.36)
\$8.00	.44(.41)	.54(.35)	.50(.50)	.53(.36)
\$9.50	.38(.32)	.45(.33)	.53(.50)	.40(.39)

Table 12

*Correlation Matrix showing significant negative correlations between rating difference score (self-partner rating) and proportion value of choosing the Golden Ticket at different price points (Study 2) – experimental and control conditions combined*

	Rating	\$0.5	\$2	\$3	\$4	\$5	\$6	\$7	\$7.5	\$8	\$9.5
Rating	-	-.041	-.111	<b>-.239*</b>	<b>-.254**</b>	<b>-.165 *</b>	-.070	-.115	-.056	-.096	-.091
\$0.5	-0.41	-	.532	.574	.422	.384	.424	.412	.413	.346	.289
\$2	-.111		-	.87	.733	.615	.606	.555	.503	.449	.421
\$3	<b>-.239*</b>			-	.848	.709	.636	.598	.532	.472	.419
\$4	<b>-.254**</b>				-	.817	.749	.719	.670	.599	.557
\$5	<b>-.165*</b>					-	.864	.828	.784	.717	.646
\$6	-.070						-	.851	.814	.778	.696
\$7	-.115							-	.899	.850	.800
\$7.5	-.056								-	.884	.816
\$8	-.096									-	.851
\$9.5	-.091										-

Table 13

*Likelihood and odds ratio of choosing the Golden Ticket as obtained from the estimated model at varied difference score values in Study 2.*

Difference score	Model fitted proportion of choosing Golden Ticket	Odds of choosing Golden Ticket over money
-2	0.86	5.94
-1	0.80	4.07
0	0.74	2.79
1	0.66	1.91
2	0.57	1.31
3	0.47	0.90

Table 14

*Descriptives on ratings of status and ladder questionnaire in Study 3 (Mean  $\pm$  SD)*

	Status Questionnaire		Ladder Questionnaire	
	Pre	Post	Self	Partner
High Status	3.65(.56)	3.33(.76)	4.15(.95)	3.23(.94)
Low Status	3.68(.50)	3.78(.58)	3.31(1.04)	3.98(.92)
Equal status 1	3.52(.50)	3.77(.54)	4.00(.63)	3.81(1.07)
Equal status 2	3.53(1.01)	3.53(.82)	4.18(.75)	3.54(1.12)

Table 15

*Descriptives on the likelihood of choosing the Golden Ticket as a function of Risk (Mean  $\pm$  SD). Higher the value, greater the likelihood of choosing the Golden Ticket in Study 3.*

	Probability value – Level of Risk				
	15%	35%	50%	65%	80%
High Status	<b>.81(.26)</b>	.86(.22)	.73(.29)	.75(.32)	.69(.31)
Low Status	<b>.66(.38)</b>	.78(.35)	.70(.37)	.73(.37)	.68(.38)
Equal Status 1	.88(.24)	.90(.14)	.78(.30)	.83(.25)	.77(.31)
Equal Status 2	.76(.20)	.86(.12)	.67(.31)	.84(.16)	.69(.24)

Table 16

*Descriptives on the likelihood of choosing the Golden Ticket as a function of Expected Value (Mean  $\pm$  SD). Higher the value, greater the likelihood of choosing the Golden Ticket in Study 3.*

	Expected value in dollars				
	2	3	4	5	6
High Status	<b>.90(.16)</b>	.82(.27)	.77(.25)	.69(.31)	.66(.29)
Low Status	<b>.79(.32)</b>	.76(.32)	.69(.38)	.68(.35)	.62(.35)
Equal Status 1	.89(.22)	.90(.18)	.85(.22)	.75(.28)	.70(.25)
Equal Status 2	.88(.15)	.88(.15)	.76(.25)	.70(.23)	.60(.21)



Table 17

*Correlation Matrix showing significant positive correlations between rating difference score (self-partner rating) and proportion value of choosing the Golden Ticket at different probability levels (Study 3)-experimental and control conditions combined*

	Rating	15%	35%	50%	65%	80%
Rating	-	<b>.244*</b>	<b>.225*</b>	<b>.228*</b>	<b>.367**</b>	<b>.266*</b>
15%	.244**	-	.758	.578	.511	.307
35%	.225*		-	.726	.702	.518
50%	.228 *			-	.820	.737
65%	.367 **				-	.794
80%	.266*					-

Table 18

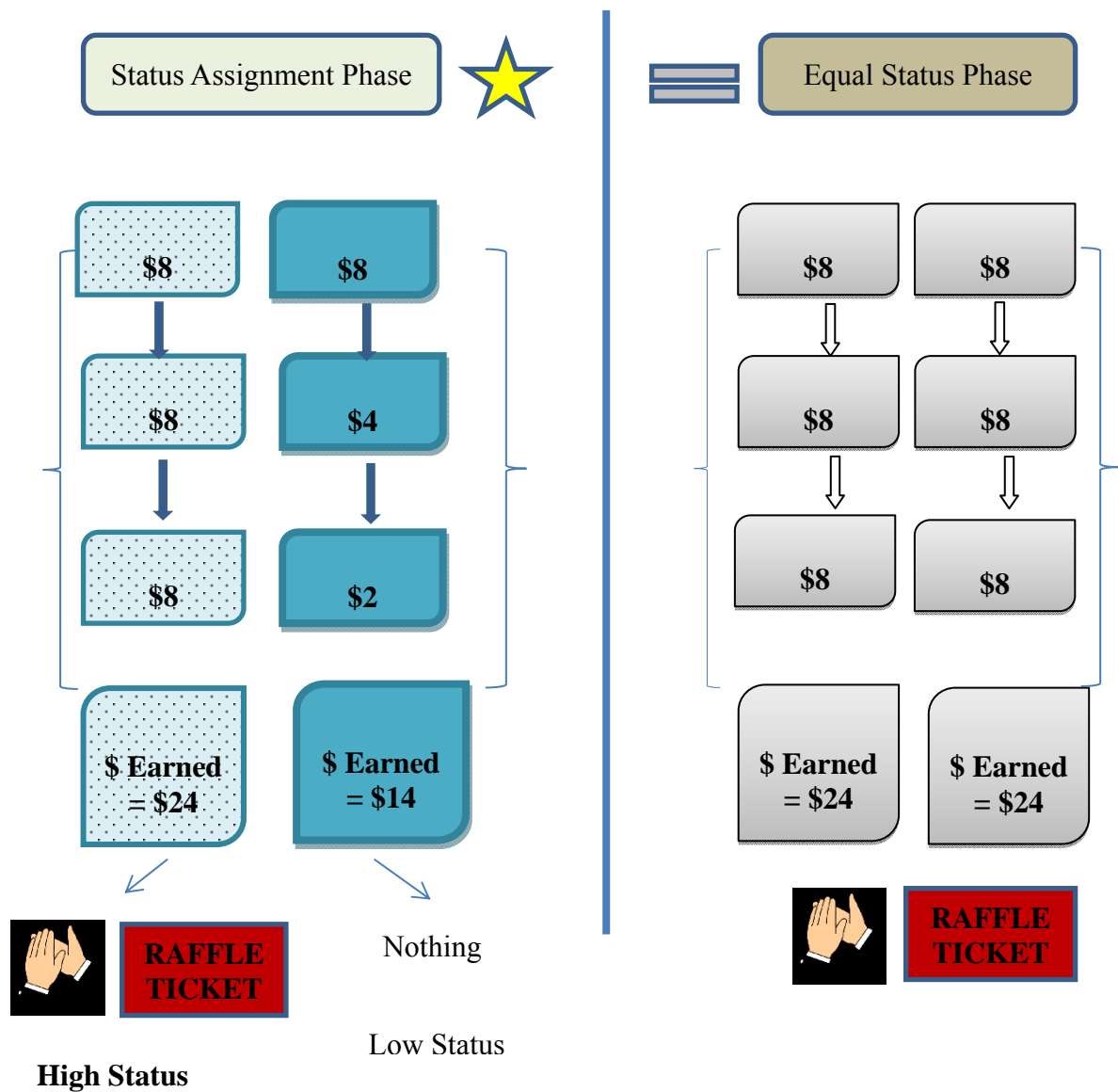
*Correlation Matrix showing significant positive correlations between rating difference score (self-partner rating) and proportion value of choosing the Golden Ticket at different expected value levels (Study 3)-experimental and control conditions combined*

