Supplemental Material

Additional information on materials and methods

Measures

Income

We log-transformed income to account for the skewed nature of the distribution. To determine the covariates that should be controlled for in our main analyses, we ran a preliminary regression analysis with income as the criterion variable and the following predictors: assessment year (as a factor with three levels), geography (0 = former West Germany, 1 = former East Germany), gender (0 = men, 1 = women), age (linear and squared), years in education (linear and squared), foreign nationality (0 = German, 1 = other nationality), marital status (0 = married, 1 = unmarried), years of experience in the job, and work hours per week. Continuous predictors were standardized according to the sample mean. All predictors were statistically significant, except for year and foreign nationality, which were subsequently ignored. A regression including the significant predictors was run and the standardized residuals were saved. Consequently, results can be interpreted as referring to male, married, and West-German job holders of average age (43.7 years), education (12.8 years), work experience (19.9 years), and work hours (44.2 hours per week).

Job demands

The expert coding of professions was a very time-consuming endeavor, and the return on investment would have been very low for jobs with only a handful of holders. Therefore, we created a frequency table of professions that were included in the 2005 and 2009 data files (the 2013 data were not yet available at the time of coding). We merged the 2005 and 2009 files, consisting of people who reported a job at two time points (i.e., the dataset of the Denissen et al. 2014, publication). Next, we created a frequency count and selected the jobs that were listed at least 10 times in either wave (i.e., an average of 5 times per wave). The resulting 176 jobs were selected for coding purposes. Note that the current expert ratings differed from the ratings that were used in the Denissen et al. (2014) publication, which focused on the predictive validity of personality job demands for personality change. In this earlier publication, ratings were provided on a scale from 0 to 2, and agreed on by consensus in a team of experts from the Federal Employment agency. Both sets of ratings did correlate, however, with convergent associations ranging from .48 (conscientiousness) to .75 (openness to experience). These substantial convergent correlations boost the robustness of the ratings that were used in the current study.

Additional Results

Overlapping distributions

In the case of extraversion, both distributions mapped quite nicely and overlapped 73% (using the R package "overlap"; Meredith & Ridout, 2016), suggesting that theoretically a large part of the population could achieve high congruence. For agreeableness and conscientiousness, the mean of the personality job demands was lower than for the actual personality of the job holders, due to the rather high (i.e., skewed) personality scores for these traits. This means that it would be difficult to achieve perfect population stratification, since there were not enough jobs demanding the high agreeableness and conscientiousness levels that a large percentage of actual job holders in our sample brought to the table. Correspondingly, the overlap in distributions was relatively low, with 44% and 46%, respectively. Finally, for emotional stability, the reverse was true: on average, jobs required very high stability levels, which could not be matched by the majority of job holders. The two distributions therefore overlapped only 36%. The overlap for openness is reported in the main text.
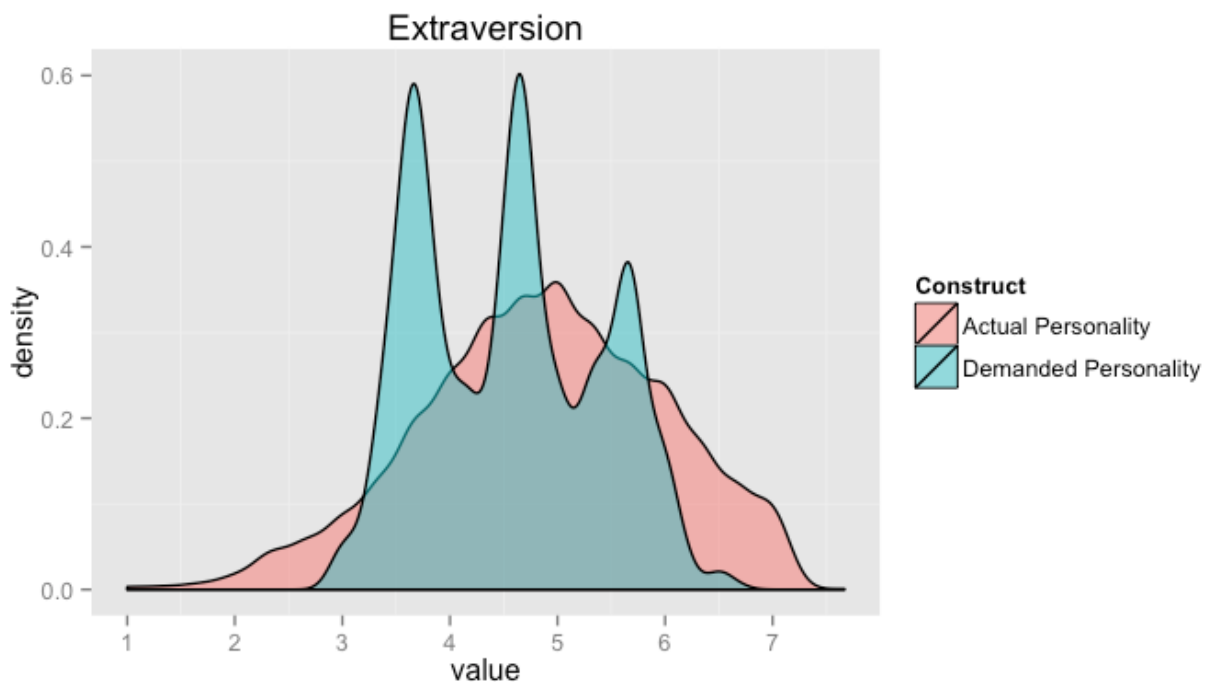

