Whoever you want me to be: Personality and Incentives

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ABSTRACT:

Employers screen potential employees using personality profiles to identify workers with characteristics the firm values. Personality profiles, however, were developed to measure personality traits in environments devoid of incentives that work against truthful reporting. Job applicants, however, have incentives not to respond truthfully but to make themselves appear desirable to employers. This experimental study examines how responses to the Big Five personality test change when the incentives respondents face change. Subjects complete a Big Five personality test prior to the experiment. Once in the laboratory, subjects were incentivized to exhibit particular traits on another Big Five personality test. Our study examines (1) whether responses to the Big 5 change in response to incentives to misrepresent oneself, (2) whether employers can learn about applicants' personalities in the presence of these incentives, and (3) what else employers might learn about applicants from their responses if not their personalities— namely intelligence, willingness to misrepresent oneself, and risk aversion. Our preliminary findings indicate (1) that applicants misrepresent themselves when they have a pecuniary incentive to do so and (2) that this "faking" behavior is in some treatments related to IQ.

I. Introduction

Some 30% of U.S. companies and 40% of Fortune 100 companies use personality tests to screen job applicants at some level (Heller 2005, Erikson 2004). The widespread use of personality testing in the hiring process is in some ways puzzling. Personality tests were developed by psychologists in environments devoid of incentives that work against truthful reporting. Job applicants, however, have powerful incentives to misrepresent themselves in order to appear more desirable to potential employers. When asked whether they agree or disagree with the statements, "I mess things up" or "I am easily distracted" on a Big Five Personality Profile, it is hard to imagine which job applicants actually respond that they "strongly agree." Puzzling to an economist or not, however, employers clearly they believe they learn something from such testing as they spend $400 million per year on personality testing (Hsu 2004).

Since Spence's (1973) seminal work on job market signaling, economists have recognized the central importance to the labor market of the information extraction problem faced by firms encountering job applicants of unknown type. Among the primary insights of the Spence model is that where applicants of different types are equally able to represent themselves in a favorable light through their signal, employers will be unable to extract information from such signals. Assuming that employers are not simply wasting money on personality testing, what is it that employers learn from such tests and how are applicants able to credibly convey information about themselves?

Consistent with the Spence model, we hypothesize that applicants may differ in dimensions that affect their ability or desire to misrepresent themselves in a favorable manner. First, applicants may differ in their ability to correctly perceive how to make themselves appear more desirable to potential employers—their ability to fake. Second, applicants may differ in their aversion to misrepresenting themselves. Third, applicants may differ in their risk preferences which influence their willingness to misrepresent themselves if there is some risk of misrepresentations being exposed. Such differences among applicants may affect the costs of misrepresentation in such a way as to allow for a separating equilibrium to the signaling game between applicants and employers. Importantly, however, the applicant "type" about which employers learn in such an equilibrium may have nothing to do with the applicant's personality.

In this study, we use a laboratory experiment to compare subjects' responses to a Big Five Personality Profile (DeYoung et al. 2007) in environment devoid of incentives that work against truthful reporting to their responses in an environment in which they have a clear pecuniary incentive to misrepresent themselves. Subjects completed the Big Five Personality Profile prior to arriving in the laboratory as a prerequisite for participation in the experiment. Once in the laboratory, subjects were assigned to groups of 3 to 5 subjects and given a job description emphasizing the need for a particular personality factor (extroversion or openness/intellectual orientation in the treatments). Subjects were informed that the group member "best suited" to the

job would be awarded a large cash bonus and then asked to complete an IQ test and the Personality Profile.

We examine the changes in subjects' responses to answer three questions. First, do subjects "fake" insofar as their responses to the incentivized Big Five profile differ from their responses to the non-incentivized profile? Second, how do subjects' positions in the distributions of personality factors change between the incentivized and non-incentivized environments? That is, can employers learn about applicants' personalities from such tests? Third, what can be learned about subjects from their responses to the incentivized personality profile if not their personality? We examine whether faking behavior is related to—among other things—subjects' IQ, aversion to misrepresentation, and risk preferences—characteristics that are themselves difficult for employers to observe.

Findings from our pilot sessions provide a clear answer to the first question: subjects misrepresent themselves significantly when they have a pecuniary incentive to do so. When subjects receive a job description indicating that the ideal candidate is very extroverted ("open" and intellectually oriented), their responses to the Big Five test in the lab indicate that they are substantially more extroverted ("open" and intellectually oriented) than they were when they responded to the same personality test before the experiment. While the pilot data are not sufficient to determine whether subjects maintain their relative positions in the distributions of personality traits when responding to the incentivized personality test, we are able to examine whether changes in self-reported personality tests are related to other individual characteristics. Specifically, we find evidence that the change in personality scores between the two environments is positively correlated with IQ when we are priming extroversion—though we find no such correlation when we are priming openness and intellectual orientation. We find no evidence that "faking" is correlated with age, locus of control and risk aversion.

