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**IS BEING AGREEABLE
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IN THE LABOR MARKET?**

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Is Being Agreeable a Key to Success or Failure in the Labor Market?[†]

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The aim of this study was to elucidate how individual differences in noncognitive skills, as measured by the Big Five personality traits, explain variation in labor market outcomes. Japanese and U.S. survey data were analyzed to examine the associations between personality traits and later outcomes in the two countries. We focused on country-specific, noncognitive determinants of annual income, which were found in *agreeableness* among male workers. *Agreeableness* seemed to contribute to annual income in Japanese men, whereas it acted as a penalty in American men. In both countries, higher *agreeableness* tended to translate into higher income for those working at large companies (1,000 employees or more) compared with those working at small companies. Although *agreeableness* was rewarded by income, it did not necessarily lead to career advancement. Furthermore, the *agreeableness* premium was still observed even after controlling for labor-related variables such as occupational choice and working hours. This suggests that *agreeableness* might act as part of a skill set that directly improves job performance and productivity at large companies, rather than acting indirectly through career advancement or occupational choice.

Keywords: Big Five personality, agreeableness, company size, income, career advancement

JEL Classification Number: J01, D03, J24

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1. Introduction

Dee and West (2008) and Heckman, Moon, Pinto, Savelyev, and Yavitz (2010) have shown the importance of fostering students' noncognitive skills through school programs and governmental policies. Findings of these studies indicate that noncognitive skills have greater long-term effects on life outcome than do cognitive skills. Chetty, Friedman, Hilger, Saez, Schanzenbach, and Yagan (2011) reported persistent impacts of Project STAR, a Tennessee class-size reduction demonstration project, on later outcomes through the development of students' noncognitive skills, in contrast to the fade-out effect of class quality on test scores after the completion of the project. Thus, early intervention by formulating and financing school programs or government policies to foster noncognitive skills is as important as, or even more important than, helping children achieve their educational potential. This is particularly relevant to those raised in low-income families, as such initiatives help prevent a vicious cycle of intergenerational inequality.

In economics, little attention has been paid to the relation between noncognitive skills and educational and career success. It is widely recognized, both in practice and in research, that measured cognitive ability is a strong predictor of educational outcomes and career success, but the role of noncognitive skills has received less attention in explaining life outcomes. Heckman (1999) argued that serious bias can arise when accumulated human capital is evaluated without consideration of both cognitive skills, as measured by test scores or IQ index, and noncognitive skills, such as motivation and social adaptability. Some evidence suggests that approximately 20-30% of individual earnings (in standard earning equations) can be explained by years of schooling and work experience in addition to demographic variables, including family socioeconomic status (Bowles, Gintis, & Osborne, 2001). This implies that much of the variation in labor market success remains unexplained.

Several studies have recently focused on noncognitive skills as a key predictor of educational attainment (Borghans, Meijers, & ter Weel, 2006; Heckman, Stixrud, & Urzua, 2006) and earnings (Heineck & Anger, 2010; Carneiro, Crawford, & Goodman, 2007; Muller & Plug, 2006). Heckman et al. (2006) have found that improvements in personality traits, self-control, and self-esteem in particular, from the 25th to the 75th percentile of its distribution, while holding the level of cognitive skills constant, increase the probability of being a four-year college graduate at age 30 by approximately 25 percentage points. The Big Five personality traits *conscientiousness* and *openness to experiences* have been identified as the best personality predictors of educational performance and years of education, respectively (Borghans et al., 2006). Some studies have examined the importance of noncognitive skills in labor market outcomes. For example, Heckman, Hsee, and Rubinstein (2001) found that, after controlling for measured ability, those who obtained a GED (General Educational Development) high school certification

in the United States tend to earn less than high school dropouts do. The authors explained that a lack of noncognitive skills such as discipline, patience, and motivation accounted for the lower earnings among GED holders compared with dropouts with the same ability.

Noncognitive skills explain variation in schooling and labor market outcomes that is left unexplained by cognitive skills. Analysis of noncognitive skills is also important in a policy context. Some school programs and government policies have shown the long-term effects of noncognitive skill development. Heckman and Kautz (2012) emphasized the significant effect of several public policies that enhance soft skills on children's educational outcomes. For example, the Perry Preschool Program for disadvantaged young children demonstrated the effects of noncognitive skill development on long-term life outcomes. Chetty et al. (2011) found that noncognitive skills, fostered by changes in school system, have a greater long-term effect on later outcomes than cognitive skills do. Almlund, Duckworth, Heckman, and Kautz (2011) emphasized that compared with cognitive ability, noncognitive skills are responsive to parental behaviors, allowing substantial room for parental investments in education and for policy interventions.

As a measure of noncognitive skills, the Five Factor Model (hereinafter, the "Big Five personality traits") is a broadly accepted model of personality in the psychology and economics literature. For a brief measure of Big Five personality traits, many recent studies have utilized a 5- or 10-item inventory calculated on bipolar scales for five personality facets: *extroversion*, *agreeableness*, *conscientiousness*, *emotional stability*, and *openness to experiences*. Gosling, Rentfrow, and Swann (2003) examined these inventories in terms of (a) their validity, using self-, observer, and peer ratings; (b) the pattern of external correlates, using self-ratings on other measures; and (c) test-retest reliability, using a second assessment of the same participants. Gosling et al. (2003) concluded that 5- and 10-item inventories were reasonable proxies for lengthier Big Five instruments. Several previous studies have attempted to elucidate how personality traits act as predictors of educational and labor market outcomes. The stability of personality traits is a subject of controversy. Although some studies have noted changes in personality traits over an individual's life course with changes in environment or gene expression (Roberts & Jackson, 2008), it is widely accepted that personality traits tend to be stable in adulthood. In a review of the stability of personality traits and their predictive power, Almlund et al. (2011) noted that personality development tends to stabilize around the age of 30 years (Caspi, 1997; Soldz & Vaillant, 1999). Cobb-Clark and Schurer (2012) concluded that personality traits in working-age adults are stable over a 4-year period, based on their findings of small changes in average personality during the given periods and little relation between intra-individual personality characteristics and life events (e.g., adverse employment, health, or family events).

The main motivation for utilizing personality traits is that a single measure cannot predict much of the variance in educational and labor market outcomes. Also, these soft skills can explain variance in outcomes that are not attributable to effects of cognitive skills. According to Borghans, Golsteyn, Heckman, and Humphries (2011), personality traits are incrementally valid in explaining variance in educational outcomes measured by achievement tests and grades, after deconstructing the outcomes into IQ and personality traits. Using German data, Almlund et al. (2011) explained that *conscientiousness*, long considered the best predictor of later-life labor outcomes, has more explanatory power than intelligence.

In this study, we aimed to determine the predictive power of personality traits and to explain the mechanisms underlying the relations between personality traits and later outcomes by considering country differences. Our primary focus was the extent to which noncognitive skills, as measured by the Big Five personality traits, explain variations in educational and labor market outcomes after controlling for socioeconomic variables. This study differs from the prior research in this field in several ways. First, country differences are difficult to examine because previous studies used different measures of personality traits. Therefore, we utilized survey data from Japan and the United States, which we collated using the same questions during the same year. Second, because many studies reported only simple correlations or simple standardized regression coefficients, such estimated relations could not control for other factors that might influence educational and labor market outcomes. Therefore, we utilized the same variables and ran multiple regressions while controlling for other factors that might affect outcomes, including cognitive ability and other socioeconomic variables. Finally, we focused on some interesting country differences in personality traits affecting men's income, as found in *agreeableness*. Because this particular personality trait suggests the existence of country-specific noncognitive determinants of later outcomes, we analyzed its association with men's income and career advancement in Japan and America. We also examined the predictive power of personality traits on educational attainment, income, and career advancement in order to determine the channels through which personality traits affect labor market outcomes. More specifically, we analyzed the mechanisms behind the relations between personality traits and later outcomes by firm-size and occupation status. Some personality traits might directly affect income by improving an individual's job performance and productivity or indirectly affect labor market outcomes through occupational choice and career advancement.

The remainder of the paper is organized as follows. Section 2 reviews prior studies related to this work. Section 3 discusses the dataset and explains how the variables were constructed for subsequent analyses. Section 4 presents the estimation results. Finally, Section 5 discusses implications of the findings and concludes the paper.

2. Research Background³

2.1 Big Five Personality Traits

The Big Five personality traits are a unifying framework comprising five basic characteristics: *extroversion, agreeableness, conscientiousness, emotional stability, and openness to experiences*. More specifically, these five characteristics are: extroverted, enthusiastic (sociable, assertive, talkative, active, unreserved, not shy); agreeable, kind (trusting, generous, sympathetic, cooperative, not aggressive, not cold); dependable, organized (hard-working, responsible, self-disciplined, thorough, not careless, not impulsive); emotionally stable, calm (relaxed; self-confident; not any of anxious, moody, easily upset, or easily stressed); open to experience, imaginative (curious, reflective, creative, deep, open-minded, unconventional) (Gosling et al., 2003). Ten questions measuring these five personality traits⁴ are each rated on a 7-point scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). The average of the two bipolar items that make up each scale is then calculated and used in subsequent analyses. For example, if a respondent scores 5 on item 1 (extroverted, enthusiastic) and 2 on item 6 (reserved, quiet), the complement of the score for item 6 is found by replacing the 2 with a 6. Then, the average of the score for item 1 and the (complementary) score for item 6 is calculated.