Figure S1: Density distribution of actual and job-demanded extraversion
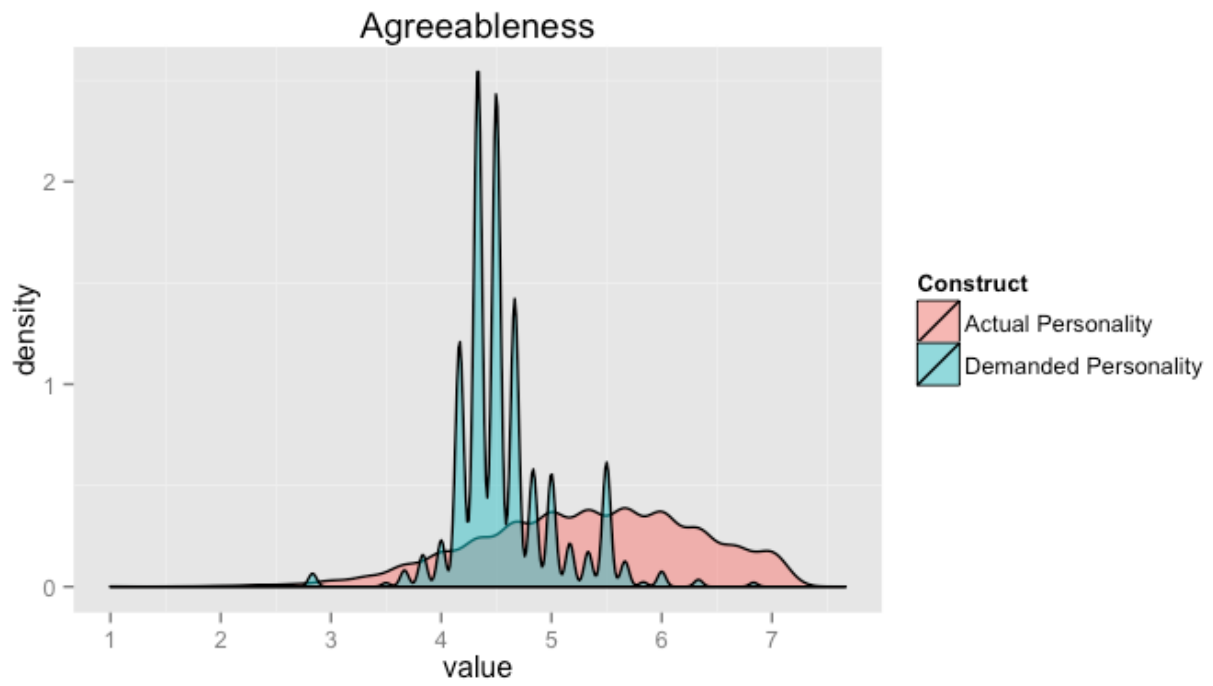
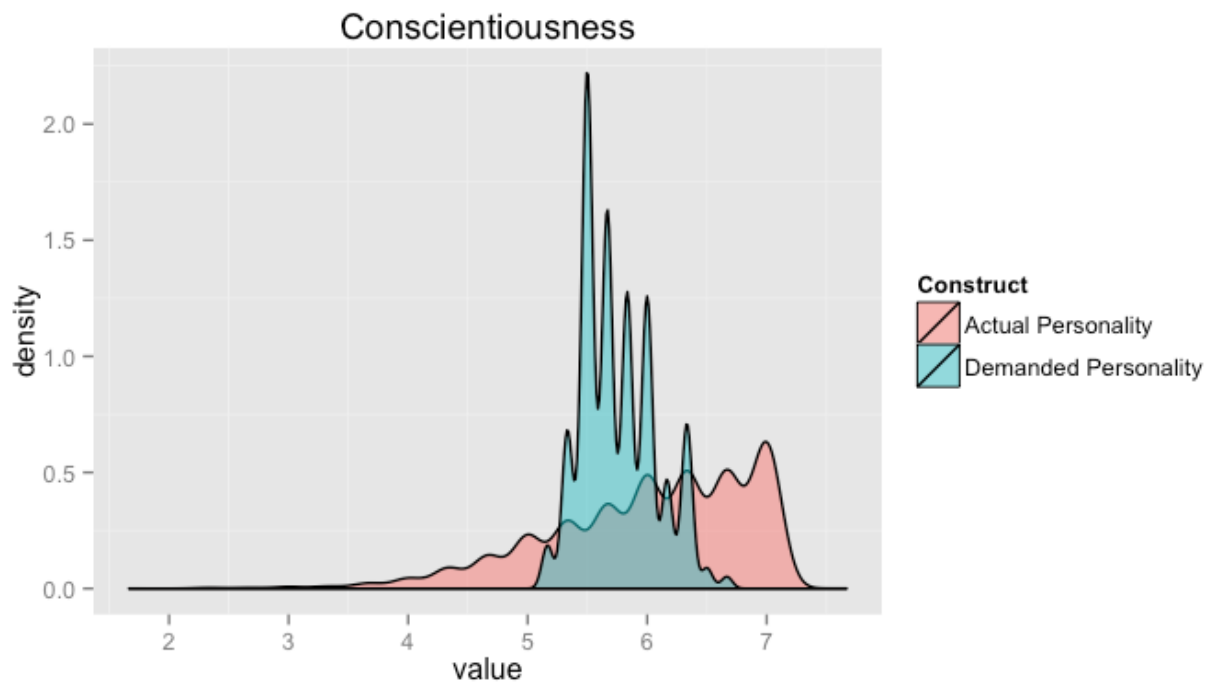Figure S2: Density distribution of actual and job-demanded agreeableness

