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**PERSONALITY, GROUP DECISION-MAKING AND
LEADERSHIP**

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Personality, Group Decision-Making and Leadership

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Abstract

This paper explores the effect of personality traits on: (1) the willingness to make risk-taking decisions on behalf of a group, (2) the nature of "choice shifts", i.e. the difference between the amount of risk taken in the group context and individually. Openness and agreeableness emerge as significant determinants of the willingness to lead: non-leader women and non-leader men score lower on openness and higher in agreeableness compared to both leader men and leader women. Neuroticism explains the within-gender variance in individual risk-taking among women, who are on average more risk-averse than men. Subjects in general behave more cautiously when they are making risky decisions on behalf of a group. Among men, a higher agreeableness score implies higher caution in group decisions, while conscientiousness leads to less caution. In contrast, among women, a higher conscientiousness score implies higher caution in the group context, suggesting that the two genders might interpret the social norms in group decision-making differently.

Keywords: personality, leadership, gender, group decision-making, risk, choice shifts, experiments.

PsycINFO Classification: 2970, 3020, 3120

JEL Classification: C91, C92, D81, J16.

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I. Introduction

This paper studies the effects of gender and personality on a person's willingness to make risk-taking decisions on behalf of a group. A robust finding from previous empirical studies reveals that in many diverse areas including the workplace, the public service and politics, women emerge as leaders less often than men do (Eagly and Karau, 2002; Adler and Izraeli, 1994; Melkas and Anker, 1997; Blau, Ferber and Winkler, 2002). Motivated by the fact that leadership positions often involve the task of making risky decisions whose consequences fall onto people other than the decision-maker, a potential explanation for the lack of female leaders could be women's unwillingness to take the responsibility of such decision-making on behalf of others. This explanation, which is based on gender-based self-selection, is in fact resonant with the recent experimental literature documenting that women tend to shy away from competition (Niederle and Vesterlund, 2007; Gneezy et al., 2003) and therefore may be underrepresented in positions which often require a competitive career path. It is also consistent with Verheul et al. (2012) who show, using data from a large-scale survey, that women have a lower preference for self-employment and entrepreneurship.

Using a version of the experimental risk-taking task introduced in Gneezy and Potters (1997), Ertac and Gurdal (2012) show that compared to men, women are much less willing to make risk-taking decisions on behalf of a group that includes themselves putting forward a potential explanation for the aforementioned differences in the leadership propensities of men and women: while 86% of males would like to make the decision on behalf of the group, only 55% of females want to do so. Interestingly, the decisions by women to opt into or out of leadership cannot be explained by risk preferences, in either individual or group decisions. This negative finding motivates the current study, which collects additional data and extends the analysis of Ertac and Gurdal (2012) by exploring the effects of differences in personality on leadership decisions in risky decision-making contexts.

Recently, there has been a growing interest in the use of personality traits to explain individual preferences and economic outcomes. Rustichini (2009) argues that standard economic theories organize individual behavior in two-dimensions: attitudes towards risk and intertemporal trade-offs, and suggests that transition to a model which makes use of different dimensions of personality might be a future direction. Almlund et al. (2011) provide a detailed survey of research linking personality theories to economic decisions involving risk and time preferences as well as to issues like trust, reciprocity and altruism. Roberts et al. (2007) combine evidence from prospective longitudinal studies and show that the effect of personality traits on important life outcomes is at least as large as that of socioeconomic status and cognitive ability. Likewise, Borghans et al. (2008) discuss the value of using personality measures in economics research, and highlight benefits such as the greater malleability of personality traits in early childhood and the predictive power of personality traits in explaining a variety of economic behaviors and outcomes. The current paper contributes to this emerging literature by employing personality traits to better understand three types of economic decisions: (1) risky decisions made individually, (2) risky decisions made on behalf of a group, (3) the decision of whether to make decisions on behalf of a group or delegate them to someone else.

Differences between individual and group risk-taking has been an active area of research in social psychology. This literature mainly studies choice shifts, which are classified as "cautious shifts" or "risky shifts" depending on the direction of the change in the amount of risk taken when one moves from individual to group decision-making (see Davis (1992) for a survey). In economics, there is a relatively recent experimental literature that studies risk-taking decisions for others (Chakravarty et al. (2011), Daruvala (2007)), the comparison of individual and group risk-taking (Sutter (2009)), and risk-taking decisions of groups under different systems of deliberation (see Masclet et al., 2009; Baker et al., 2008; Harrison et al., 2012 and Shupp and Williams, 2008). Given the ubiquity of economic situations in which decisions are made in group contexts, predicting who will rise to the decision-making position and what type of decisions he/she will make becomes a relevant issue. Arbak and Villeval (2011) study leadership in the context of public good contributions, whereas Reuben et al. (2012) analyze

group representation and leadership in a real effort task.² The answer to the question of whether there are personality traits, either specific to or independent of gender, that are instrumental in these decisions can have potential implications for delegation of decision-making and group formation policies in many important contexts. Our results in fact show that the use of personality measures can indeed improve the accuracy of prediction of leadership decisions.

