Personality Tests and Employee Conscientiousness

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Abstract

This paper studies whether the use of a personality test in the hiring process leads to an increase in the conscientiousness of workers working in an organization**.** Furthermore, it explores the relation between conscientiousness of employees and various human resource practices. Finally, this paper explores the presence of a sorting effect in which workers self-select into firms with more highly conscientious employees. Using a managerial and an employee survey provided by the workplace employment relations survey 2011, a significant negative relationship between conducting a personality test and the conscientiousness of employees is found. Additionally, a negative relation between conscientiousness and monitoring intensity is found while conscientiousness is found to be positively related to wage and pay for performance. Finally, the results suggest no presence of a sorting effect of conscientious employees within firms. This paper adds to the literature regarding personality human resource management and has implications for the use of human resource practices in firms. Suggesting that a personality test does not lead to more conscientious employees but does increase the efficiency of other human resource practices.

1. Introduction

A person's personality determines who he or she is and how he or she behaves. Every single person has his own unique personality which can be formed by all different kind of factors, including genes, upbringing and experiences. All personalities affect behavior and therefore outcome in various ways. For example, Byrnes et al. (1999) in a meta-analysis of 150 studies found a difference in risk taking behavior between males and females, finding that males generally participate more in risk taking, thus identifying personality differences by gender. Caspi et al. (1997) find that young adolescents who score low on personality characteristics like harm avoidance, control and traditionalism, but on the other hand score high on personality characteristics like aggression or alienation are considerably more likely to engage in health-risk behavior like alcohol abuse and dangerous driving. In terms of outcome, Conard (2006) finds that personality has an influence in predicting academic criteria such as GPA and course performance.

Besides personality affecting behavior and outcomes in everyday life, it may also matter at work, where different personalities may induce various responses to a set of human resource practices and therefore job performance. Many psychologists believe that there are five basic dimensions of personality which are often referred to as the big 5 personality traits. The five personality traits described by this theory are: openness, conscientiousness, agreeableness, extraversion and neuroticism. Of these big 5 personality traits Barrick and Mount (1991) find that only conscientiousness, defined as the quality of wishing to do one's work or duty well or thoroughly, shows a consistent relation with different job performing criteria (job proficiency and training proficiency) for several occupational groups (professionals, police, managers, sales and skilled/semi-skilled). In further research they find that conscientiousness has a positive relationship with performance through conscientious people being more likely to set and establish goals (Barrick et al., 1993). However, this is not the only channel through which conscientiousness might relate to performance. Borman et al. (1991) find that dependability, one of the characteristics of conscientiousness, among ratees has a positive relation with performance ratings given by supervisors. Additionally, dependability is also found to have a negative relation with bad and problematic on the job behavior and, therefore, indirectly influences the performance ratings given by supervisors in a positive manner.

"Conscientiousness is defined as the propensity to follow socially prescribed norms for impulse control, to be goal directed, to plan, and to be able to delay gratification" (Roberts et al.,

2009, p. 369). Several attributes that individuals high in conscientiousness pose are being disciplined, diligent, organized and purposeful. On the work floor this would mean that, compared to workers scoring low on conscientiousness, highly conscientious workers are more thorough in performing tasks, take more initiative and remain committed to work performance, comply to policies and stay focused on work tasks (Witt et al., 2002).

In line with this, Huang and Cappelli (2010) find that when employers screen for conscientiousness this is related to less use of monitoring, greater use of teamwork, higher employee productivity, lower involuntary turnover and higher wages for production of frontline workers. The underlying idea here is that firms who are more selective in their hiring process, hire more conscientious workers who require less monitoring.

In addition to this, Judge and Cable (1997) hypothesize that job seekers who score high on conscientiousness, will be attracted to detail-, outcome and rewards oriented organizational cultures. This would mean that conscientious workers would self-select themselves into organizations with these kinds of cultures. Since conscientious workers are thus expected to be outcome and performance oriented, they might self-select into organizations that offer pay for performance. This relates to the sorting literature in which Lazear (1986) argues that pay for performance induces sorting between high and low ability people, where low ability employees are always found in a fixed salary firm. In later studies Lazear (2000) finds that a switch from hourly wages towards performance pay increases productivity through incentives, but also through the impact of more able employees that are attracted by performance pay and the self-selection of these employees into these firms. It seems performance pay attracts more able employees, however, ability is not the same as conscientiousness. Mount et al. (1999) find that the correlation between conscientiousness and general mental ability is approximately equal to zero. Therefore, it seems uncertain whether pay for performance will increase the level of conscientiousness of the employees within a firm.

Considering that conscientiousness is a personality trait, a possible way to screen for employees possessing this trait, is the use of a personality test in the hiring process of new employees. Therefore, this paper studies whether the use of a personality test in the hiring process leads to an increase in the conscientiousness of workers working in an organization. Furthermore, it explores the relation between conscientiousness of employees and various human resource practices such as monitoring, wages, use of pay for performance and on the job benefits such as a

company car or private health insurance. Moreover, this paper studies the relation of dismissals and conscientiousness to examine if the use of personality tests improves the fit between firms and employees. Finally, this paper explores the presence of a sorting effect in which workers self-select into firms with more highly conscientious employees. To conduct the analysis, this paper uses two surveys retrieved from the Workplace Employment Relations Survey 2011 (WERS). One is a survey of a representative sample of British workplaces and the other is a survey of the employees of these workplaces. Matching both surveys generates a sample of 2678 workplaces and 19,983 employees. This data is then used to construct a conscientiousness score for each individual employee based on a 10-point Likert scale.

This paper adds to the growing literature regarding personality and Human Resource Management (HRM) practices by exploring the link between conducting personality tests and the level of conscientiousness within a firm. Furthermore, this paper adds to the employee sorting literature by exploring whether the level of conscientiousness differs between firms. The results of the paper are relevant for HRM practices of firms by examining the consequences of using a personality test as a HRM practice in the firm.

The remainder of the paper is structured as follows: the second section offers a discussion of related literature, the third section explores the dataset, describes the construction of various important variables and, furthermore, illustrates the models used in this paper. The fourth section demonstrates the results found after running the regressions. Section five offers robustness tests and a discussion of the results found, finally, section six concludes.

2. Literature

2.1 Personality

The definition of personality according to the Cambridge Dictionary is: “The special combination of qualities in a person that makes that person different from others, as shown by the way that person behaves, feels and thinks”. Next to this, Allport (1961) defines personality in the following way: “Personality is the dynamic organization within the individual of those psychophysical systems that determine his characteristics behavior and thought". Key in both definitions is the uniqueness of an individual.

