

Article

Remote Work and Job Satisfaction that Depends on Personality Traits: Evidence from Japan

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I. Introduction

When remote work (working from home, etc.) is implemented, workers' work styles change from working in close communication with colleagues in the office to working independently away from the office, such as at home. It is thought that there is a large difference in whether or not this change of work style is accepted favorably by workers themselves depending on the personality traits of the individual. This paper considers that there are individual differences in whether or not remote work can achieve job satisfaction from the perspective of workers' personality traits.¹

With the spread of COVID-19 infection, the implementation of remote work has expanded rapidly in many countries. In Japan, the use of remote work was extremely limited before the COVID-19 pandemic for various corporate reasons concerning information security or difficulty in managing working hours. For that reason, in most cases, it existed as a system applied to only employees with family responsibilities such as childcare and elderly care. However, with the first wave of COVID-19 infection and the first state of emergency declaration in April 2020, the implementation of remote work expanded significantly from the viewpoint of reducing the number of commuters to prevent the spread of infection.² After the declaration was lifted at the end of May that year, there were quite a few cases where remote work was not continued and people returned to their offices even though the spread of infection had not converged.³

During the shift from commuting to the office to

remote work under the pandemic, workers pointed out various issues such as difficulty in working from home due to insufficient ICT equipment and difficulty in communicating with superiors and colleagues.⁴ For companies, in order to continue remote work measures even after the pandemic, it is necessary to modify work content and procedures so that work-from-home feasibility is enhanced and to improve the productivity of remote work.



Workers' preference for remote work is an important factor in continuing remote working after the pandemic. Are workers satisfied with the work style change under the pandemic? This paper considers this point using the index of job satisfaction. It is presumed that the relationship between remote work and job satisfaction is not so simple. While some have said that they want to continue remote work even after the pandemic is over, others have said that they cannot maintain mental well-being in remote work and want to return to commuting to the office.⁵ What can be seen from this current situation is that there is a clear division between those who prefer remote work and those who do not. The following section examines individual differences in whether or not remote work can provide job satisfaction in line with the "Big Five" personality traits.

II. Related literature

This section reviews related literature on the impact of personality traits on work, especially on

job satisfaction. There is evidence in psychology that the human personality can be explained by five factor model of personality called the “Big Five” (Goldberg 1990). The five personality dimensions are “extraversion,” “agreeableness,” “conscientiousness,” “neuroticism,” and “openness to experience.” Based on Barrick et al. (2001), the content of these five personality dimensions can be defined as follows. “Extraversion” consists of sociability, dominance, ambition, positive emotionality and excitement-seeking. Cooperation, trustfulness, compliance and affability define “agreeableness”. “Conscientiousness” is associated with dependability, achievement striving, and planfulness. “Neuroticism” reflects anxiety, hostility, depression and personal insecurity.⁶ Intellectance, creativity, unconventionality and broad-mindedness define “openness to experience”.

It has been pointed out that personality traits are strongly associated with various work-related outcomes, and evidence has been gained that they are associated with occupational success such as high wages and promotions. Based on a meta-analysis, Barrick et al. (2001) examine the effects of personality traits on job performance with various indicators. The results show that “conscientiousness” has an overall positive impact. Their study also shows that personalities such as emotional stability, which is the opposite of “neuroticism,” and “agreeableness” have a positive effect on teamwork.⁷

At the same time, the relationship between personality traits and job satisfaction has been discussed in previous studies. Although job satisfaction depends largely on working conditions such as wages and working hours, it also reflects the degree of sufficiency of non-monetary compensation. Based on a meta-analysis, Judge et al. (2002) argue that, with respect to job satisfaction, “neuroticism” has a negative correlation and “extraversion” has a positive correlation. It should be noted that the effect of personality traits may vary depending on the person’s background and the surrounding environment. Bui (2017) examines differences by gender and age group. Regarding the four characteristics other than “extraversion,” the factors that affect job satisfaction differ depending on

gender and age group. He argues that the relationship between personality traits and job satisfaction is complex.

Additionally, personality traits related to occupational success and well-being may differ depending on the cultural background and working environment. For example, Zhai et al. (2013) discuss the characteristics of Chinese society as including high power distance and high collectivism, with the analysis result that “extraversion” is positively related to job satisfaction in China, unlike in the West. Lee and Ohtake (2018) show that in Japan, unlike the United States, “agreeableness” is associated with higher wages in men. They argue that “agreeableness” brings occupational success because Japan is a groupist working environment that requires teamwork. Templer (2012) also states that in a tight and collectivistic Asian society, “agreeableness” is positively related to job satisfaction. Concerning this point, the advantages/disadvantages of such personality traits may change if the teamwork element becomes less important as remote work spreads.