In this paper, we account for personality differences among subjects using the Five-Factor model of personality. The five factors in this model are Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism, which are also known as the Big-Five. We measure the Big-Five personality factors using a version of the NEO PI-R (Costa and McCrae, 1992), adapted to and standardized in Turkey by Gülgöz (2002). In terms of individual risk, we find that women, as expected, take less risk than men (Eckel and Grossman (2008), Croson and Gneezy (2009), Charness and Gneezy (2012)). Scoring higher on neuroticism turns out to be a highly significant determinant of lower individual risk-taking levels among women. Willingness for leadership, which involves making decisions on behalf of a group under uncertainty in our context, is significantly lower among women. Openness emerges as a main determinant of leadership decisions independently of gender, with openness scores of non-leader women and men being significantly lower than both leader-women and leader-men. Agreeableness is the other trait that predicts leadership: leaders turn out to be significantly less agreeable than non-leaders. In terms of group decisions, we generally find evidence for cautious shifts, with subjects taking lower risk on behalf of the group than for themselves. For men, leadership willingness decreases the extent of such cautious shifts, while agreeableness increases it. Conscientiousness has a significant effect on cautious shifts both for men and women. However, men who score higher on the conscientiousness trait behave less cautiously, while the opposite effect is observed among women, suggesting that the two genders may interpret the duties of leaders in this environment differently from each other.

The remainder of the paper is organized as follows. In section 2, we summarize the experimental design and procedures. Section 3 lays out the results on personality differences among genders,

² Both papers report significant results related to gender, which provides further evidence that gender has potentially important interactions with leadership.

individual risk-taking behavior, willingness to lead and risk-taking for groups. Section 4 provides a discussion and concluding remarks.

II. Experimental Design and Procedures

The main task in our experiment, which is adapted from Gneezy and Potters (1997), involves allocating 10 Turkish Liras³ between a risk-free option and a risky option. The amount that the subject allocates to the risk-free option is preserved as it is, whereas the amount allocated to the risky option is multiplied by a factor P in the good state and drops to zero in the bad state. Both states are equally likely to occur and P takes three different values: 1.5, 2 and 2.5. Subjects first make three allocation decisions (one for each value of P), the results of which only affect their own payoffs, and another three allocation decisions whose outcomes potentially determine the payoffs of all group members.

The incentive scheme involves random payment of subjects and decisions. In particular, a randomly selected set of subjects in each session are paid based on one randomly selected decision among the six decisions made in the experiment.⁴ In case the selected decision is among the first three decisions (individual task), then each subject in the selected group is paid based on their own decision in the chosen decision task. If the selected decision is among the last three decisions (group task), then a single group member is selected and his/her decision is implemented for all group members. After making the individual decisions and before starting the group decisions, subjects state whether they would like to be the decision-maker for their group. Regardless of their answer, all subjects are asked to make the three group decisions, with the knowledge that their decisions could be implemented, in case they end up as the group decision-maker. The selection of the group leader is done at the end of the experiment, as follows: In any group, if more than one person wants to be the decision-maker, a random draw among those determines whose decision counts as the group decision. If no one wants to be the

³ At the time of the experiments, 1 TL corresponded to \$0.62.

⁴ Baltussen et al. (2012) provides a discussion of within-subject and between-subject random payment schemes both of which are quite commonly used in economics experiments

decision-maker, one of the five people in the group is selected randomly, and his/her decision counts. This mechanism allows us to gather data on group decisions both from subjects who are willing to be the decision-maker and from subjects who are not, since there is always a chance that any subject can end up as the group decision-maker.

The dataset used in the paper supplements the dataset used in Ertac and Gurdal (2012) with new data that were collected so that the role of personality traits could be properly explored. The experiments were conducted in-class, with paper and pencil at three different universities in Turkey: Koc University (Istanbul), TOBB-ETU (Ankara) and Bogazici University (Istanbul). We have data from 190 subjects in total (57 subjects from Koc University, 71 from TOBB and 62 from Bogazici), and our subject pool consisted of 86 women and 104 men.

Subjects were randomly assigned a unique ID number, which was written on top of their decision sheets. Subjects saw three decisions on each of the two decision-making sheets, which were for individual and group decisions. On the page where the group decisions were listed, subjects also indicated whether they would like to be the decision-maker for their group or not. We paid all subjects a show-up fee of 5 Turkish Liras. In addition, one in 5 subjects on average were randomly selected and paid for their decisions.⁵ At the end of the experiment, one of the six decisions was randomly chosen (by a die cast by a volunteer subject) to be paid and the ID's of the subjects who were selected for payment was announced. If the decision to be compensated was a group decision, then all five members that formed the selected group(s) were paid the same amount of money, based on the decision of the subject selected as the group leader. Subjects never learned the identities of subjects who were in the group that was selected for payment.

