Rethinking Telecommuting with an i-deals Perspective

Yusuke TSUKAMOTOa)

Abstract: COVID-19 has accelerated the spread of telecommuting in Japan. In past studies regarding telecommuting, it was proved to be the result of i-deals, so it was discussed in the context of location flexibility i-deals (LFi-deals). The spread of COVID-19, however, has given rise to semi-compulsory telecommuting. Therefore, this study takes three groups: Group A, which continues to work at the office as before; Group B, which has started to telecommute (inexperienced telecommuters) so that telecommuting is regarded as semi-compulsory; and Group C, which has experience with telecommuting (experienced telecommuters) so that telecommuting is the result of making LFi-deals; and investigates the relationship that telecommuting has with the degree of self-determination (DSD) and productivity. Our analysis found that between Group B and Group C, which were both telecommuting, both DSD and productivity were significantly higher for Group C.
which has LFi-deals compared with Group B, for which telecommuting is semi-compulsory. However, DSD and productivity were higher for Group B than for Group A, so it is possible that starting to telecommute leads to more LFi-deals, a greater DSD, and higher productivity.

Keywords: i-deals, telecommuting, COVID-19, self-determination, productivity

Introduction

The novel coronavirus (COVID-19) pandemic has spurred interest in telecommuting. In Japan as well, many companies have had to switch over to telecommuting, and it is rapidly spreading as a regular working style. Of course, before the COVID-19 pandemic, the standard working style was for people to work at the office, while telecommuting was an exception. In fact, many studies about telecommuting were even based on the assumption that it was a flexible working style (Allen, Johnson, Kiburz, & Shockley, 2013; Leslie, Manchester, Park, & Mehng, 2012). However, what has happened with the spread of COVID-19, during which people have been forced into telecommuting, is a different phenomenon than what happened before. In fact, Nihon CFO Kyokai (2020), which conducted an online survey of 577 chief financial officers (CFO) and accounting and finance executives at Japanese firms, found that the telework situation in February and March 2020 was such that 7% of respondents said telework was compulsory and 34% said that telework was strongly recommended but not compulsory. Thus, telecommuting has become semi-compulsory. In other words, a situation in which telecommuting is not necessarily being applied flexibly has come about. Given such circumstances, we can assume
that employees’ sense of autonomy has deteriorated. Moreover, according to the CFO association’s survey, some respondents reported that even if they were supposed to be telecommuting, they would go to the office to take care of paperwork. In such cases, their job efficiency would probably decline.

However, these situations differ from the telecommuting discussed in prior research. Gajendran and Harrison (2007), which performed a meta-analysis of telecommuting research, verify that telecommuting is positively correlated with perceived autonomy and performance. Autonomy refers to the amount of actual freedom, independence, and discretion that people have in doing their work, such as determining their work schedule and deciding on the order in which they will perform their tasks (Hackman & Oldham, 1976). Perceived autonomy represents the extent to which employees feel they have autonomy. Prior research assumed that giving employees’ location flexibility would increase their autonomy over scheduling certain tasks so that they would have control over how they completed such tasks (Gajendran & Harrison, 2007). Also, performance was thought to improve because people who telecommute can reduce their commuting time (Apgar, 1998) and they have fewer distractions during work than they would at the office (Bailey & Kurland, 2002).¹

Furthermore, a study by Gajendran, Harrison, and Delaney-Klinger (2015), which is a follow-up study to Gajendran and Harrison (2007), describes telecommuting using i-deals (idiosyncratic deals) theory and explains how telecommuting is related to performance and perceived autonomy. “I-deals are voluntary, personalized agreements of a nonstandard nature negotiated between individual employees and their employers regarding terms that benefit each

¹ Inamizu (2013) and Inamizu and Makishima (2019) point out that privacy is a problem at the office.
party” (Rousseau, 2005, p. 8). Among the types of i-deals are location flexibility i-deals (LFi-deals), which involve the flexibility of locations (Rosen, Slater, Chang, & Johnson, 2013). The discussion in Gajendran et al. (2015) assumes that telecommuting involves LFi-deals, because it is not standardized, but is considered to be a customizable work format that is negotiated individually.

However, with the COVID-19 pandemic, having permission to telecommute does not necessarily mean having an LFi-deal. There are people who telecommute but do not have an LFi-deal, so it may be that the hypotheses about telecommuting investigated in prior research are not valid for this group.

In fact, the previously mentioned phenomenon that is taking place with the COVID-19 pandemic, runs counter to prior studies’ perceptions about how telecommuting enhances perceived autonomy or performance. Also, our study takes the problem of viewing telecommuting the same as a flexible working style, which was argued in prior telecommuting studies, and separates telecommuting from being a flexible working style to identify the effects of telecommuting itself and the effects of its flexibility. Specifically, because we thought that those with telecommuting experience prior to COVID-19 would be telecommuting with LFi-deals, we pursued our analysis by dividing those with telecommuting experience prior to COVID-19 according to their work format during the pandemic.