Psychologists have long recognized that test-takers misrepresent themselves (Holden and Hibbs 1995; Ones and Viswesvaran 1998). Our findings make both a methodological and conceptual contribution to understanding what employers learn from such tests. First, we use a within-subject design that allows us to observe responses from the same subject in both the incentivized and non-incentivized environments in contrast to most of the psychology research on "faking" behaviors. Such a design allows us to determine whether employers learn anything about personality from such tests and whether faking behavior is systematically related to other personal characteristics not easily observed by the employer. Second, we approach the issue of "faking" from the perspective of an economist thinking about the signal-extraction problem faced by the employer as in the Spence model. We do not argue that employers waste their money on personality tests. Indeed, we are convinced that employers must learn something from such tests or they would not be duped into giving them. Our suspicion—based on an understanding of personality testing as a form of signaling—is that what employers learn from this testing may not be what psychologists intend employers to learn from such tests. Employers

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may learn about other traits not easily observed but perhaps of interest such as "faking" ability and aversion to misrepresentation. Our preliminary findings support the notion that employers can learn about applicants' intelligence from responses to personality tests. Given that employers may be reluctant to administer intelligence tests for fear of bias litigation (e.g., *Griggs vs. Duke Power Co.* 1971), such indirect learning through personality testing may be of great value to firms.

Beyond informing our understanding of the role played by personality testing in the hiring process, our findings serve as a cautionary note for other economists. Economists have grown increasingly interested in documenting the relationships between personality factors and economic behaviors and outcomes ranging from schooling decisions to earnings to marital decisions (Borghans, Duckworth, Heckman, and ter Weel 2008; Borghans, ter Weel, and Weinberg 2008; Lundberg 2010; Osborne-Groves 2005). One might be tempted from the findings of such studies to conclude that employers would be well-served by learning about the personality traits of potential employees. Our findings highlight the fact that it is not that simple: applicants know that the employer is attempting to learn about them—both the good and the bad—and many applicants are try to appear to be whoever the employer wants them to be. Employers undoubtedly learn about these applicants from personality testing, but not necessarily about the personality traits they explicitly measure. Perversely, more personality testing on the job market may not make more information about applicants' personalities available to employers.

II. Personality, Job Applicant Testing, and the Psychology Literature

II.A Personality

II.B Personality Testing and the "Faking" Literature

III. Personality Testing in a Job Signaling Model

In the Spence signaling model, employers are uncertain about the productivity (θ) of job applicants they encounter. Applicants have the opportunity to send signals (v) concerning their productivity (type). Signaling behaviors are assumed to be costly and not directly productivity-enhancing with the costs of signaling given by $c(v, \theta)$. Signaling can be informative insofar as separating equilibria exist and employers can distinguish between different types of workers given their signals provided a *single-crossing property* concerning the cost of signaling is satisfied. Specifically, the costs of sending "higher" signals must be negatively correlated with an applicant's type (i.e., $c_{v\theta} < 0$).

Economists have focused on the signaling role of education given the interest in understanding the private and social returns to education, but personality testing also offers applicants the opportunity to send prospective employers a signal. In contrast to education, the costs of signaling in the case of personality testing are not clear. There are no explicit costs to portraying

oneself as extroverted, open, agreeable, etc., if an applicant thinks this is what the employer is looking for. We assume, however, that there are psychic costs of representing oneself in a particular manner (i.e., sending a signal v).

One of Spence's (1973) additional insights is that signals may be informative in some occupations but not in others depending on whether the relevant productive skill (θ) in an occupation is negatively correlated with signaling costs ($c_{v\theta} < 0$). A further implication from this insight is that what employers learn about applicants depends on which characteristics are negatively correlated with signaling costs—that is, for which characteristics is the single-crossing property satisfied. In considering what employers learn from personality testing, we propose four potential explanations for why a single-crossing property might be satisfied such that information might be transmitted to employers through personality testing.

III.A Uniform Aversion to Misrepresentation

Job applicants may prefer to represent themselves in an honest fashion. Such preferences would affect the psychic costs of misrepresenting oneself. If all applicants have the same preferences and the single-crossing property is satisfied, then separating equilibria in which personality tests correctly reveal personality traits exist. For instance, suppose θ represents a personality trait of interest to employers such as extroversion and v represents how one portrays oneself on a personality test. Applicants respond honestly if $v = \theta$. Suppose that the costs of representing one's type as v when one's type is actually θ are given by $c(v, \theta) = (v - \theta)^2$. The single-crossing property is satisfied: more extroverted individuals find it less distasteful (costly) to represent themselves as being more extroverted than less extroverted individuals given these (common) preferences. In this setting, personality testing may be revelatory concerning personality for some parameters of the cost function and distributions of personality types.