“Openness to experience” is characterized by intellectance and unconventionality, but is also referred to as a “double-edged sword” (Bui 2017). Specifically, in conventional workplace culture, it is sometimes said that workers with that personality tend to change jobs and have difficulty in obtaining satisfaction in their occupational career.⁸ However, as the working environment changes due to the implementation of remote work, the relationship between workplace colleagues and individuals may change, and such a personality may not be disadvantaged.

From the previous study mentioned above, it can be considered that whether or not workers are satisfied with remote work depends on their individual personality. A notable change in remote work is the shift from a style of working closely with colleagues in the office to a style in which each person works independently away from the office. Under these changes in the working environment, there are fewer chances for workers to be able to sense the fulfillment and motivation that they

usually gain from close relationships with colleagues as before. Conversely, remote work may bring psychological benefits to those who prefer to work independently or who are prone to interpersonal stress.

Furthermore, workers who are highly adaptable to new work styles may be able to discover the meaning of work in new ways. This may be true even for those who are not familiar with the traditional corporate culture. The characteristics of those who become satisfied in a remote work situation may differ from those in a conventional way of working. Based on these research questions, the following section examines the relationship between personality traits and job satisfaction.

III. Data and descriptive statistics

The dataset used in this paper is the “JILPT Panel Survey on the Impact of COVID-19 on Work and Daily Life” conducted by JILPT in December 2020.⁹ The target sample is employees who have been employed in the same company since April 1, 2020.

Whether or not remote work is being performed as of December 2020 is identified by the survey result. Job satisfaction is grasped on a five-point scale in the questionnaire, and is used as a score. In the same survey, personality traits are grasped in 10 items based on the TIPI-J.¹⁰ Table 1 shows the descriptive statistics of the variables used in this paper, including the control variables.

The correlation matrix between personality traits and job satisfaction is shown in Table 2. Job satisfaction has a positive correlation with “extraversion,” “agreeableness,” “conscientiousness,” and “openness to experience,” and a negative correlation with “neuroticism.”

The correlation between personality traits and job satisfaction tends to be different for those who perform remote work and those who do not. Looking at the correlation coefficient by whether or not remote work is performed (Table 3), in those who do not perform remote work, job satisfaction has a positive correlation with “extraversion,” “agreeableness,” “conscientiousness,” and “openness

to experience,” and a negative correlation with “neuroticism.” On the other hand, for those who perform remote work, job satisfaction has a positive correlation with “conscientiousness” and “openness to experience,” and a negative correlation with “neuroticism.” No correlation with “extraversion” and “agreeableness” is confirmed. There is also a difference in the value of the correlation coefficient, and it is possible that the relationship between personality traits and job satisfaction may differ depending on whether or not remote work is performed.¹¹ Since the correlation between each personality trait is confirmed from Tables 2, the next section examines what kind of personality traits are directly related to job satisfaction in the regression analysis.

IV. Estimation results

Following the basic statistics, this section estimates the factors that determine job satisfaction. The purpose of the estimation is to examine the possibility that the relationship between personality traits and job satisfaction differs between remote workers and non-remote workers.

The estimation method is an ordinal logistic regression with job satisfaction as of December 2020 as the dependent variable. By inputting job satisfaction before COVID-19 as a control variable, we examine what kind of person's job satisfaction is high as of December 2020 among those who have the same level of job satisfaction as that before the pandemic.

The explanatory variables of interest are personality traits, the implementation of remote work, and the interaction terms between the two.¹² By inputting the interaction terms, it is possible to identify personality traits related to job satisfaction, especially in remote work. In addition, the analytical model controls change in income and working hours under COVID-19. Therefore, apart from these changes in working conditions, the determinants of job satisfaction can be interpreted from the perspective of non-monetary compensation, such as whether the workers feel meaningful as a result of their work.