Subjects filled out the 60-item personality questionnaire at the end of the experiment. Due to time constraints, during 2 sessions in Koc University, subjects were told that they could fill out

⁵Since we conducted the experiment at the end of classes with volunteer subjects, we had different subject numbers in different sessions, leading to differences in the strength of incentives as well as in the gender composition. We account for these differences among sessions in our econometric analyses, and find that they do not affect our results. In addition, there are no significant differences in behavior between the subject pools from the three universities.

the questionnaire online later on. 14 out of such subjects failed to fill out the questionnaire and consequently, we exclude them from the parts of our analysis that involve controls for personality scores.

III. Results

3.1 Gender and Personality

The scores of men and women on different personality traits are presented in Table 1. Using t-tests, we find that women score significantly higher on extraversion and neuroticism (p-values are 0.012 and <0.01 respectively), while a significant difference is not found for other traits. Similar results related to gender differences in personality have been reported in previous studies (see Feingold, 1994 and Müller and Schwieren, 2012). In their study of personality inventory data coming from various different cultures, Costa, Terracciano and McCrae (2001) show that women score higher on neuroticism and agreeableness. Women in our sample also score higher on agreeableness on average than men, yet this difference does not reach statistical significance.

< Table 1 about here >

3.1 Individual Risk Decisions

The average amounts that men invest in the risky option are generally higher than the average amounts invested by women, as evidenced by the summary statistics presented in Table 2. While this is true for all different values of the payoff multiplier, P , Mann-Whitney tests do not reveal a significant difference between men and women when the value of P is 1.5 (p-value is 0.74), whereas the behavior of the two genders are significantly different when the multiplier is 2 or 2.5 (p-values are 0.057 and 0.000, respectively). This result suggests that men respond more intensely to changes in the expected payoff of the risky option.

< Table 2 about here >

In order to see the effects of personality traits on individual risk taking, we employ several regressions, the results of which are summarized in Table 3. When personality traits are controlled for and the model includes observations from both genders, we observe that risk-aversion of men are significantly lower, but none of the personality traits appear to have a significant effect on individual risk-taking (Table 3, column 1). When the same regression is run for two genders separately, so as to see the interaction of personality traits with gender, we see that neuroticism among women predicts lower risk-taking (Table 3, column 2), while neither this trait nor any of the other four has an effect among men. We interpret this result as evidence that the low amounts invested in the risky option by women are partly due to their higher neuroticism scores. Borghans et al. (2009) find a similar result indicating a negative relationship between neuroticism and risk-taking, and Müller and Schwieren (2012) show that neuroticism explains women's reluctance to choose competitive incentive schemes, which are inherently risky.

< Table 3 about here >

3.2 Leadership

The data reveal a large difference between the two genders in terms their willingness to make risk-taking decisions on behalf their group. While around 88% of men are willing to make the payoff-determining decision for the group, the corresponding ratio is around 53% for women. This difference in leadership propensities is highly significant, as evidenced by a two-sided test of proportions ($p < 0.001$).

Figure 1 displays averages for the five factors across "leaders" and "non-leaders". Two personality traits, openness and agreeableness emerge as possible factors affecting the decision to lead. While leader men and leader women have very similar openness scores on average (53.02 and 53.39, respectively), non-leader men and non-leader women have lower openness scores (45.50 and 48.99). Corresponding t-tests reveal that the difference in openness scores between leader and non-leader women and the difference between leader and non-leader men are indeed significant (p-value is 0.047 for women and 0.035 for men).

< Figure 1 about here >

Average agreeableness scores of leader men and leader women (45.32 and 46.12, respectively) are lower than the average agreeableness scores non-leader men and non-leader women (48.85 and 50.67, respectively). In fact, leaders as a whole are significantly less agreeable than non-leaders ($p=0.037$ in a t-test, $p=0.017$ in a Mann-Whitney test). Breaking down by gender, however, we only find a significant difference between non-leader women and leader-men ($p=0.095$). While for both genders, agreeableness scores of non-leaders are lower than those of leaders, the within-gender differences do not reach statistical significance. Note that significant gender differences in agreeableness are systematically found in previous studies (Costa, Terracciano & McCrae, 2001), consequently, we argue that agreeableness is another potential factor contributing to the obvious difference between men and women in terms of the willingness to lead.

In order to understand the effects of personality on the willingness to decide controlling for other factors, we run logistic regressions of the willingness to decide, including personality scores on the five factors as well as individual risk-taking levels as explanatory variables. The results are summarized in Table 4. Pooling observations for both genders, we see that a higher openness score and higher individual risk-taking increases the willingness to make risky decisions on behalf of a group, while agreeableness decreases it. To see how these effects interact with gender, we conduct the same regression separately for women, and we find a significant effect of openness.⁶ Note that a within-gender regression is not conducted for men, since the number of men who are not willing to lead are very small (12 out of 104).