Figure S3: Density distribution of actual and job-demanded conscientiousness
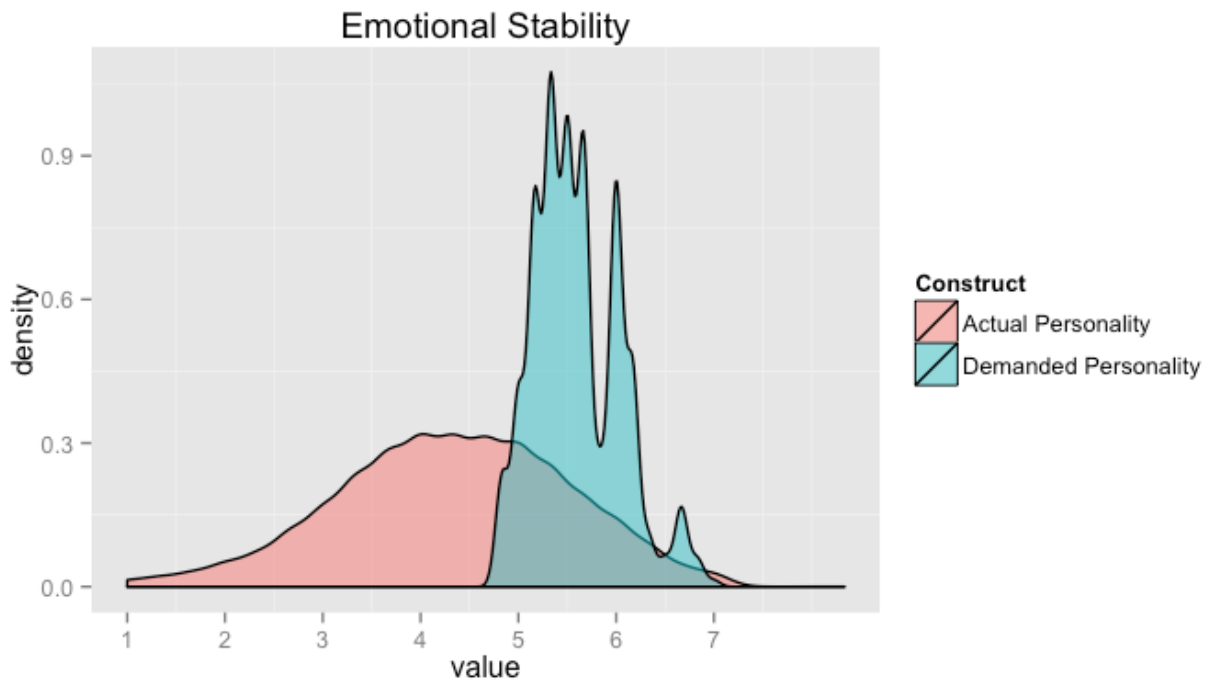
Figure S4: Density distribution of actual and job-demanded emotional stability