There are three steps in this analysis. In analyses

Table 1. Descriptive statistics

	(1) Full sample		(2) Remote workers	
	Mean	S.D.	Mean	S.D.
Age	44.667	10.757	45.095	10.592
Female	0.438	0.496	0.289	0.454
Marital status	0.536	0.499	0.619	0.486
University graduates	0.462	0.499	0.741	0.438
Non-regular employee	0.311	0.463	0.146	0.354
Industry				
Construction	0.055	0.229	0.036	0.185
Manufacturing	0.238	0.426	0.310	0.463
Electricity, gas, heat supply and water	0.014	0.118	0.012	0.108
Information and communications	0.056	0.230	0.198	0.399
Transport	0.063	0.243	0.028	0.164
Wholesale and retail trade	0.136	0.343	0.089	0.285
Finance and insurance, and Real estate	0.234	0.423	0.144	0.352
Accommodations, eating and drinking services	0.025	0.156	0.008	0.089
Medical, health care and welfare	0.133	0.340	0.024	0.152
Education, learning support	0.032	0.176	0.036	0.185
Services (not elsewhere classified)	0.129	0.335	0.105	0.307
Others	0.202	0.401	0.075	0.264
Occupation				
Administrative and managerial workers	0.100	0.300	0.200	0.400
Professional and engineering workers	0.200	0.400	0.302	0.460
Clerical workers	0.255	0.436	0.281	0.450
Sales workers	0.144	0.351	0.134	0.341
Service workers	0.094	0.292	0.040	0.195
Production/skilled workers	0.171	0.376	0.024	0.152
Others	0.037	0.188	0.020	0.139
Size of enterprise				
29 or fewer employees	0.195	0.397	0.101	0.301
30–299 employees	0.311	0.463	0.223	0.417
300–999 employees	0.132	0.339	0.166	0.372
1000 or more employees	0.279	0.449	0.478	0.500
Do not know	0.082	0.275	0.032	0.175
Region of residence				
Tokyo metropolitan area (4 prefectures)	0.309	0.462	0.502	0.500
Kansai (3 prefectures)	0.134	0.341	0.138	0.346
Other regions	0.557	0.497	0.360	0.480
Years of service	11.7	9.6	14.4	10.7
Annual income in 2019 (10 thousand JPY) ¹⁾	401.4	285.4	608.9	337.5
Working hours before COVID-19	39.7	12.3	42.5	9.4
Job satisfaction before COVID-19	3.185	0.951	3.253	0.993
Decrease in monthly income	0.259	0.438	0.294	0.456
Change in working hours				
Decreased working hours	0.334	0.472	0.375	0.485
Increased working hours	0.217	0.412	0.221	0.416
Implementation of remote work	0.175	0.380	1.000	0.000
“Big Five” personality traits				
Extraversion	7.379	2.502	7.798	2.388
Agreeableness	9.342	2.003	9.275	2.082
Conscientiousness	7.998	2.236	8.381	2.287
Neuroticism	8.085	2.198	7.662	2.374
Openness to experience	7.504	2.124	7.929	2.179
Job satisfaction (in December 2020)	2.952	0.977	3.065	0.988
Observations	2,885		506	

Note: 1. The min and max of annual income in 2019 (10 thousand JPY) are 0 and 2,250, respectively.

Table 2. Correlation matrix

	Mean	S.D.	1	2	3	4	5
1 Extraversion	7.379	2.502					
2 Agreeableness	9.343	2.003	-.081**				
3 Conscientiousness	7.998	2.236	.257**	.198**			
4 Neuroticism	8.085	2.198	-.235**	-.226**	-.369**		
5 Openness to experience	7.504	2.124	.409**	-.037*	.262**	-.219**	
6 Job satisfaction	2.952	0.977	.122**	.076**	.084**	-.119**	.079**

Note: ** $p < .01$; * $p < .05$. N=2,885.

Table 3. Correlation coefficient between personality traits and job satisfaction: by remote work implementation

	Correlation with job satisfaction	
	Non-remote workers	Remote workers
Extraversion	.126**	.081
Agreeableness	.083**	.048
Conscientiousness	.075**	.104*
Neuroticism	-.111**	-.130**
Openness to experience	.059**	.145**

Note: ** $p < .01$; * $p < .05$.

(1) and (2), full samples including those who do not perform remote work are analyzed. First, in analysis (1), we look separately at the effects on job satisfaction of personality traits and remote work. Subsequently, in analysis (2), the interaction terms between the personality traits and remote work are input, and what kind of personality traits are likely to increase/decrease the satisfaction level in the remote work situation is examined. Furthermore, for the purpose of complementing analysis (2), analysis (3) is conducted only for remote workers.