< Table 4 about here >

One major argument in favor of collecting auxiliary data on personality in economics experiments is that having access to personality measures can improve prediction of economic behavior. We explore whether this is the case in our setup by comparing the accuracy of

⁶ The (negative) coefficient for agreeableness for women becomes borderline significant at the 10% level, if we only consider personality traits and not individual risk in the regression.

regression models with and without personality in predicting leadership behavior. In our model without personality, we use all the observables in our experiment such as gender and individual risk-taking, whereas in the model with personality, we add in the five personality factors. We then check, for each model, the number of cases in which the model assigns a higher-than-0.5 probability to actual leadership cases and vice versa, correctly classifying individual leadership behavior. The results in Table 5 show that the addition of personality traits do generate improvements in the prediction of leadership, especially by reducing "false positives" whereby a non-leader is predicted to lead. The improvement is also significant when we restrict attention to the sample of women, who show more variation in their leadership behavior than men (Table 5, columns 3 and 4). Improvements in the pseudo- R^2 also support the conclusion that personality traits are valuable in the explanation of leadership behavior.⁷

< Table 5 about here >

3.4 Group Risk Decisions and Choice Shifts

In Table 6, we summarize the amounts that subjects would invest in the risk-free option in case they are selected as the group leader, where we break down the choices by gender. A comparison with Table 2 shows that the amounts invested in the risk-free option are generally higher when the decision is made for the group rather than for the subject herself. The significance of these findings is further confirmed by Wilcoxon matched-pairs signed-rank tests conducted separately for different values of the multiplier P (p-values are less than 0.01 for all values of P). Consequently, we can classify most choice differences as cautious shifts.⁸

< Table 6 about here >

⁷ Among the alternative methods for calculating pseudo- R^2 for binary dependent variables, we report McFadden's R^2 , which is routinely reported by STATA, as well as McKelvey and Zavoina's R^2 , which has been shown to perform better in simulations (Veall and Zimmermann (1996)).

⁸ If we classify the type of shifts, we find that around 50% of the time, there is no difference between group and individual risk-taking. The majority of shifts are cautious, with individuals taking a lower risk for the group 34% of the time.

To explore further what causes choice shifts, we analyze several regression models of the amount invested in the risky option when this decision is made for the group, and we present our results in Table 7. Pooling observations from both genders and controlling for risk taken individually, we see that adjustments over individual risk when $P=1.5$ are significantly more pronounced compared to the case when $P=2.5$, and no personality trait seems to have a significant effect. To see how our controls interact with gender, we next restrict the observations separately to men and women. For men, we see that agreeableness increases the extent of cautious shifts while conscientiousness decreases it. For women on the other hand, agreeableness and willingness to be the leader have no effect while conscientiousness increases the extent of cautious shifts. The effect of the multiplier P is preserved when we consider only men but disappears when only women are considered. That is, women do not seem to adjust choice shifts differently for changing risk parameters of the decision environment, while men take lower risk on behalf of the group when the multiplier is lower. Likewise, willingness to be the leader decreases the extent of cautious shifts for men, whereas it has no such effect for women.

< Table 7 about here >

IV. Discussion and Concluding Remarks

Our analysis shows that collecting personality data can improve predictions of economic behavior and highlights three factors that are influential in group decision-making contexts with self-selection: openness, agreeableness, and conscientiousness. Openness emerges as a trait that promotes the willingness for leadership for both men and women, while it does not predict how much risk individuals will take once they are in the leadership position. Judge et al. (2002) argue that openness is related to creativity and divergent thinking. Our data provide evidence to support their claim that since creativity is linked to effective leadership, individuals that are more open to experience can be expected to emerge as group leaders more frequently.

Agreeableness, on the other hand, seems to affect both leadership and group risk-taking decisions. While more agreeable individuals are less likely to emerge as leaders (true for both men and women), agreeableness increases the extent of cautious shifts for male leaders,

controlling for their leadership willingness. Conscientiousness is another trait that has predictive power in the domain of risk-taking on behalf of the group, and interestingly affects decisions in opposite ways for male and female leaders.

In Costa and McCrae (1992), agreeableness is defined as the degree of needing pleasant and harmonious relations with others, while conscientiousness is defined as the degree to which a person is willing to comply with conventional rules, norms, and standards. Lower agreeableness on the part of self-selected leaders can potentially implicate that when leaders are determined endogenously, the individuals who rise to the position are less likely to "compromise".⁹ Agreeable men in our sample are significantly more likely to engage in cautious shifts. Since risk-aversion is less prevalent among men than women, it is not surprising to see that more agreeable men adjust their risk-taking standards when they make risky decisions for a group that involves both men and women. On the other hand, conscientiousness has opposite effects for men and women in terms of group risk-taking. One possibility is that conscientious men and conscientious women interpret social norms and behavioral standards differently while making risky decisions for their group. These results clearly show that gender can be an important factor to consider when studying the influence of personality on economic behavior.