Trait theory in psychology tries to understand the uniqueness of personality and suggests that there are certain behaviors, thoughts and emotions that can be measured, which are called traits.

In line with this, Allport and Odbert (1936) created an elaborate list of words describing different types of behavior or different personality traits. Later, Cattel (1943) managed to reduce this list to 170 categories. Furthermore, by using factor analysis he managed to reduce this list even more to create the "Sixteen Personality Factor Questionnaire". Currently, the five-factor model, also known as the big five personality traits, is most popular in assessing different persons into clusters of personality. These five traits were first introduced by Tubes and Christal (1961) They identified the five factors to be: surgency, agreeableness, dependability, emotional stability and culture. Somewhat different, although essentially similar, five factor models have thereafter been described by several researchers (Goldberg, 1990; McCrae and Costa, 1985). Eventually, the five factors mainly used in the five-factor model are: 1. Openness (being imaginative, curious, original, broad minded) 2. Conscientiousness (being thorough, organized, hardworking, achievement oriented) 3. Agreeableness (being flexible, cooperative, trusting, soft hearted) 4. Extraversion (being sociable, talkative, active) and 5. Neuroticism (being anxious, angry, emotional, insecure).

Although most researchers agree that the foundation for these traits is the childhood of a person, there are different views as to what happens to the development of personality traits in adulthood. For example (McCrea & Costa, 1996 p. 73) "Traits develop through childhood and reach mature form in adulthood; thereafter they are stable in cognitively intact individuals" On the contrary, the contextualist view is that traits are constantly influenced by an individual's interactions and environment. By analyzing several studies of mean-level change in personality characteristics, Helson et al. (2002) find that, with age, people score higher on personality traits as conscientiousness and agreeableness while scoring lower on social vitality. By comparing both views on the development of personality change, Srivastava et al. (2003) find that, indeed, during early and middle adulthood, conscientiousness and agreeableness increase although at varying rates, whereas neuroticism is found to decrease in woman, but remained stable in men. Suggesting that some personality traits indeed develop further among adulthood, whilst others remain at the same level.

To measure these personality traits, the most likely way is to gather answers to questions based on a Likert-scale. However, there are differences in measures. Costa and McCrae (1992) composed the NEO-PI consisting of 240 questions, where each of the five traits are split into six individual facets. This NEO-PI can be both self-reported as well as observer-reported, but in both

cases the answers given by the individuals are based on a 5-point Likert scale. Since this version of assessing personality is very extensive and time-consuming, other measures such as the Big Five Inventory (BFI) (John & Srivastava, 1999) are shorter. The BFI consist of only 44 items, and hence, is less time consuming. In addition to this, Gosling et al. (2003) find that such shorter tests are, although somewhat less accurate compared to extensive test, still an adequate measure of personality when time is scarce.

2.2 Personality at work

Since all individuals can thus score different on personality traits, and personalities affect behavior and outcomes in different ways, it seems evident that individuals scoring high on one trait, for example conscientiousness, score different on job performance compared to individuals scoring high on neuroticism. Therefore, Barrick and Mount (1991) investigate the big five personality traits and their relation to several job performance criteria and find that only conscientiousness has a consistent relationship with job performance.

With the rising popularity of the five-factor model, an increased intensity of the research of personality and job performance was experienced. Initially, Guion and Gottier (1965) arrived at the conclusion that personality testing was not predictive enough to justify its use in personnel selection. More recent literature using the five-factor model though found a positive relation between personality and job performance (Barrick and Mount, 1991; Tett and Rothstein, 1991). Salgado (1997), found similar results conducting meta-analysis on a similar topic, however, with European studies instead of American or Canadian studies. The conclusion drawn from these studies is that conscientiousness has a consistent positive relationship with job performance and, therefore, is a valid predictor of job performance. Thus, these papers are supportive of using personality tests in the application process.

Next to this Englmaier et al. (2014) find that firms using a personality test for job candidates benefit from reciprocal behavior of their employees, can make more use of teamwork are more successful on average and are more likely to pay generous wages. Furthermore, they find that when using a personality test, firms are more likely to offer employee benefits such as a pension scheme, private health insurance and a company car. These results were not found when using competency tests instead of personality tests. On the other hand, Morgeson et al (2007) argue that faking on personality tests is a sizable issue and should be expected. Morevoer, they find the overall validity of personality tests predicating job performance to be reasonably low

and, therefore, personality tests should not be used in the search for job candidates. In response to this, Tett & Christiansen (2007) in their own review of the literature find contrary evidence. They find useful validity estimates of personality test on job performance and a reasonable correlation between personality traits and job performance. Therefore, they question the skepticism of Morgeson et al.

Furthermore, personality might relate to other elements related to work. Judge, Heller & Mount (2002) suggest a positive relationship between four of the five personality traits and job satisfaction. They argue that only neuroticism is expected to have a negative relation with job satisfaction. Accordingly, they find a strong and consistent negative correlation between neuroticism and job satisfaction, while extraversion and conscientiousness show a positive correlation with job satisfaction and openness and agreeableness show a somewhat weaker positive correlation.

2.3 Sorting, screening & HRM

Kosfeld and Siemens (2009) show that there exists a separating equilibrium in which employees self-select into different firms based on their willingness to cooperate and work in teams. They find that selfish employees and cooperative employees self-select into different firms and that selfish employees do not want to work with cooperative employees, therefore, cooperative employees work at the same firm. Since Huang and Kappalli (2010) find that screening for conscientiousness leads to a greater use of teamwork. This would suggest that highly conscientious individuals self-select into the same firms and that there would be some firms with high conscientious employees and others where the level of conscientiousness is lower.

Since, as mentioned in the previous paragraph, personality is found to be a valid predictor of job performance and other work-related aspects. The use of personality tests as a screening device in personnel selection seems justified. This is supported by Rothstein and Goffin (2006) who in their review of current literature regarding personality test and personnel selection conclude that the use of personality test in personnel selection is indeed increasing. They argue that the most prevalent reason given for the use of personality tests in recent literature is the increasing fit of employees and firms as well as a reduction in employee turnover rate.

Another reason for the increasing use of a personality test in the application process might be that it complements other HRM practices within a firm. For practices to be a complement the

following needs to be true: “using one more intensely increases the marginal benefit of the others more intensely” (Holmstrom and Milgrom, 1994, p.973). Based on previous literature, Ichniowski and Shaw (2003) describe three theories why human resource practices might be complements: First, they mention that complementary HRM practices might reduce problems under various incentive pay plans. Second, complementary HRM practices are needed to support decentralized decision making and elicit ideas from low leveled workers. Finally, employees working on several tasks producing various types of output grant another reason for HRM practices to be complements.