Polynomial regression results

Results are displayed in Table S1. Regarding the main effects of personality, results mostly reflect earlier meta-analytic findings, with small positive effects for extraversion and emotional stability (Barrick & Mount, 1991). Agreeableness was negatively associated with income, a penalty effect that was exacerbated at more extreme levels of the trait. Because of the way we controlled for covariates (see the section above on our handling of the dependent variable), regression coefficients referred to males. Thus, the negative income effect was consistent with earlier findings that also found negative effects of agreeableness for men (Judge, Livingston, & Hurst, 2012; Mueller & Plug, 2006). Regarding the effects of personality job demands, strong positive effects were found for conscientiousness, emotional stability, and openness to experience. In the case of agreeableness and openness, a negative quadratic effect was also found, indicating deflationary pressures on income at more extreme (lower or higher) personality job demands. Finally, an interaction effect between personality and personality job demands was found for conscientiousness, which will be further explored when inspecting the RSA results.

Table S1. Results from the polynomial regressions predicting income by actual personality, personality job demands, and their interaction.

	Extraversion	Agreeable-	Conscientious	Emotional	Openness to

		ness	-ness	stability	experience
Actual personality	**0.027**	**-0.033**	0.002	**0.040**	0.002
Actual personality, squared	-0.006	**-0.010**	-0.001	-0.004	**-0.010**
Demanded personality	0.031	0.026	**0.104**	**0.053**	**0.056**
Demanded personality, squared	-0.014	**-0.014**	-0.001	-0.002	**-0.024**
Actual x demanded interaction	0.011	0.007	**0.020**	0.012	0.005

Note. Bold numbers indicate statistically significant effects at $p < .05$.

Response surface analysis results

In the main text, the interplay between actual and job-demanded personality when predicting income is described for openness to experience. Below, we report in detail on the surfaces of the other four traits.

