

Does relative overconfidence boost promotion probability?

Field-experimental evidence on the effect of relative overconfidence on the probability of receiving a promotion proposal

Eva-Maria Aulich*[†]
University of Zurich

Abstract

A fundamental assumption of Tournament theory is that, based upon relative differences between individuals, the best performers win a tournament. This paper explores whether this postulation is justified in promotion tournaments. The research question is precisely whether the most relatively overconfident individuals instead of the most capable ones receive a promotion proposal. Up to now, this question has been neither theoretically nor empirically researched. The rationale behind this is that the relative overestimation of one's own abilities serves as a social signal about one's own relative performance to others. Using a longitudinal field experiment with 398 subjects I identify the causal effect of relative overconfidence on promotion probability. It shows that the extent of relative overconfidence is a reliable predictor for the individual probability of promotion. By contrast, a person's actual job-specific knowledge does not have a robust effect. The results imply that, in promotion processes, decision makers should rather rely on objective performance assessment systems than on subjective impressions.

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* *Eva-Maria Aulich*, Dipl.-Kffr., Chair Human Resource Management, University Zurich, Plattenstrasse 14, 8023 Zurich, Switzerland, E-Mail: eva-maria.aulich@business.uzh.ch, phone.: +4144/6342903.

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1 Introduction

Promotions are powerful incentive and ability-filtering mechanisms for organizations (Milgrom & Roberts, 1992). The prospect of promotion to a more attractive and better compensated position motivates employees to work harder. By letting only the best candidates get promoted, promotions also serve as an ability-filtering process. However, both the incentive and the filtering mechanisms only support the business objectives if, in fact, the candidates with the highest competency – e.g., with the best job-specific knowledge – get promoted. Owing to uncertainty about actual managerial competency, the perceived competency is a crucial factor in promotion decisions. Therefore, the question arises: Do actually the best candidates get promoted?

If in fact perceived competency is the key factor in promotion decisions some perils arise. Bearing in mind that on the one hand the superior's perception could be biased itself and on the other hand the superior's perception could be influenced by the promotion candidates' biases. Especially in promotion decisions in which promotion candidates are incentivized to signal that they have a higher competency than their competitors this could lead to a specific bias: relative overconfidence. People are said to be relatively overconfident if they think they are better than others when, actually, they are not. Burks, Carpenter, Goette and Rustichini (2010) provide empirical evidence that the desire to send positive signals about one's own skills induces precisely this character trait. Considering that people tend to overestimate the abilities of overconfident people without recognizing their bias (Ludwig & Nafziger, 2010), the abilities of overconfident promotion candidates could also be overstated by their superiors. As a result, their chances of being promoted could increase.

This project aims to find out whether relative overconfidence affects the probability of receiving a promotion proposal. If this characteristic indeed affects the probability of promotion, it would suggest the existence of several threats to an organization. First, since overconfidence in general has been proven to increase the risk of poor decision-making (Barber & Odean, 2001; Busenitz & Barney, 1997; Doukas & Petmezas, 2007; Fenton-O`Creevy, Nicholson, Soane & Willman, 2003; Griffin & Tversky, 1992; Koelling, Minniti & Schade, 2007; Miller, 1999; Plous, 1993; Sivanathan & Galinsky, 2007; Yates, Lee & Shinotsuka, 1996), the probability of poor decisions would increase especially on higher hierarchical levels. Secondly, the best candidates could experience

frustration by not receiving a promotion proposal, and could therefore quit. Thirdly, promotions could generate disincentives if the candidates realize the effect of overconfidence. Up until now, there exists a strand of the research solely regarding the effects of *absolute* overconfidence on promotion probability. This research project contributes to the literature by being the first study providing a theoretical rationale as well as empirical evidence for the effect of *relative* overconfidence on promotion probability. Consistent with the theoretically derived hypothesis, the main result of this study is that relative overconfidence has a strong and statistically highly significant effect on receiving a promotion proposal.