These single-item scales are typically psychometrically inferior to multiple-item scales, but Burisch (1997) and Gosling et al. (2003) showed that short and simple depression scales can be just as valid as long and sophisticated ones. In addition, Epstein (1979) emphasized the view that, when averaged over tasks and situations at a point in time, people exhibit a predictable pattern of average behavior (“measured personality”) with a high degree of reliability across situations. These previous studies support the validity of the Big Five personality traits as a measure of noncognitive skills that affect educational and labor market outcomes. As explained in the Introduction, stability of personality traits is controversial, thus, calling into question the legitimacy of adopting this premise when analyzing personality traits in relation to school and later-life labor outcomes. However, some authors have argued that personality development tends to stabilize from the age of 30 years onward (Caspi, 1997; Soldz & Vaillant, 1999). Cobb-Clark and Schurer (2012) also found that personality traits at working age were stable over a 4-year period and did not vary significantly under any life events. Along these lines, in this paper, we treat personality as invariant over an individual’s lifetime.

³ Sections 2.1 to 2.3 summarize Lee and Ohtake (2014). Please refer to this paper for more details.

⁴ In the present study, the Big Five personality traits are measured based on responses to the self-report questionnaire.

2.2 Personality Traits and Educational Outcomes

Although much of the variation in labor-market success remains unexplained (Bowles et al., 2001), prior research has observed the role of personality traits in explaining later-life outcomes and investigated the mechanisms behind these associations. However, it should be noted that results for the association between personality traits and later outcomes vary by survey data and analysis method, and that simple regression or correlation, rather than a causal relation, is still the basis for many findings.

Many studies have investigated the extent to which noncognitive skills explain individual variation in educational outcomes (e.g., test scores, grade point average [GPA], and total years of schooling). Two of the Big Five traits—*conscientiousness* and *openness to experiences*—were found to be particularly important indicators of the total years of education that individuals complete in their lifetimes. In addition, *emotional stability*, as measured by locus of control and self-esteem, was reported to be an important indicator of adolescent schooling decisions (Almlund et al., 2011).

Conscientiousness is considered the most predictive Big Five trait across many outcomes (Hampson, Goldberg, Vogt, & Dubanoski, 2007; Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007; Poropat, 2009), and is the trait most consistently linked to academic success (O'Connor & Paunonen, 2007). In a representative sample of Germans aged 21 to 94 years, Almlund et al. (2011) found that variation in years of schooling is best explained by the degree of *conscientiousness*, even after controlling for intelligence. These authors found it particularly noteworthy that this trait had more explanatory power than intelligence, and that the trait's predictive power was stronger among men than among women. Given that *conscientiousness* is often associated with motivation, the positive correlation between *conscientiousness* and educational attainment might suggest that more motivated students perform better than less motivated counterparts.

Many previous studies on the role of *openness to experiences* as a predictor of academic performance have reported a positive relation between this trait and both GPA and final course grades (Lievens, Dilchert, & Ones, 2009; Lounsbury, Sundstrom, Loveland, & Gibson, 2003). The mechanisms behind this positive relation are often explained by the positive correlation between *openness to experiences* and measures of intelligence (Chamorro-Premuzic & Furnham, 2005). Also, Ackerman and Heggestad (1997) stated that *openness to experiences* is the only Big Five factor moderately associated with general intelligence ($r = 0.33$, as measured in a meta-analysis). Intelligence is a strong predictor of educational outcomes, so it is easy to appreciate why *openness to experiences* has a positive effect on educational attainment.

Emotional stability is also expected to be an important factor for educational attainment. Heckman et al. (2006) found that *emotional stability* increased the probability of graduating from high school for boys

in the lowest quantiles of the personality distribution. *Emotional stability* (low neuroticism), which is linked to locus of control and self-esteem, seems to play an important role in adolescent educational decisions. In addition, this trait has been often interpreted in relation to “stress reaction” or “debilitating anxiety” (Chamorro-Premuzic & Furnham, 2005). Moreover, in studies that used representative samples of U.S. (Goldberg, Sweeney, Merenda, & Hughes, 1998), Dutch (van Eijck & de Graaf, 2004), and German (Almlund et al., 2011) individuals, *emotional stability* was found to be positively correlated with educational attainment. Furthermore, several studies have found a significant positive relation between locus of control (as a measure of *emotional stability*) and high school graduation (Barón & Cobb-Clark, 2010; Cebi, 2007; Coleman & DeLeire, 2003).

In contrast, *extroversion* and *agreeableness* are not consistently associated with academic performance (O’Connor & Paunonen, 2007). According to some conflicting findings, extroverted children tend to perform better at school until the age of 12 years (Goff & Ackerman, 1992), whereas introverted students achieve higher grades (Yates, Yates, & Lippett, 1995). Some recent studies have reported a positive effect of *agreeableness* on educational outcomes, such as GPA (Farsides & Woodfield, 2003; Gray & Watson, 2002) and final course grades (Conard, 2006), whereas other studies have found either no significant correlation or a significant but negative correlation between *agreeableness* and educational attainment (Goldberg et al., 1998; van Eijck & de Graaf, 2004).

2.3. Personality Traits and Labor Market Outcomes

The predictive power of personality traits varies across type of labor market outcome. However, it is widely accepted that *conscientiousness* is the best predictor of economic success, whereas *emotional stability* (resp., high neuroticism) is often positively (resp., negatively) associated with labor market outcome. *Conscientiousness* is associated with being well organized, hard-working, and achievement-oriented, and best predicts overall job performance and wages across occupational categories, whereas the predictive power of intelligence declines as jobs become more complex (Almlund et al., 2011). In particular, men with a high degree of *conscientiousness* seem to earn higher wages and are more likely to be promoted than other men (Judge, Higgins, Thoresen, & Barrick, 1999). In addition, because *emotional stability* affects job search efforts (Almlund et al., 2011), emotionally stable individuals are more motivated to find a job that fits their abilities and skills. Semykina and Linz (2007) examined the importance of *emotional stability* using Russian data, and found that variation in personality traits, as measured by locus of control, accounted for 8% of the gender wage gap.

Some recent studies have observed a relation between the two traits of *conscientiousness* and *emotional stability* and labor market outcomes. Using U.S. data, Duckworth and Weir (2010) reported that

conscientious and emotionally stable adults attained higher lifetime income. More specifically, they found that an increase of one standard deviation on *conscientiousness* and *emotional stability* was associated with, respectively, a 9% and 5% increase in lifetime income. Similarly, Judge et al. (1999) found that, controlling for childhood IQ, the strongest predictor of a composite measure of self-reported income and occupational status was childhood *conscientiousness*, with an effect size higher than that of childhood IQ. According to Uysal and Pohlmeier (2011), *conscientiousness* and *emotional stability* were associated with unemployment duration, which suggests that personality traits in workers can influence job-search intensity.

In addition to *conscientiousness* and *emotional stability*, Fletcher (2013) highlighted the importance of *extroversion* as a predictor of economic success, using a national sample of siblings and twins. He noted that it is important to consider individual-level heterogeneity in unobserved generic ability for both cognitive and non-cognitive skills. Previous heritability studies have indicated that measures of personality traits tend to be about 40-60% heritable, suggesting a significant genetic component to human behavior (Bouchard & Loehlin, 2001). The results indicating a strong association between *extroversion* and income were obtained after controlling for individual differences related to family background, occupational sorting, and educational attainment.

2.4. Expected Findings of the Present Study

According to Judge et al. (1999), studies on organizational psychology agree that *conscientiousness*, *extroversion*, and *emotional stability* are the Big Five factors most strongly correlated with career success. This consensus is also seen in previous empirical research on noncognitive skills, as discussed in Section 2.3. Although our estimation results were consistent overall with previous studies, we found a difference in *agreeableness* between Japan and the United States in relation to labor market outcomes, which is the focus of the present paper. *Agreeableness* is defined as a “tendency to act in a cooperative and unselfish manner” (John & Srivastava, 1999). Being more cooperative and likeable could benefit employees with these characteristics in teamwork settings. However, the negative side of being agreeable is that “extremely agreeable individuals may sacrifice their success in pleasing others” (Judge et al., 1999, p. 625).

Many empirical studies have found no significant correlation between *agreeableness* and labor market outcomes, and even when a correlation was significant, the effect was likely to be negative. We hypothesized that *agreeableness* can be rewarded in a teamwork environment (measured by the number of employees) and that the reward can differ by employment status (between ordinary employees and managers). To examine the effect of company size and employment status, we restricted our sample to

employees working for private companies. The income effect of *agreeableness* could be either direct or indirect (Heckman et al., 2006; Borghans et al., 2008). This personality trait is part of a skillset, such as educational attainment and job training, that directly improves productivity. In other words, *agreeableness* could lead directly to higher income by improving an individual's job performance. In contrast, *agreeableness* could indirectly affect labor market outcomes through occupational choice and career advancement. To distinguish between these two effects, we formulated empirical models to assess the extent to which coefficients of personality traits change in relation to inclusion of labor-related variables (e.g., occupation, employment status, and working hours). Therefore, finding no significant change in *agreeableness*, even with occupational choice, career advancement, and working hours held constant, would suggest that a direct effect on productivity leads to higher earnings.