While individual risk-taking has been correlated with personality traits before, our study is the first to explore the effects of personality in a group risk-taking context. In terms of risk-taking, our results suggest that different aspects of personality drive individual and group risk-taking decisions, with conscientiousness and agreeableness emerging as traits that are correlated with more cautious decisions on behalf of the group (as compared to individual risk). In terms of leadership, our results suggest that some of the large difference in leadership propensity between men and women can be explained by differences in agreeableness. Since agreeableness is found to be a gender-dependent trait in many studies, it is possible to speculate that the differences might at least partially be determined by gender-specific upbringing. Further research should explore the role of "nurture" in the development of this personality trait, which could potentially

⁹ This is in fact consistent with Ertac and Gurdal (2012b), which finds that self-selected leaders are less likely to follow the advice by other group members, as compared to randomly appointed leaders.

generate important implications about educational policies to lead girls to be more willing to rise up to leadership challenges later in life.

References

Adler, N.J., Izraeli, D.N., 1994. *Competitive Frontiers: Women Managers in a Global Economy*, Blackwell, Cambridge, MA

Almlund, M., Duckworth, A.L., Heckman, J.J. and Kautz, T.D., 2011. "Personality psychology and economics." NBER Working Paper Series No: 16822.

Arbak, E., Villeval, M. C., 2011. "Voluntary Leadership: Motivation and Influence," *Social Choice and Welfare*, forthcoming.

Baker, R.J., Laury, S.K., and Williams, A.W. 2008. Comparing Small-Group and Individual Behavior in Lottery-Choice Experiments. *Southern Economic Journal*, 75 (2), 367-382

Baltussen, G., Post, T., van den Assem, M. J., & Wakker, P. P., 2012. "Random Incentive Systems in a Dynamic Choice Experiment." *Experimental Economics* 15, 418-443.

Blau, F.D., Ferber, M., Winkler, A., 2002. "The Economics of Women, Men and Work." 4th edition. Englewood Cliffs, NJ: Prentice Hall.

Borghans, L., Golsteyn, B.H.H., Heckman, J.J., Meijers, H., 2009. "Gender differences in risk aversion and ambiguity aversion." NBER Working Paper Series No: 14713

Borghans, L., Duckworth, A., Heckman, J.J., Ter Weel, B., 2008. "The economics and psychology of personality traits." *Journal of Human Resources* 43(4): 972–1059.

Chakravarty, S., Harrison, G.W., Haruvy, E.E., Rutström, E.E., 2011. "Are you risk averse over other people's money?" *Southern Economic Journal*, 77(4), 901-913.

Charness, G., Gneezy, U., 2012. "Strong evidence for gender differences in risk taking." *Journal of Economic Behavior and Organization*, 83(1), 50-58.

Costa, Paul T., and Robert R. McCrae. 1992. NEO PI-R. Professional Manual. Odessa, FL: Psychological Assessment Resources, Inc.

Costa Jr, P., Terracciano, A., and McCrae, R.R., 2001 "Gender differences in personality traits across cultures: robust and surprising findings." *Journal of Personality and Social Psychology*, 81(2), 322-331.

Crosan, R., Gneezy, U., 2009. "Gender differences in preferences." *Journal of Economic Literature* 47, 448-474.

Daruvala, D., 2007. "Gender, risk and stereotypes." *Journal of Risk and Uncertainty* 35(3), 265-283.

Davis, J.H., 1992. "Some compelling intuitions about group consensus decisions, theoretical and empirical research, and interpersonal aggregation phenomena: Selected examples 1950-1990." *Organizational Behavior and Human Decision Processes* 52(1), 3-38.

Eagly, A.H., Karau, S.J., 2002. "Role congruity theory of prejudice toward female leaders, *Psychological Review*" 109(3), 573-597.

Eckel, C.C., Grossman, P.J., 2008. "Men, Women, and Risk Aversion: Experimental Evidence." In C. Plott and V. Smith (Eds). *Handbook of Experimental Economics Results*, 1061–1073. New York: Elsevier.

Ertac, S., Gurdal, M.Y., 2012. "Deciding to decide: Gender, leadership and risk-taking in groups." *Journal of Economic Behavior & Organization*, 83(1), 24-30.

Ertac, S., Gurdal, M.Y., 2012b. "Information and Self-Selection into Leadership", Working paper.

Feingold, A., 1994. "Gender differences in personality: A meta-analysis." *Psychological bulletin*,

116(3), 429-456.

Gneezy, U., Potters, J., 1997. "An experiment on risk taking and evaluation periods, *Quarterly Journal of Economics*, 112(2), 631-645.

Gneezy, U., Rustichini, A., 2004. Executives versus teachers: Gender, competition and self-selection. Mimeo.

Gneezy, U., Leonard, K.L., List, J.A., 2009. "Gender differences in competition: Evidence from a matrilineal and a patriarchal society." *Econometrica* 77(5), 1637-1664.