Extraversion. The a1 coefficient was significant indicating that for extraversion, congruence at high levels of actual personality and personality job demands was associated with higher income than congruence at low levels. In addition, the negative a4 coefficient was marginally significant, $p = .105$, indicating that a deviation from the demanded personality profile in either direction was detrimental to earnings. This is also seen in the curved LOI in Figure S5, with decreasing values when moving away from the center of the LOI in either direction.
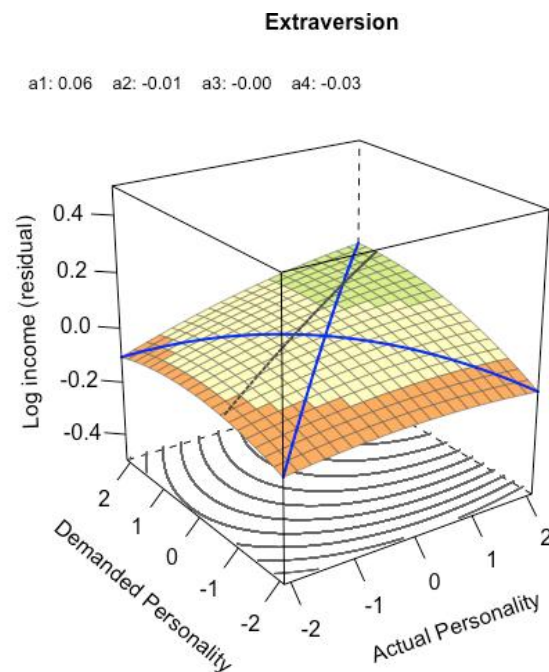

Figure S5: Response surface indicating the association between income (vertical axis) and combinations of

actual and job-demanded extraversion.

Agreeableness. For agreeableness, the a3, and a4 parameters were significant, whereas the a2 parameter was marginally significant. Because the a1 parameter was not significant, the (marginally significantly) negative a2 effect indicates that congruent combinations of both low and high actual personality and personality job demands resulted in in less income than combinations at intermediate levels. This is visible in the curvature of the LOC (i.e., connecting the anterior and posterior ribs of the cube). The negative a3 coefficient indicates that it is more lucrative if one's actual personality is less agreeable than the personality job demand (i.e., the surface tilts to the right along the LOI). Yet the absolute distance between actual and demanded personality also mattered, as indicated by the a4 coefficient. The curvilinear a4 effect attenuates the higher earnings of highly disagreeable individuals in jobs that require high agreeableness but exacerbates the corresponding disadvantage of highly agreeable individuals in jobs that require low agreeableness.
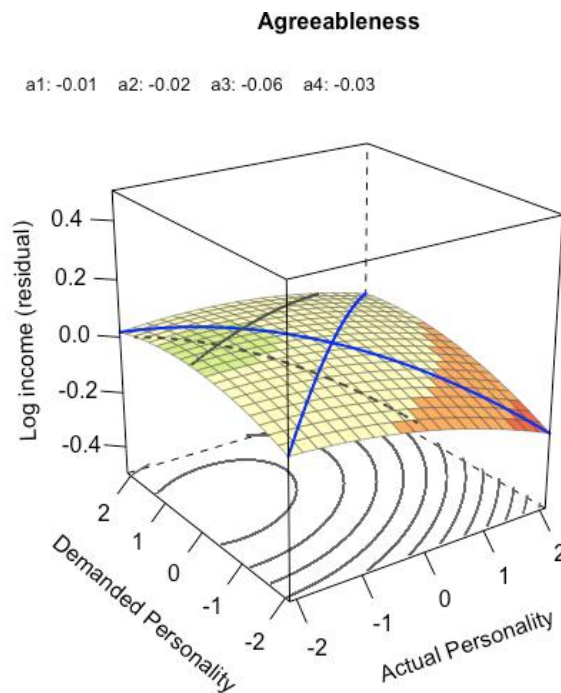
Agreeableness

a1: -0.01   a2: -0.02   a3: -0.06   a4: -0.03

Figure S6: Response surface indicating the association between income (vertical axis) and combinations of actual and job-demanded agreeableness.