An example of when HRM practices might be complements is given by Lazear (1989). In this paper, he argues that when a firm uses relative pay, which means “workers benefit not only by their own success, but also by their rivals’ failures” (Lazear, 1989, p.578), this may lead to workers sabotaging the performance of their colleagues in order to improve their own relative performance. Therefore, it might be beneficial to group employees based on personality and thus group more cooperative workers who are less inclined to sabotage their peers. Moreover, the performance of a relative pay plan can be improved by combining this with active screening of job applicants’ personalities.

3. Data and Methodology

This study makes use of the Workplace Employment Relations Survey 2011. The WERS is a survey aimed at providing a nationally representative account of the state of employment relations and working life inside British workplaces. The data covers an extensive survey of 2,680 workplace managers responsible for employment relations and personnel as well as survey questions concerning characteristics of the workforce answered by 21,981 employees. The WERS was conducted between February 2011 and June 2012 and was the sixth in a series of comparable surveys. The WERS serves the purpose of this study well, because there is data regarding the workplace and its practices as well as data on the individual employees and their feelings towards the workplace.

In order to get the dataset without any observations that might harm the results, observations in which someone refused to answer or answered “don’t know” are dropped from the dataset. After these adjustments, 2,678 observations of different managers remain in the sample. Each observation in the manager survey can subsequently be linked to the employee

survey resulting in multiple observations of employees per manager. In total, the merged dataset contains 19,983 individual observations.

Table 1 offers descriptive statistics regarding the firms and their managers in the sample as well as descriptive statistics regarding the employees. In this table, the average firm has 441 employees and already exists somewhat around 40 years. Some of the observations in this dataset could possibly be viewed as an outlier. However, since the dataset is sufficiently large, these outliers do not significantly influence the results and, therefore, are not removed from the dataset. Furthermore, of all the managers questioned in the survey, 54.4% are female.

Next to these firm level variables, in tables 2, 3 and 4 a tabulation of the variables regarding the main occupation, the location and the sector of the firm are presented. In table 2 a list of all the occupations present in the sample is presented and from this table many different occupations are accounted for, however most managers that are questioned work in firms where most employees are working in professional occupations. Also, most governmental regions in the UK are accounted for in the sample. This is shown in table 3, where the distribution of managers in the sample is quiet evenly spread over the UK. Finally, the sectors in which the firm does his business, are presented in table 4. These sectors are based on UK SIC codes of 2007. The three sectors that are most represented in the sample are Education, Human health and social work and Wholesale and retail.

Table 1: descriptive statistics firm level and individual level

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
A: Firm level					
Employees	2,678	441.5	1,180	5	20,746
Firm age	2,553	40.96	56.35	0	997
Female manager	2678	0.544	0.498	0	1
B: Individual level					
High education	19,983	0.324	0.468	0	1
Female	19,983	0.563	0.496	0	1
Trade union |	19,983	0.372	0.483	0	1

Table 2: main occupation Non-managerial employees

Non-managerial occupation with the most employees	frequency	percentage	Cumulative percentage
Professional occupations	581	21.792	21.792
Associate professional and technical occupations	308	11.552	33.345
Administrative and secretarial occupations	362	13.578	46.924
Skilled trades	190	7.1267	54.051
Caring, leisure and other service occupations	330	12.378	66.429
Sales and customer service occupations	336	12.603	79.032
Process, Plant and machine operatives	227	8.5146	87.546
Elementary occupations	332	12.453	100
Total	2666	100	

Table 3: firm location

Government Regional Office	frequency	percentage	Cumulative percentage
North East	110	4.107	4.108
North West	352	13.144	17.252
Y and H	213	7.953	25.205
E Mids	174	6.497	31.703
W Mids	207	7.729	39.432
East of England	226	8.439	47.872
London	399	14.899	62.771
South East	350	13.069	75.840
South West	225	8.4017	84.242
Scotland	275	10.268	94.511
Wales	147	5.489	100
Total	2678	100	

Table 4: Sector

Sector	Frequency	percentage	Cumulative percentage
Manufacturing	234	8.74	8.74
Electricity, gas, steam and air conditioning	52	1.94	10.68
Water supply, sewerage and waste	50	1.87	12.55
Construction	103	3.85	16.39
Wholesale and retail	286	10.68	27.07
Transportation and Storage	144	5.38	32.45
Accommodation and Food service	166	6.20	38.65
Information and communication	66	2.46	41.11
Financial and insurance activities	48	1.79	42.91
Real estate activities	70	2.61	45.52
Professional, scientific and technic	146	5.45	50.97
Administrative and support service	114	4.26	55.23
Public administration and defense	236	8.81	64.04
Education	349	13.03	77.07
Human health and social work	422	15.76	92.83
Arts, entertainment and recreation	108	4.03	96.86
Other service activities	84	3.14	100.00
Total	2678	100	

Panel B of table 1 presents summary statistics regarding the employees of a firm. Here, it can be seen that 32% of the employees in the sample have enjoyed a higher education, which is defined as having a Bachelor's or Master's degree. More than half of the sample, 56.3% is female and 37.2% of the employees is member of a trade union. Like occupation and location there are also some categorical variables on the individual level being: tenure, age and wage. Therefore, in table 5, 6 and 7 tabulations of tenure, age and wage are presented respectively. From these tables, it can be seen that most workers in the sample (30.4%) have already been working at the firm for at least 10 years (table 4). The biggest age group among employees in the sample is 44-49 (table 6) and most employees in the sample earn a wage of £371-£430 per week (table 7).

Table 5: Tenure

How many years in total have you been working at this workplace?	Frequency	Fraction	Cumulative percentage
less than 1 year	2272	11.312	11.312
1 to less than 2 years	1943	9.674	20.986
2 to less than 5 years	4868	24.237	45.223
5 to less than 10 years	4892	24.356	69.579
10 years or more	6110	30.421	100
Total	20085	100	

Table 6: Age

Age	Frequency	Fraction	Cumulative percentage
16-21	790	3.953	3.953
22-29	2942	14.723	18.676
30-39	4300	21.518	40.194
44-49	5680	28.424	68.618
50-59	4818	24.110	92.729
60-64	1110	5.555	98.284
65 or above	343	1.716	100
Total	19983	100	

Table 7: Wage

How much do you get paid for your job here, before tax and other deductions	Frequency	Fraction	Cumulative percentage
£60 or less per week	590	2.953	2.953
£61-£100 per week	642	3.213	6.165
£101-£130 per week	606	3.033	9.198
£131-£170 per week	865	4.329	13.526
£171-£220 per week	1391	6.961	20.487
£221-£260 per week	1419	7.101	27.588
£261-£310 per week	1782	8.918	36.506
£311-370 per week	2220	11.109	47.615
£371-£430 per week	2050	10.259	57.874
£431-£520 per week	2269	11.355	69.229
£521-£650 per week	2279	11.405	80.634
£651-£820 per week	1863	9.323	89.956
£821-£1050 per week	1066	5.335	95.291
£1051 or more per week	941	4.709	100
Total	19983	100	

The variables presented in table 1 to 7 are all taken directly from the WERS and the interpretation is rather obvious. However, there are several other variables used which are less self-explanatory and, therefore, need some explanation regarding the method of construction. An explanation about the way these variables are designed, is given below and their descriptive statistics are presented in table 8.