Gneezy, U., Niederle, M., Rustichini, A., 2003. "Performance in competitive environments: Gender differences." *Quarterly Journal of Economics* 118(3), 1049-1074.

Gulgoz, S. 2002 "Five-Factor Model and the NEO PI-R in Turkey." The five-factor model of personality across cultures." In A.J. Marsella, R.R. Mc Crae & J. Allik (Ed.), *The Five-Factor Model Across Cultures*, (p:1-23). Netherlands, Kluwer Academic Publishers.

Harrison, G.W., Lau, M.I., Rutström, E.E., Tarazona-Gómez, M., 2012. "Preferences over social risk." *Oxford Economic Papers*, forthcoming.

Judge, T.A., Bono, J.E., Ilies, R., Gerhardt, M.W., 2002. "Personality and leadership: A qualitative and quantitative review." *Journal of Applied Psychology* 87(4), 765-780.

Masclet, D., Colombier, N., Denant-Boemont, L., Lohéac, Y., 2009. "Group and individual risk preferences: A lottery-choice experiment with self-employed and salaried workers." *Journal of Economic Behavior and Organization* 70(3), 470-484.

Melkas, H., Anker, R., 1997. "Occupational segregation by sex in Nordic countries: An empirical investigation." *International Labour Review* 136(3), 341–363.

Müller, J., & Schwieren, C. 2012. "Can Personality Explain what is Underlying Women's Unwillingness to Compete?" *Journal of Economic Psychology* 33(3), 448-460.

Niederle, M., Vesterlund, L., 2007. "Do women shy away from competition? Do men compete too much?" *The Quarterly Journal of Economics* 122(3), 1067-1101

Reuben, E., Rey-Biel, P., Sapienza, P., Zingales, L., 2012. "The emergence of male leadership in competitive environments", *Journal of Economic Behavior and Organization*, 83(1), 111-117.

Roberts, B.W., Kuncel, N.R., Shiner, R.L., Caspi, A., Goldberg, L.R., 2007. "The Power of Personality: The Comparative Validity of Personality Traits, Socioeconomic Status, and Cognitive Ability for Predicting Important Life Outcomes." *Perspectives on Psychological Science*, 2(4), 313-345.

Rustichini, A., 2009. "Neuroeconomics: what have we found, and what should we search for." *Current Opinion in Neurobiology*, 19(6): 672-677.

Shupp, R.S., Williams, A.W., 2008. "Risk preference differentials of small groups and individuals." *The Economic Journal*, 118(525), 258-283.

Sutter, M., 2009. "Individual behavior and group membership: Comment." *American Economic Review*, 99(5), 2247-2257.

Veall, M. R., Zimmermann, K. F., 1996. "Pseudo-R² measures for some common limited dependent variable models." *Journal of Economic Surveys*, 10(3), 241-259.

Verheul, I., Thurik, R., Grilo, I., Van der Zwan, P., 2012. "Explaining preferences and actual involvement in self-employment: Gender and the entrepreneurial personality." *Journal of Economic Psychology*, 33, 325-341.

Table 1: Personality Scores of Men and Women

	Women	Men
Openness	51.276 (1.111)	52.041 (1.141)
Conscientiousness	50.563 (1.076)	49.181 (1.070)
Extraversion	54.364 (1.173)	50.740 (0.885)
Agreeableness	47.442 (1.162)	45.843 (1.060)
Neuroticism	52.734 (1.123)	46.81 (1.055)
N	79	97

Note: Means reported, standard errors in parentheses.

Table 2: Individual Risk Taking by Men and Women

	Women	Men
P=1.5	3.889 (2.601)	3.777 (2.912)
P=2	4.866 (1.951)	5.479 (2.216)
P=2.5	5.924 (2.222)	7.263 (2.493)
N	86	104

Note: Means reported, standard errors in parentheses.

Table 3: Determinants of Individual Risk

OLS Regression	Dependent Variable: Individual Risk		
	All	Women	Men
p = 2	1.423*** (0.188)	1.050*** (0.238)	1.726*** (0.283)
p = 2.5	2.866*** (0.253)	2.063*** (0.338)	3.520*** (0.362)
Male	0.592* (0.315)	-	-
Openness	0.0008 (0.014)	-0.001 (0.018)	-0.009 (0.020)
Conscientiousness	-0.007 (0.013)	-0.008 (0.021)	-0.015 (0.019)
Extraversion	0.017 (0.017)	-0.002 (0.025)	0.027 (0.021)
Agreeableness	-0.013 (0.013)	-0.010 (0.016)	-0.020 (0.022)
Neuroticism	-0.020 (0.014)	-0.057*** (0.020)	0.006 (0.021)
Constant	4.994 (1.581)	8.644 (2.683)	4.479 (1.905)
Controls for session	Yes	Yes	Yes
N	528	237	291
R ²	0.221	0.227	0.266