	Rating	2	3	4	5	6
Rating	-	<b>.386**</b>	<b>.335**</b>	<b>.277**</b>	<b>.234*</b>	<b>.244*</b>
2	.386**	-	.845	.746	.695	.607
3	.335**	-	-	.827	.821	.692
4	.277**			-	.874	.836
5	.234**				-	.852
6	.244*					-

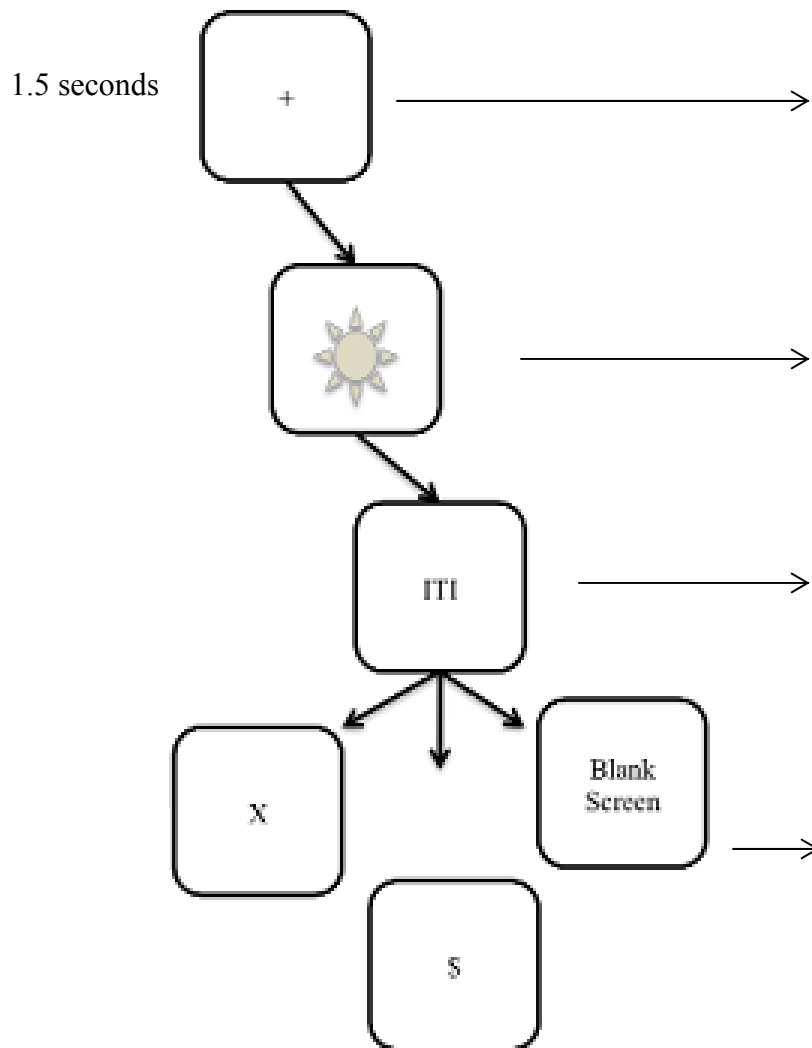
Table 19

*Descriptives on ratings of status and ladder questionnaire in Study 4(Mean  $\pm$  SD)*

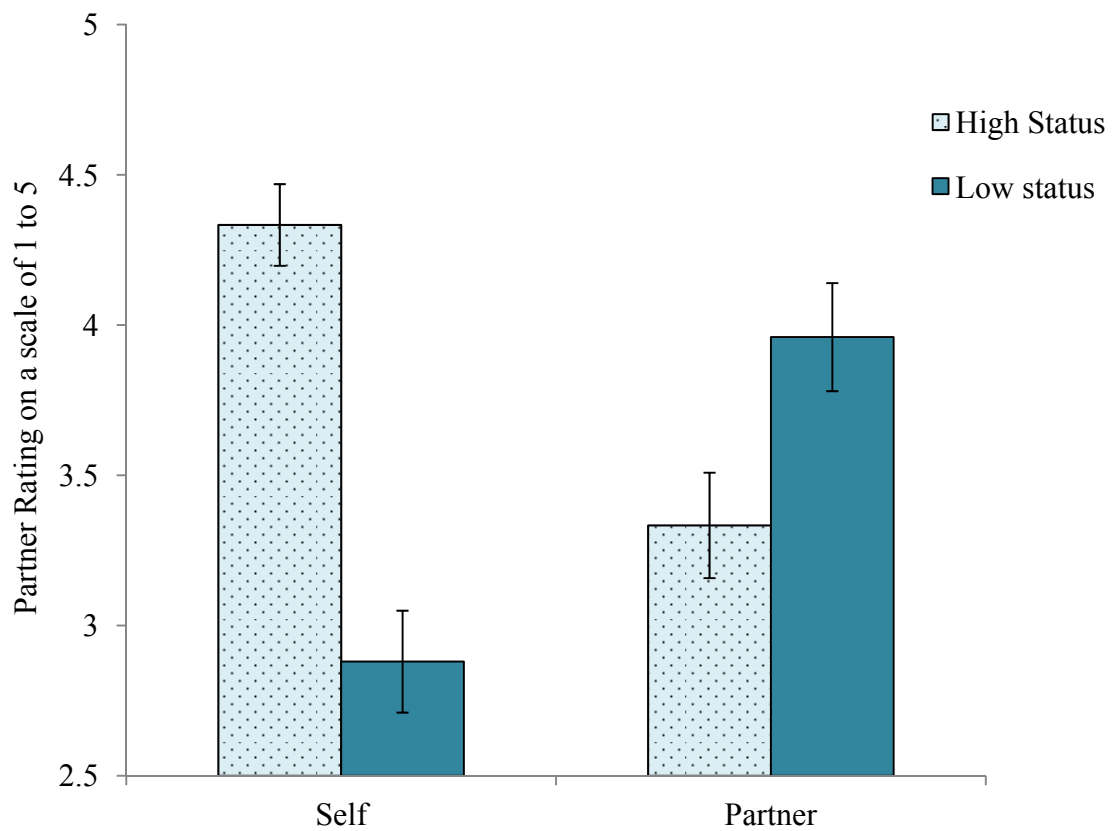
	Status Questionnaire			
	Achieved Status		Ascribed Status	
	Pre	Post	Pre	Post
High Status	<b>3.62(.61)</b>	<b>3.40(.71)</b>	3.76(.43)	3.80(.47)
Low Status	<b>3.57(.56)</b>	<b>3.76(.58)</b>	3.69(.50)	3.71(.54)
Equal Status1	3.56(.56)	3.95(.53)	3.45(.52)	3.58(.39)
Equal Status 2	3.83(.62)	3.97(.70)	3.50(.57)	3.55(.53)
	Ladder Questionnaire			
	Self	Partner	Self	Partner
High Status	<b>4.25(.71)</b>	<b>3.2(.95)</b>	3.9(.71)	3.75(.96)
Low Status	<b>3.76(.94)</b>	<b>4.38(.58)</b>	3.6(.75)	3.50(1.00)
Equal Status 1	3.90(.53)	4.18(.60)	3.87(.64)	3.87(.64)
Equal Status 2	4.27(.64)	4.27(.90)	3.62(.74)	3.50(.75)