First, a conscientiousness score is created. This is challenging, because conscientiousness is a personality trait and the WERS does not cover personality in their survey. However, when combining several questions in the WERS, a measure for conscientiousness can be created. These questions are asked in the employee survey, so the answers differ per individual. The questions that are combined to create this conscientiousness measure are the following two:

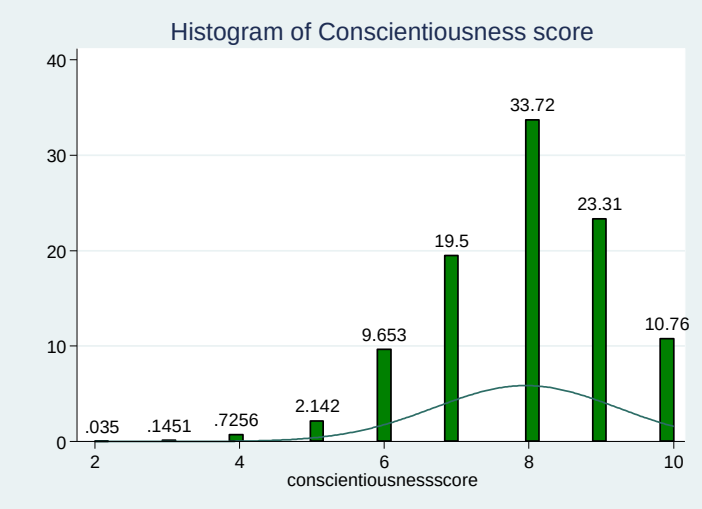
1. Using my own initiative, I carry out tasks that are not required as part of my job (strongly agree to strongly disagree)
2. My job requires that I work very hard (strongly agree to strongly disagree)

The answers to these questions indicate whether a person is hardworking or not, and thus reflect conscientious. Therefore, combining these questions to make a measure for conscientiousness would indicate whether a person is conscientious or not. The answers to both questions are based on a five-point Likert-scale, the most commonly used scale to score the responses to survey questions, ranging from strongly disagree, which is indicated by a 1, to strongly agree, indicated by a 5. Thus, to create the conscientiousness score, the sum of the answers to both questions is taken to create a 10-point Likert-scale. Looking at panel B of table 8, the mean conscientiousness score of employees in the sample is 7.9, indicating that overall, the employees in the sample are remarkably conscientious. The correlation between both conscientiousness score is 0.14, which is not exceptionally high, therefore indicating that scoring high on one of the scores, does not necessarily imply a high score on the other.

Furthermore, in figure 1 a histogram of the variable conscientiousness score is shown, in which the complete distribution of the variable is presented. From this figure, it becomes clear that most of the employees in the sample score high on conscientiousness with more than 65% of the sample scoring an 8 or higher. Indeed, suggesting that the average employee in the sample is highly conscientious.

A limitation of creating a conscientiousness score this way is that the questions are not directly related to a person's personality. Since conscientiousness is a personality trait, it would be preferred to build such a score with answers to questions directly adressing an employee's personality. That way, the conscientiousness score would be more accurate. However, the WERS does not provide a survey with questions directly aiming at an employee's personality. The questions used to build the conscientiousness score are merely questions of which the answer gives an indication about the level of conscientiousness of an employee, where an answer of agree or strongly agree, suggest a high level of conscientiousness. Therefore, given the WERS dataset, constructing the variable of conscientiousness score in this way is the best possible way to capture an indication of the level of conscientiousness of an employee. Although only two questions are used to create the conscientiousness score, compared to 240 in the NEO-PI and 44 in the BFI, the questions are comparable to the questions used in those measures. For example, in the BFI subjects need to rate the following statements on a Likert scale: preservers until the tasks is finished, tends to be lazy, is a reliable worker and does a thorough job. All of these statements are also relatable to the two questions upon which the conscientiousness score is build.

Figure 1: Histogram of Conscientiousness score



Second, a dummy variable is created regarding the use of personality tests. In the WERS, there is a question asked to the manager addressing this topic being: When filling vacancies at this workplace, do you ever conduct any type of personality or attitude test for managerial positions, non-managerial positions or not at all? A dummy variable is then created equaling 1 if the manager answered that they use personality test and equaling 0 when they do not conduct a personality test. Since the measure of conscientiousness can only be made for employees of a firm, not for managers, the dummy variable for personality test will only equal 1 if the firm conducts personality tests for non-managerial positions. This is because when a firm only conducts personality tests for managerial positions, this will not correspond to the measure of conscientiousness. As can be observed in table 8, in the sample 18.7% of the firms conduct a personality test in the application process for non-managerial positions. For managerial positions on the other hand, 39.27% of the firms conduct a personality test in the application process.

Next, to create a variable that indicates the level of monitoring in the firm, the number of managers per employee is used. This is the same approach as Huang and Cappalli (2010) use to construct their monitoring variable and, overall, is a very common measure used to indicate the monitoring intensity. This variable is based on the following questions in the WERS, the answer to the question: “how many full time managers and senior officers are there in the workplace?” is divided by the answer to the question: “How many full time non-managerial employees are there in the workplace?” Constructing the variable in this way, more employees per manager generally implies less monitoring. Averagely, the firms in the sample use one manager per 16 employees.

To check if there actually is a relationship between the level of conscientiousness and receiving pay for performance or not, another dummy variable is created. This variable regarding pay for performance equals 1 if an individual indeed receives pay for performance and 0 otherwise. This is the case when this individual answers, payments based on individual performance or output, to the following question: Which of the following do you receive at your job here?: Basic fixed wage, payments based on individual performance or output, payments based on the overall performance of a team or group, payments based on the overall performance of your workplace or organization. As it turns out, 10% of the employees in the sample indicate that they receive pay for performance.

In the case of dismissals, another dummy variable is created. This variable equals 1 if a firm has dismissed any of its employees in the past year and 0 otherwise. With this variable, it is possible to look at the relationship of conscientiousness score and the probability that dismissals take place within a firm. Constructing the variable this way leads to 43.2% of the firms in the sample that had to deal with dismissals in the previous year.