Having established the organizational significance of this study on both logical and empirical grounds, next, I will review the related literature and then provide a theoretical framework for analyzing whether relative overconfidence affects the probability of getting promoted (section 2). In developing the hypothesis, I will draw upon Tournament theory and Signalling theory. In order to test the hypothesis empirically I conducted a field experiment. The experimental design will be explained in section 3. After providing a brief overview of the experimental procedure, the treatment (section 3.1), and the measures (section 3.2), the used econometric models are described (section 3.3). Subsequently, I will present the descriptive statistics as well as the results of the empirical hypothesis test. Finally, I will draw conclusions from the findings.

2 Related research and theoretical framework

2.1 Related research

The study is related to several strands of the research on overconfidence. In this section, I consider these relations in some detail. First, the paper is related to research focusing on overconfidence of tournament winners. A recent study of Malmendier and Tate (2007) investigates, among other things, whether overconfidence increases after winning a tournament. In particular, they ask whether CEOs who have won an award become more absolutely overconfident afterwards. A person is said to be absolutely overconfident if she thinks that she knows more and has more skills than she actually has. Aulich (2011a) sheds light on another kind of tournament by examining the effects of promotion tournaments on the winners' absolute overconfidence. In contrast to these studies, this paper investigates overconfidence as an impact factor on the probability of winning a tournament. There is a growing literature that also focuses on the nature of

this causal relationship. Both, Han, Hirshleifer and Persons (2005) as well as Goel and Thakor (2008) analyze the effect of absolute overconfidence on the probability of winning a tournament, more precisely of winning a promotion tournament. Presuming that one manager is unconsciously overconfident and the superior does not know about the manager's bias the studies come to contradicting propositions. This is mainly due to their different comprehension of what absolute overconfidence means and what consequences it has. However, both papers analyze the effect of absolute overconfidence on the probability of winning a promotion tournament only theoretically. Aulich (2011b) provides empirical evidence for a strong and statistically highly significant effect of *absolute* overconfidence on the probability of getting promoted, however, it still lacks theoretical as well as empirical analyses regarding the effects of *relative* overconfidence. According to Brenner (2003) as well as to Lichtenstein and Fischhoff (1977), people tend to be absolutely overconfident on hard tests, but the same people exhibit relative underconfidence on the same tests. Therefore, relative overconfidence seems to be something different from absolute overconfidence. Moreover, the underlying intuition behind these two types of overconfidence is different. Relative overconfidence appears when individuals overstate their skills relatively to other people (Larwood & Whittaker, 1977; Svenson, 1981; Alicke, 1985), whereas absolute overconfidence does not imply any aspects of peer comparisons. Especially in settings where relative skill matters for decision making – like promotion tournaments – it may have important implications to know whether the relative overconfidence of the promotion candidates has an impact on promotion decisions. Therefore, this study is complementary to studies focusing on absolute overconfidence.

More closely related to this study, Reuben et al. (2010) recently found that groups select women, compared to men, in competitions less often than their abilities would suggest and than their male group members are being selected. The authors explain this finding by gender differences in being relatively overconfident. I do neither focus on gender differences nor on peer group selection processes. However, the rationale behind their finding combines the present study with theirs: The more overconfident individuals get selected more often in competitive environments where relative skills are important. This paper extends their paper not only by investigating unconscious, not strategic overconfidence, but also by using a wide range of controls. Furthermore, in contrast to their study, I analyze real promotion decisions which are crucial for the promoting organization instead of peer selection processes.

In conclusion, while there is a growing literature on effects of absolute overconfidence on promotion probability, only few have considered that relative overconfidence could influence selection processes as well. Up to now, to the best of my knowledge, it has not yet been researched whether relative overconfidence affects the promotion probability in real promotion processes at all.

2.2 Theoretical framework

The theoretical analysis is based upon Tournament theory and Signalling theory. According to Tournament theory, the candidate with the highest job-specific competency gets promoted (Milgrom & Roberts, 1992). Because of uncertainty concerning a person's true relative competency, the superior often has to rely on signals from the candidates regarding this factor (Spence, 1973). As high competency customarily generates high confidence, confidence could serve as such a signal (Brenner, Koehler, Libermann & Tversky, 1996). However, empirical research shows that the more extreme the confidence of a person is, the more knowledgeable and competent he or she is perceived to be by another person (Rittmayer, 2005, Ludwig & Nafziger, 2010). Hence, the candidate with the highest perceived competency and in turn, the highest confidence would get promoted. However, Ludwig and Nafziger (2010) find that people are not able to evaluate other people's confidence objectively, nor are they capable to detect absolute overconfidence in others. In situations in which relative competency is crucial, confidence regarding relative competency should be of particular interest. Assuming that people are also not capable to detect relative overconfidence, I hypothesise that relative overconfidence could be misinterpreted as relatively higher competency and, therefore, could improve a person's probability of getting promoted:

Hypothesis 1: The more relatively overconfident a person is, the higher is the probability of receiving a promotion proposal.