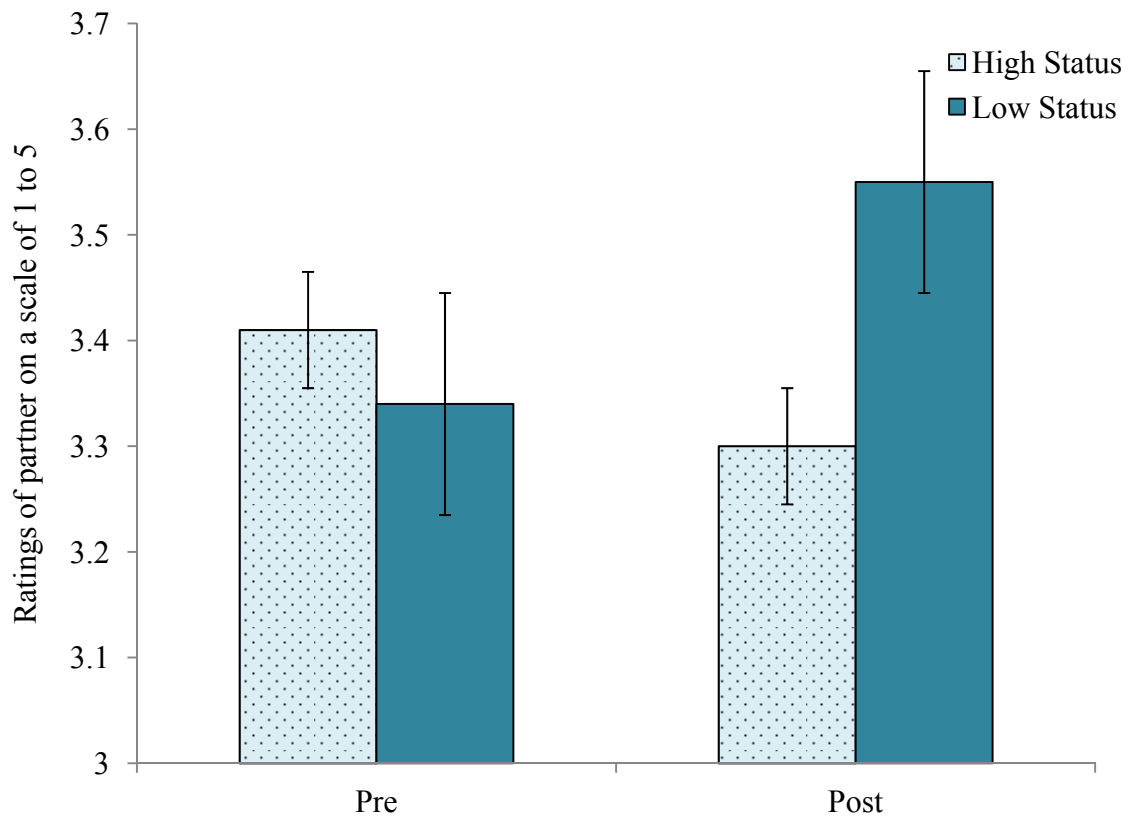
*Figure 1:* Schematic representing status manipulation block by block. This schematic shows experimental dollars earned in each block for each pair of subjects. In the status assignment phase, a pair of subjects are assigned to high and low status. In the equal status, a pair of subjects is given the same treatment as the high status subject in the status assignment phase.



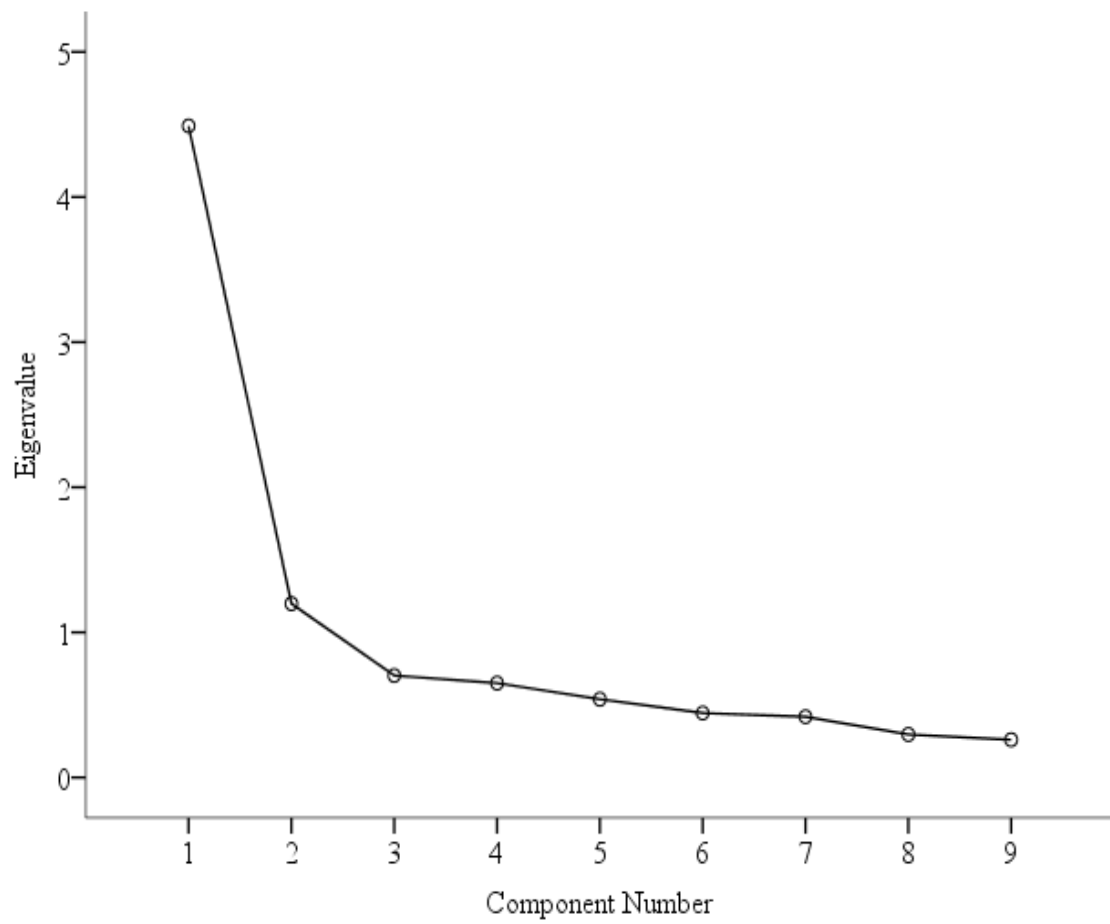
*Figure 2:* Layout for each trial showing sequence of displays. A trial begins with a fixation point for 1.5 seconds, followed by a symbol for 2 seconds during which a response is made, which is then followed by an intra-trial interval of 1 second and finally terminating with feedback for 1 second. Depending on the trial and response, a dollar sign, an X or a blank screen may be displayed. Following this sequence, another trial commences beginning again with the fixation point.