Last of all, in order to see if there is a relationship between the level of conscientiousness and on the job benefits, multiple dummy variables regarding the possible benefits an employer may provide are created. Dummy variables are created regarding employer pension scheme, company car and private health insurance to uncover any relationship between the level of conscientiousness and the probability of receiving any of these benefits. In the sample 16.8% gets a company car, 16.4% get private health insurance and in most cases, 82.1%, the employer contributes to a pension scheme.

Table 8: Descriptive statistics firm and individual level

VARIABLES	(1) N	(2) mean	(3) sd	(4) min	(5) max
A: Firm level					
Personality test	2,678	0.187	0.390	0	1
Monitoring	2,479	16.03	30.21	0	436
Dismissals	2,678	0.432	0.495	0	1
B: Individual level					
Performance pay	19,983	0.105	0.307	0	1
Company car	19,983	0.168	0.374	0	1
Pension scheme	19,983	0.821	0.383	0	1
Private health	19,983	0.164	0.370	0	1
Conscientiousness score	19,983	7.958	1.265	2	10

Table 9: Correlations of conscientiousness score with some control variables

Variables	Conscientiousness score
Age	-0.0216***
Tenure	0.0345***
High education	0.0938***
Female	0.079***
Trade union	-0.077***

*** p<0.01, ** p<0.05, * p<0.1

3.1 Control variables

Apart from the above-mentioned variables, a set of control variables is included to account for any demographic factors that may influence the dependent variables as well as the level of conscientiousness. Considering that the dataset used partly contains questioned answered by managers of an organization and partly contains a survey with questions answered by individual employees, two sets of control variables are added to the model. The first set of control variables added to the model are controls regarding individual employees being: tenure, age, education, gender, ethnicity and whether any employees working at the firm are a member of a trade union or not. Table 9 above shows several correlations between the conscientiousness score and individual control variables. Conscientiousness is negatively correlated with age and trade

union and positively correlated with tenure, high education and being a female. The next set of control variables consists of demographic factors concerning the manager who answered the survey as well as the organization the manager and the employees belong to. This set of controls consist of the following variables: firm age, gender of the manager, the location of the firm and the main occupational group of the employees.

Now that the dataset has been established, an empirical strategy can be designed to model how the use of personality tests in the application process might relate to the level of conscientiousness of the employees, and how this conscientiousness score relates to the use of monitoring, wage, performance pay and on the job benefits.

3.2 The model

As all the variables have been established, a model is built to uncover if any of the above described relationships exist. First, a model with the measure of conscientiousness as the dependent variable and the dummy variable for personality test as the main independent variable is built. Since the variable regarding the conscientiousness score is based on a 10-point Likert-scale, a simple OLS regression will suffice to discover any relationship between the two variables. Therefore, the first model will be of the following design:

$$Conscientiousness_i = \beta_0 + \beta_1 Personalitytest_j + V_j + X_i + \varepsilon_{ij} \quad (1)$$

Where the first term $Conscientiousness_i$ represents the conscientiousness score of individual *i*, the β_0 is the constant, β_1 is the main coefficient of interest corresponding to the dummy variable whether firm *j* uses a personality test in the application process or not, V_j is a vector of control variables concerning demographic factors of the firm and the manager, X_i is a vector of control variables regarding the individual employees and ε_{ij} is the error term. The standard errors are clustered at the firm level.

Second, to further investigate whether there exists a relationship between the conscientiousness score and the other variables, monitoring, wage, pay for performance, dismissals and on the job benefits, a second model is created where the conscientiousness score is taken as the main independent variable and the following OLS model is used to uncover any relationship.

$$Monitoring_j = \beta_0 + \beta_1 Conscientiousness_i + V_j + X_i + \varepsilon_{ij} \quad (2)$$

Here the first term monitoring$_j$ represents the monitoring intensity of firm *j*, the β_0 is the constant, β_1 is the main coefficient of interest corresponding to the conscientiousness score of employee, V_j is a vector of control variables concerning demographic factors of the firm and the manager, X_i is a vector of control variables regarding the individual employees and ε_{ij} is the error term. And, like in equation 1, the standard errors are clustered at the firm level.

The model in equation 2 can then be repeated with the remaining variables wage, pay for performance, dismissals and on the job benefits as the dependent variables. Since the regression in equation 2 is an OLS regression, but the variables regarding dismissals and on the job benefits are binary variables taking on the value of 0 or 1. A Logit model is also made to examine whether this would change the results of these models. However, the results of the logit model are similar to the results of the OLS model. Therefore, for ease of interpretation, the OLS model is used for the analyses.

Next, some of the dependent variables used in equation 2 are measured on an individual level instead of on a company level. The variables measured at an individual level are, wage and performance pay. This grants the opportunity to deepen the analysis by adding firm fixed effects to the model. Using firm fixed effects in the model explores whether there are within company differences. To examine this, a third model presented by equation 3 is created. Once more, the main independent variable is the conscientiousness score.

$$Wage_{ij} = \beta_0 + \beta_1 Conscientiousness_i + \alpha_j + X_i + \alpha_i \varepsilon_{ij} \quad (3)$$

In the above equation, Wage$_{ij}$ represents the wage of employee *i* within firm *j*, the β_0 is the constant, β_1 is the main coefficient of interest corresponding to the conscientiousness score of employee *I*, α_j are the firm fixed effects, X_i is a vector of control variables regarding the individual employees, α_i are the firm fixed effects and ε_{ij} is the error term which are clustered at the firm level.

Finally, to uncover which share of the variation in the conscientiousness score is between firms the following regression is run:

$$Conscientiousness_i = \beta_0 + \alpha_j + \varepsilon_{ij} \quad (4)$$

In the above equation the conscientiousness score is regressed only on the firm fixed effects α_j. In this regression, the R^2 would then explain how much of the variation in the conscientiousness score is between firms instead of within firms.

4. Results

With the empirical strategy designed in the previous section, the regressions can be run. In table 10, the results from the model specified by equation 1 are presented. Model 1 of table 10 presents the model of equation 1 without any control variables and the model 2 of table 10 presents the model of equation 1 including the control variables. The main coefficient of interest is the one of personality tests. This turns out to be negative and highly significant in both models, indicating that there is a negative relationship between conducting a personality test and the conscientiousness score of employees. The coefficient suggests that conducting a personality test during the application process lowers the conscientiousness score by 0.127. However, the coefficient in the second model, where the control variables are added, is slightly less negative, 0.074. The reason for this is that some of the variation in the conscientiousness score is due to the correlation with the control variables. For example, the positive coefficients of having a higher education, 0.162, and being female, 0.118, take some of the variation away from the variable for personality tests, therefore decreasing this coefficient slightly. Furthermore, conscientiousness seems to increase with tenure, just as it increases with age. However, while first conscientiousness increases with age, when workers reach the age category of 60-64 conscientiousness suddenly decreases significantly. Since the conscientiousness score is based on a 10-point scale, conducting a personality test on average would lower the conscientiousness score by 0.74%. Theses result are surprisingly the opposite of what was expected beforehand.