This theoretically-derived hypothesis would be empirically affirmed if, and only if, those who received a promotion proposal are proven to exhibit a systematically higher relative overconfidence bias before receiving a promotion proposal than those who did not receive one.

3 Methods

3.1 Data and sample

To empirically study the effect, I ran field experiments with 398 male recruits in the Swiss Army, 250 of whom in fact received promotion proposals for becoming an Army officer. The data was collected at two points in time: the first in November, 2008 and the second in December, 2008. The data used for this study is part of a larger data collection process which took place from November, 2008 to September, 2009 (for more detail see Aulich, 2011a). The experiments were conducted with paper and pencil, and each session lasted 90 minutes. The experiments for each session took place simultaneously in five large auditoriums of the Swiss Army. Before an experiment started, the experimenters read out the instructions aloud, and the subjects could ask questions. The wording in the instructions was kept neutral. Hence, neither the term ‘overconfidence’ nor the term ‘overestimation’ were used. Subjects were guaranteed anonymity and they were assured that their personal identification numbers would be used strictly for research purposes and that findings would not be associated with participant names. Two months before the first experimental session started, I conducted a pretest with 20 members of the Swiss Armed Forces staff. The subjects were asked to comment on any item they found difficult to understand or ambiguous. These queries did not reveal any major changes that needed to be made to any of the items.

In general, conducting a field experiment has the advantage that a real promotion scenario which is crucial for the success of the promoting organization can be investigated. The approach of using Army members is particularly useful because it keeps many aspects from the field while still keeping the advantages of experimental methods. Specifically using *recruits* of the Swiss Army has several advantages. First, a quite large amount of people receive a promotion proposal at the same point in time. Secondly, the Swiss Armed Forces maintain a stable promotion policy toward its recruits. Thus, promotions regularly take place at well forecasted occasions. Thirdly, the experimental groups did not differ in a wide range of dimensions that are relevant for promotion decisions, e.g., nationality, age, job expertise, initial hierarchical status, etc. Fourthly, the same selection criteria were applied for all promotion candidates (job specific competency, managerial experience, unobjectionable attitude, conscientiousness, sense of responsibility, social skills, and personal circumstances (Swiss Army, 2007)). However, since I focused on real promotion processes, the experimental groups were formed endogenously by definition.

3.2 Measures

Independent variables

At the first experimental session none of the participants yet knew whether he would receive a promotion proposal. At that point in time, the predictor variables – overconfidence and the controls – were tested.

Overconfidence

In order to test relative overconfidence regarding job-specific competency, each participant took an 18-item military-specific knowledge test. They should choose the correct answer from four that were offered. After taking the test, subjects then estimated their own scores and the score of a randomly selected participant whose performance corresponded to a subject with a median performance. A strength of the design is that subjects were asked about their performance in relation to a specific group of people, whom they had known for at least one week by the time of the first experimental session. Therefore, unlike the most common studies of overconfidence in the literature on psychology, this design rules out that subjects were comparing themselves to groups outside the setting.

The measure of overconfidence was derived by comparing participants' score estimations with actual scores. In other words, relative overconfidence emerges if an individual's belief that he is better than the median participant exceeds the difference of the actual scores (Moore & Healy, 2007). The following formula was used:

$$\text{Relative Overconfidence} = (E[X_i] - E[X_j]) - (x_i - x_j) \quad (1)$$

Where $E[X_i]$ is an individual's belief about his own expected performance, $E[X_j]$ is that person's beliefs about the expected performance of the median participant on that test, and x_i and x_j refer to the actual scores of the individual and the median participant (Moore & Healy, 2007). The measure ranges from -36 to +36.