3. Data and Empirical Framework

This study is based on survey data obtained from the "Preference and Life Satisfaction Survey" by the Center of Excellence project of Osaka University. The data come from two questionnaire surveys conducted in Japan and the United States. This survey was first conducted in Japan by the drop-off and pick-up method in February 2003, using a random sample drawn from 6,000 individuals selected by a double-stratified, random-sampling method. It has been conducted annually since then, and new samples were added in the 2004, 2006, and 2009 surveys by the drop-off method. In the United States, a panel survey, which began in January and February of 2005 by a mailing method, included 12,338 individuals and has since been conducted yearly. New samples were added in the 2007, 2008, and 2009 surveys. We primarily used 2012 survey data for our analyses of both the Japanese and the U.S. data. In this study, personality traits and labor market outcomes were based on survey year 2012, whereas total years of schooling and some of the individual characteristics were taken from the 2011 and 2010 surveys conducted in both countries.

Table 1 shows mean values of each personality trait. The Japanese respondents had a comparatively high degree of *agreeableness*, whereas Americans scored higher on *conscientiousness* (see Figure 2 for country comparisons). Similarly, differences in personality traits by gender indicate that women were more agreeable and extroverted, whereas men were more emotionally stable and open to new experiences (Table 1). Some of these trends are consistent with findings of previous studies of gender differences in personality, which have indicated that women typically have a lower degree of *emotional stability* and *openness to experiences* (Feingold, 1994; Costa, Terracciano, & McCrae, 2001).

Using the minimum number of years required to attain each educational level, we obtained the values of 13.39 for Japanese and 14.43 for Americans as the mean number of years of schooling. In addition to

using a continuous measure for educational attainment (years of schooling), we also examined the transition to tertiary education. In our samples, 27% of Japanese respondents and 39% of American respondents completed college, and 2% of Japanese respondents and 13% of American respondents continued on to graduate school, across all age groups⁵. In addition, 17% of the Japanese and American respondents indicated promotion to a management position at a private company. In the U.S. sample, 14% of women were in a management position, whereas in Japan, female managers accounted for only 4% of the female labor force⁶. The percentage of male employees working for private companies with 1,000 employees or more was 21% in Japan and 31% in the United States⁷.

3.1. Estimation Methods: Schooling

We also investigated personality trait effects on a wide range of later life outcomes. Because personality stabilizes around the age of 30 years (Caspi, 1997; Soldz & Vaillant, 1999), we restricted our sample to individuals aged 30 to 65 years for all estimations. The base model for examining educational outcomes is defined as follows:

$$Schooling_i = \beta_{10} + \beta_{11}Big5_i + X_i\beta_{12} + u_{i1}, \quad (1)$$

where $Schooling_i$ represents years of schooling (9-21 years in Japan and 9-23 years in the United States), and $Big5_i$ indicates continuous variables of the Big Five personality traits. X_i is a vector of individual characteristics that are assumed to affect later outcomes: age, age squared, gender, and years of schooling (parental educational attainment is controlled for in the analysis of educational attainment). For the U.S., because some studies have pointed out differences in later outcomes between races (Fletcher, 2013), X_i includes race dummies. To investigate effects of personality traits on the probability of attaining a higher educational level, educational attainment was added to the base model as a binary variable that takes a

⁵ According to the data of Ministry of Education, Culture, Sports, Science and Technology, 25% of Japanese people completed college between 1965 to 2000 (four-year university) (<http://www.mukogawa-u.ac.jp/~kyoken/data/13.pdf>). According to U.S. census data, 31% of Americans have a bachelor's degree or higher, and 11% of college graduates continued to graduate school in 2012 (<https://www.census.gov/hhes/socdemo/education/data/cps/2012/tables.html>).

⁶ The Japanese government reported that 6.5% of women working in private companies held management positions (section chief or higher) in 2009. (http://www.gender.go.jp/kaigi/renkei/2020_30/pdf/2020_30_all.pdf). In 2013, women in the United States were 14.6% of executive officers, 8.1% of top earners, 4.6% of Fortune 500 CEOs, and held 16.9% of Fortune 500 board seats (<http://www.catalyst.org/knowledge/statistical-overview-women-workplace>).

⁷ According to data of the Ministry of Health, Labour and Welfare, 22.4% of Japanese employees worked for companies with 1,000 employees or more in 2012 (<http://www.mhlw.go.jp/toukei/youran/roudou-nenpou/02.html>). In the U.S., the Bureau of Labor Statistics reported that 38.87% of Americans worked for companies with 1,000 employees or more in 2012 (http://www.bls.gov/web/cewbd/table_f.txt).

value of 1 if the respondent completed college education (or at least a master's degree program) and 0 otherwise. We carried out all estimations separately for men and women to look for any gender differences in addition to country differences.

3.2. Estimation Methods: Labor Market Outcomes

Model 2 is used to examine the effects of personality traits on income:

$$\ln Income_i = \beta_{20} + \beta_{21}Big5_i + X_i\beta_{22} + Z_i\beta_{23} + u_{i2}, \quad (2)$$

where $\ln Income_i$ is the natural logarithm of individual annual income, and X_i is a vector of individual characteristics, the same as in Model 1. Z_i is a vector of labor-related variables that are assumed to affect annual income: type of occupation, type of employment, company size, years of employment at current workplace, and weekly working hours. In Equation (2), to investigate the mechanism behind the effect of personality traits on income, we added years of education and labor-related variables separately into the model (see Table 3). The rest of the estimations were carried out using the sample of only men, considering that women's decisions on whether to work or not could introduce selection bias.

We examined differences in personality trait effects between employees of large and small companies by further restricting our sample to those working for private companies. We included an interaction term for each of the Big Five personality traits in combination with a company size dummy that takes a value of 1 if the company has 1,000 or more employees and 0 otherwise (Table 4). In addition, we added similar interaction terms between the Big Five personality traits and a management position dummy (managers = 1) to Equation (2) of the basic model of earnings. See Table 5 (columns 1 and 2) for estimation results. To investigate differences in the effects of personality traits, in particular *agreeableness*, in relation to company size and employment status, we included interaction terms of these three variables into Model 2 (Table 5, columns 3 and 4): *agreeableness*, a company size dummy and a management position dummy.

To examine the effects of personality traits on career advancement, model 3 is set up as follows:

$$Promotion_i = \beta_{30} + \beta_{31}Big5_i + X_i\beta_{32} + z_i\beta_{33} + u_{i3}, \quad (3)$$

where $Promotion_i$ represents a binary variable that equals one if the respondent was in a management position at the time of the survey and zero otherwise⁸, and X_i is a vector of individual characteristics, as in Model 1. z_i is a vector of labor-related variables that are assumed to affect an individual's career

⁸ The Japanese survey included those in a management position, company executives, or board members.

advancement (i.e., company size, type of employment, working hours, and years of employment at current workplace).

3.3. Estimation Methods: Other Labor Outcomes

To examine the effects of personality traits on other later outcomes aside from economic rewards, we set up Model 4, the last model, as follows:

$$Happiness_i = \beta_{40} + \beta_{41}Big5_i + \beta_{42}INCOME_i + X_i\beta_{43} + Z_i\beta_{44} + u_{i4}, \quad (4)$$

Here $Happiness_i$ represents degree of happiness as measured on an 11-point scale by the following questions: “Overall, how happy would you say you are currently? Using a scale from 0 to 10 where ‘10’ is ‘very happy’ and ‘0’ is ‘very unhappy,’ how would you rate your current level of happiness?” X_i is a vector of individual characteristics, as in Model 1, and Z_i represents the same variables used in Model 2. Model 4 is the same as Model 2 except for the dependent variables. To compare the effects of personality traits and other individual labor-related variables on degree of happiness using results of Model 2, we set up the same model. Furthermore, we examined how the effects of personality traits (β_{41}) change when annual income ($INCOME_i$), the dependent variable of Model 2, is held constant, and we investigated the partial effect of annual income (β_{42}) on degree of happiness by using Model 4.

4. Estimation Results

4.1 Effects of Personality Traits on Educational Attainment

Table 2 presents results of the relation between noncognitive skills and years of schooling completed. The two left columns in the upper and bottom panels show estimation results for years of schooling in Japan and the United States, respectively. Regressions were run with and without adjustment for years of schooling attained by respondents’ parents. Parents’ completed years of schooling can serve as a proxy for genetic inheritance of cognitive ability, socioeconomic status, and/or personality traits. Children of highly educated parents tend to become highly educated partly because of the intergenerational inheritance of unobserved abilities, which positively affect children’s educational decisions. Our overall results indicate that parental background mitigates the effects of the personality traits, although the statistical significance of personality traits changed very little even when controlling for parental effect.