The estimation results are shown in Table 4. First, in analysis (1) of the full samples, the estimated values of decreased monthly income and increased working hours are negative and significant, and it is presumed that job satisfaction is low in such working conditions. These results indicate that the worsening of working conditions under COVID-19 affects the decrease of job satisfaction. Regarding personality traits, the estimated value of “neuroticism” is negative and significant, indicating that the higher the “neuroticism,” the lower the job satisfaction, regardless of whether a worker performs remote working. In addition, the estimated value of performing remote work is positive and significant.

It indicates that the remote workers tend to have higher job satisfaction.¹³

In analysis (2), the interaction terms of personality traits and remote work are additionally input. First, looking at the main effects of personality traits, the estimated value of “neuroticism” is negative and significant, and the estimated value of “extraversion” is positive and significant. These results show that, in cases other than remote work, the higher the “extraversion,” the higher the job satisfaction, and the higher the “neuroticism,” the lower the job satisfaction.

The interaction term results show the personality traits that are particularly related to job satisfaction in a remote work situation. Estimates of interaction terms such as “extraversion × remote work” and “agreeableness × remote work” are negative, and estimate value of “openness to experience × remote work” is positive. First, in cases other than remote work, the higher the “extraversion,” the higher the job satisfaction. However, in remote work, “extraversion” is considered to be unrelated to job satisfaction.¹⁴ The sociable and talkative personality of preferring to be with others increases job satisfaction in situations where work is carried out

Table 4. Estimates for job satisfaction

Explained variable	Job satisfaction					
	(1)		(2)		(3)	
	Full sample				Remote workers	
Model	Model 1		Model 2			
	B	S.E.	B	S.E.	B	S.E.
Age	-.004	.004	-.004	.004	-.008	.011
Female	.053	.093	.046	.093	.039	.232
Decrease in monthly income	-1.053	.087 **	-1.057	.087 **	-.872	.204 **
Changes in working hours						
Decrease in working hours	-.119	.086	-.118	.086	-.128	.216
Increase in working hours	-.240	.094 *	-.250	.095 **	-.570	.233 *
Personality traits						
Extraversion	.029	.017 †	.045	.018 *	-.036	.041
Agreeableness	-.011	.019	.007	.021	-.110	.045 *
Conscientiousness	-.005	.018	-.010	.020	.033	.046
Neuroticism	-.049	.018 **	-.043	.020 *	-.077	.042 †
Openness to experience	.018	.019	.001	.021	.116	.045 **
Implementation of remote work	.222	.108 *	1.087	.874		
Interaction terms						
Extraversion × Remote work			-.082	.043 †		
Agreeableness × Remote work			-.105	.048 *		
Conscientiousness × Remote work			.029	.047		
Neuroticism × Remote work			-.035	.046		
Openness to experience × Remote work			.099	.048 *		
χ^2		974.952		984.873		175.492
-2 Log-likelihood		6899.96		6890.039		1217.672
Nagelkerke R2		0.307		0.309		0.313
Observations		2,885		2,885		506

Notes: 1. ** $p < .01$; * $p < .05$; † $p < .10$.

2. As control variables, marital status, educational background, type of employment, industry, occupation, size of enterprise, region of residence, years of service, annual income in 2019, working hours before COVID-19, and job satisfaction before COVID-19 are controlled.

while communicating closely in the office. However, in remote work, it is unlikely that such a personality will obtain non-monetary rewards.¹⁵ Next, regarding “agreeableness,” in the case of remote work, it acts in the direction of lowering job satisfaction. “Agreeableness,” which puts importance on intimate interpersonal relationships, is considered to be less psychologically rewarding in remote work, where teamwork elements are reduced due to clarification of division of duties. Finally, it is shown that individuals with higher “openness to experience” are more likely to obtain high job satisfaction through remote work, which supports the interpretation that a person with this personality is highly receptive to the new working environment. Additionally, in a

remote work environment, curiosity and free thinking may lead to the discovery of new meanings of work. Furthermore, in analysis (2), it is noted that the standard error of the remote work variable becomes large and the coefficient becomes nonsignificant. In other words, the effect of remote work on job satisfaction largely depends on personality traits, and it can be seen that the effect cannot be accurately measured if the personality traits of workers are ignored.