Throughout the whole study anonymity was granted. Therefore, it is important to note that the experiment solely measured *unconscious* relative overconfidence.

Controls

Despite the subjects' extensive homogeneity I controlled for a wide range of variables relevant to promotion decisions. Since empirical research has found positive correlations between several psychological (Seibert, Crant & Kraimer, 1999; Seibert &

Kraimer, 2001; Judge & Bono, 2001; Stumpp, Muck, Hülshager, Judge & Maier, 2010) as well as socio-demographic factors (Ng, Eby, Sorensen & Feldman, 2005; Pfeifer, 2010) and getting promoted. These findings motivated to control for the Big Five personality traits (extraversion, agreeableness, conscientiousness, emotional stability and openness), self-efficacy and internal locus of control. In order to measure the Big Five personality traits I used the 6x5-item scale developed by Schallberger and Venetz (1999). The participants responded on a 6 point Likert scale. Self-efficacy was measured by means of a four-item version of Krampen's (1991) scale. Example items include, "When I make plans, I am certain I can make them work" and "If something looks too complicated, I will not even bother to try it". The internal locus of control was measured with Krampen's (1991) eight-item instrument (example: "When I get what I want, it is usually because I worked hard for it."). For both, self-efficacy and internal locus of control, the response categories ranged from 1, "I strongly disagree" to 7, "I strongly agree". The aforementioned empirical findings suggest further that employment situation and educational level have an effect on promotion probability. Hence, I used dummies for the employment situation (unemployed, blue-collar employee / white-collar employee, superior, top management, and self-employed) as well as for the educational level (compulsory schooling, vocational training, A-levels, higher vocational training, and bachelor).

Since several studies have indicated a positive relationship between performance and motivation (Deci & Ryan, 1985, 1991) and as the willingness to get promoted is supposed to affect a person's performance motivation positively, I also controlled for the willingness to get promoted. Therefore, I included a binary variable that took the value one if a subject had the desire to get promoted and zero otherwise.

Several weeks before the military training began the Swiss Armed Forces conducted a three-day-preselection, at which the selected persons were being assigned as potential future cadre staff. Hence, another binary variable served as a control for being recommended as cadre staff.

Since all subjects competed for the same promotion positions, the promotion criteria were the same for all subjects: job-specific competencies, managerial experience, unobjectionable attitude, conscientiousness, sense of responsibility, social skills, and personal circumstances. Job-specific competencies were measured by the number of correct answers within the 18-item military-specific knowledge test. This measure ranges from 0 to 18. Managerial experience was obtained from the information about the employment status. Whether a person had an unobjectionable attitude was being identified

within the aforementioned preselection process by the Swiss Armed Forces. Therefore, this factor is included in the information about the recommendation status. Conscientiousness and sense of responsibility were covered by the Big Five scale for conscientiousness (Barrick & Mount, 1991). A person's social skills were measured by the Big Five scales for extraversion and agreeableness. "Traits frequently associated with [extraversion] (...) include being sociable, gregarious, assertive, talkative, and active" (Barrick & Mount, 1991, p. 3). High scores on agreeableness indicate people are tolerant, flexible, trusting, cooperative, good-natured, soft-hearted, and courteous (Barrick & Mount, 1991). No information was available about a person's personal circumstances that are supposed to affect the person's awareness of an officer's duties.

Dependent variable

The second experimental session took place about six weeks after the first one and one week after the list of officer candidates had been posted. At this point in time the criterion variable was collected by asking the participants: "Did you receive a promotion proposal for becoming an officer in the Swiss Army?". The participants could answer either "Yes" or "No".

All in all, this experimental setting allows one to make inferences about the causal effect of the magnitude of relative overconfidence on the probability of receiving a promotion proposal.

