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Research Note

**Telework in a high-context culture:  
Lessons from a Covid-19 natural experiment in Japan**

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# Telework in a high-context culture: Lessons from a Covid-19 natural experiment in Japan

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Research report

Abstract (165 words)

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We study the effects of mandatory introduction of telework arrangements on productivity, stress levels and employee satisfaction in Japan. Unlike earlier research, our study allows to correct for self-selection effects resulting from preference-matching. This is because the Covid-19 pandemic made telework transform from a largely voluntary employee benefit to a widespread mandatory working arrangement.

In spite of a below-average initial telework utilization rate and the importance of direct interaction in a high-context culture, our n=1500 survey finds substantially higher productivity and employee satisfaction and lower levels of stress in individuals changing into telework arrangement even after correcting for preference-matching. Productivity gains were higher in women and single individuals, but the latter reported relatively higher levels of stress.

Qualitative interviews with n=30 respondents suggest that the pandemic “mandate” helped to overcome initial reservations against telework. Indications are that women tend to benefit from a larger marginal effect in terms of stress relief, whereas a loss of social contacts in single individuals implies increased levels of stress.

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## 1. Introduction

The Covid-19 pandemic has affected numerous aspects of living and ways of working across the globe. Governments have taken measures to protect public health by banning cross-border travel and social gatherings, by implementing social distancing and not least by imposing telework arrangements on organizations in both the public and private sector.

Variously referred to as ‘remote working’, ‘telecommuting’, ‘working at home’, ‘electronic cottage’ and ‘mobile working’, telework is often defined as work performed outside the conventional workplace with the use of information and communication technologies

(Hilbrecht, Shaw, Johnson, and Andrey, 2013; Nilles, 1975; Olson, 1983; Welz and Wolf, 2010). As an alternative way of working, telework is understood to bestow various individual and organizational benefits such as improving the work-life balance, increasing productivity, and reducing costs related to commuting and office accommodation. In the context of business as usual, telework was voluntary and perceived as a privilege, a nonpecuniary incentive tailored to the preferences of employees (Bailey and Kurland, 2002; Blount, 2015; Choudhury, Foroughi, and Larson, 2020). Before Covid-19, employers largely refrained from imposing telework arrangements on employees against their preferences citing health and security risks, potential work distractions, undue interference in family relationships, and - more generally - concerns about job satisfaction from a lack of visibility and presence (Felstead, Jewson, and Walters, 2003; Fogarty, Scott, and Williams, 2011). Consequently, much of the extant literature on telework has been subject to a substantial selection bias caused by predominantly sampling individuals with a desire to work in telework arrangements.

However, Covid-19 shifted original purposes of telework like improving the work-life balance, increasing productivity or realizing costs savings, to the sole objective of securing business operations, effectively making telework a risk management device (Donnelly and Proctor-Thomson, 2015). For scientific research, the Covid-19 pandemic presents a unique playing field for studying the effects of telework on individuals and organizations with unbiased samples. Under the context of a global pandemic crisis, telework is not an optional benefit, but a mandatory working arrangement regulated by governments and business associations in terms of its frequency, duration, and location. Therefore, telework under the current global pandemic is not simply a new way of working, but rather a new organizational form implying multiple managerial challenges that leaders need to learn how to manage effectively (Mahler, 2012). In this regard, managing telework under crisis is less about technology and more about management, as suggested in prior research (Nilles, 1998).

## **2. The Japanese case**

As in almost every advanced economy, Japanese businesses were also severely affected by the outbreak of the Covid-19 pandemic. In fact, due to its geographical proximity and close business ties with China, Japan was among the first nations to close schools and to call on employers to resort to telework whenever possible. As in other developed economies, firms have implemented a variety of measures including full-time telework, the so-called “split office

model” with fixed teams alternating between office and telework, and even renting hotel rooms as office space. And much alike other economies, effects of these measures in terms of their impact on employee satisfaction and productivity remain largely unknown to date.

Although parts of the Japanese economy are tightly integrated in international trade in goods and services, most Japanese firms have retained their distinctive human resource practices (i.e., long-term employment and seniority-based promotion) all through since the 1960’s, a set of practices commonly understood as an integral part of the “Japanese management system” (Keys and Miller 1984, Waldenberger 2017). These features can predominantly be found in large, internationally competitive firms; at the same time, they represent an informal institution that small and medium firms aspire to realize as well. Crucial within the context of the “Japanese management system” are an emphasis on, and the necessity of physical presence and interaction among stakeholders (employees, clients, business partners), such as in product development (Griffin and Hauser 1992, Imai et al. 1984), production (Ngin and Chong 1997), or knowledge creation and transfer (Bennett 2001, Nonaka and Takeuchi 2007). Significantly, Japanese firms are characterized by a relative higher frequency of formal and informal meetings and communication. Physical presence and long office hours are also taken as a proxy for commitment and are expected from regular employees (Ono 2018). Relationships between co-workers have been described as “sticky”, i.e., communication is not limited to business topics (Chiavacci and Lottanti 1999, Blind, Chiavacci and Lottanti von Mandach 2020). Therefore, it comes as little surprise that Japan has had the lowest use of telework among developed countries before the Covid-19 pandemic. While 85% of firms and establishments in the US had introduced telework, 38% in the UK, and 22% in Germany (MIAC 2016), a survey done by Keio University and Nippon Institute for Research Advancement (NIRA) found that Japan’s telework utilization rate as of January 2020 was only 6%. The onset of the Covid-19 pandemic in early 2020 made many firms in Japan introduce both mandatory and voluntary telework schemes. By March the 2020 telework utilization rate was reported to have increased to 10%. Thus, the utilization rate increased by a staggering 66% in just two months.<sup>1</sup>