*Figure 3 : Ratings of Self and Partner on the Ladder Questionnaire. Interaction effect observed between status x role such that high status subjects rate themselves higher than their partner and low status subjects rate themselves lower than their partner in study 1 – experimental condition*

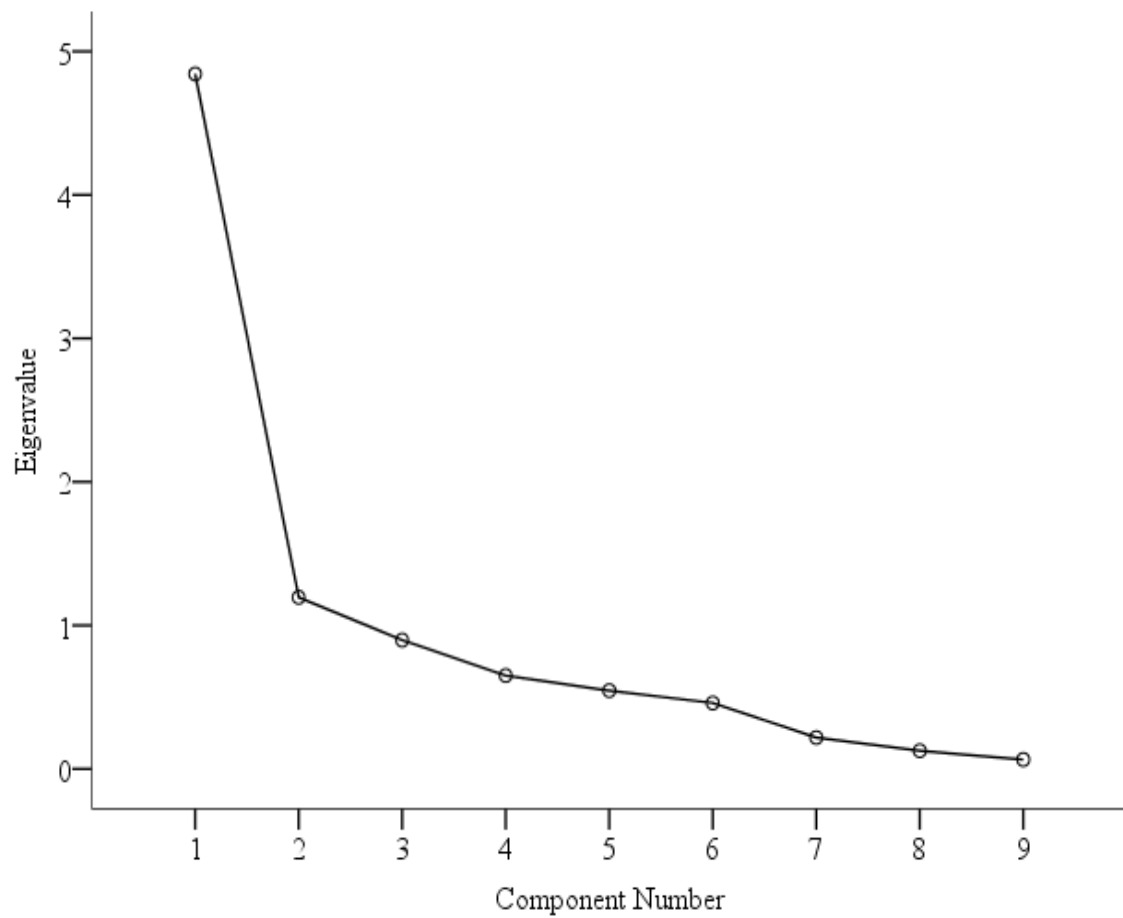


*Figure 4:* Ratings of the status questionnaire pre and post status manipulation. Interaction effect observed between status and time of administration of questionnaire in study 1 – experimental condition.