In Japan, among the different facets of personality traits, *agreeableness* seemed to have a positive effect on total years of schooling among men. *Agreeableness* was also a statistically significant factor both with and without control of parental educational background. In contrast, *conscientiousness* was statistically significant among only American respondents. As shown by the descriptive statistics in Table

1, *agreeableness* (resp., *conscientiousness*) has the highest mean values among the five personality traits in Japan (resp., in the United States). Even after controlling for socioeconomic variables, the effect of these traits on educational attainment was statistically significant in both countries. In this paper, we focused on country differences in *agreeableness*. We found that although *agreeableness* had a positive effect on schooling in Japan, it had a negative effect in the United States, and was a significant negative factor among women in the United States. Aside from *agreeableness* and *conscientiousness*, the degrees of *openness to experiences* and *emotional stability* were important for schooling in Japan and the United States. Implications of the effects of these two personality traits can be explained by their relation to degree of intelligence, interest in learning, and self-control, all of which significantly affect cognitive ability and adolescent schooling decisions (see Section 2.2 for details).

Figure 1 displays standardized regression coefficients of personality traits associated with years of schooling, after controlling for the basic demographic characteristics: age, age-squared, and gender as well as race dummies for American samples. The two rectangular bars represent estimates of standardized regression coefficients and the line bars represent robust standard errors, with darker rectangular bars representing estimates obtained after controlling for parental background. After controlling for parents' educational attainment, a one standard deviation increase in *agreeableness* and *conscientiousness* was associated with a 0.115 and 0.215 standard deviation increase, respectively, in total years of schooling completed in Japan and the United States. This is approximately equivalent to an increase in schooling by 0.23 and 0.52 years in Japan and the United States, respectively. Compared to the effect of personality traits, the effect of parental educational background was substantial in both countries, highlighting the importance of parental socioeconomic status and generic inheritance of cognitive and noncognitive skills. The inclusion of parental background decreased the size of standardized regression coefficients of personality traits by approximately 0.01. However, *agreeableness* and *conscientiousness* were still significantly correlated with educational attainment even after controlling for parental background.

Figure 1 presents a simple comparison with previous studies that have reported standardized regression coefficients of personality traits. Results based on American respondents in our study were consistent with results reported by Goldberg et al. (1998), which were based on a representative sample of U.S. working adults, aged 18 to 75 years. Goldberg and colleagues found significant negative correlations between academic success and *agreeableness* and *extroversion*, as well as significant positive correlations for *conscientiousness* and *openness to experiences*.

In addition to total years of schooling completed, Table 2 (columns 3 and 4) shows the effect of personality traits on the probability of transition to higher levels of education (i.e., college and graduate school). Japanese males students who were more agreeable and conscientious were also more likely to go

to college. In contrast, *introversion* and *openness to experiences* positively affected the decision of Japanese men to enter graduate school. In contrast, we found no statistically significant personality effect on female students' decision to transition from high school to college, whereas *extroversion* acts as a determinant for Japanese women's decision to enter graduate school. Our results suggest that, in Japan, the effects of personality traits vary at different educational transition points. Interestingly, *agreeableness*, which is the best predictor for educational attainment below the college level, became negatively associated with graduate-level educational attainment, although this effect was not statistically significant. In the United States, we observed no apparent significant difference in the effects of personality traits on educational transition when compared with results obtained using the continuous variable of total years of schooling. More specifically, *conscientiousness* and *emotional stability* seemed to play an important role in the decision to pursue higher levels of education, as well as final educational attainment.

4.2. Effects of Personality Traits on Income

In this section, the relation between annual income and personality factors is investigated (Table 3). We summarized all estimations by gender and country. Table 3 (upper panel) describes results of Japanese male and female workers. Differences (see columns 1 through 3) depended on inclusion of variables of educational attainment (type of occupation, years of schooling, type of employment) and labor (working hours, company size). As for Japanese male workers, column 3 shows that *extroversion*, *agreeableness*, *conscientiousness* are seemingly important factors affecting annual income. In Japanese female workers, *extroversion* appears to correlate more consistently with income. American male workers were rewarded by *non-agreeableness* and *conscientiousness*, everything else being equal. In American female workers, *extroversion*, *non-agreeableness*, and *emotional stability* seemed to correlate with annual income. These results occurred when type of occupation, type of employment, years of schooling, and working hours were held constant. Even when education attainment and labor market variables were held constant, personality traits were still significantly associated with income, which suggests that they might act as an individual's set of productive traits, such as educational attainment. In other words, these noncognitive skills have a rather direct effect on productivity, which is reflected by income.

Column 4 presents results based on a restricted sample of those working at private companies. For this estimation, we used the restricted sample of private companies to analyze how the effect of *agreeableness* on men's income differs by company size and employment status. Column 4 presents observed country differences in *agreeableness*. In Japan, *agreeableness* had a statistically significant positive effect on annual income as well as years of schooling among men, whereas it had a negative

correlation with income in the United States. This suggests that *agreeableness* might be a country-specific factor that affects one's educational and career success in the opposite direction.

4.3. Personality Traits, Company Size, Employment Status, and Men's Income

We further investigated how this contradictory personality trait, *agreeableness*, affects annual income in Japan and the United States. First, we examined whether personality traits work differently in respondents as a function of company size (Table 4). Companies with many employees tend to give higher evaluations to *agreeable* employees who can cooperate with other colleagues. Rewarding *agreeableness* in large-sized companies would have a positive effect on annual income. As shown in Tables 3 and 4, *agreeableness* was consistently positive among Japanese male workers and, in particular, those working for large-sized companies. We observed an interesting contrast in the United States, where *agreeableness* seemed to operate as a penalty against raising the annual income of American male workers, except of those working for large companies (1,000 employees or more), where *agreeableness* was rewarding for income as well. In fact, we observed a negative effect of *agreeableness* on annual income only among Americans working for small-sized companies. Although employees at large-sized companies were rewarded for being *agreeable* compared to those working at smaller-sized companies, the total effect was close to zero. As for smaller-sized companies, in addition to the effect of *agreeableness*, being extroverted and conscientious in Japan and emotionally stable in the United States rewarded the earnings of their respective male employees.

We further examined whether personality trait effects differed by employment status (ordinary employees vs. managers) because a certain personality trait might be essential for those holding managerial positions. Table 5 (columns 1 and 2) shows interaction terms between each personality trait and a binary indicator of managers (=1), with the base representing ordinary employees. We found that extroverted and agreeable ordinary employees in Japan and disagreeable and emotionally stable ordinary employees in the United States earned more. However, we observed no statistically significant difference in personality trait effects between ordinary employees and managers in both countries.

Thus far, advantageous personality traits differed by company size, but very little by employment status. More specifically, although the effect of *agreeableness* did not differ between ordinary employees and managers, being agreeable seems to be rewarded by higher income in large-sized companies compared to small-sized companies in both Japan and the United States. These results led us to ask whether the effect of *agreeableness* at large-sized companies would differ by employment status. In other words, was the positive average effect of *agreeableness* at large-sized companies more pronounced among ordinary employees or among managers? To answer this question, Table 5 (columns 3 and 4) also includes

interaction terms between *agreeableness*, a binary indicator of managers (=1), and a binary indicator of company size with 1000 employees or more (=1). We found that *agreeableness* was advantageous for those working for large companies in both Japan and America, and that this positive effect was significant even in ordinary employees of large private companies/organizations in both countries. columns 1 and 2 of Table 5 show no significant difference between ordinary employees and managers, which suggests that being agreeable is rewarded at large-sized companies, regardless of employment status, more than at small-sized companies.

To investigate which personality traits affect the probability of being promoted to a management position, we conducted probit regressions with a dependent variable equal to one for a respondent working in a management position at the time of the survey and 0 otherwise (see Table 6). Overall, *extroversion* in men was a significant personality trait affecting career advancement in both countries, regardless of company size. In fact, *extroversion* was more important than any other personality trait for management positions in Japan and the United States. Therefore, although agreeable employees at large companies are more likely to earn more, *agreeableness* does not necessarily improve career advancement. In fact, we might interpret *agreeableness* as a trait that directly affects job performance and productivity, which translates into higher earnings, rather than having indirect effects on career advancement or occupational choice.

4.4. Effects of Personality Traits on Happiness

We further examined the effect of *agreeableness* on outcomes other than economic rewards, such as income growth and career advancement. Thus far, our results have revealed that being agreeable is not rewarding for women and is not rewarding for men in the United States (see Table 3). However, Table 7 shows that being agreeable increased degree of happiness in women of both countries. This positive effect remains significant even when controlling for annual income. Thus, although *agreeableness* does not affect income, and may even have a negative relation with income, among women in Japan and the United States, it might have positive effects on other outcomes, such as subjective well-being. *Agreeableness* increases income for men in Japan and has a significantly positive effect on happiness, with and without controlling for annual income. Even when labor-related variables, including income, are held equal, this particular personality trait was an important factor that increased the subjective feeling of happiness as well as economic outcomes among Japanese men. In contrast, *conscientiousness*, which best predicts later outcomes, is not correlated with happiness. Thus, *conscientiousness* might increase years of schooling and income through hard work, but it does not necessarily directly increase the feeling of happiness.