Conscientiousness. For conscientiousness, there were strong a1 and a3 effects. The a1 effect indicated an advantage of congruently high levels of actual personality and demanded personality. This can be seen in Figure S7: The LOC connecting the anterior and posterior ribs of the cube has a sharp upward trajectory. The a3 effect indicates that being more conscientious than the job demands was associated with reduced

earnings. Consistent with this, the LOI (drawn between the left and right ribs of the cube) has a marked downward trajectory.
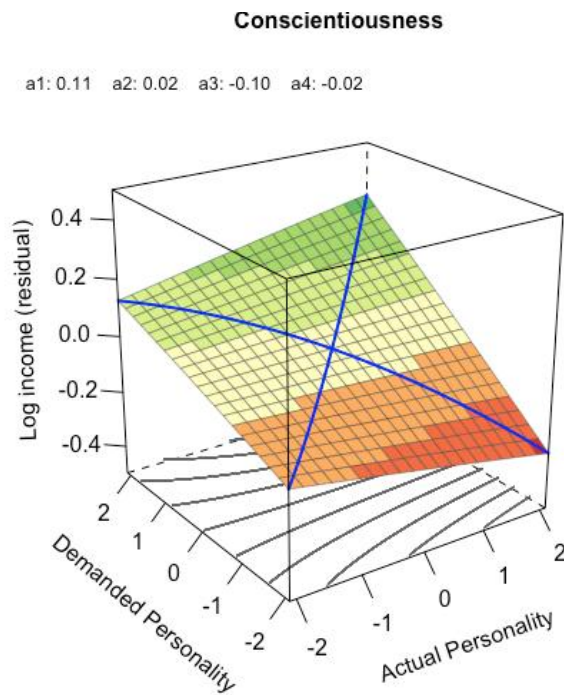
Conscientiousness

a1: 0.11   a2: 0.02   a3: -0.10   a4: -0.02

Figure S7: Response surface indicating the association between income (vertical axis) and combinations of actual and job-demanded conscientiousness.

Emotional stability. The only effect that reached statistical significance for emotional stability was a1, indicating a sharp upward trajectory of the LOC. That is, congruence between actual personality and demanded personality at higher levels of both variables was associated with higher income. This is consistent with Figure S8, which shows a marked upward trajectory of the line that connects the anterior and posterior ribs of the cube.

Emotional stability
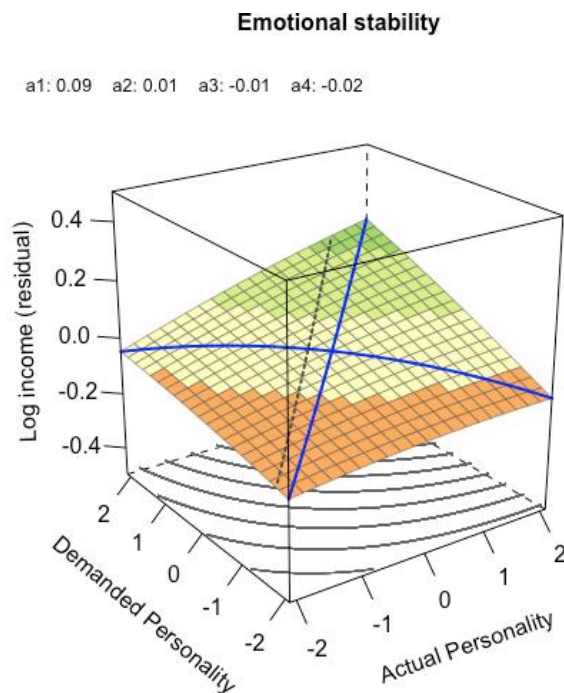
a1: 0.09   a2: 0.01   a3: -0.01   a4: -0.02

Figure S8: Response surface indicating the association between income (vertical axis) and combinations of individual and job-demanded emotional stability.