3.3 Econometric modelling

For econometric modelling a probit model was used. This approach was chosen as the dependent variable is binary. Either a candidate received a promotion proposal or not. Equation (2) is the probit function that has to be estimated. Φ denotes the standard normal cumulative distribution function, and i are promotion candidate indexes.

$$\Pr(P_i = 1) = \Phi(\alpha + \beta O_i + \delta K_i + \varphi N_i + \gamma S_i + \eta W_i + \mu R_i) \quad (2)$$

P : promotion proposal dummy

O : relative overconfidence

K : job-specific knowledge

N : psychological variables

S : socio-demographic variables

W : willingness to get promoted dummy

R : recommendation for being cadre

staff dummy

Within this methodology, I applied six different models. The first model solely estimates the overconfidence effect. The second model includes controls for job-specific knowledge, the third model controls for psychological variables, e.g. the Big Five. In the fourth model, socio-demographic factors were also taken into account. The fifth model controls for the candidates' willingness to get promoted. To control for whether the candidates were recommended as future cadre staff, the corresponding variable was included in the sixth model. In order to test robustness, additionally, an OLS regression model was estimated according to the procedure recommended by Angrist & Pischke (2009).

3.4 Descriptive statistics

Table 1 displays descriptive statistics. The experimental groups were not significantly different in age, employment, educational level, and most of the psychological variables. All of the participants were aged between 18 and 26 at the first experimental session, with a mean age of 20. Half the sample (50%) was a blue-collar or white-collar employee without any supervisory function. The majority of participants (81%) indicated a vocational training as their highest educational level.

Significant differences appeared in respect to extraversion, willingness to get promoted, and recommendation for being cadre staff between the two experimental groups. Subjects who had received a promotion proposal were recommended for cadre staff more often and had more often the desire to get promoted. Moreover, not only their mean extraversion was lower but also their mean extraversion had a negative sign. It can already be seen that the mean relative overconfidence of the experimental group is higher than the mean bias of the control group.

Table 1 “Descriptive Statistics”

4 Relative overconfidence affects promotion probability

Table 2 contains the results of the probit estimations for probabilities of receiving a promotion proposal according to equation (2) as well as the results of the OLS regres-

sion. For ease of interpretation, I report the marginal effects rather than the probit coefficients themselves. Since the results differ only slightly between the OLS model and the probit models, I discuss them jointly. As can be seen, the results exactly match the prediction and thus provide clear support for hypothesis 1. An infinitesimal change in overconfidence increases the probability of receiving a promotion proposal by 3.0 percentage points (see model 1). Even when controlling for job-specific knowledge the overconfidence effect remains stable (model 2: $\beta = .051$, $p < .01$). At first glance, job-specific knowledge also has a statistically highly significant and positive effect on promotion probability (model 2: $\delta = .063$, $p < .01$).

Moving to more restrictive specifications, using psychological variables, socio-demographical variables, willingness to get promoted, and recommendation for being cadre staff as controls it shows that relative overconfidence indeed has a statistically highly significant and positive effect (model 6: $\beta = .031$, $p < .01$) whereas the effect of job-specific knowledge almost loses statistical significance at 10%-level (model 6: $\delta = .029$, $p < .10$). Moreover, looking at the 95% confidence interval reveals that the marginal effect of actual knowledge could even be negative. Surprisingly, an infinitesimal increase in extraversion leads to a 3.5 percentage points lower probability of receiving a promotion proposal. As expected, the more people desire to get promoted the higher are their chances to actually get promoted. Consistent with its purpose, a recommendation for being cadre staff also has a positive and statistically highly significant effect and, therefore, indeed serves as a preselection instrument.

However, the preselection process itself could be biased by the candidates' relative overconfidence. Accordingly, in order to avoid endogeneity, I tested the robustness by restricting the sample to those participants who were recommended as cadre staff. Table 3 contains the results of this robustness test. Only two factors remain statistically significant: relative overconfidence and willingness to get promoted. The first analysis has found a statistically significant effect of job-specific knowledge on the probability of receiving a promotion proposal, which, as can be seen now, loses significance when restricting the analysis on subjects who were recommended as cadre staff. Despite the fact that the candidates' actual job-specific knowledge is an official selection criterion for becoming an officer, the effect of relative overconfidence is not only much stronger but also more robust.