5. Discussion

Studies have given much attention to the predictive power of intelligence measures when evaluating cumulative human capital. However, it has been argued that no single measure of cognitive ability can predict much of the variance in educational and labor market outcomes. Because most of the remaining variance is not explained by measurement error, much room remains for other determinants of success. This study considered soft skills as possible predictors of the unexplained variance in educational and labor market outcomes. In this study, soft skills were characterized by scores for the Big Five personality traits, a widely accepted taxonomy in personality trait research. Our estimated results suggest that personality traits are significantly correlated with later outcomes. Previous studies using data collected in different countries have yielded different results, possibly because the authors controlled for different covariates, or because some significant country differences exist. In the present study, we evaluated the relation between personality trait and various outcomes using the same covariates. Overall, our results revealed substantial similarities in the effect of personality traits on both educational and labor market outcomes across both countries, which is consistent with previous empirical studies, notwithstanding a few contradictory results between Japan and the United States.

In these countries, *conscientiousness*, *openness to experiences*, and/or *emotional stability* are correlated with educational attainment despite differences in the relative importance of each. In previous literature, *conscientiousness* was the best predictor of later outcomes. Implications of the effects of *openness to experiences* and *emotional stability* can be explained in terms of their relation to degree of intelligence, interest in learning, and self-control, all of which play an important role in cognitive ability and adolescent schooling decisions. In addition, the effects of personality traits on labor market outcomes are very similar between the two analyzed countries. In both countries, men with a high degree of *conscientiousness* seemed to earn more, and *extroversion* best predicted the probability of promotion to a management position among men in both countries. These results are consistent with general findings in extant studies on personality traits and career success. However, no established empirical consensus exists in the still advancing study of personality traits. Nonetheless, the effects of personality traits that have been most commonly identified in previously research as significant for educational and labor market outcomes were similar to those in the countries analyzed here.

Despite these similarities, Japan and the United States exhibited distinct differences, most notably in the effect of *agreeableness*. Japanese respondents scored noticeably higher in *agreeableness* than American respondents, and *agreeableness* was a particularly important predictor for schooling and income in Japanese men. This finding contrasts with that of a substantial body of literature, in which *agreeableness* was a less important predictor of educational attainment. In contrast, *agreeableness*

operated in the opposite direction in the United States, which suggests the existence of country-specific determinants of success. Woessmann, Luedemann, Schuetz, and West (2009) argued that students' personality traits might depend on characteristics of their educational environment, such as autonomy and degree of accountability. Rockoff, Jacob, Kane, and Staiger (2008) emphasized the importance of teacher influence on the development of students' noncognitive skills. If this holds true, teaching style and educational philosophy might contribute to the unique variance in personality traits affecting educational outcomes in Japan.

We focused on how *agreeableness*, which seems particularly important for schooling in Japan, affected labor market outcomes, and whether *agreeableness* would continue its negative correlation in the American labor market. In Japan, being agreeable had a positive effect on years of schooling. Japanese men who were agreeable were more likely to enter a four-year university. Furthermore, they earned more, even when controlling for occupation, employment type, years of employment, company size, and hours worked. In contrast, being agreeable in the United States had a negative effect on years of schooling. Although this negative effect was not statistically significant for American male students, it negatively affected their income. This penalty continued even when occupation, employment type, years of employment, company size, and age were held equal. Thus, being agreeable has an income-lowering effect no matter what kind of job one has or how long one has worked.

To investigate the channels through which *agreeableness* is associated with labor market outcomes, we analyzed its effects on annual income by company size and employment status. We observed a premium for being agreeable among those working for large companies in both Japan and the United States. This result did not change even with type of occupation and other labor-related variables held constant. Agreeable employees at large companies were likely to earn more than those at small-sized companies, but we found no statistical difference in the effect of *agreeableness* between ordinary employees and managers. For promotion to a management position, *extroversion* was more important than any other personality trait. These findings suggest that employees of large-sized companies are directly rewarded for being agreeable through their income, rather than indirectly through occupational choice or career advancement. Furthermore, *agreeableness* affects the subjective feeling of happiness as well as economic outcomes. In particular, Japanese men who are agreeable earn more and feel happier. Even though women's income in both countries was negatively associated with *agreeableness*, it increased the degree of their subjective well-being. Therefore, although *agreeableness* did not affect income in Japanese women and it had a negative relation with income among American women, it can positively affect other later outcomes such as subjective well-being.

In summary, we identified the possibility of a premium for being agreeable among employees working for large companies in Japan and America. The significance of *agreeableness* still existed even when type of occupation and other labor-related variables were held constant. In contrast, a wage premium is not necessarily connected with career advancement, which means that a wage premium was not the result of promotion. Results for income growth and career advancement suggest that *agreeableness* might directly affect job performance and increase productivity of employees of large companies, which in turn reflects their annual income. However, some limitations restrict generalizability of the present findings. Although some extant studies have proven the stability of personality traits at working age and have suggested that examination of personality traits remain stable under fluctuating economic events, it is difficult to conclude that a personality trait affects labor outcomes or vice versa, or that they mutually influence each other. Caution is called for before concluding that the results presented here suggest a complete causal relation.

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Table 1. Descriptive Statistics

	Japan				U.S.							
	Whole Sample		Males		Females		Whole Sample		Males		Females	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
<i>Dependent variables</i>												
Years of schooling	13.39	2.00	13.71	2.27	13.13	1.71	14.43	2.42	14.57	2.61	14.32	2.24
College (=1)	0.27	0.44	0.40	0.49	0.16	0.37	0.39	0.49	0.42	0.49	0.36	0.48
Graduate school (=1)	0.02	0.13	0.03	0.17	0.01	0.09	0.13	0.34	0.15	0.36	0.12	0.32
Annual Income (log)	5.63	0.91	6.09	0.66	5.07	0.86	5.95	0.86	6.14	0.81	5.75	0.87
Promoted to management position at private companies	0.17	0.38	0.28	0.45	0.04	0.20	0.17	0.37	0.20	0.40	0.14	0.35
<i>Big Five personality</i>												
Extroversion	4.09	1.29	3.96	1.29	4.20	1.28	3.96	1.45	3.91	1.47	4.00	1.44
Agreeableness	4.99	0.93	4.92	0.95	5.04	0.91	5.06	1.22	4.79	1.24	5.28	1.16
Conscientiousness	3.99	1.06	4.00	1.05	3.97	1.07	5.75	1.15	5.61	1.14	5.87	1.14
Emotional Stability	4.01	1.03	4.11	1.01	3.92	1.04	4.84	1.35	4.90	1.37	4.79	1.33
Openness to Experiences	3.89	1.07	4.03	1.04	3.78	1.07	4.69	1.16	4.70	1.14	4.67	1.19
<i>Socio-economic variables</i>												
Age	50.34	9.57	50.85	9.36	49.92	9.73	49.75	9.46	49.68	9.47	49.81	9.46
Age squared	2625.5	947.4	2673.1	930.7	2586.2	959.5	2564.6	916.2	2557.2	916.2	2570.7	916.6
Female	0.55	0.50	0.00	0.00	1.00	0.00	0.54	0.50	0.00	0.00	1.00	0.00
Parental Education	11.07	1.92	10.95	1.96	11.18	1.89	12.51	2.13	12.60	2.17	12.43	2.09
<i>Labor market variables</i>												
<i>(Type of Occupation)</i>												
Office and administrative support	0.22	0.41	0.14	0.34	0.31	0.46	0.14	0.35	0.03	0.17	0.25	0.43
Sales and related occupations	0.11	0.31	0.09	0.28	0.14	0.35	0.12	0.32	0.11	0.31	0.13	0.34
Management, business, and financial operations	0.12	0.33	0.21	0.41	0.02	0.12	0.15	0.36	0.18	0.38	0.13	0.34
Professional and related occupations	0.21	0.41	0.21	0.41	0.21	0.41	0.29	0.45	0.29	0.45	0.29	0.46
Service occupations	0.19	0.39	0.16	0.36	0.23	0.42	0.19	0.39	0.19	0.40	0.18	0.38
Construction, extraction, and maintenance	0.14	0.34	0.18	0.39	0.08	0.27	0.10	0.30	0.19	0.39	0.01	0.09
Farming, fishing, and forestry	0.02	0.13	0.02	0.14	0.02	0.13	0.01	0.12	0.02	0.13	0.01	0.10
<i>(Employment Type)</i>												
Employee of private company or organization	0.69	0.46	0.67	0.47	0.72	0.45	0.60	0.49	0.56	0.50	0.63	0.48
Government employee	0.10	0.30	0.11	0.31	0.09	0.29	0.18	0.38	0.17	0.37	0.19	0.39
Management position	0.05	0.21	0.07	0.25	0.02	0.14	0.12	0.33	0.16	0.36	0.09	0.29
Self-employed	0.10	0.31	0.12	0.33	0.08	0.27	0.09	0.28	0.10	0.31	0.07	0.25
Family business employee (in self-employed business)	0.05	0.22	0.02	0.15	0.09	0.28	0.01	0.11	0.01	0.09	0.02	0.14
<i>(Work Experience and Company Size)</i>												
Years of work experience at the current workplace	23.97	3.98	24.32	3.30	23.55	4.65	13.07	9.74	13.40	10.14	12.73	9.31
Size of company (=1 if the number of employees is more than 1000 and 0 otherwise)	0.17	0.38	0.21	0.40	0.13	0.41	0.31	0.46	0.31	0.05	0.32	0.47

Note. The Big Five personality traits and socioeconomic variables are described with samples used to analyze educational attainment (Table 2, column 2; Japan = 3,199; U.S. = 1,574). Annual income, management position at private companies, and labor market variables are summarized with the sample used to analyze determinants of annual income.