The above points are also confirmed in the supplementary analysis (3) targeting only remote workers. It is confirmed that “agreeableness” has a negative relationship with job satisfaction and “openness to experience” has a positive relationship

with job satisfaction in remote workers. It can be said that this result is consistent with the estimation result of analysis (2). As mentioned above, it has been shown that whether job satisfaction can or cannot be obtained in remote work greatly depends on personality traits.¹⁶

V. Conclusion

The expansion of remote work has brought about a shift in work style from working while communicating closely in the office to working independently away from the office, such as at home. It is generally said that the reduction of face-to-face communication with superiors and colleagues due to a remote work situation leads to a feeling of isolation and loneliness of employees, and companies are struggling to take measures such as providing opportunities for online chat. However, as seen in this paper, the implications of remote work differ greatly depending on the personality of each worker, and it is not desirable to have a uniform response regarding employee communication. This is a point that requires meticulous workplace management.

It is presumed that changes in work style due to remote work bring about a reduction of the meaning of work (psychological rewards obtained from work) for workers who value close relationships with others such as socializing and intimacy. On the other hand, it has also been shown that other types of employees tend to be more satisfied with remote work conditions. The important point is that the personality traits that enhance job satisfaction clearly differ between remote work environments and non-remote work environments. It can be said that whether a person performs well at work or feels that work is rewarding depends on the suitability of the individual's personality and working environment. Regarding remote work after the COVID-19 pandemic, it is suggested that flexible management according to individual circumstances and preferences is important from the viewpoint of enhancing the well-being of workers.¹⁷

1. In this paper, we will discuss the term "remote work." Remote work is a concept that includes ICT-based teleworking

and working from home. It is a concept that emphasizes that each staff member works away from the office rather than gathering at the office.

2. See Okubo (2020), Takami (2022).

3. Takami (2022) shows that about 30% of employed workers experienced working from home under the pandemic and the continuation rate of working from home as of December 2020 was about 60% of those who experienced working from home.

4. For example, Kitagawa et al. (2021) point out that teleworking under COVID-19 is less productive, citing poor work-from-home set-ups and communication difficulties as the main causes of productivity loss. Etheridge et al. (2020) argue that there have been cases of reduced productivity of teleworking under the lockdown in the UK.

5. According to a survey conducted by JILPT in June 2021, about 40% of respondents wanted to continue remote work even after the pandemic; on the other hand, more than half of respondents wanted to work in the office.

6. Barrick et al. (2001) describe the characteristic of "emotional stability", which is the opposite of "neuroticism", as the lack of anxiety, hostility, depression and personal insecurity.

7. Barrick et al. (2001) argue that the one situation in which agreeableness appears to have high predictive validity is in jobs that involve considerable interpersonal interaction, particularly when the interaction involves helping, cooperating and nurturing others.

8. See Bui (2017).

9. See JILPT (2021) for survey design.

10. See Gosling et al. (2003) for the Ten Item Personality Inventory (TIPI) index. For the reliability and validity of the Japanese version of the Ten Item Personality Inventory (TIPI-J) index, see Oshio et al. (2012).

11. Regarding this point, it is possible that remote work implementation and personality traits are related, but as far as the data in this paper are concerned, no correlation is observed.

12. Presence/absence of spouse, educational background, type of employment, industry, occupation, size of enterprise, years of service, region of residence, annual income in 2019, weekly working hours before COVID-19, and job satisfaction before COVID-19 are also controlled in the estimates shown in Table 4.

13. It is possible that remote work is continued because job satisfaction can be obtained with remote working. Therefore, we do not point out any causal relationship from the results of this analysis.

14. It is necessary to measure both the main effect and the interaction effect together to interpret what happens to job satisfaction with remote work when "extraversion" is high. This point is supplementarily examined in analysis (3). The results of analysis (3) show that "extraversion" is not related to job satisfaction in remote work.

15. Conversely, people with an introverted personality, such as reticence and modesty, are relatively less rewarded in terms of psychological satisfaction in the work style of working together in the office, but are less likely to suffer such disadvantages in remote work.

16. Although the results are not shown in the table, occupation and industry are not related to job satisfaction. It has been

confirmed that the personality traits of the individual rather than the job characteristics determine the job satisfaction of a remote worker under the current situation. At the same time, it is suggested that even in the same occupation, there are people who are likely to obtain job satisfaction from remote work and those who are not, depending on the personality of the individual. 17. In this paper, various problems associated with working from home, such as the problem of being unable to concentrate on work due to the presence of other family members, limited space at home, and the burden of housework and childcare, are excluded from consideration. Not only personality traits, but also these living environments should be considered in terms of the impact on work-related outcomes when workers perform remote work at home.

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