The analysis in this study uses data collected during the COVID-19 state of emergency declaration. Also, we divided our sample into groups according to whether they had telecommuting experience and their work format (telecommuting or working at the office) and investigated whether there was a difference in the mean values for perceived autonomy and performance for each group. For the scale of perceived autonomy, we used degree of self-determination (DSD), and for the scale of performance, we used self-reported productivity.

This study reconsiders the relationship assumed in prior studies of
telecommuting by separating telecommuting from the flexibility attributed to it as a given in prior research on the subject. In the following section, we show our analytical methodology and findings regarding the effects of work location (home or office) and past telecommuting experience and whether or not LFi-deals have been made. We then discuss the effects that these are having on both perceived autonomy and performance.

**Method**

This study conducted two questionnaire surveys on online panels. Data from the first survey were collected on May 22–23, 2020 (the national state of emergency declaration was lifted on May 25), and data from the second survey were collected on October 5–7, 2020. Those surveyed were workers (excluding part-timers) living in Tokyo, Kanagawa, Chiba, Saitama, Kyoto, Osaka, and Hyogo Prefectures. Regarding the total number of respondents, the number of samples in the first survey was 2,060, divided into three groups: telecommuting (experienced), telecommuting (inexperienced), and people working from office. The distribution was such that there was no skewing by age. In the second survey, which had 1,032 respondents, questionnaires were distributed to respondents from the first survey, and replies were received from about half of them. The data used in the analysis consisted of May 2020 data from those who responded to both the first and second surveys. We also excluded those whose response times were extremely short or extremely long. In the end, our effective analytical data consisted of 908 samples.

Next, let us describe our measurement scales. This study took the degree of self-determination (DSD) as the scale for measuring perceived autonomy. DSD means the extent that people feel they have self-determination in their work (Takahashi, Ohkawa, Inamizu, &
The study by Takahashi, Ohkawa, and Inamizu (2014), which employs DSD to investigate matters related to Japanese companies’ intrinsic motivations, used DSD to determine that perceived autonomy is an appropriate measurement in Japan. Respondents’ answers to the sample question, “My boss gives me authority” (ranging from “1 = Strongly agree” to “6 = Totally disagree”), formed one measurement scale (Cronbach’s alpha = 0.76). Our study uses this in reverse.

We also asked respondents about self-reported productivity to investigate their performance. One item on the questionnaire was, “In the past four weeks (about one month), how would you score yourself on your overall work accomplishments? Please choose the most appropriate score. A score of 0 means that your work was worse than anyone else, while a score of 10 means that your work was the best among others.” We collected responses using the 11 case methodology. Also, so that the minimum values would be the same as for other items, we added 1 to the reported scores when processing the data.

Finally, LF-i-deals mean i-deals that are related to work location flexibility. The questionnaire items use Japanese translations of the i-deals on location flexibility developed in a study by Rosen et al. (2013) and consists of two items, “Because of my individual needs, I have negotiated a unique arrangement with my supervisor that allows me to complete a portion of my work outside of the office,” and, “Because of my particular circumstances, my supervisor allows me to do work from somewhere other than the main office.” Also, respondents’ answers (ranging from “1 = Strongly agree” to “6 = Totally disagree”) formed a single scale (Cronbach’s alpha = 0.91). Our study uses this in reverse.

Lastly, let us describe our analytical methodology. The study is a multiple comparison test that uses data from May 2020 to investigate how work format and telecommuting experiences affect DSD and
productivity. Telecommuting experience was used to determine if LFi-deals had been made. This is because telecommuting done prior to the COVID-19 pandemic involved LFi-deals. Also, because it was difficult to imagine that people working at the office during the COVID-19 pandemic would have been telecommuting before the pandemic, we assumed that this group had no telecommuting experience.

Results

Table 1 shows the correlations among DSD, productivity, telecommuting, and LFi-deals. Moreover, in testing the correlation coefficient, we found that all coefficients in Table 1 are significant ($p < 0.01$).

Next, Table 2 gives the mean for the number of samples in each group for LFi-deals, DSD, and productivity. Here the group that is working at the office is Group A, the group that is telecommuting but does not have prior telecommuting experience is Group B, and the group that is telecommuting and has prior telecommuting experience is Group C.

First, we confirmed our assumption that the group with

| Table 1. Descriptive statistics and correlations |
|-----------------------------------------------|
| Mean | SD  | 1 | 2  | 3   | 4    |
|------|-----|---|----|-----|------|
| 1. Working Style     | 0.81| 0.40|    | 1   |      |
| 2. LFi-deals         | 3.63| 1.32| 0.17***| 1   |      |
| 3. DSD               | 3.61| 0.88| 0.14***| 0.49***| 1 |
| 4. Productivity      | 7.16| 1.87| 0.10***| 0.13***| 0.28***| 1 |

Note: The number of samples is 908. The working style is a dummy variable of 1 for telecommuting and 0 for working in the office. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Source: Author
Tsukamoto

Table 2. Number of samples and mean of each group

| Group | A       | B       | C       |
|-------|---------|---------|---------|
| Working Style | Work in the office | Telecommuting |
| Telecommuting Experience | inexperienced | inexperienced | experienced |
| Number of Samples | 176 | 369 | 363 |
| LFi-deals | 3.18 | 3.50 | 3.97 |
| DSD | 3.37 | 3.52 | 3.82 |
| Productivity | 6.78 | 7.07 | 7.44 |