III.B Asymmetric Aversion to Misrepresentation

In the previous subsection, we assumed that the "type" about which employers learn is actually the applicant's personality, but this need not be the case. The costs of misrepresentation in III.A assumed that applicants care about how much they distort their signal from their actual personality. Instead, an applicant's type may be the applicant's preferences for truthful reporting. Suppose v again represents the signal observed by employer's on a personality test, ρ the applicant's actual personality trait, and θ the applicant's distaste for misrepresenting themselves. If the cost of misrepresenting oneself is given by $c(v, \theta) = \theta|v - \rho|$, then the single-crossing property is satisfied ($c_{v\theta} > 0$). What distinguishes applicants is not their actual personality type but their willingness to misrepresent themselves. Thus under some conditions personality testing can reveal which applicants are more willing to play fast and loose with the truth and misrepresent themselves.

III.C Faking Ability

Again, the "type" about which employers learn through personality testing may not have anything to do with personality. Some individuals may be better able to perceive both what the employers are looking for and how to represent themselves in the most favorable manner. Such individuals might be described as having more "faking ability" (θ). Suppose that v represents one's self-description on the personality test and that v is increasing in favorability. Assuming that all individuals are capable of representing themselves in a favorable manner if they give it enough thought but that some individuals find it easier to represent themselves favorably than others, we can express the cost of representing oneself favorably as $c(v, \theta) = \theta v^2$. If $v > 0$, then the single-crossing property will be satisfied. Separating equilibria may exist in which employers learn from personality testing which applicants are clever enough to tell them what they want to hear.

III.D Risk Aversion

One might imagine that there are no direct costs of misrepresenting oneself. Suppose, however, that there exists some probability that employers will detect an applicant's misrepresentation during a probationary period during which the employer can observe the applicant's personality and immediately fire workers who are found to have misrepresented themselves. If all applicants are sufficiently risk averse, then the risk of termination can lead all applicants to truthfully report their actual personality traits. Alternatively less risk averse individuals may be more willing to misrepresent themselves than more risk averse individuals, and "high" personality scores may simply indicate that individuals are not risk averse.

IV. Experimental Design

IV.A Baseline treatment

Subjects were recruited from the undergraduate population at Simon Fraser University. When subjects registered for the experiment, they completed an online survey consisting of a 100-item Big Five Personality Profile (DeYoung et al. 2007) and an optimism-pessimism measure (Scheier et al. 1994). Subjects could not participate in the experiment if they did not complete the online survey.

Once in the laboratory, subjects were assigned to groups of 3 to 5 subjects. Subjects were then given one of two jobs descriptions (all members of a group received the same job description). Each job description "primed" a particular personality factor (extroversion and openness/intellect) by making it clear that the "firm" was looking for individuals possessing this personality factor. Specifically, the job descriptions incorporated "pro-words" associated with the "facets" associated with extroversion and openness/intellect.[1] After reading the job description, subjects completed an intelligence test (Raven's Progressive Matrices) and the same

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[1] Personality research has identified five "factors" that comprise personality, but each factor consists of "sub-traits" known as facets.

personality profile that they completed online. Subjects were informed that their responses would be evaluated "according to the hiring criteria and one subject within each group who is the best fit for the job description based on these tests will receive a bonus of $25." After completing the intelligence and personality tests, subjects were informed whether they had won the bonus. They then completed a survey including the Holt-Laury risk measure, a measure of locus of control, and the optimism-pessimism inventory completed online. The complete instructions provided to subjects are provided in Appendix 1 along with the job descriptions.

Subjects were paid $10 for completing the online survey and showing up to the experiment. In addition to the $25 bonus awarded to one subject in each group, all subjects earned $0.10 per correct answer on the IQ test and their earnings from the Holt-Laury risk preferences measure.

IV.B Additional Treatments

Section IV.A describes the pilot sessions. Subsequent experimental sessions will incorporate two additional features. First, after subjects complete the IQ and personality tests they will complete a survey instrument designed to assess subjects' aversion to misrepresenting information. The purpose of this instrument is to determine whether "faking" is systematically related to an applicant's preferences for truthful representation such that personality testing reveals which applicants are willing to misrepresent themselves as situations require. Second, in some treatments subjects will be informed that their responses may be compared to their responses to the online survey and that this comparison will influence payment of the bonuses. We expect that these additional features will allow us to identify whether responses to personality tests in the application process convey information concerning preferences for truthful representation and risk preferences.

V. Findings

V.A Do Test Takers Misrepresent Themselves?