Illustration of effect sizes

To illustrate the effect sizes in actual money and the correspondence of the results with the raw data, a number of additional analyses were performed. For these analyses, we used the original metric of income (i.e., income that is not log-transformed, since log transformation produces a metric that is not intuitively interpretable). To reduce skewness in the original metric of income, values were capped at €100,000 a year (i.e., values above €100,000 were coded as €100,000), and inserted in a multiple regression with the covariates described above. Furthermore, three groups were created for each trait, corresponding to their position on the LOC: congruence at low levels of actual and demanded personality (LL), congruence at medium levels (MM), and congruence at high levels (HH). Mean income levels were computed for each group.

Results for the LOC are displayed in Table S2 and Figure S9. As can be seen in the figure, the three traits with a large positive a1 coefficient (not qualified by a quadratic a2 coefficient, i.e., extraversion, conscientiousness, and emotional stability) showed higher incomes in the HH group. For these traits, the difference between LL and HH was €3,447 (extraversion), €10,496 (conscientiousness), and €6,679 (emotional stability). The remaining traits (i.e., agreeableness and openness) demonstrated a quadratic

trend. Consistent with this, the MM group had annual incomes that were on average €2,770 (agreeableness) and €1,775 (openness) higher than the average of the LL and HH groups.

Table S2. *Average (adjusted) annual income levels in Euros for different congruent personality-job combinations.*

Trait	LOC position			High vs. low bonus
	LL	MM	HH	
Extraversion	36,423	39,177	39,870	3,447
Agreeableness	36,362	38,860	35,819	—
Conscientiousness	35,567	36,682	46,063	10,496
Emotional Stability	35,896	37,692	42,575	6,679
Openness	36,895	38,899	37,354	459

Note. Income levels were adjusted for covariates but were not log-transformed. LOC = line of congruence, LL = combinations of low actual and job-demanded personality, MM = combinations of medium actual and job-demanded personality, HH = combinations of high actual and job-demanded personality. The high vs. low bonus is the difference between HH and LL combinations, for the traits that have at least a marginally significant a1 effect. A dash indicates that value is not reported because a1 was not (marginally) significant.
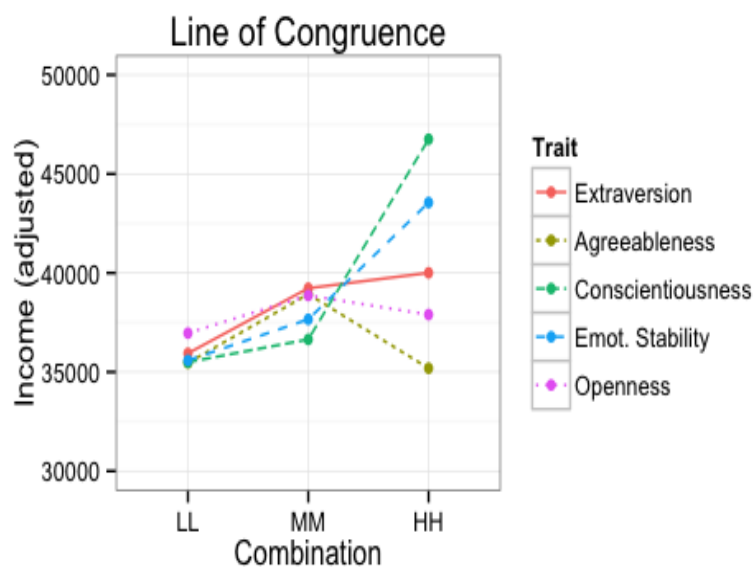

Figure S9: Empirical annual income levels at three different levels of the line of congruence, for each of the Big Five traits.