Note: Coefficients reported, cluster-robust standard errors in parentheses. *'s denote significance at levels; *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Determinants of Leadership

Logistic Regression	Dependent Variable: Willingness to Decide (0= Unwilling 1=Willing)	
	All	Women
Male	0.375*** (0.077)	-
Average Individual Risk	0.037** (0.018)	0.055 (0.038)
Openness	0.008*** (0.003)	0.012* (0.007)
Conscientiousness	0.0001 (0.003)	0.002 (0.006)
Extraversion	-0.0007 (0.003)	0.002 (0.006)
Agreeableness	-0.006** (0.003)	-0.009 (0.006)
Neuroticism	0.002 (0.003)	0.003 (0.006)
Controls for session	Yes	Yes
N	175	79
LR Chi^2	52.61	11.45

Note: Marginal effects reported, standard errors in parentheses. *'s denote significance at levels; *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Prediction Accuracy of Logit Models with and w/o Personality Traits

	All	All (personality excluded)	Women	Women (personality excluded)
False + rate for non-leaders	53.06%	65.31%	36.84%	52.63%
False – rate for leaders	11.11%	10.32%	29.27%	31.71%
Pseudo R^2	0.253	0.193	0.105	0.046
McKelvey & Zavoina's R^2	0.425	0.312	0.179	0.082

Table 6: Group Risk Taking by Men and Women

	Women	Men
P=1.5	3.523 (2.720)	3.288 (2.777)
P=2	4.744 (2.171)	5.115 (2.294)
P=2.5	5.372 (2.165)	5.372 (2.665)
N	86	104

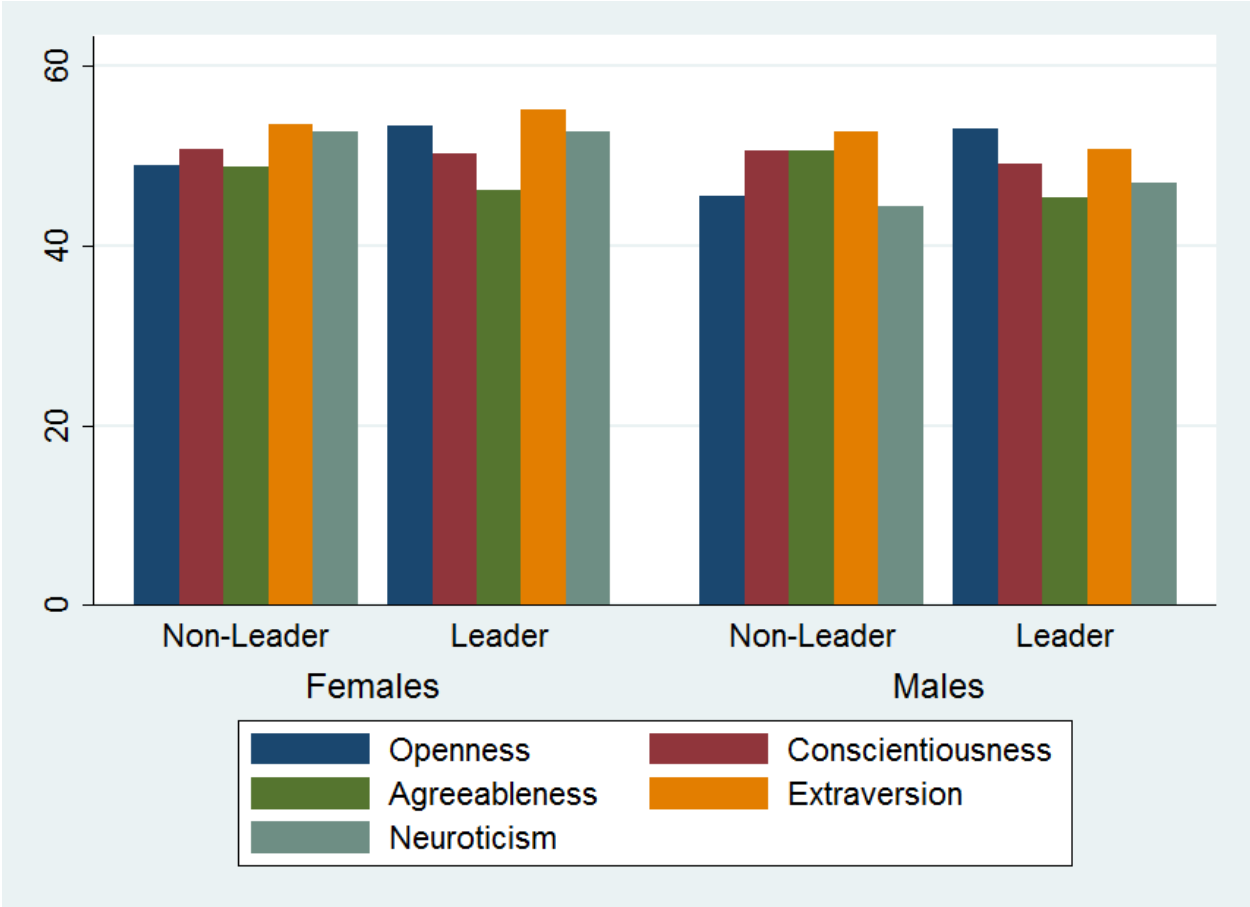
Note: Means reported, standard errors in parentheses.