Table 10: Regression results of model 1

VARIABLES	Conscientiousness score	Conscientiousness score
Personality test	-0.127***	-0.074**
	(0.031)	(0.030)
Firm age		-0.0002
		(0.002)
High education		0.162***
		(0.022)
female		0.118***
		(0.022)
Trade union		0.031
		(0.024)
Constant	7.982***	7.454***
	(0.014)	(0.100)
Observations	19,983	19,033
R-squared	0.002	0.046
controls individual employee	no	yes
controls firm level	no	yes
clustered standard errors	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Note: furthermore, as individual employee controls: Age and tenure are used and as firm level controls: firm age, manager gender, occupation and location are used.

Table 11 presents the results generated by the second model. The first two models in table 11 take monitoring as the dependent variable and find a significant negative relationship between conscientiousness and monitoring. Again, this is a surprising result since it was hypothesized that a higher level of conscientiousness would result in a lower monitoring intensity. However, this negative significant relationship indicates that a higher level of conscientiousness would lead to less employees per manager, thus increasing the monitoring intensity. Furthermore, in line with Huang and Cappelli (2010), model 3 and 4 show a positive and significant relationship between conscientiousness and wage, implying that generally, highly conscientious employees earn a higher wage compared to employees scoring lower on conscientiousness. The size of the coefficient in the model 4 is 0.351. However, wage is measured in categories and the difference in wage increase between those categories is not equal (table 6). Therefore, the coefficient itself

is not the most informative. The average wage increase between the categories is £86 which suggest that an increase in the conscientiousness would generate a £30.2 per week wage increase[1]. Next, model 5 and 6 show a slightly positive significant coefficient of conscientiousness, suggesting that when an employee is more conscientious, the probability that this employee receives pay for performance increases. Although the coefficients in both models are positive and significant, the size of the coefficients are very small. Looking at model 6, when a person's scores 1 point higher on conscientiousness, this would lead to an increase of 0.008% of the probability of receiving pay for performance. Models 7 and 8 show that the negative significant coefficient of conscientiousness corresponds to the expectations that having more conscientious employees reduces the occurrence of dismissals within a firm. However, the size of the coefficient is again very small, suggesting that there is a relationship between the two variables, but that it is not a very strong relationship[2]. Finally, in models 9 to 14, the results of the several variables regarding on the job benefits are displayed. Employers contributing to a pension scheme seems positively related to conscientiousness. However, when adding the control variables to the equation, the significance disappears. Furthermore, in model 12 of table 11, receiving a company car has a significant but negative relationship with conscientiousness and in the last models of table 11, models 13 and 14 a negative but insignificant relationship between private health insurance and conscientiousness is displayed. So overall, a relationship between conscientiousness and some on the job benefits is found, although the overall effect seems rather ambiguous.

[1] This is calculated by taking the average wage increase over all category's and multiplying it by the coefficient of conscientiousness in model 4 of table 9

[2] A regression regarding the size of the dismissals also has been run however there was no significant relationship found between conscientiousness and the size of dismissals. This might be due to the fact that when multiple dismissals happen within a year, this might not be because of employees not working hard but for other reasons like a reduction in turnover or a decrease in demand.

Table 11: Regression results of model 2

VARIABLES	(1) Monitoring	(2) Monitoring	(3) Wage	(4) Wage	(5) Performance pay	(6) Performance pay	(7) Dismissals
Conscientiousness score	-0.950***	-0.554**	0.369***	0.351***	0.004*	0.008***	-0.018***
	(0.276)	(0.221)	(0.0218)	(0.0164)	(0.00207)	(0.00207)	(0.00383)
Constant	24.13***	20.01***	5.493***	4.028***	0.0742***	0.0563*	0.611***
	(2.502)	(4.789)	(0.191)	(0.277)	(0.0171)	(0.0329)	(0.0334)
Observations	19,776	18,874	19,983	19,033	19,983	19,033	19,983
R-squared	0.002	0.088	0.020	0.458	0.000	0.093	0.002
controls individual employee	no	yes	no	yes	no	yes	no
controls firm level	no	yes	no	yes	no	yes	no
clustered standard errors	yes	yes	yes	yes	yes	yes	yes

VARIABLES	(8) Dismissals	(9) Pension	(10) Pension	(11) Company car	(12) Company car	(13) Private health insurance	(14) Private health insurance
Conscientiousness score	-0.00457	0.00426*	0.00305	-0.00323	-0.00720***	-0.00211	-0.00108
	(0.00342)	(0.00239)	(0.00231)	(0.00270)	(0.00231)	(0.00251)	(0.00235)
Constant	0.500***	0.134***	0.268***	0.847***	0.797***	0.180***	0.335***
	(0.100)	(0.0209)	(0.0797)	(0.0231)	(0.0638)	(0.0229)	(0.0750)
Observations	19,033	19,983	19,033	19,983	19,033	19,983	19,033
R-squared	0.101	0.000	0.162	0.000	0.206	0.000	0.231
controls individual employee	yes	no	yes	no	yes	no	yes
controls firm level	yes	no	yes	no	yes	no	yes
clustered standard errors	yes	yes	yes	yes	yes	yes	yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: as individual employee controls: age, tenure, gender, education and trade union are added. As firm level controls: firm age, gender manager, location, sector, and occupation are added.

Finally, table 12 looks at the third model where firm fixed effects are used to uncover whether there are differences between firms in the level of conscientiousness. The models in table 12 generate highly significant positive coefficients of conscientiousness on wage and performance pay. Compared to table 11, the model in table 12 regarding wage and including control variables generate coefficients that are relatively similar, 0.344 and 0.351. The coefficient of performance pay in table 12 is somewhat lower compared to table 11 for wage and 0.00696 < 0.00790. Furthermore, the R-squared's generated by the fixed effect models are much higher compared to the models in table 11, suggesting that the fixed effects model explains the relationship between conscientiousness and wage and performance pay better. The significant positive coefficients generated by the fixed effects model suggests that, within firms, people with a higher conscientiousness score earn higher wages and more often receive pay for performance. Where the results from table 11 could mean that there is a sorting of high and low conscientious employees between firms, the results shown in table 12 suggest that there is no such sorting, but that the relationship found between the conscientiousness score and wage and performance pay is driven by differences between employees within firms. To further explore how much of the variation in the conscientiousness score is between firms instead of within firms, regression 4 is run. This regression generates a R^2 of 0.1607, suggesting that only a small proportion of the variation in the conscientiousness score is found between firms. These two results suggest that there is not much evidence for high and low conscientious people sorting together within firms.