Table 2. Determinants of Educational Attainment in Japan and the United States

Independent Variables	Years of Schooling		Years of Schooling		College Graduates		Attainment of grad. level of edu.	
			w/t Parental eduation		w/t Parental eduation		w/t Parental eduation	
	Male	Female	Male	Female	Male	Female	Male	Female
<i>Japan</i>								
Regression Model: OLS/Probit								
<i>Big 5 Personality</i>								
Extroversion	-0.0280 (0.051)	0.0111 (0.033)	-0.0555 (0.049)	-0.0364 (0.032)	-0.0202 (0.030)	-0.0286 (0.033)	-0.1451** (0.060)	0.2425** (0.097)
Agreeableness	0.2033*** (0.066)	0.0955** (0.044)	0.1982*** (0.062)	0.0368 (0.042)	0.1132*** (0.040)	-0.0084 (0.046)	-0.0062 (0.079)	-0.1190 (0.123)
Conscientiousness	0.0852 (0.062)	-0.0125 (0.040)	0.0865 (0.059)	-0.0014 (0.037)	0.0955*** (0.036)	0.0336 (0.039)	0.0579 (0.071)	-0.0192 (0.105)
Emotional Stability	0.0927 (0.064)	0.0255 (0.041)	0.0470 (0.062)	-0.0018 (0.039)	0.0443 (0.039)	0.0107 (0.039)	0.0909 (0.074)	0.0871 (0.107)
Openness to Experiences	0.1132* (0.063)	0.0753* (0.039)	0.0629 (0.061)	0.0717* (0.037)	-0.0021 (0.037)	0.0038 (0.038)	0.1595** (0.070)	-0.0363 (0.101)
Years of schooling of parents	—	—	0.4510*** (0.028)	0.3668*** (0.020)	0.2553*** (0.020)	0.2757*** (0.021)	0.1332*** (0.034)	0.1556*** (0.054)
Observations	1,522	1,844	1,445	1,754	1,442	1,760	1,445	1,754
R-squared	0.030	0.054	0.162	0.194				

Independent Variables	Years of Schooling		Years of Schooling		College Graduates		Attainment of grad. level of edu.	
			w/t Parental eduation		w/t Parental eduation		w/t Parental eduation	
	Male	Female	Male	Female	Male	Female	Male	Female
<i>U.S.</i>								
Regression Model: OLS/Probit								
<i>Big 5 Personality</i>								
Extroversion	-0.0888 (0.069)	0.0224 (0.054)	-0.0998 (0.067)	-0.0528 (0.052)	-0.0430 (0.035)	-0.0385 (0.034)	0.0099 (0.041)	-0.0183 (0.042)
Agreeableness	-0.0924 (0.083)	-0.1121 (0.073)	-0.1017 (0.082)	-0.1537** (0.068)	-0.0537 (0.045)	-0.1320*** (0.048)	-0.0345 (0.054)	0.0099 (0.059)
Conscientiousness	0.2721*** (0.089)	0.2040*** (0.075)	0.2381*** (0.086)	0.2078*** (0.069)	0.1695*** (0.049)	0.1347*** (0.045)	0.1130* (0.061)	0.1307** (0.060)
Emotional Stability	0.2655*** (0.078)	0.1456** (0.065)	0.2585*** (0.075)	0.1268** (0.061)	0.1219*** (0.042)	0.0729* (0.042)	0.1242** (0.052)	-0.0230 (0.052)
Openness to Experiences	0.1060 (0.087)	0.0765 (0.065)	0.0844 (0.084)	0.0888 (0.060)	-0.0161 (0.047)	0.0462 (0.044)	0.0497 (0.057)	0.0464 (0.055)
Years of schooling of parents	—	—	0.3970*** (0.045)	0.4269*** (0.033)	0.1725*** (0.025)	0.2624*** (0.026)	0.1223*** (0.028)	0.1464*** (0.029)
Observations	754	884	717	857	717	857	717	857
R-squared	0.048	0.047	0.155	0.189				

Note. Both estimations controlled for socioeconomic variables (age, age-squared, and race dummies [only American samples]). The family socioeconomic variable signifies parental educational level. Robust standard errors are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 3. Effects of (Non)Cognitive Skills on Annual Income

Dependent Var. Annual Income (Log)	Male Workers (Japan)				Female Workers (Japan)			
<i>Personality Traits</i>	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Extroversion	0.0239*	0.0284*	0.0299**	0.0420***	0.0394*	0.0466**	0.0485**	0.0429*
	(0.014)	(0.015)	(0.015)	(0.015)	(0.021)	(0.022)	(0.022)	(0.023)
Agreeableness	0.0445**	0.0485**	0.0422**	0.0427**	0.0060	-0.0086	-0.0069	0.0133
	(0.019)	(0.020)	(0.020)	(0.018)	(0.025)	(0.026)	(0.026)	(0.026)
Conscientiousness	0.0643***	0.0592***	0.0554***	0.0491***	0.0284	0.0280	0.0288	0.0158
	(0.018)	(0.019)	(0.019)	(0.017)	(0.024)	(0.025)	(0.025)	(0.022)
Emotional Stability	-0.0028	-0.0020	-0.0052	-0.0125	0.0403*	0.0267	0.0251	0.0134
	(0.017)	(0.018)	(0.018)	(0.017)	(0.022)	(0.023)	(0.023)	(0.022)
Openness to Experiences	0.0159	0.0120	0.0089	-0.0047	-0.0004	-0.0084	-0.0141	0.0070
	(0.017)	(0.017)	(0.017)	(0.018)	(0.023)	(0.024)	(0.024)	(0.023)
Company Size (1 if # of employees >1000)		0.2452***	0.2202***	0.2283***		0.2549***	0.2472***	0.2424***
		(0.041)	(0.041)	(0.043)		(0.059)	(0.059)	(0.060)
Years of schooling			0.0414***	0.0441***			0.0277	0.0241
			(0.009)	(0.009)			(0.021)	(0.021)
Labor market variables	O	O	O	O	O	O	O	O
Company Size	×	O	O	O	×	O	O	O
Years of schooling	×	×	O	O	×	×	O	O
Restricted to private companies	×	×	×	O	×	×	×	O
Observations	1,147	1,067	1,062	838	933	869	861	657
R-squared	0.305	0.315	0.329	0.417	0.430	0.407	0.405	0.480

Dependent Var. Annual Income (Log)	Male Workers (U.S.)				Female Workers (U.S.)			
<i>Personality Traits</i>	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Extroversion	0.0239	0.0356	0.0312	0.0221	0.0855***	0.0707**	0.0692*	0.0736
	(0.023)	(0.024)	(0.025)	(0.031)	(0.033)	(0.034)	(0.037)	(0.046)
Agreeableness	-0.0882**	-0.0773**	-0.0767**	-0.0748**	-0.0840**	-0.0964***	-0.0949**	-0.0785*
	(0.036)	(0.031)	(0.031)	(0.032)	(0.035)	(0.037)	(0.038)	(0.047)
Conscientiousness	0.0680**	0.0976***	0.0917***	0.0489	0.0249	0.0384	0.0193	0.0084
	(0.032)	(0.032)	(0.034)	(0.033)	(0.049)	(0.049)	(0.050)	(0.062)
Emotional Stability	0.0460	0.0450	0.0345	0.0634*	0.0460	0.0676*	0.0617*	0.0428
	(0.029)	(0.030)	(0.032)	(0.036)	(0.036)	(0.035)	(0.036)	(0.042)
Openness to Experiences	0.0038	-0.0103	-0.0116	-0.0055	-0.0109	-0.0356	-0.0305	-0.0339
	(0.028)	(0.030)	(0.032)	(0.035)	(0.037)	(0.039)	(0.039)	(0.048)
Company Size (1 if # of employees >=1000)		0.2012**	0.2000**	0.3013***		0.3811***	0.3967***	0.4217***
		(0.083)	(0.083)	(0.086)		(0.077)	(0.078)	(0.090)
Years of schooling			0.0693***	0.0734***			0.0610**	0.0602**
			(0.015)	(0.018)			(0.024)	(0.030)
Labor market variables	O	O	O	O	O	O	O	O
Company Size	×	O	O	O	×	O	O	O
Years of schooling	×	×	O	O	×	×	O	O
Restricted to private companies	×	×	×	O	×	×	×	O
Observations	458	402	369	269	427	372	355	260
R-squared	0.304	0.388	0.424	0.449	0.322	0.424	0.429	0.416

Note. Estimations are additionally controlled for socioeconomic variables (age and its square, type of occupation, employment type, full-time employment, years of employment at current workplace, working hours, and race dummies [only American samples]). Robust standard errors are in parentheses. ***p < 0.01, **p < 0.05,