The same procedure was repeated for the LOI, which displays the effect of incongruent combinations of actual personality and job-demanded personality. Results are displayed in Table 2 of the main text and Figure S10. As can be seen in Figure S10, the traits with the negative a3 coefficients demonstrated a penalty if individuals' actual personalities strongly exceeded the corresponding personality job demands. This was especially true for agreeableness and conscientiousness. For these traits, the difference between "under-qualified" (LH; i.e., low actual value and high demanded value on the trait) and "over-qualified" (HL; i.e., high actual value and low demanded value on the trait) was €3,768 and €5,338, respectively.
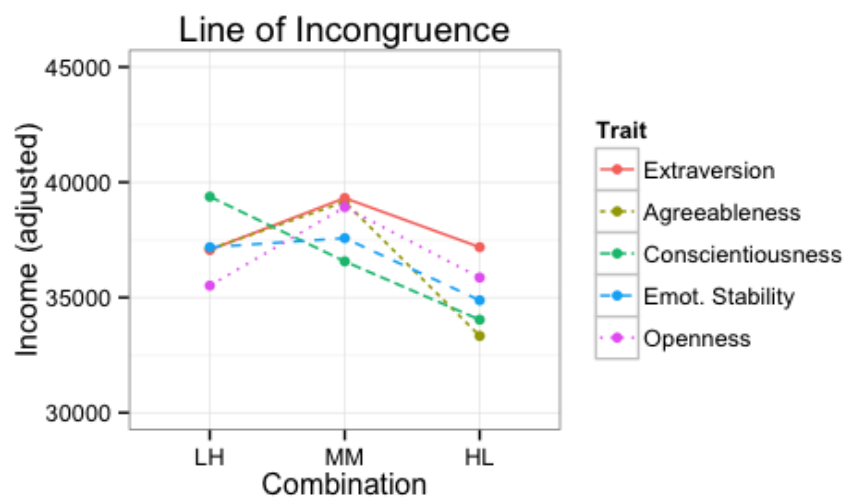

Figure S10: Empirical annual income levels at three different levels of the line of incongruence, for each of the Big Five traits.

Correlations across jobs

So far, associations have been reported on the level of individual job holders (taking the nested structure into account). As a final step, personality job demands, individuals' actual personality trait levels, and income levels were aggregated across the 176 professions. The correlations between personality job demands and actual personality trait levels across jobs are displayed in Table S3. Correlations were statistically significant in all cases, but surprisingly, a weak but negative correlation was found for conscientiousness. Paradoxically, it seems that occupations that place high demands on conscientiousness are on average filled by individuals who are slightly less conscientious. As can be seen, there were substantial correlations for extraversion and openness to experience. These were also the traits that had shown evidence of fit effects (i.e., a4 was at least marginally significant, see above and Table 1 of the main text). This is evidence of powerful social stratification processes for these traits.

Table S3. *Correlations of personality job demands and average actual personality trait levels across jobs.*

Personality job demands	Actual personality				
	Extraversion	Agreeableness	Conscientious-ness	Emotional stability	Openness to experience
Extraversion	**0.44**	**0.20**	-0.03	**0.18**	**0.53**
Agreeableness	**0.24**	**0.34**	0.13	0.04	**0.38**
Conscientiousness	-0.08	0.03	-0.14	**0.17**	**0.15**
Emotional stability	**0.27**	0.01	0.10	**0.26**	**0.22**
Openness to experience	**0.22**	**0.25**	0.00	0.12	**0.64**

Note. Bold numbers indicate statistically significant effects at *p* < .05.

Finally, aggregated actual and job-demanded personality traits were correlated with the average income per profession. As can be seen in Table S4, average job demands were correlated with average earnings for conscientiousness and agreeableness. In the case of conscientiousness, the correlation was quite substantial, explaining 18% of the variance in average income levels. Average actual personality traits across job holders were negatively associated with income in the case of agreeableness and conscientiousness, mirroring the negative a3 coefficients that were found for these traits. Average levels of emotional stability were positively correlated with income.

Table S4. *Correlations between average income levels, personality job demands, and actual personality trait levels across jobs.*

Trait	Personality job demands	Actual personality
Extraversion	0.14	-0.06
Agreeableness	0.03	**-0.21**
Conscientiousness	**0.42**	**-0.32**
Emotional stability	**0.22**	**0.32**
Openness to experience	0.07	0.04

Note. Bold numbers indicate statistically significant effects at *p* < .05.

Additional references

Judge, T. A., Livingston, B. A., & Hurst, C. (2012). Do nice guys—and gals—really finish last? The joint effects of sex and agreeableness on income. *Journal of Personality and Social Psychology*, *102*, 390.