Note: Telecommuting experience indicates whether the patient had telecommuting experience before the COVID-19 epidemic.
Source: Author

Telecommuting experience has more LFi-deals than the group without telecommuting experience. As for the differences in the mean for LFi-deals, when we conducted a multiple comparison test using Tukey’s method, there were significant differences between each of the groups. For Group A and Group B, \( p = 0.021 \); for Group B and Group C, \( p < 0.001 \); and for Group C and Group A, \( p < 0.001 \). This showed that there were more LFi-deals for the group with telecommuting experience (Group C) than for the groups without telecommuting experience (Group A and Group B).

Next, to see what effects telecommuting and telecommuting experiences have on DSD and productivity, we similarly looked at LFi-deals and whether there were differences in the mean values of DSD and productivity for Group A, Group B, and Group C. Performing a multiple comparison test using Tukey’s method, we found that while the difference in the mean for DSD was not significant for Group A and Group B \( (p = 0.126) \), it was significant...
for Group B and Group C ($p < 0.001$) and for Group C and Group A ($p < 0.001$). Also, for the productivity mean, the difference was not significant for Group A and Group B ($p = 0.198$), but it was significant for Group B and Group C ($p = 0.019$) and for Group C and Group A ($p < 0.001$). Figure 1 gives the mean for each group.

**Figure 1.** Mean of LFi-deals, DSD, and productivity for each group

*Note:* LFi-deals and DSD are on a 6-point scale, and productivity is on an 11-point scale.
*Source:* Author
Discussion

This study analyzed how telecommuting experience and work formats are correlated with DSD and productivity. Because telecommuting prior to COVID-19 was done on the basis of entering into LFi-deals, we assumed that people with telecommuting experience prior to the pandemic had made LFi-deals for telecommuting. To prove this assumption, we looked at each group’s LFi-deal mean and found that it was more significant for Group C (experienced telecommuters) than for Group B (inexperienced telecommuters) and Group A (working at the office). This shows that (a) people who were telecommuting before COVID-19 had LFi-deals for telecommuting, and (b) most people who started telecommuting since the outbreak of COVID-19 did not have LFi-deals, but had been somewhat forced to telecommute. Group C (experienced telecommuters) had higher DSD and productivity than Group B (inexperienced telecommuters). So, although both groups are telecommuting, we saw that their DSD and productivity differ depending on whether they have struck LFi-deals. We can thus say that having an LFi-deal is a key factor in improving DSD and productivity.

Also, regarding DSD and productivity, we did not see any differences in the mean for DSD and productivity for Group A (working at the office) and Group B (inexperienced telecommuters), but for Group C (experienced telecommuters), we observed significant differences in the mean for DSD and productivity vis-a-vis the other two groups. The comparison of Group A, which is working at the office, with Group C, which consists of experienced telecommuters, was the same as comparisons of people working at the office and telecommuting in prior research, in that Group C had higher DSD and productivity, thus supporting the findings of the prior research. On the other hand, the comparison of Group A, who are
working at the office, with Group B, who are inexperienced telecommuters, is a comparison of groups with different work formats but where neither has made any LFi-deals. Although we did not observe any statistically significant differences in DSD and productivity, as we can see from Figure 1, those in Group B (inexperienced telecommuters) tend to have higher DSD and productivity than those in Group A (working at the office). Although not significant, prior research has regarded telecommuters as having more perceived autonomy and better performance, so this could be possible.

**Conclusion**

This study analyzed how work format and i-deals are related to DSD and productivity by comparing telecommuters with prior telecommuting experience, telecommuters without prior telecommuting experience, and people working at the office. Comparing these groups led to the following hypotheses:

**H1:** Comparison of experienced telecommuters with people working at the office
Compared with those working at the office, the experienced telecommuters had higher DSD and productivity. This shows the effects of telecommuting as assumed in prior studies. Moreover, with respect to LFi-deals, experienced telecommuters had better outcomes.

**H2:** Comparison of experienced telecommuters and inexperienced telecommuters
Experienced telecommuters had more LFi-deals than inexperienced telecommuters. Experienced telecommuters had the same outcomes as in prior research, and we confirmed that
inexperienced telecommuters had been somewhat forced into telecommuting with the COVID-19 outbreak. Also, experienced telecommuters had higher DSD and productivity than inexperienced ones. This finding shows that among what prior research thought was an effect of telecommuting, this was largely a function of whether or not LFi-deals had been made.

**H3: Comparison of inexperienced telecommuters with those working at the office**

Inexperienced telecommuters had more LFi-deals than those working at the office. Also, although both DSD and productivity were statistically significant, they tended to be higher among inexperienced telecommuters. This shows the possibility that if people just start telecommuting, there are more LFi-deals, and DSD and productivity go up. Moreover, this is the point at issue in our study, which came to light by looking at telecommuting and LFi-deals separately, and it is an issue that warrants further examination in the future.

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