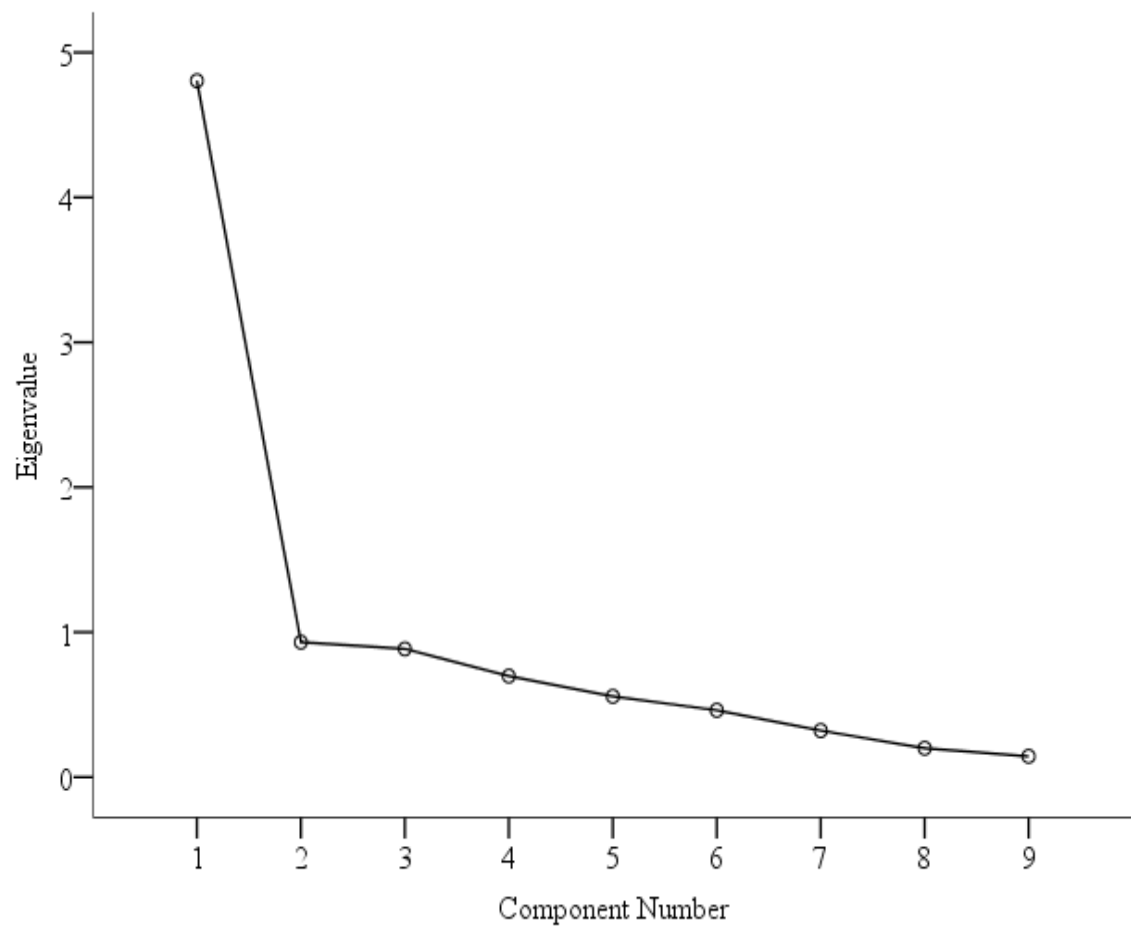


*Figure 5:* Scree plot of first administration of status questionnaire (prior to status manipulation)

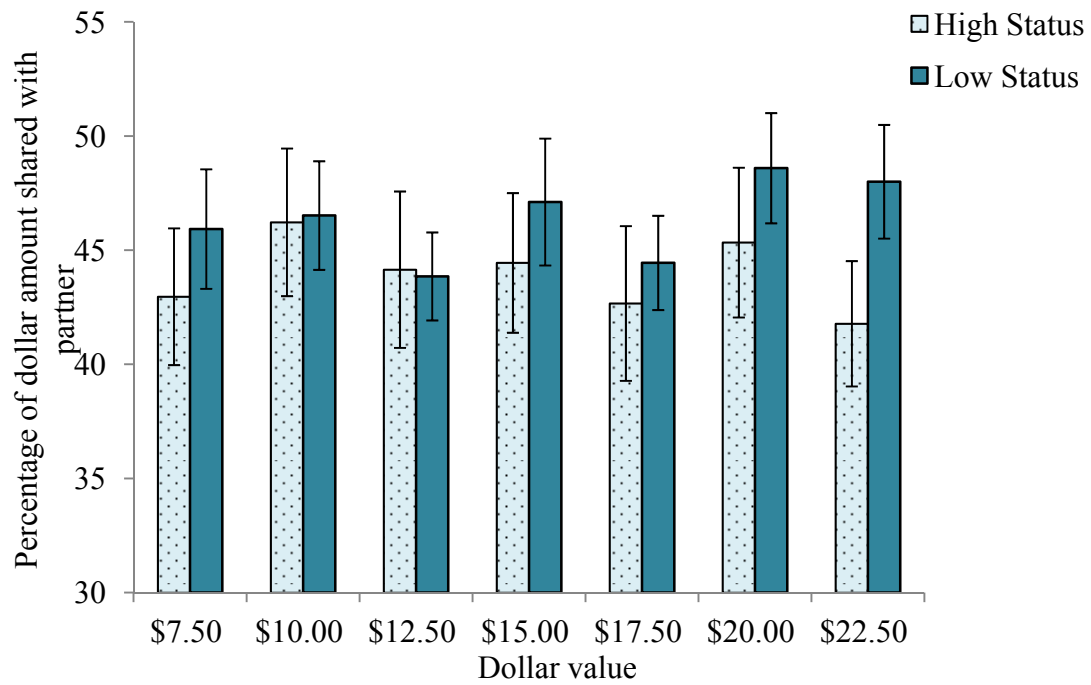




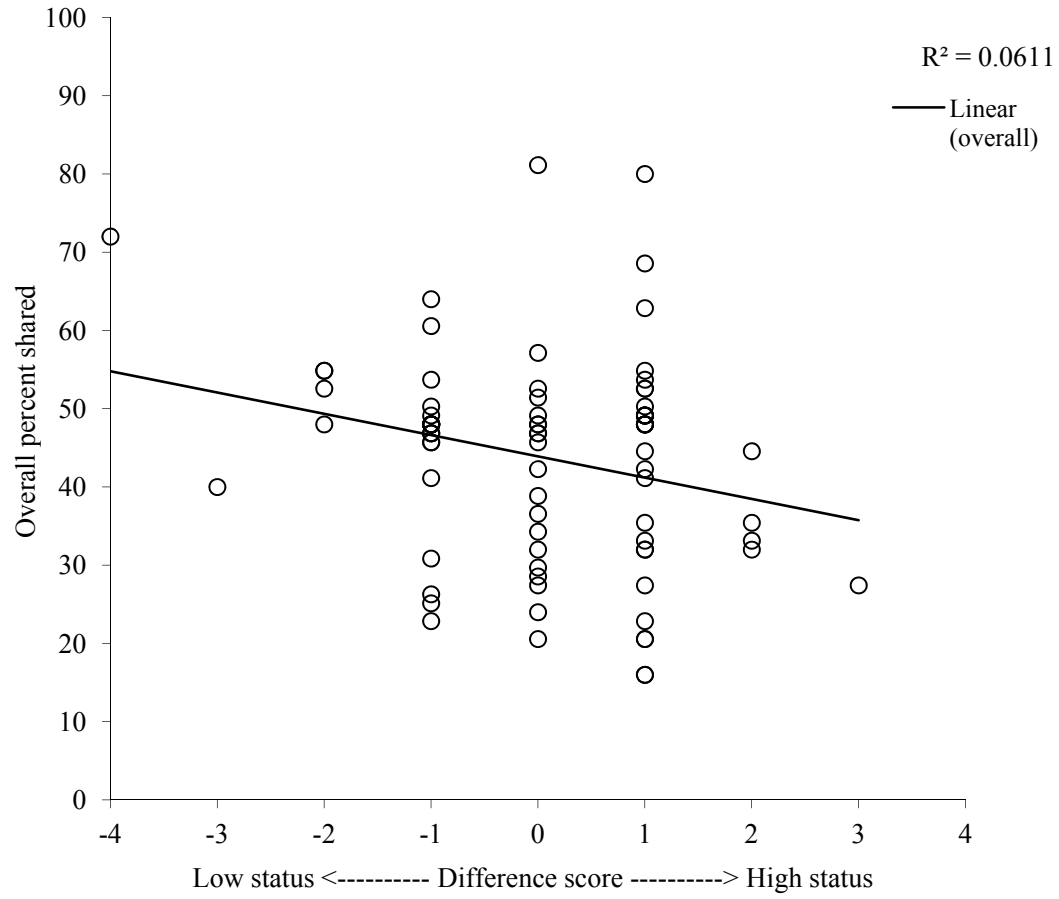
*Figure 6:* Scree plot of second administration of status questionnaire to low status subjects.