Table 4. Effects of (Non)Cognitive Skills on Annual Income by Company Size

Dependent Variables	Annual Income (Log)	
	Japan (1)	U.S. (2)
<i>Personality Traits</i>		
Extroversion	0.0516*** (0.016)	-0.0187 (0.043)
Agreeableness	0.0225 (0.021)	-0.1190** (0.048)
Conscientiousness	0.0640*** (0.019)	0.0720 (0.047)
Emotional Stability	-0.0135 (0.019)	0.1047** (0.048)
Openness to Experiences	-0.0049 (0.020)	-0.0372 (0.049)
<i>Interaction between "1000 Employees and more (=1)" and Personality</i>		
1000 Employees and more (=1)×Extroversion	-0.0207 (0.039)	0.0956* (0.052)
1000 Employees and more (=1)×Agreeableness	0.0690* (0.041)	0.1107* (0.063)
1000 Employees and more (=1)×Conscientiousness	-0.0505 (0.043)	-0.0707 (0.063)
1000 Employees and more (=1)×Emotional Stability	0.0161 (0.041)	-0.1032* (0.057)
1000 Employees and more (=1)×Openness to Experiences	-0.0135 (0.041)	0.1190 (0.073)
<i>Company Size</i>		
1000 Employees and more (=1)	0.1418 (0.277)	-0.2560 (0.500)
<i>Educational Background</i>		
Years of Schooling	0.0426*** (0.009)	0.0708*** (0.018)
<i>Labor Market Variables</i>		
Working Hours	0.0033* (0.002)	0.0099*** (0.003)
Observations	838	269
R-squared	0.409	0.470

Note. Estimations are additionally controlled for socioeconomic variables (age and its square, type of occupation, full-time employment, years of employment at current workplace, and race dummies [only American samples]). Robust standard errors are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 5. Effects of (Non)Cognitive Skills on Annual Income by Employment Status and Company Size

Dependent Variables	Annual Income (Log)		Annual Income (Log)	
	Japan (1)	U.S. (2)	Japan (3)	U.S. (4)
<i>Personality Traits</i>				
Extroversion	0.0460*** (0.017)	-0.0047 (0.033)	0.0464*** (0.016)	0.0294 (0.032)
Agreeableness	0.0509** (0.022)	-0.0827** (0.037)	0.0319 (0.025)	-0.0962** (0.044)
Conscientiousness	0.0334 (0.021)	0.0492 (0.042)	0.0320 (0.021)	0.0480 (0.038)
Emotional Stability	-0.0143 (0.021)	0.0641* (0.038)	-0.0141 (0.021)	0.0662* (0.039)
Openness to Experiences	0.0057 (0.022)	-0.0164 (0.045)	0.0057 (0.022)	-0.0362 (0.045)
<i>Interaction between "Management Position (=1)" and Personality</i>				
Management Position (=1)×Extroversion	-0.0042 (0.037)	-0.1184 (0.082)	-0.0007 (0.037)	-0.1200 (0.088)
Management Position (=1)×Agreeableness	-0.0419 (0.038)	0.0058 (0.080)	-0.0333 (0.039)	-0.0077 (0.078)
Management Position (=1)×Conscientiousness	0.0572 (0.036)	0.0053 (0.072)	0.0592 (0.036)	0.0028 (0.074)
Management Position (=1)×Emotional Stability	0.0171 (0.036)	0.0179 (0.074)	0.0166 (0.036)	0.0210 (0.073)
Management Position (=1)×Openness to Experiences	-0.0381 (0.035)	0.1131 (0.079)	-0.0395 (0.035)	0.1196 (0.077)
<i>Occupation Position</i>				
<i>Management Position (=1)</i>	0.3566 (0.295)	-0.0114 (0.690)	0.3044 (0.294)	0.0643 (0.672)
Interaction between "1000 Employees and more (=1)" ×Agreeableness:				
<i>Ordinary Employees in large-sized companies</i>			0.0696* (0.042)	0.0967* (0.058)
<i>Managers in large-sized companies</i>			-0.0122 (0.018)	-0.0212 (0.038)
<i>Educational Background</i>				
Years of Schooling	0.0433*** (0.010)	0.0726*** (0.018)	0.0439*** (0.009)	0.0737*** (0.018)
<i>Labor Variable</i>				
Working Hours	0.0034* (0.002)	0.0093*** (0.003)	0.0034* (0.002)	0.0090*** (0.003)
Observations	838	269	838	269
R-squared	0.408	0.455	0.410	0.459

Note. Estimations are additionally controlled for socioeconomic variables (age and its square, type of occupation, full-time employment years of employment at current workplace, and race dummies [only American samples]). Robust standard errors are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 6. Effects of (Non)Cognitive Skills on Career Advancement

Dependent variable	Management Position (=1)			
	Male Workers (Japan)		Male Workers (U.S.)	
Model: Probit				
<u>Personality Traits</u>				
Extroversion	0.1541*** (0.042)	0.1785*** (0.048)	0.1265* (0.066)	0.1165 (0.086)
Agreeableness	0.0653 (0.057)	0.0433 (0.068)	0.0106 (0.075)	-0.0294 (0.094)
Conscientiousness	0.0271 (0.050)	-0.0141 (0.059)	0.0369 (0.090)	0.0718 (0.119)
Emotional Stability	0.0333 (0.053)	0.0534 (0.062)	-0.0087 (0.068)	-0.0016 (0.090)
Openness to Experiences	-0.0431 (0.050)	-0.0797 (0.058)	-0.0096 (0.084)	0.0973 (0.106)
<u>Interaction between "1000 Employees and more (=1)" and Personality</u>				
1000 Employees and more (=1)×Extroversion		0.0653 (0.123)		0.0629 (0.152)
1000 Employees and more (=1)×Agreeableness		-0.0628 (0.099)		0.0478 (0.133)
1000 Employees and more (=1)×Conscientiousness		0.1538 (0.114)		-0.1252 (0.174)
1000 Employees and more (=1)×Emotional Stability		-0.0742 (0.117)		0.0294 (0.133)
1000 Employees and more (=1)×Openness to Experiences		0.1262 (0.117)		-0.3343* (0.175)
<u>Company Size</u>				
1000 Employees and more (=1)	-0.3775*** (0.112)	-1.2990 (0.842)	-0.0768 (0.187)	1.6237 (1.378)
<u>Educational Background</u>				
Years of Schooling	0.1376*** (0.023)	0.1401*** (0.023)	0.0956*** (0.033)	0.0982*** (0.033)
<u>Labor Market Variable</u>				
Working hours	0.0076* (0.004)	0.0076* (0.004)	-0.0029 (0.006)	-0.0032 (0.006)
Observations	918	918	304	304

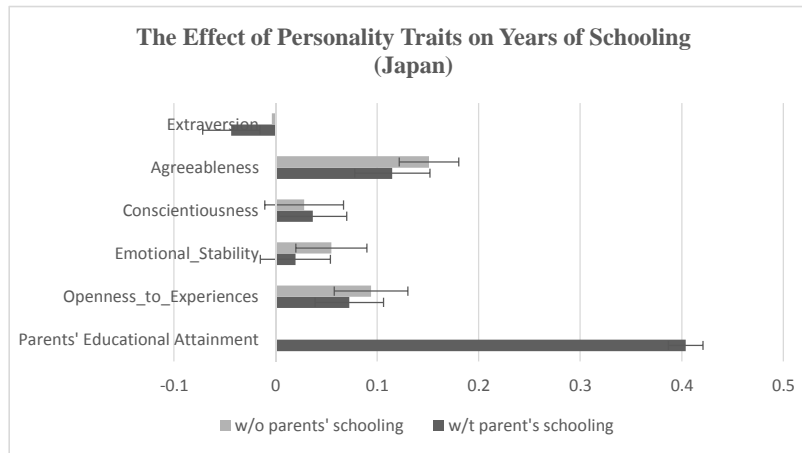
Note. Estimations are additionally controlled for socioeconomic variables (age and its square, full-time employment, years of employment at current workplace, and race dummies [only American samples]). Robust standard errors are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Table 7. Effects of (Non)Cognitive Skills on Happiness