Table 12: Firm fixed effects Regression results of model 3

VARIABLES	(1) Wage	(2) Wage	(3) Performance pay	(4) Performance pay
Conscientiousness score	0.419***	0.344***	0.00798***	0.00696***
	(0.0185)	(0.0158)	(0.00182)	(0.00183)
Constant	8.214***	6.836***	0.0517***	0.0495***
	(0.138)	(0.159)	(0.0136)	(0.0185)
Observations	19,661	19,661	19,661	19,661
R-squared	0.515	0.619	0.331	0.335
controls individual employee	no	yes	no	yes
firm fixed effects	yes	yes	yes	yes
clustered standard errors	yes	yes	yes	yes

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Discussion and Robustness check

In the previous section a surprising significant negative relationship between the use of personality tests and the conscientiousness scores of employees was found. Furthermore, in contrast to what was hypothesized, it was also found that a higher conscientiousness score leads to a higher monitoring intensity. Next to that, a positive relationship with wage and pay for performance is found just as a negative relationship between conscientiousness and dismissals. These findings all correspond to what was hypothesized. Lastly, no relationship is found between the level of conscientiousness and receiving a company car or private health insurance, only a small negative relationship between conscientiousness and a firm contributing to a pension scheme is found.

Although it was expected that conducting a personality test during the application process would deliver more conscientious employees, a negative relationship is found. An explanation might be in the way the conscientiousness score is constructed. Considering the first question: "using my own initiative I carry out tasks that are not required as part of my job" a positive relationship should be found, because it is a question indicating that you are a hard working person and don't mind taking on extra work. However, the second question: "my job requires that I work very hard" might not be the best question regarding conscientiousness. If an employee answers this question with "strongly agree", this employee feels that his job requires very hard work, although if someone is considered a highly conscientious person, does he then perceive his job as hard working? Or does he consider his job not very hard work, because he likes work since he is very conscientious. Therefore, to discover if the two questions that build up the conscientiousness score have a diverse relationship with the use of a personality test another regression is run similar to the one in equation 1, only now taking the two questions separately. The results of this regression are presented in table 13, where the first two models present the same results as table 10. Model 3 and 4 of table 13 present the results of the first question regarding conscientiousness: "Using my own initiative I carry out tasks that are not required as part of my job" and model 5 and 6 present the results of the second question: "My job requires that I work very hard". In both cases a significant negative result is found, indicating that both questions have the same negative relationship with conducting a personality test, therefore, not explaining the unanticipated negative relationship.

Table 13: both questions regarding conscientiousness seperately

VARIABLES	(1) Conscientiousness score	(2) Conscientiousness score	(3) Own initiative	(4) Own initiative	(5) Requires hard work	(6) Requires hard work
Personality test	-0.127***	-0.113***	-0.0699***	-0.0549***	-0.0575***	-0.0584***
	(0.0310)	(0.0314)	(0.0188)	(0.0196)	(0.0202)	(0.0195)
Constant	7.982***	7.765***	4.165***	4.083***	3.817***	3.682***
	(0.0138)	(0.0801)	(0.00849)	(0.0510)	(0.00911)	(0.0544)
Observations	19,983	19,033	19,983	19,033	19,983	19,033
R-squared	0.002	0.031	0.001	0.035	0.001	0.018
controls individual employee	no	yes	no	yes	no	yes
controls firm level	no	yes	no	yes	no	yes
clustered standard errors	yes	yes	yes	yes	yes	yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: as individual employee controls: age, tenure, gender, education and trade union are added. As firm level controls: firm age, gender manager, location, sector and occupation are added.

Another possibility for the surprising results is that the personality tests are not used to find conscientious workers, but that they are used as a complementary human resource practice enhancing the use of the other HRM practices. To check if this is indeed the case Personality test is added to equation 2 generating the following model:

$$Monitoring_j = \beta_0 + \beta_1 Conscientiousness_i + \beta_2 Personalitytest_j\, V_j + X_i + \varepsilon_{ij} \quad (5)$$

The model is similar to the model in equation 2 only now personality test is added in order to see the relationship between using a personality test in the hiring process and the other human resource practices.

The results of this model are presented in table 14. In all models, the coefficients regarding the conscientiousness score are similar to the coefficients in table 11, indicating that adding personality test to the equation does not influence the relationship of conscientiousness with the other variables. In the first two models the relationship between monitoring and using a personality test is presented. In both cases the coefficient of personality test is positive, suggesting that the use of a personality test in the hiring process decreases the monitoring intensity as is

Table 14: Regressions results of model 5

VARIABLES	(1) Monitoring	(2) Monitoring	(3) Wage	(4) Wage	(5) Performance pay	(6) Performanc e pay	(7) Dismissals
Conscientiousness score	-0.912***	-0.548**	0.383***	0.353***	0.005**	0.008***	-0.017***
	(0.274)	(0.219)	(0.021)	(0.016)	(0.002)	(0.002)	(0.004)
Personality test	3.100	0.942	1.123***	0.345***	0.098***	0.047***	0.108***
	(2.119)	(1.777)	(0.149)	(0.086)	(0.015)	(0.013)	(0.033)
Constant	23.23***	19.53***	5.164***	3.851***	0.0454**	0.0323	0.580***
	(2.481)	(4.724)	(0.186)	(0.279)	(0.018)	(0.034)	(0.034)
Observations	19,776	18,874	19,983	19,033	19,983	19,033	19,983
R-squared	0.003	0.089	0.038	0.459	0.016	0.096	0.009
controls individual employee	no	yes	no	yes	no	yes	no
controls firm level	no	yes	no	yes	no	yes	no
clustered standard errors	yes	yes	yes	yes	yes	yes	yes

VARIABLES	(8) Dismissals	(9) Pension scheme	(10) Pension scheme	(11) Company car	(12) Company car	(13) Private health insurance	(14) Private health insurance
Conscientiousness score	-0.004	0.005**	0.003	-0.002	-0.007***	-0.0002	-0.0006
	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)
Personality test	0.082**	0.090***	0.040	0.093***	0.056***	0.148***	0.066**
	(0.034)	(0.028)	(0.027)	(0.020)	(0.020)	(0.029)	(0.027)
Constant	0.458***	0.107***	0.238***	0.820***	0.768***	0.137***	0.301***
	(0.101)	(0.021)	(0.071)	(0.024)	(0.064)	(0.023)	(0.075)
Observations	19,033	19,983	19,033	19,983	19,033	19,983	19,033
R-squared	0.105	0.009	0.163	0.009	0.209	0.025	0.235
controls individual employee	yes	no	yes	no	yes	no	yes
controls firm level	yes	no	yes	no	yes	no	yes
clustered standard errors	yes	yes	yes	yes	yes	yes	yes

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: as individual employee controls: age, tenure, gender, education and trade union are added.
As firm level controls: firm age, gender manager, location, sector and occupation are added.