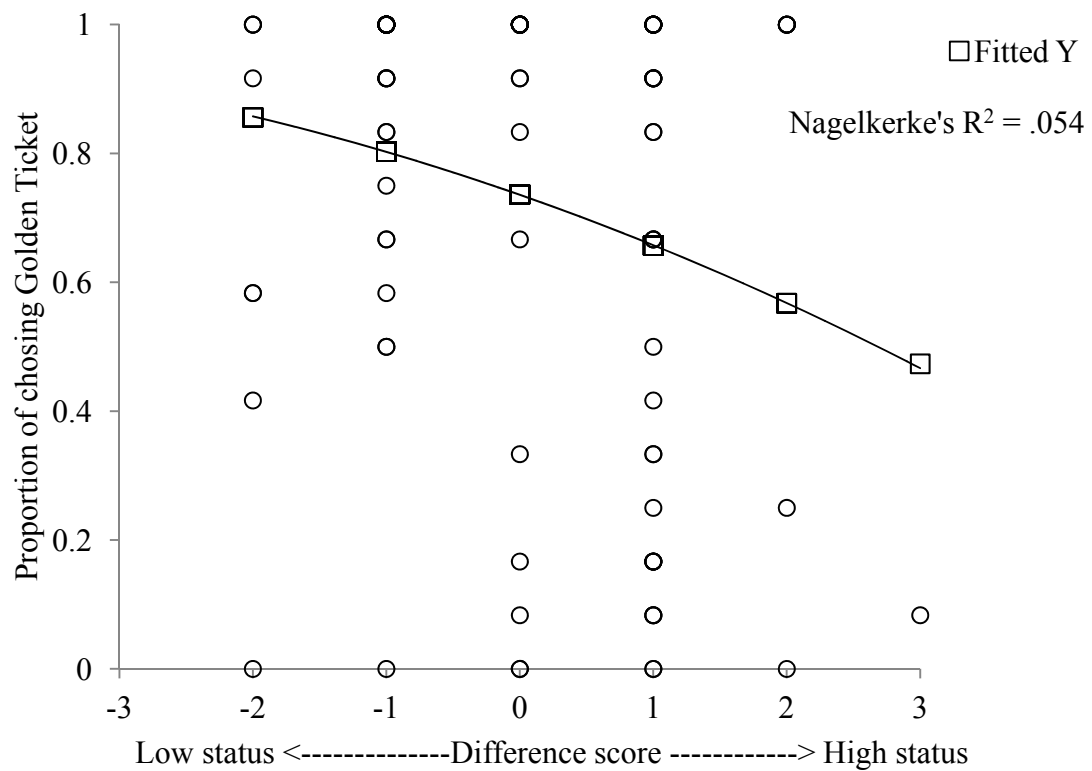
*Figure 7:* Scree plot of second administration of status questionnaire to high status subjects.



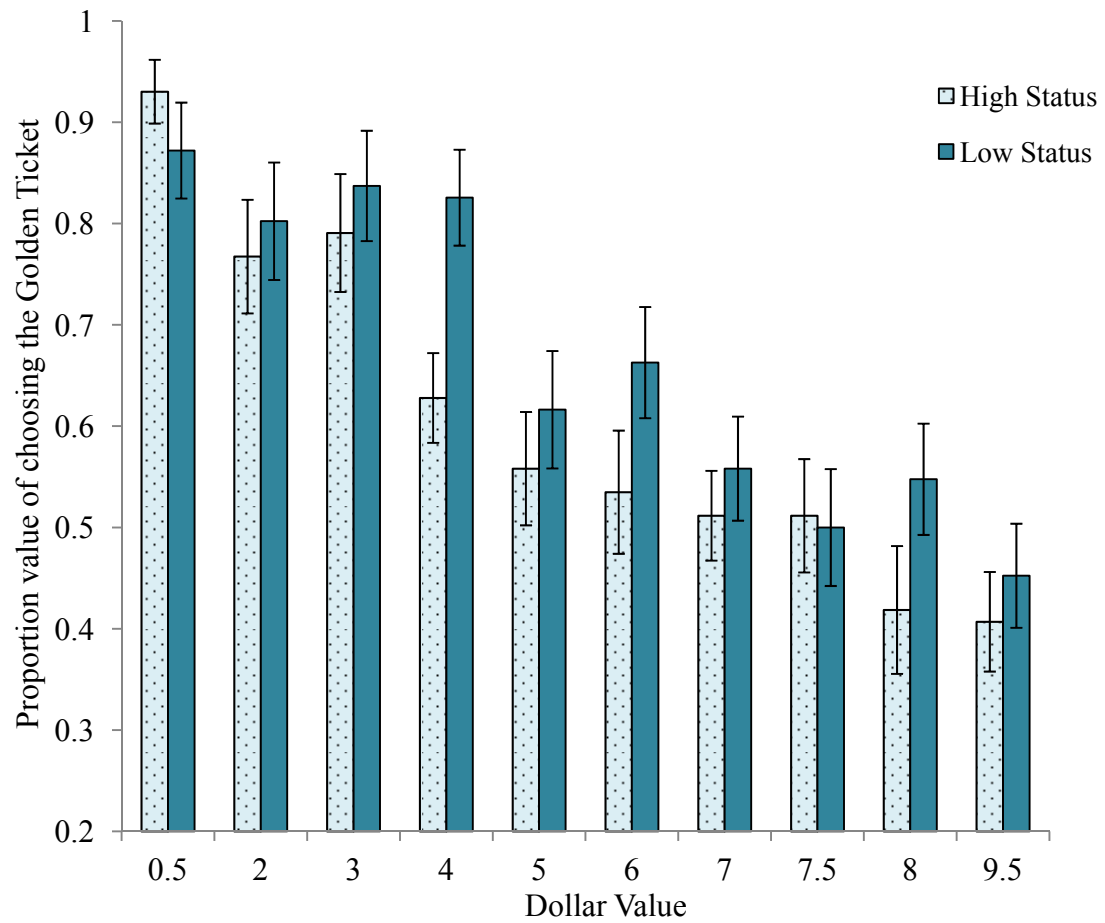
*Figure 8:* Percentage of dollar amount shared with partner in Study 1. Differences were observed only at \$22.50.