Table 2 “Results”

Table 3 “Robustness Test”

5 Conclusion

Does actually an agent's actual relative competency shape a principal's decision who to promote or is rather an agent's *belief* in his or her relative competency the crucial factor? A traditional answer to this question, imported from Tournament theory, would be that tournaments work as an instrument for the efficient allocation of employees and, therefore, an agent's actual competency is supposed to be the driving factor. However, the basic idea in the present paper is that a main force behind promotion selection decisions is a candidate's *belief* in his or her competencies, which can be biased. To empirically investigate the effects of agents' relative overconfidence on promotion probability a field experiment was conducted. It shows that, in fact, relative overconfidence affects promotion probability. Moreover, a person's relative overconfidence is a much more reliable indicator for promotion probability than a person's actual competency is. The results have important economic implications, in terms of understanding promotion tournaments, and their impacts on candidates.

Though, there are a number of directions in which the analysis in this paper could be extended. From a theoretical and empirical perspective, I could incorporate the effects of conscious relative overconfidence as well as the scenario that the principal is informed about an agent's relative overconfidence. There are also a number of empirical extensions. First, since the experiment lacks female participants the question whether relative overconfidence also boosts women's promotion probability is still unanswered. Secondly, it could be criticized that promotion decisions within the Swiss Armed Forces were examined. Thus one could question whether the findings are transferable to business companies. This can be countered by pointing out that the Swiss Armed Forces

pursue the same target by running promotion tournaments. Like any business company they want the best candidates to win promotion tournaments.

The findings have important implications for research and organizational practice. As they highlight that other peoples' biases affect decision makers systematically and negatively, even in crucial organizational decision processes. Furthermore, if promotion candidates anticipate the effect of relative overconfidence, promotions could create disincentives in provoking strategic relative overconfidence.

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	Whole sample N = 398				Promotion proposal: Yes N = 250				Promotion proposal: No N = 148			
	Mean	Standard dev.	Min	Max	Mean	Standard dev.	Min	Max	Mean	Standard dev.	Min	Max
Overconfidence	1.23	2.79	-8	9	1.60	2.74	-8	9	.61	2.78	-6	8
Accuracy (Job-specific knowledge)	12.15	2.59	2	18	12.66	2.41	2	17	11.29	2.66	4	18
Age	20.27	1.04	18	25	20.2	1.05	18	25	20.39	1.02	19	24
Willingness to get promoted	15%				21%				3%			
Recommendation for being cadre staff	67%				78%				49%			
<i>Personality traits</i>												
Self-efficacy	10.24	2.80	1	17	10.60	3.01	1	17	9.64	2.30	3	15
Internal locus of control	33.28	4.79	17	48	33.65	4.79	18	48	32.65	4.73	17	45
Extraversion	-.15	1.55	-5	4	-.25	1.65	-5	4	.03	1.35	-4	4
Agreeableness	-.42	1.40	-4	5	-.50	1.41	-4	5	-.29	1.36	-3	4
Conscientiousness	-.06	1.27	-4	4	-.07	1.24	-3	4	-.05	1.32	-4	4
Emotional stability	.11	1.30	-3	6	.11	1.34	-3	6	.11	1.23	-3	3
Openness	.07	1.21	-4	3	.06	1.18	-3	3	.07	1.27	-4	3
<i>Educational level</i>												
Compulsory schooling	3%				2%				5%			
Vocational training	81%				80%				82%			
A-levels	11%				14%				7%			
Higher voc. Training	5%				4%				5%			
Bachelor	1%				-				1%			
University	-				-				-			
<i>Employment</i>												
Blue-collar / white-collar employee	50%				47%				55%			
Superior	11%				12%				9%			
Top management	3%				2%				3%			
Self-employed	-				-				-			
Unemployed	36%				40%				30%			