If job applicants do not misrepresent themselves on personality tests administered by prospective employers, then the information extraction problem faced by employers is straightforward. Consistent with psychology studies on faking (e.g., Holden and Jackson 1981), however, subjects in our experiment misrepresent themselves considerably when they face pecuniary incentives to appear to be more extroverted or open and intellectually oriented than they may, in fact, be. Figure 1 plots the distributions of subjects' personality factor scores collected in the laboratory (incentivized) and collected online (non-incentivized). The top panel compares the distributions of extroversion scores in the two environments. Whereas subjects showed evidence of considerable heterogeneity in extroversion prior to the experiment in the non-incentivized environment, *all* subjects indicated that they were more extroverted than average (in the non-incentivized setting) when the job description indicated that the bonus would awarded to an extrovert. Similarly, *all* subjects indicated that they were more open and intellectually oriented than average (in the non-incentivized setting) when the job description indicated that the bonus

would awarded to an open and intellectually oriented individual. The bottom panel shows the distributions of neuroticism scores among subjects who were given the job description priming openness and intellectual orientation. Even though subjects were not primed to represent themselves as less neurotic than they are, they clearly represent themselves as such.

The bottom panel of table 1 lists the mean scores for each personality factor in the incentivized and non-incentivized environments for both treatments (priming extroversion and priming openness and intellectual orientation). As in the distributions in Figure 1, these means indicate that subjects represent themselves as being more conscientious, more extroverted, less neurotic, and more open and intellectually oriented in the incentivized environment than in the non-incentivized environment—regardless of whether the job description primed these traits. The differences between the mean incentivized and non-incentivized responses are significant at the 1% level for all personality factors except agreeableness and conscientiousness. In summary, subjects definitely misrepresent themselves in response to pecuniary incentives.

V.B Can Employers Learn about Personality from Applicants' Personality Tests?

Given that subjects clearly misrepresent themselves when they have a pecuniary incentive to do so, the question naturally arises whether employers can learn about applicants' personalities from personality testing. If applicants' misrepresentations merely result in a displacement of the means of the distributions of personality factors, employers can still determine which applicants are more extroverted and which applicants are less so among applicants. Both the distributions in Figure 1 and the standard deviations in the bottom panel of Table 1 indicate that misrepresentation results in more than a mean displacement: the distributions of personality factors are "compressed" significantly. As a result, small differences in the extent to which subjects misrepresent themselves can potentially lead to large differences in subjects' relative positions in the distribution of personality factors.

We have a relatively small number of observations in our pilot data, making it is difficult to assess how much subjects' relative positions in the distributions of personality factors change when we move from the non-incentivized to the incentivized environments. As a first pass on this limited data, table 2 presents the pairwise correlations between subjects' ranks in the distributions of personality factors in the incentivized and non-incentivized environments. When primed to be extroverted, subjects' ranks in the incentivized and non-incentivized extroversion distributions are positively correlated (0.21), but this correlation is far from one—as it would be if all subjects maintained their relative positions. Indeed, in the treatment priming extroversion, only subjects' relative positions in the agreeableness distributions appear relatively unchanged (correlation 0.59) among all of the personality factors. In the treatment priming openness and intellectual orientation, subjects' ranks are much more consistent. Specifically, subjects' openness and intellectual orientation ranks are positively correlated (0.69), as are their ranks on all of the other personality factors. While subjects misrepresent themselves in this treatment, it

appears as though one can infer whether subjects are relatively more or less open than other subjects in this treatment even in the incentivized environment.

V.C What Might Employers Learn from Personality Tests if not Personality?

In signaling models, employers learn about the applicant's type only if that type influences the applicant's ability to send a credible signal. When subjects misrepresent themselves, employers may or may not be able to learn about applicants' personality factors from personality tests, but they may learn other things about applicants if this misrepresentation is systematically related to other skills (e.g., "faking ability") and preferences (e.g., risk aversion or preferences for truthful representation).

In tables 3 and 4, we explore the possibility that changes in subjects' scores between the incentivized and non-incentivized environments are related to observed characteristics of the subjects. Specifically we regress the non-incentivized score minus the incentivized scores on observable characteristics and a constant. Table 3 reports the estimated regression coefficients for the treatment priming extroversion. The top panel reports the regression estimates using age and gender as the observable characteristics. We find no evidence that subjects' misrepresentations are systematically related to age and gender. If employers use personality tests to learn about characteristics of applicants other than personality, this finding is in some sense unsurprising. Age and gender are easily observed, and hence there would be no need to use personality testing to learn about them.

The next panel of table 3 reports the estimated relationships between subjects' IQ and their misrepresentations. Even in this small sample, subjects' misrepresentation appear to be related to their IQ for every personality trait except agreeableness. Subjects with higher IQs represent themselves as more conscientious, more extroverted, less neurotic, and more open and intellectually oriented than their responses to the non-incentivized personality test indicated.