*Figure 9:* Regression of difference score on overall percent shared in the Ultimatum Game (Study 1)

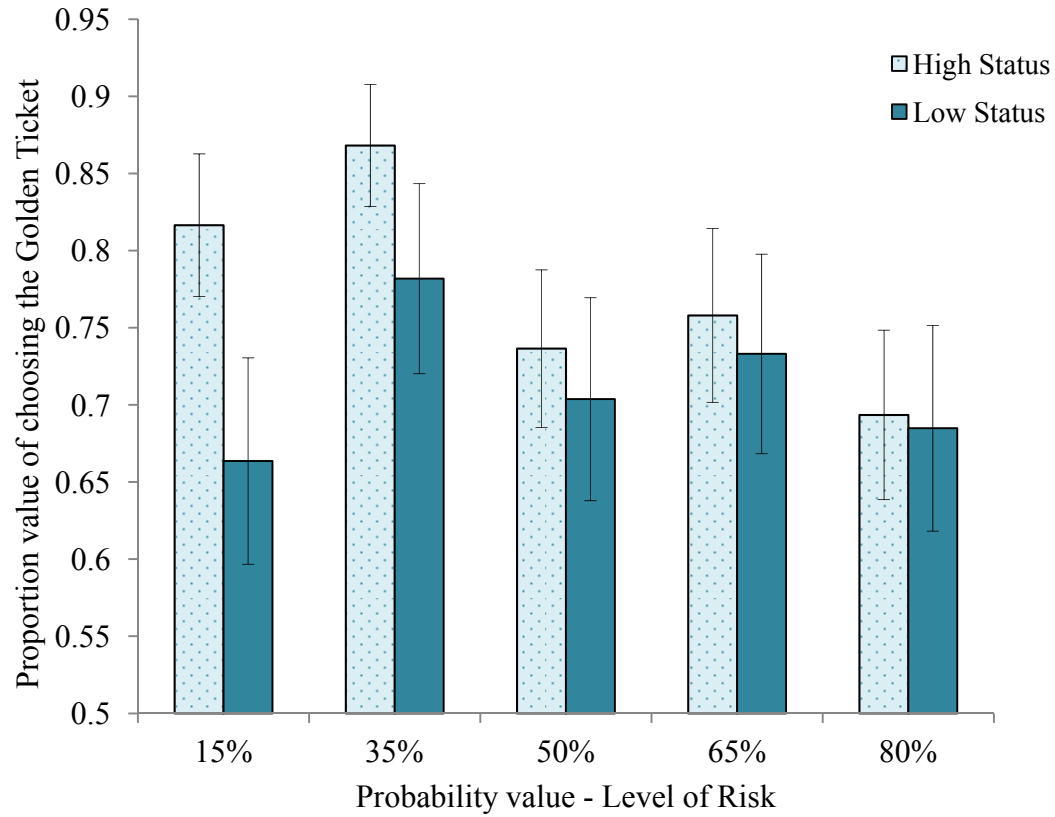


*Figure 10.* Regression of difference score on proportion value of choosing the Golden Ticket at dollar values ranging from \$3 to \$5. As subjective perception of status increases, proportion value of choosing the Golden Ticket decreases. (Study 2)

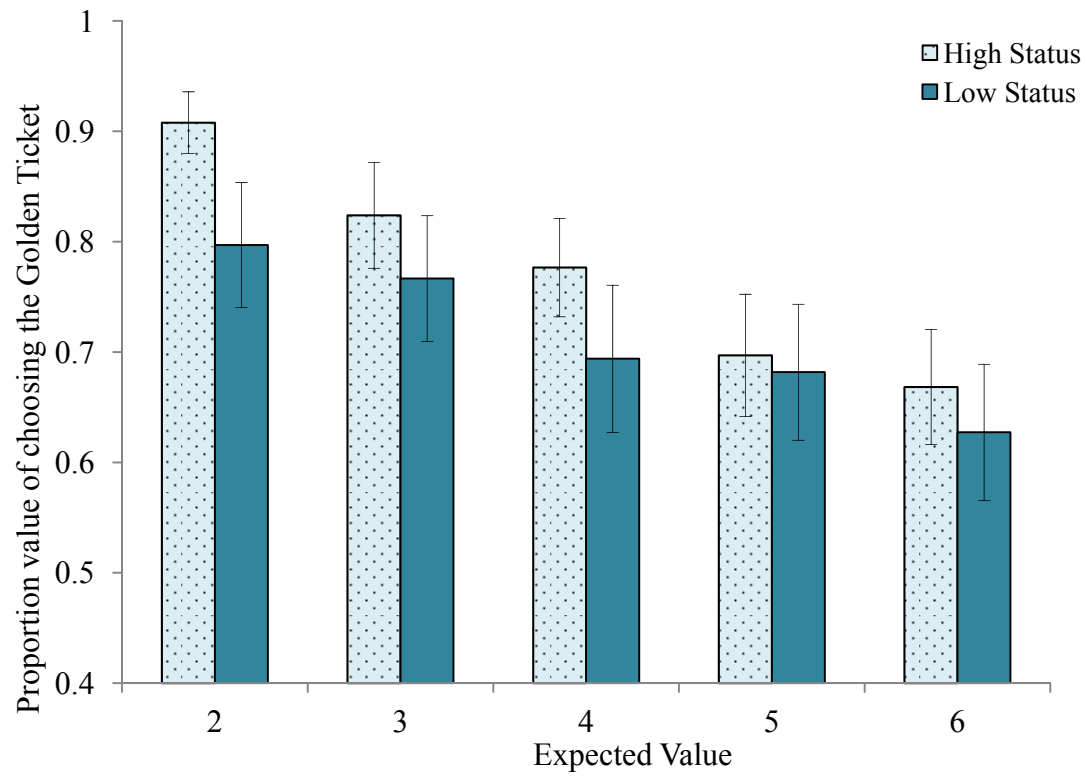


*Figure 11:* Proportion value of choosing the Golden Ticket at varied dollar values.

Significant differences observed only at \$4 in Study 2.