Table 7: Determinants of Group Risk

OLS Regression	Dependent Variable: Willingness to Decide (0= Unwilling 1=Willing)		
	All	Women	Men
Male	0.135 (0.244)	-	-
Individual Risk	0.709 (0.045)	0.682*** (0.072)	0.692*** (0.056)
Willingness to Decide	0.003 (0.232)	-0.285 (0.282)	0.827** (0.376)
P=2	0.618 (0.183)	0.574** (0.273)	0.708*** (0.245)
P=2.5	0.742 (0.259)	0.491 (0.360)	1.056*** (0.361)
Openness	0.010 (0.009)	0.002 (0.012)	0.005 (0.012)
Conscientiousness	-0.001 (0.010)	-0.030** (0.014)	0.018* (0.010)
Extraversion	0.007 (0.010)	-0.0007 (0.014)	0.018 (0.014)
Agreeableness	-0.006 (0.010)	0.008 (0.014)	-0.026** (0.012)
Neuroticism	0.002 (0.008)	-0.007 (0.014)	0.003 (0.011)
Controls for session	Yes	Yes	Yes
N	525	237	288
R^2	0.592	0.519	0.671

Note: Marginal effects reported, cluster-robust standard errors in parentheses. *'s denote significance at levels; *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure 1: The Five Personality Traits, over Leadership and Gender



APPENDIX

Instructions¹⁰

Welcome to this study on decision-making. The experiment is going to consist of two parts. There are going to be 3 decisions in each part of the experiment. That is, you are going to make 6 decisions in total. Only one of these six decisions will be used for determining payments from the experiment. This decision will be randomly selected at the end of the experiment, with the roll of a six-sided die. Every decision is equally likely to be selected, so please make all your decisions carefully. Your decisions will be recorded by your unique subject id, and you will be paid privately, in cash. You will all be paid 5 TL for your participation. In addition, at the end of the experiment, we will randomly select 5 participants and they will earn money according to the choices they made in the selected decision (out of the six decisions).

We will now start explaining the decision tasks in the first part. Please listen carefully. If you have a question at any point during the experiment, please raise your hand. An experimenter will come and assist you.

Part 1:

There are going to be 3 decisions in this part of the experiment. Remember that every decision has an equal chance of being selected for payment.

In each decision, you are going to be asked how you would like to allocate 10 TL between a “risky option” and a “safe option”. The amount you put in the safe option remains as it is. Your earnings from the amount you put in the risky option depends on chance. A coin will be flipped-- if it comes heads, your earnings from the risky option will be zero. If it comes tails, your earnings from the risky option will be p times the amount you put in that option. The value of p is written in the relevant box for each decision on your decision sheets, and it is greater than 1. Your total earnings from the decision is the sum of your earnings from the safe option and your earnings from the risky option.

¹⁰ The original instructions were in Turkish.

Now, please write your decisions on your sheets.

Part 2:

There are going to be 3 decisions in this part of the experiment. Remember that every decision has an equal chance of being selected for payment.

If a decision in this part is selected for payment, 5 people will be randomly selected to form a group, and each group member will get the same payoff, according to the “group decision”. The group decision, in turn, is made by a single member. Among the 5 group members, a single one will be selected as the decision-maker and his/her decision will count, to determine the payoffs of everyone in the group. You will not get to know the identities or decisions of your group members. Similarly, other members will not get to know your identity and your decisions.

First, you will be asked whether you want to decide on behalf of your group or not. You will mark your answer as yes/no on your decision sheets.

Based on the answers of the group members, we select whose decision counts for the group in the following way:

- If you were the only person in your group who said yes to the question of whether you want to be the decision-maker, then your decision will count.
- If more than one person in your group said yes, then we will randomly select one among those, and the decision of the selected person will count.
- If none of your group members (including you) wanted to decide for the group, we will again randomly select one among the 5 people, and the decision of the selected person will count.

After saying yes/no to the question of if you want to decide, you will be asked how to allocate 10 TL between a “risky option” and a “safe option” as in Part 1 on behalf of your group, **in case**

your decision counts as the group decision. You will make this decision regardless of whether you said yes/no. Your decision will determine everyone's payoffs in your group if you are selected as the decision-maker, according to the procedures described above.

Sample Decision from the Decision Sheet for Part 1:

Decision 1:

Please state how you would like to divide the 10 TL among the Safe Option and Risky Option

Safe Option (the money you put here remains as it is)	Risky Option ($p=1.5$) (if heads, the money you put here will be multiplied with 1.5, if tails, it will drop to zero)