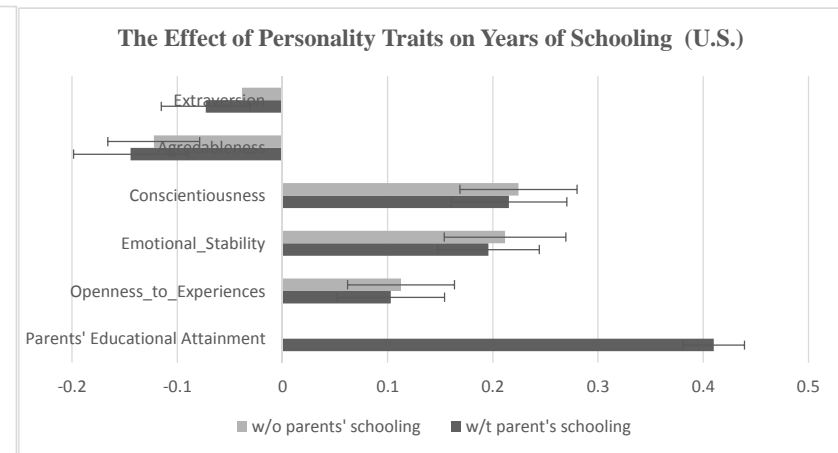
Model: OLS									
Male (Japan)									
Dependent Variable: Degree of Happiness (coded on a scale of 0 to 10: 10 is happiest)	(1) Basic Model used for Table 3				(2) Including One's Own Annual Income				
	Female (Japan)								
(1) Basic Model used for Table 3									
(2) Including One's Own Annual Income									
<i>Personality Traits</i>									
Extroversion	0.2490*** (0.044)	0.2377*** (0.044)	0.2319*** (0.046)	0.2271*** (0.046)	0.0900 (0.060)	0.1161* (0.065)	0.0853 (0.064)	0.1056 (0.070)	
Agreeableness	0.1841*** (0.067)	0.1904*** (0.067)	0.1685** (0.070)	0.1701** (0.070)	0.2342*** (0.083)	0.2190** (0.086)	0.2106** (0.087)	0.1851** (0.092)	
Conscientiousness	0.0512 (0.060)	0.0461 (0.060)	0.0151 (0.063)	0.0249 (0.063)	0.0315 (0.071)	0.0228 (0.075)	-0.0101 (0.075)	-0.0056 (0.078)	
Emotional Stability	0.2479*** (0.062)	0.2221*** (0.063)	0.2502*** (0.064)	0.2347*** (0.065)	0.3418*** (0.088)	0.3420*** (0.090)	0.3818*** (0.094)	0.3856*** (0.097)	
Openness to Experiences	-0.0501 (0.062)	-0.0655 (0.063)	-0.0616 (0.064)	-0.0745 (0.065)	0.0640 (0.080)		0.0804 (0.086)	0.0804 (0.086)	
<i>Education Background and Income</i>									
Years of Schooling	0.0748*** (0.024)	0.0277 (0.026)	0.0226 (0.026)	-0.0050 (0.028)	0.0879** (0.044)	0.0586 (0.047)	0.0476 (0.048)	0.0249 (0.051)	
One's own Annual Income			0.0014*** (0.000)	0.0012*** (0.000)			0.0009* (0.000)	0.0006 (0.000)	
<i>Other Control Variables</i>									
Occupation/ Employment Type	X	O	X	O	X	O	X	O	
Constant	5.3315*** (1.548)	6.5070*** (1.599)	6.6485*** (1.595)	7.3290*** (1.655)	-0.5477 (1.973)	0.6764 (2.193)	-1.4419 (2.241)	-0.6714 (2.554)	
Observations	1,138	1,127	1,021	1,011	562	536	492	471	
R-squared	0.115	0.143	0.144	0.163	0.098	0.112	0.110	0.124	
Model: OLS									
Male (U.S.)									
Dependent Variable: Degree of Happiness (coded on a scale of 0 to 10: 10 is happiest)	(1) Basic Model used for Table 3				(2) Including One's Own Annual Income				
	Female (U.S.)								
(1) Basic Model used for Table 3									
(2) Including One's Own Annual Income									
<i>Personality Traits</i>									
Extroversion	0.1315* (0.071)	0.1528** (0.070)	0.1025 (0.070)	0.1228* (0.072)	0.2340** (0.094)	0.2737*** (0.103)	0.2306** (0.102)	0.2998*** (0.111)	
Agreeableness	0.1089 (0.084)	0.0839 (0.087)	0.0943 (0.087)	0.0716 (0.087)	0.2970** (0.123)	0.2555* (0.136)	0.2769** (0.130)	0.2592* (0.146)	
Conscientiousness	0.1678 (0.107)	0.1692 (0.111)	0.0936 (0.112)	0.1110 (0.118)	0.0070 (0.140)	0.0717 (0.157)	-0.0067 (0.152)	0.0117 (0.172)	
Emotional Stability	0.3602*** (0.084)	0.3707*** (0.090)	0.4029*** (0.086)	0.4268*** (0.093)	0.3426*** (0.110)	0.4565*** (0.120)	0.3524*** (0.116)	0.4791*** (0.128)	
Openness to Experiences	0.1478 (0.106)	0.1438 (0.110)	0.1754* (0.105)	0.1912* (0.111)	0.1816 (0.133)	0.2391* (0.136)	0.1922 (0.153)	0.2045 (0.152)	
<i>Education Background and Income</i>									
Years of Schooling	0.0019 (0.040)	-0.0371 (0.043)	-0.0568 (0.050)	-0.0530 (0.049)	0.0139 (0.056)	-0.0076 (0.071)	0.0032 (0.068)	-0.0083 (0.074)	
One's own Annual Income			0.0009*** (0.000)	0.0005 (0.000)			-0.0000 (0.001)	-0.0002 (0.001)	
<i>Other Control Variables</i>									
Occupation/ Employment Type	X	O	X	O	X	O	X	O	
Constant	0.7321 (2.067)	1.1549 (3.589)	1.4117 (2.153)	0.4356 (3.856)	1.8431 (3.624)	1.4173 (4.223)	1.8669 (3.822)	1.1921 (4.337)	
Observations	359	318	332	294	268	219	242	199	
R-squared	0.192	0.271	0.202	0.302	0.192	0.293	0.194	0.291	

Note. Estimations are additionally controlled for socioeconomic variables (age and its square, type of occupation, employment type, company size, full-time employment, years of employment at current workplace, and race dummies [only American samples]). Robust standard errors are in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

Figure 1. Standardized Regression Coefficient Associated with Years of Schooling in Japan and the United States
 1-1. Japan

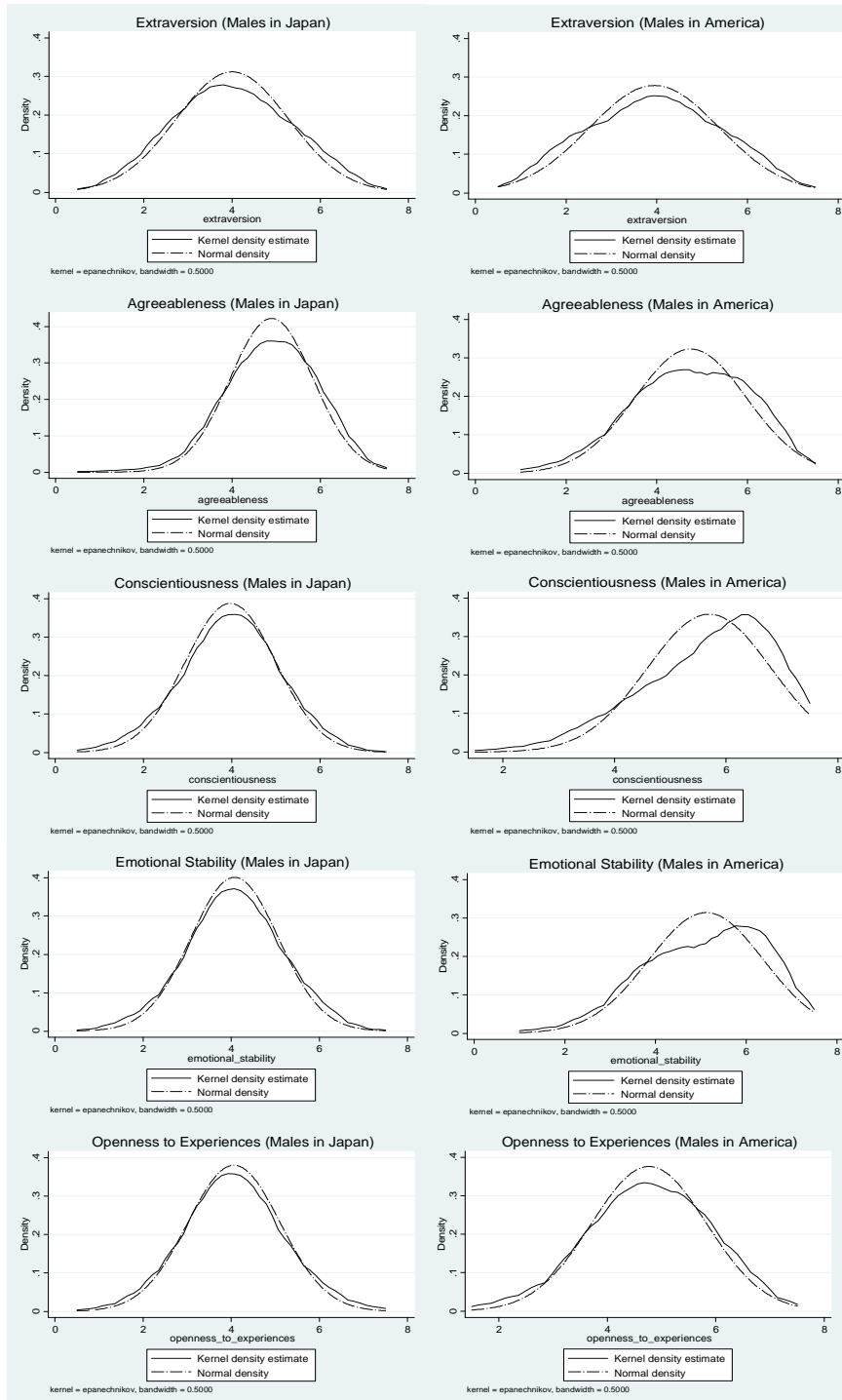


1.2. The U.S.



Note. Figure displays standardized regression coefficients from multivariate analysis of years of schooling completed on personality traits and parental education, controlled for age, age-squared, and gender. Darker rectangular bars are estimates with control of parental educational background, and line bars represent robust standard errors.

Figure 2. Distribution of Noncognitive Skills



Note. Distribution of Big Five personality traits are described with samples used to analyze annual income, using a whole sample (Table 3, column 3).