The bottom two panels of table 3 report the estimated relationships between subjects' misrepresentations and their locus of control and risk preferences. We find no evidence that misrepresentations are related to either trait. Similar to age and gender, we had no reason to expect either characteristic would influence either the costs of misrepresentation or subjects' ability to misrepresent themselves. Risk averse subjects might misrepresent themselves less if they feared the potential for negative consequences should such misrepresentation be exposed, but there is no such risk in our baseline treatments.

Table 4 presents the same estimated relationships between subjects' misrepresentations and observable characteristics in the treatment priming openness and intellectual orientation. We find almost no relationships between misrepresentation and any observable characteristic. Only gender appears to be related to misrepresentations. Specifically, women in this treatment represented themselves as being more extroverted, less neurotic, and more open and intellectually oriented than they did in the non-incentivized environment.

VI. Discussion

Employers learn about job applicants by reviewing resumes, contacting references, holding interviews, and even directly testing applicants on a variety of dimensions. In some of these settings (e.g., interviews and testing), applicants have the opportunity to misrepresent themselves, and indeed they have a powerful incentive to do so. Employers surely recognize that applicants will not truthfully represent themselves, and the question naturally arises why employers go through the process of interviewing and testing candidates. What do they hope to learn?

In this study, we investigate what employers can learn from personality testing when applicants have strong incentives to misrepresent themselves in a laboratory experiment. If applicants' incentives to misrepresent themselves merely displace the distribution of personality factors, employers may indeed be able to learn about personality factors even when subjects have incentives to misrepresent themselves. Alternatively, we hypothesize that applicants may differ in their preferences for truthful representation, ability to misrepresent themselves, or aversion to the risk of having their misrepresentation exposed. If so, a single-crossing condition is satisfied and employers can learn about applicants' types—though these types are not applicants' personalities. Using personality tests to learn about applicant characteristics makes sense if these traits are difficult to observe (e.g., preferences for truthful representation) or if some barrier to observation exists as in the case of litigation concerns where intelligence is concerned.

The findings from our pilot study are mixed. When priming applicants to be extroverted, the low correlations between applicants' ranks in the incentivized and non-incentivized personality distributions suggest that employers can learn little about personality from incentivized personality tests. Intelligence appears to be related to subjects' ability to misrepresent themselves favorably while other characteristics are unrelated to subjects' misrepresentations.

By contrast, when priming openness and intellectual orientation, we find that subjects' ranks in the incentivized and non-incentivized distributions of personality factors are positively correlated, suggesting that employers could learn about applicants' personalities in such a setting. Furthermore, the only personal characteristic related to misrepresentation in this treatment is gender with women doing more to misrepresent themselves favorably.

In future work to explore the extent to which misrepresentations are related to subjects' preferences, we will measure preferences concerning truthfulness in reporting and add a treatment in which there is some risk that misrepresentations will be exposed.

Despite have developed formal models of job market signaling, economists have largely confined the hiring process to a "black box." The hiring process, however, is replete with competing incentives for employers and applicants, and economists can do much to increase our understanding of practices in the hiring process that appear at first glance to be exercises in futility. Personality testing is one such practice, and our study begins the process of

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understanding why employers find such tests—tests which surely invite dishonest replies—useful within the framework of an economic model of job signaling.

References

Abeler, Johannes, Anke Becker, Armin Falk. 2012. "Truth-Telling: A Representative Assessment." IZA Discussion Paper No. 6919.

Borghans, Lex, Angela Lee Duckworth, James J. Heckman, and Bas ter Weel. 2008. "The Economics and Psychology of Personality Traits." *Journal of Human Resources*, 43(4), 972-1059.

Borghans, Lex, Bas ter Weel, and Bruce A. Weinberg. 2008. "Interpersonal Styles and Labor Market Outcomes." *Journal of Human Resources* 43(4): 815–858.

Bowles, Samuel, Herbert Gintis, and Melissa Osborne. 2001. "Incentive-Enhancing Preferences: Personality, Behavior and Earnings." *AEA Papers and Proceedings*, 91, 155-158.

Cobb-Clark, Deborah A. and Stefanie Schurer. 2012. "The Stability of the Big-Five Personality Traits." *Economics Letters*, 115(1), 11-15.

DeYoung, Colin, Lena Quilty, Jordan Peterson. 2007. "Between Facets and Domains: 10 Aspects of the Big Five." *Journal of Personality and Social Psychology*, 93(5), 880-896.

Erickson, Paula. 2004. "Employer hiring tests grow sophisticated in quest for insight about applicants." *Knight Ridder Tribune Business News,* 1.

Heller, Matthew. 2005. "Court ruling that employer's integrity test violated ADA could open door to litigation." *Workforce Management*, 84(9), 74–77.

Holden, Ronald, and Nicole Hibbs. 1995. "Incremental validity of response latencies for detecting fakers on a personality test." *Journal of Research in Personality*, 29, 362–372.