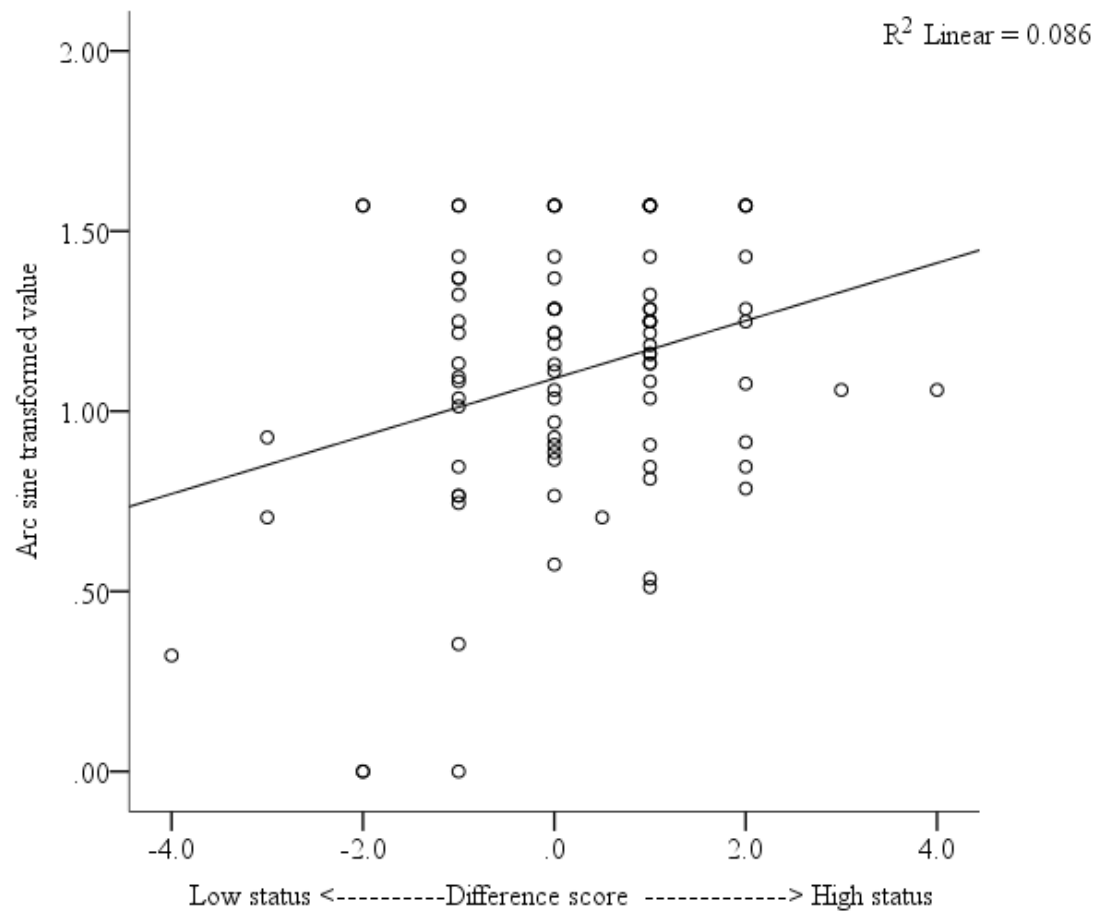


*Figure 12:* Proportion value representing the likelihood of choosing the Golden Ticket at varied levels of risk. Significant differences were observed only at the 15% probability level in Study 3.



*Figure 13:* Proportion value representing the likelihood of choosing the Golden Ticket at varied expected dollar values. Significant trend in differences were observed at \$2 expected value in Study 3.





*Figure 14:* Overall probability of choosing the Golden Ticket as a function of the difference score (self-partner rating) under conditions of risk (Study 3). As subjects perceive themselves to be higher than their partner, their overall probability of choosing the Golden Ticket increases.

## Appendix A: Ladder Questionnaire



In the ladder above, mark the **STEP** which indicates your performance and your partner's. Draw an arrow mark and write SELF for the step where you place yourself and PARTNER for where you place your partner.

(Adapted from Adler et al, 2000)

## Appendix B: Status Questionnaire

**RESPOND TO CHOICES USING THE 1-5 SCALE BELOW**

1	2	3	4	5
Not at all	Slightly	Somewhat	Very Much	A Great Degree

**I see my experiment partner as :**

1. Smart \_\_\_\_\_
2. Lucky \_\_\_\_\_
3. Fast \_\_\_\_\_
4. Accurate \_\_\_\_\_
5. Successful \_\_\_\_\_
6. Cool \_\_\_\_\_
7. Someone to listen to \_\_\_\_\_
8. Competent \_\_\_\_\_
9. Deserving \_\_\_\_\_

## Appendix C: Rosenberg's Self-esteem Inventory

**Personal Attitude Scale**

Circle the number of the response that best describes you.

	<b>Strongly Disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly Agree</b>
1. I feel I am a person of worth, at least on an equal plane with others.	1	2	3	4	5
2. I feel I have a number of good qualities.	1	2	3	4	5
3. All in all, I am inclined to feel I am a failure.	1	2	3	4	5
4. I am able to do things as well as most other people.	1	2	3	4	5
5. I feel I do not have much to be proud of, compared to most other people.	1	2	3	4	5
6. I take a positive attitude toward myself.	1	2	3	4	5
7. On the whole, I am satisfied with myself.	1	2	3	4	5
8. I wish I could have more respect for myself.	1	2	3	4	5
9. I certainly feel useless at times.	1	2	3	4	5
10. At times I think I am no good at all.	1	2	3	4	5

## Appendix D: Study 3 Post-experiment Questionnaire.

### Post Experiment Questionnaire

We are interested in trying to understand the thought process behind the choices you made during the experiment. Please do your best to answer the questions so that we may understand what motivated the choices you made.

1. In deciding to choose between the Golden-Ticket or money, were you aware of any particular thoughts that influenced your decision? If so, what were they?
2. Did you choose the Golden-Ticket in any of the trials? If yes, why did you choose it? If not, why did you choose the money instead?
3. Did you have a prior preference for either the Golden Ticket or money? Or, did you make your choices as the trials were presented to you?

4. In choosing between the Golden Ticket and money, some people are influenced by the probability of the dollar value presented, and some others are influenced by the dollar amount and still others are influenced by both in varying degrees. How were your choices influenced by the probability and dollar values presented?
5. When did you choose the money option and when did you prefer the Golden-Ticket option?

6. Did your performance in the card game you played earlier impact whether you chose the Golden Ticket or money? Please explain why it might have or might not have affected your choices.

## Curriculum Vitae

Date and Place of Birth: July 13, 1977; Mumbai, Maharashtra, India  
 Secondary School: St. Ann's High School, Bolarum, Secunderabad, Andhra Pradesh, India (1984-1993)  
 Junior College: St. Ann's Junior College for Women, Mehdiapatnam, Hyderabad, Andhra Pradesh, India (1993-1995);  
*Math, Physics, & Chemistry*  
 Degree College: St. Francis college for women (1995-1996)  
*Math, Electronics, Computer Science*  
 University: Georgia Institute of Technology (1996-2000)  
 Nassau Community College (2001)  
 York College, CUNY (2002-2004)  
 Dean's List – 2002-2003  
 Graduated *Cum Laude* in Spring 2004  
 Major: *Psychology*  
 Minor: *Cognitive Neuroscience*  
 Research Assistant to Dr. Hywel Morgan at the Galvanic Skin Response Lab. (2003-2006), York College, CUNY  
 Teaching Assistant in the Late Start Program at York College (Fall 2005 & Spring 2006), York College, CUNY  
 Graduate school: City College, CUNY (Fall 2005)  
 Rutgers University, Newark (2007 – 2012)  
 Dissertation Advisor: Dr. Mauricio Delgado  
 Title: How perception of status differences affects our decision making  
 Teaching Assistant: Introduction to Psychology & Research Methods  
 Presentations:  
 Villegas, F., Rodriguez, I., **Bhattacharya, S.** & Nelson, T. (2004). Effects of various dosages of Methylene Blue on radial maze acquisition task on short-term memory of rats. York College Science Exposition, Jamaica, NY.



Morgan, H. D. & **Bhattacharya, S.** (2005). The effects of increasing levels of visuo-spatial task difficulty on anxiety, and perception of effort, frustration, difficulty and time. Eastern Psychological Association, Boston.

**Bhattacharya, S.** & Morgan H. D. (2006). A quantitative analysis of Eysenck's Processing Efficiency theory. American Psychological Society, New York.

Morgan, H.D. & **Bhattacharya, S.** (2006). Extent of verbalizations during increasingly difficult visuo-spatial tasks. American Psychological Society, New York.

Eapen, R., **Bhattacharya, S.** & Morgan, H.D. (2006) Perception of visuo-spatial difficulty when the picture is seen versus actually constructed. American Psychological Society, New York.

**Bhattacharya – Sharma, S.**, Schulze M. E. & Delgado M. R. (2009). Social comparisons and proposer behavior in the Ultimatum Game, Social & Affective Neuroscience, New York.