Table 1: Descriptive statistics

	Promotion proposal (Yes/No)						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	OLS
Overconfidence	.030*** (.009)	.051*** (.010)	.045*** (.011)	.043*** (.011)	.039*** (.011)	.031*** (.011)	.027*** (.010)
Job-specific knowledge		.063*** (.015)	.058*** (.016)	.051*** (.016)	.046*** (.016)	.029* (.016)	.480* (.271)
<i>Controls for psychological factors</i>							
Self-efficacy			.018 (.010)	.016 (.010)	.014 (.010)	.013 (.010)	.010 (.009)
Locus of control			.004 (.006)	.005 (.006)	.004 (.006)	.004 (.006)	.005 (.005)
<i>Big Five:</i>							
Extraversion			-.031* (.017)	-.033* (.017)	-.029* (.017)	-.036** (.017)	-.027* (.015)
Agreeableness			-.014 (.018)	-.019 (.018)	-.017 (.018)	-.014 (.019)	-.011 (.017)
Conscientiousness			-.002 (.020)	-.005 (.020)	-.004 (.020)	-.001 (.020)	-.002 (.018)
Emotional stability			-.017 (.019)	-.013 (.019)	-.010 (.020)	-.020 (.021)	-.017 (.018)
Openness			.003 (.021)	.003 (.021)	.007 (.020)	.007 (.021)	.008 (.019)
<i>Controls for sociodemographic factors</i>							
<i>Education: (Compulsory = base)</i>							
Vocational training				.248 (.158)	.237 (.162)	.168 (.164)	.146 (.140)
A-levels				.242 (.116)	.264 (.103)*	.201 (.125)	.200 (.157)
Higher voc. training				.185 (.137)	.170 (.139)	.051 (.181)	.063 (.176)
Bachelor				-.126 (.445)	-.241 (.505)	-.343 (.446)	-.259 (.352)
<i>Employment: (Unemployed = base)</i>							
Blue-collar / white-collar employee				-.092 (.058)	-.038 (.059)	-.035 (.060)	-.035 (.053)
Superior				.016 (.087)	.043 (.087)	.072 (.086)	.056 (.080)
Top Management				-.194 (.170)	-.106 (.170)	-.047 (.167)	-.051 (.152)
Willingness to get promoted					.299*** (.053)	.285*** (.056)	.226*** (.068)
Recommendation for being cadre staff						.248*** (.059)	.232*** (.053)
N	398	398	398	398	398	398	398
Pseudo R ²	0.022	0.056	0.073	0.088	0.122	0.157	0.146
L-Likelihood	-256.834	-248.081	-243.504	-238.622	-229.626	-220.599	
Chi ²	11.64	29.15	38.3	46.08	64.08	82.13	

Table 2: Results

	Promotion proposal (Yes/No)					
	Model 1	Model 2	Model 3	Model 4	Model 5	OLS
Overconfidence	.032*** (.010)	.041*** (.012)	.038*** (.013)	.039*** (.013)	.035*** (.013)	.035*** (.013)
Job-specific knowledge		.024 (.018)	.024 (.019)	.019 (.019)	.014 (.019)	.013 (.018)
<i>Controls for psychological factors</i>						
Self-efficacy			.009 (.011)	.008 (.011)	.004 (.011)	.004 (.011)
Locus of control			.004 (.006)	.003 (.006)	.004 (.006)	.004 (.006)
<i>Big Five:</i>						
Extraversion				-.018 (.017)	-.012 (.017)	-.012 (-.017)
Agreeableness			-.018 (.017)	-.010 (.021)	-.007 (.020)	-.003 (.020)
Conscientiousness			-.008 (.021)	-.014 (.022)	-.011 (.022)	-.013 (.022)
Emotional stability			-.007 (.022)	-.019 (.023)	-.016 (.024)	-.017 (.022)
Openness			.011 (.024)	.010 (.024)	.014 (.023)	.015 (.024)
<i>Controls for sociodemographic factors</i>						
<i>Education: (Compulsory = base)</i>						
Vocational training				.437 (.273)	.377 (.286)	.388 (.247)
A-levels				.272 (.107)	.261 (.107)	.430 (.265)
Higher voc. training				.218 (.108)	.188 (.126)	.320 (.278)
Bachelor				.050 (.367)	-.051 (.480)	.016 (.407)
<i>Employment: (Unemployed = base)</i>						
Blue-collar / white-collar employee				-.049 (.062)	-.008 (.063)	-.015 (.062)
Superior				.067 (.095)	.086 (.090)	.079 (.100)
Top Management				-.368 (.265)	-.294 (.278)	-.280 (.233)
Willingness to get promoted					.199*** (.057)	.175*** (.076)
N	267	267	267	267	267	267
Pseudo R ²	.034	.039	.051	.074	.099	.044
L-Likelihood	-150.389	-149.535	-147.694	-144.186	-140.310	
Chi ²	10.5	12.21	15.89	22.91	30.66	

Table 3: Robustness test