Holden, Ronald, and Douglas Jackson. 1981. "Subtlety, information, and faking effects in personality assessment." *Journal of Clinical Psychology*, 37, 379–386.

Hsu, Caroline. 2004. "The testing of America." *U.S. News and World Report*, 137(9), 68–69.

Lundberg, Shelly. 2010. "Personality and Marital Surplus." IZA Discussion Paper No. 4945.

Ones, Deniz, and Chockalingam Viswesvaran. 1998. "The effects of social desirability and faking on personality and integrity assessment for personnel selection." Human Performance, 11, 245–269.

Osborne-Groves, Melissa. 2005. "How important is your personality? Labor market returns to personality for women in the US and UK." *Journal of Economic Psychology*, 26, 827-841.

Spence, Michael. 1973. "Job Market Signaling." *Quarterly Journal of Economics*, 87(3), 355-374.

Figure 1: Pre-laboratory and incentivized distributions of personality traits
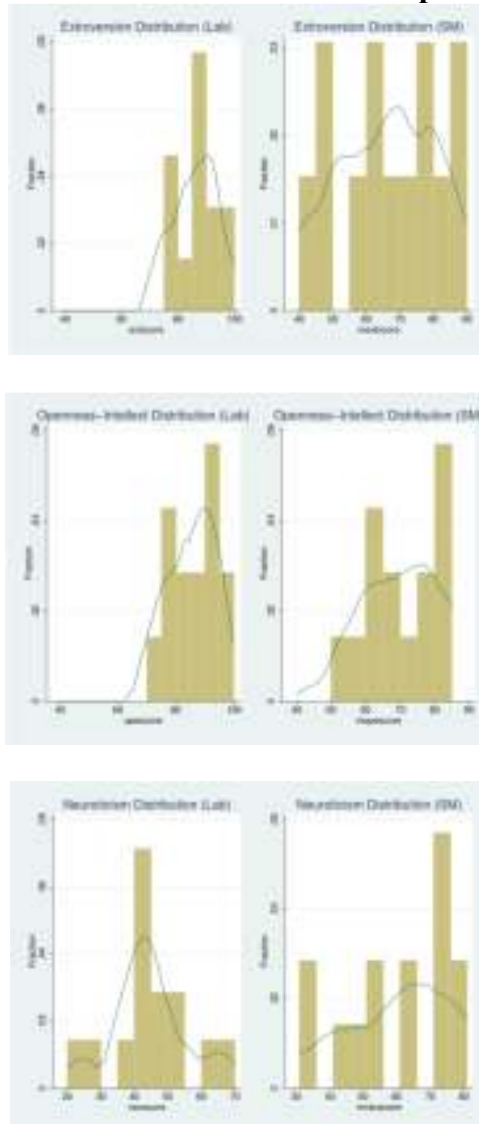
Note: The top panel depicts the laboratory distribution of extroversion scores (left) in the treatment in which subjects were incentivized to indicate that they were extroverted and the pre-experiment distribution of extroversion scores from the same subjects collected via Survey Monkey (right). The middle panel depicts the laboratory distribution of openness-intellect scores (left) in the treatment in which subjects were incentivized to indicate that they were more "open" and "intellectually oriented" and the pre-experiment distribution of openness-intellect scores from the same subjects collected via Survey Monkey (right). The bottom panel depicts the laboratory distribution of neuroticism scores (left) in the treatment in which subjects were incentivized to indicate that they were more "open" and "intellectually oriented" and the pre-experiment distribution of neuroticism scores from the same subjects collected via Survey Monkey (right).

Table 1: Descriptive statistics

Measure	Mean	S.D	Minimum	Maximum
Age	21.71	2.22	18	27
Male	0.38			
Raven's Progressive Matrices Score	54.07	2.97	46	58
Holt-Laury Risk Measure	13.81	2.08	10	20
Locus of control				
Agreeableness	73.00	7.46	61	91
Conscientiousness	69.41	11.01	47	95
Extroversion	68.33	13.41	42	91
Neuroticism	58.70	15.14	31	82
Openness/Intellect	68.19	9.62	50	84
Number of subjects	27			

Measure	Priming Extroversion		Priming Openness/Intellect	
	Pre-lab	Incentivized	Pre-lab	Incentivized
Agreeableness	71.54	74.85	74.35	71.93
	(7.47)	(6.66)	(7.46)	(8.08)
Conscientiousness	65.23	$80.77^{\lozenge}$	73.29	75.50
	(7.67)	(7.36)	(12.42)	(8.32)
Extroversion	66.85	$86.23^{\lozenge}$	69.71	$83.71^{\lozenge}$
	(15.08)	(7.54)	(12.07)	(9.09)
Neuroticism	58.00	$37.46^{\lozenge}$	59.36	$44.14^{\lozenge}$
	(14.91)	(14.49)	(15.88)	(12.14)
Openness/Intellect	66.31	$83.69^{\lozenge}$	69.93	$85.50^{\lozenge}$
	(8.58)	(8.04)	(10.51)	(7.99)
Number of subjects	13		14	

Note: The bottom panel provides the means and standard deviations (in parentheses) of personality traits in the pre-lab and incentivized environments for the treatments priming extroversion and openness-intellect. $\lozenge$ indicates that the p-value of the t-test of equality of sample means is less than 0.01.