Hypothesized. However, the coefficients are insignificant. Therefore, not much can be said about the relationship between the monitoring intensity and the use of personality test. In the second and third model of table 14, a positive and significant relationship between wage and the use of personality test is found. This relation is similar to the relation between conscientiousness and wage. However, the size of the coefficient of personality test is substantially bigger compared to the coefficients of conscientiousness. In the fifth and sixth model, again a positive significant relationship between personality test and pay for performance is found similar to the relationship of conscientiousness and pay for performance. And just as with wage, the size of the coefficient of personality test is bigger than the coefficient of conscientiousness. Furthermore, in models seven and eight, where a negative significant relationship between conscientiousness and dismissals is found, a positive significant relationship between personality test and dismissals is found. This is surprising, as a negative relationship was hypothesized, since a personality test would improve the fit between employers and employees, decreasing the occurrence of dismissals.

Finally, in the last models nine until 14, a relationship between personality test and multiple on the job benefit variables is presented. Where conscientiousness does not seem to be related to any of the job benefits variables, the use of a personality test is positively related to all of them. These positive significant coefficients imply that the use of a personality test leads to more employers contributing to a pension fund, more employees receiving a company car and more employees receiving private health insurance. Overall, the relationships found between personality test and all the other variables are more in line with what was hypothesized than conscientiousness score. This suggests that, while the use of a personality test does not necessarily increase the level of conscientiousness of employees within a company, it does stimulate the use of the other human resource practices a firm may use. Further proof of this is presented in table 15, where different descriptive statistics regarding HRM practices are presented and the sample is split up between firms that don't use a personality test in panel A and firms that do use one panel B. In this table, all the HRM practices generate a higher mean in panel B compared to panel A. For example, when looking at monitoring, the mean in panel B is 19.161 compared to 15.946 in panel A. This suggests that, when using a personality test in the application process, the number of employees per manager increases, thus decreasing the monitoring intensity. All other variables also generate higher means in panel B, suggesting that

firms using a personality test, pay higher wages, use performance pay more often, have more dismissals and more often offer pension schemes, private health insurance and a company car. Here, only the increase in dismissals is the opposite of what is expected beforehand.

Table 15: Descriptive statistics split between firms that don't and firms that do use a personality test

variable	N	Mean	Sd	Min	max
A: No personality test					
Monitoring	15943	15.946	29.120	0	436
Wage	16108	8.221	3.319	1	14
Performance pay	16108	0.221	0.415	0	1
Dismissals	16108	0.445	0.497	0	1
Pension scheme	16108	0.803	0.397	0	1
Company car	16108	0.150	0.357	0	1
Private health	16108	0.135	0.341	0	1
variable	N	Mean	Sd	Min	max
B:With personality test					
Monitoring	3833	19.161	31.689	0	282
Wage	3875	9.296	3.142	1	14
Performance pay	3875	0.331	0.470	0	1
Dismissals	3875	0.556	0.496	0	1
Pension scheme	3875	0.896	0.305	0	1
Company car	3875	0.24	0.427	0	1
Private health	3875	0.283	0.450	0	1

6. Conclusion

This paper studied the relationship between the use of a personality test in the application process of new employees and the level of conscientiousness of the employees within a firm. Contrary to what was expected, a significant negative relationship between conducting a

personality test and the conscientiousness score of employees was found. This result does not change when the two questions that shape the conscientiousness score are taken separately, both questions still show a negative relationship with conducting a personality test. Furthermore, when regressing the conscientiousness score on various HRM practices, a surprising negative relation between the conscientiousness score and monitoring intensity is found, while the relationship with conscientiousness and the other HRM practices are as expected. Finally, when looking at the possible sorting of conscientious people within firms, the fixed effects regression models suggest no such sorting of conscientious people within firms.

One possible explanation for not finding the expected relationship between conducting a personality test and the conscientiousness score of employees is the way the conscientiousness score is constructed. Although given the dataset, this was the best way to construct a conscientiousness score, the questions used to construct the score might not perfectly reflect a conscientious person. Another possible explanation for the surprising result is that a personality test is not used to find more conscientious workers, but as a complement for other HRM practices. Tests for this relation indeed suggest that the use of a personality tests stimulates the efficiency of other HRM practices.

The results found have implications for HRM practices within firms, suggesting that a personality test does not lead to a higher level of conscientiousness among employees. However, using a personality test does seem to increase the efficiency of other HRM practices and, therefore, might be used as a complement for other HRM practices. However, these results should be interpreted with some carefulness, since the conscientiousness score used might not perfectly reflect all the attributes of a conscientious person. Furthermore, due to data availability, it was not possible to account for company financials, which could have provided further insights in the relation between conscientiousness and workplace performance.

Therefore, there are opportunities for future research in this area to explore the relation between conscientiousness, personality tests and company financials. Furthermore, this research provides opportunities to further investigate the effect of complementaries between HRM practices. Lastly, since the results of this research suggest, in contrast with previous research, that there is no evidence for sorting of high conscientious employees between firms, more research regarding the sorting of conscientious employees is necessary.

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Appendix:

Table 1

To which of these ethnic groups do you consider you belong?	frequency	percentage	Cummalitve Percentage
british	17604	87.6475	87.6475
irish	153	.7617625	88.40926
any other white background	864	4.301718	92.71098
white and black caribbean	64	.3186458	93.02962
white and black african	29	.1443864	93.17401
white and asian	62	.3086881	93.4827
any other mixed background	71	.3534976	93.8362
indian	407	2.026388	95.86258
pakistani	149	.7418471	96.60443
bangladeshi	46	.2290266	96.83346
chinese	56	.278815	97.11227
any other asian background	147	.7318895	97.84416
caribbean	158	.7866567	98.63082
african	182	.9061489	99.53697
any other black background	15	.0746826	99.61165
arab	13	.0647249	99.67638
any other ethnic group	65	.3236246	100
Total	20085	100	