Table 2: Correlations between subjects' ranks in the incentivized & non-incentivized distributions of personality factors by treatment

Personality Factor	Priming Extroversion	Priming Openness/Intellectual Orientation
Agreeableness	0.59**	0.68***
Conscientiousness	-0.08	0.49*
Extroversion	0.21	0.43
Neuroticism	0.32	0.41
Openness/Intellectual Orientation	0.01	0.69***

Note: Subjects are ranked from highest to lowest for each personality factor in the incentivized and non-incentivized environments. The correlations reflect the correlations between the subjects' ranks in these two environments. *** indicates significant at the 1% level; ** indicates significant at the 5% level; * indicates significant at the 10% level; and ± indicates significant at the 15% level.

Table 3: Correlations between the change in personality scores and observable characteristics when priming extroversion

Variable	Agreeableness	Conscientiousness	Extroversion	Neuroticism	Openness/ Intellect
Age	0.096	-1.255	-0.500	-0.216	-1.904
	(1.323)	(1.788)	(3.207)	(2.984)	(2.553)
1 if male	0.532	-10.543	-10.167	0.136	-5.801
	(5.392)	(7.289)	(13.072)	(12.165)	(10.408)
Constant	-6.788	10.639	-9.500	30.524	22.212
	(28.659	(38.744)	(69.485)	(64.663)	(55.325)
R^2	0.002	0.232	0.083	0.001	0.084
Number of observations	10	10	10	10	10
IQ	-1.071	-5.320±	-9.204*	9.113*	-7.274**
	(2.004)	(3.299)	(4.506)	(4.842)	(3.311)
Constant	-3.388*	-15.939***	-20.078***	21.225***	-17.933***
	(1.759)	(2.895)	(3.955)	(4.250)	(2.906)***
R^2	0.025	0.191	0.209	0.244	0.305
Number of observations	13	13	13	13	13
Locus of control	2.072±	0.090	4.312	-5.566*	5.615**
	(1.236)	(2.213)	(3.295)	(2.572)	(2.105)
Constant	-30.091***	-20.113	-76.140*	94.457**	-88.769***
	(15.296)	(27.417)	(40.828)	(31.864)	(26.077)
R^2	0.261	0.0002	0.176	0.369	0.471
Number of observations	10	10	10	10	10
Risk aversion	1.010	-0.171	2.868	-0.571	2.843±
	(0.978)	(1.849)	(2.526)	(2.803)	(1.811)
Constant	-17.057	-13.207	-58.435±	28.311	-56.087
	(13.420)	(25.383)	(34.663)	(38.468)	(24.853)
R^2	0.088	0.0008	0.105	0.004	0.183
Number of observations	13	13	13	13	13

Note: The dependent variable in each column is the pre-lab score minus the lab score for each trait. Standard errors in parentheses. *** indicates significant at the 1% level; ** indicates significant at the 5% level; * indicates significant at the 10% level; and ± indicates significant at the 15% level. The sample sizes vary because of a data collection problem during the pilots.

Table 4: Correlations between the change in personality scores and observable characteristics when priming openness/intellect

Variable	Agreeableness	Conscientiousness	Extroversion	Neuroticism	Openness/ Intellect
Age	0.126	-2.283	-0.704	1.067	-0.292
	(0.936)	(1.714)	(1.352)	(1.914)	(0.841)
1 if male	0.940	4.385	14.287**	-16.139*	10.603**
	(4.248)	(7.782)	(6.134)	(8.689)	(3.819)
Constant	-0.683	48.036	-5.823	0.437	-13.772
	(20.129)	(36.783)	(29.067)	(41.174)	(18.095)
R^2	0.015	0.182	0.420	0.308	0.523
Number of observations	11	11	11	11	11
IQ	0.238	-0.214	-0.021	-3.961	2.515
	(1.313)	(2.762)	(2.963)	(3.382)	(1.791)
Constant	2.411	-2.199	-13.998***	15.502***	-15.754***
	(1.406)	(2.956)	(3.171)	(3.620)	(1.917)
R^2	0.003	0.0005	0.0000	0.103	0.141
Number of observations	14	14	14	14	14
Locus of control	-0.552	0.798	0.762	-3.770**	1.363
	(0.831)	(1.691)	(1.582)	(1.655)	(1.002)
Constant	8.974	-10.101	-23.869	59.865**	-31.318**
	(9.829)	(19.990)	(18.709)	(19.455)	(11.846)
R^2	0.047	0.024	0.025	0.366	0.171
Number of observations	11	11	11	11	11
Risk aversion	0.306	1.264	2.375*	-4.250***	1.653*
	(0.613)	(1.249)	(1.215)	(1.150)	(0.775)
Constant	-1.849	-19.909	-47.250**	74.714***	-38.710***
	(8.694)	(17.711)	(17.235)	(16.304)	(10.989)
R^2	0.020	0.079	0.242	0.533	0.275
Number of observations	14	14	14	14	14

Note: The dependent variable in each column is the pre-lab score minus the lab score for each trait. Standard errors in parentheses. *** indicates significant at the 1% level; ** indicates significant at the 5% level; * indicates significant at the 10% level; and ± indicates significant at the 15% level. The sample sizes vary because of a data collection problem during the pilots.

Appendix 1: Instructions and job descriptions

Instructions

This is an experiment in the economics of decision making.

Each subject will be randomly assigned to a group of 3-5 subjects (most groups will have 4 subjects); each group will be assigned a job description. All members of a group will receive the same job description. We will then administer an intelligence test and a personality test to determine who to "hire" for the job. We will weigh these two tests according to the hiring criteria and one subject within each group who is the best fit for the job description based on these tests will receive a bonus of $25; the remaining subjects in each group will not receive any bonus.

Note: The personality test is the same test you filled out on-line before the experiment. The answers you submitted online will have __NO__ influence on whether or not you receive the bonus.

After the bonus has been awarded, you will be asked to answer some further questions. You will be paid for one portion of the additional questions, which will be explained to you at the time.

Your earnings today will have four components.
1) You will be paid $0.10 for every correct answer on the intelligence test.
2) The subject who is "hired" from his or her group will receive a bonus payment of $25.
3) You will be paid for one portion of the additional questions.
4) All subjects who participate will receive a $10 show-up fee.

Are there any questions?

You will have 40 minutes to complete the intelligence test. We will begin now.

Job description priming openness/intellect:

Our marketing research consulting firm is looking to hire smart new graduates to help clients launch new products. We provide a full range of services to assist our clients in solving problems that do not always have obvious solutions. Creative thinkers are a must for this position. The ideal candidate must be imaginative and ready to think outside of the box.

Successful candidates come from a wide variety of backgrounds reflecting the wide range of interests of our staff. Our consultants have backgrounds in fields ranging from art history to philosophy to economics. The common denominator among our consultants is their innate curiosity. This curiosity leads them to arrive at innovative solutions resulting from a mix of thoughtful analysis and experimentation.

Our workplace encourages a free flow of ideas, and we encourage a diversity of opinions within a respectful, team environment. While consultants work in teams, we encourage consultants to act as individuals and avoid "group thinking." Consultants should be inclined to challenge convention and traditional practices in order to help our clients achieve their goals.

Candidates must be willing to travel throughout North America. Travel typically accounts for 25% of a consultant's work time. Our consulting practice leads team members into unusual situations, and a sense of adventure is a must. Consultants should be eager to travel and open to new experiences.

Our firm prides itself on providing timely, prompt advice and services when our clients need them—even if this means working nights and weekends. We look for individuals comfortable working in the fast lane where there is no such thing as routine.

Job description priming extroversion:

Our consumer products firm is looking to hire bright new graduates for positions in brand management and sales. We are looking for happy, cheerful, optimistic, and enthusiastic go-getters who will help our company achieve new heights.

The successful applicant will be required to build and maintain relationships with retailers and coordinate logistics with our supply chain managers. Our brand management and sales professionals interact primarily with small retailers—particularly family businesses—and it is important that our professionals enjoy interacting with people and building close relationships with these retailers. Our employees must be friendly, fun-to-be-around people that customers will want to invite to backyard barbecues.

Our professionals also attend trade shows to introduce our products to a wider audience. The successful applicant must be someone who thrives in crowds and who can stand out in these bustling affairs. Our professionals are active individuals with boundless energy and vigor who enthusiastically promote our products at every opportunity.

Our brand management and sales professionals also work to ensure timely delivery of our products to clients. Successful applicants will be expected to be aggressive and assertive in ensuring that delivery schedules are maintained and that supply chain issues are rapidly resolved. When issues arise, we expect our brand management professionals to speak up and take charge to resolve any situations which may affect our clients. We believe that the best way to maintain good relationships with clients is to keep them happy—and our products in stock no matter what the circumstances.

We like to think that our company is an exciting place to work. We look to fill the position with someone who is as happy and enthusiastic about working here and interacting with our clients as we are.