We hold that the Japanese case is an especially interesting one to study in this context and promises more substantial insights relative to other economies as there two more distinct types of firms in addition to the established Japanese firms, namely foreign subsidiaries, and start-up firms. These firms differ significantly in several features (see Table 1 below), which

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<sup>1</sup> <https://voxeu.org/article/covid-19-and-teleworking-japan>

has also led to a labour market split between established domestic, foreign-affiliated (Chiavacci and Lottanti 1999; Chiavacci 2001; Ono 2007; Ono 2018), and recently founded businesses (Hemmert et al. 2019). Access to these very distinct three groups of employers brings a unique laboratory to our project, because it provides an unparalleled opportunity to study the differential outcome of macro events and policy measures (such as the Covid-19 pandemic and corresponding measures) within three separate labour market segments embedded in the very same institutional environment. Neither a strongly internationalized economy like Switzerland, nor a large open economy like the US can offer a similar research opportunity. This is because neither foreign-affiliated companies, nor recently founded businesses in these markets are sufficiently different to be able to identify significant variation. In contrast, the three segments in Japan are characterized by distinctively different features in several important dimensions.

Table 1: Stylized characteristics of labour market segments in Japan

|                          | <b>Established</b> | <b>Start-up</b> | <b>Foreign-affiliated</b> |
|--------------------------|--------------------|-----------------|---------------------------|
| Retention                | High               | Medium          | Low                       |
| Performance wages        | Exception          | Standard        | Standard                  |
| Gender equality          | Low                | Medium          | High                      |
| Technology affinity      | Low                | High            | Medium                    |
| Workplace social control | High               | Medium          | Low                       |
| Employee average age     | High               | Low             | Medium                    |

Source: Own table.

### 3. Methodology

Our exploratory study aims at mapping the effects of the Covid-19-related introduction of telework schemes on employees in these three categories of firms. The ultimate objective of establishing such descriptive account is pattern detection. To this end, we obtained data on n=1500 fulltime employees across a variety of industries, employee functions, gender, firm size, the urban-rural divide (Chiavacci 2010), established domestic vs. foreign (Chiavacci and Lottanti 1999; Chiavacci 2001; Blind, Chiavacci, and Lottanti von Mandach 2020), and also established vs. start-up businesses (Kotosaka and Sako 2017; c.f. Table 1). The latter differentiation allows for contrasting the effects for a given set of systematically differing HR (Human Resource)-systems operating in the same domestic Japanese labour market and helps to boost pattern recognition because it adds a multi-dimensional contrast to our data analysis.

Furthermore, as results from our quantitative analysis show, introducing telework arrangements must not necessarily imply productivity losses, nor less employee satisfaction, even for employees preferring a physical presence at work. These results were further investigated by means of qualitative interview (n=30).

Our main variables of interest are employee satisfaction before, during, and after the pandemic lockdown measures. As has been shown in previous research, employee satisfaction is a robust proxy for productivity (Bibu and El Moniem 2011; Böckerman and Ilmakunnas 2012). We double-gauge this measurement through inquiry of associated stress-levels, and a self-assessment of productivity change. Ultimately, the survey seeks to understand how the impact on satisfaction can be moderated through instruments available to policymakers and employers such as providing choices (e.g., between rotation system, telework, reducing over-hours, etc.), financial, organizational, or technical support. Such support may be pivotal for female employees (a crucial resource for foreign firms operating in Japan, see Chiavacci 2005), as the main burden of child rearing and household tasks is still borne by women in Japan (Ueda 2005; Tsuya et al. 2012). Thus, as “working from home”-arrangements strongly depend on other household members, we also inquire changes in how respondents view their spouse’s contribution for separating potential interaction effects. To acquire relevant data, we commissioned a stratified online survey to a specialized provider. This approach allowed to construct sub-samples based on pre-set selection criteria. In concrete terms, the questionnaire was distributed to individuals working fulltime in companies that have made teleworking arrangements mandatory, with a sample split into established, start-up and foreign-affiliated companies (n=3x500). Each sub-sample includes a pre-defined share of female employees, and of individuals with managerial functions.

For adequately controlling influencing factors not related to employment, the questionnaire includes items related to both work and private life matters. Therefore, the number and age of children, living arrangements (feasibility of home office arrangements), share of household income (breadwinner dummy), Covid-19 working arrangement of spouse, availability and of external facilities for child and elderly care, and – most importantly – earlier experience with telework arrangements were inquired. This adds to standard demographic variables such as age, marital status, educational achievement, and income deciles.

The n=1500 set of micro data comprises a wide variety of variables ranging from multi-dimensional contentment and stress levels, to work, commute and productive hours. Tracing

these through the pandemic from before (Jan 2020), to first lockdown (March 2020), up to “new normal” (Dec 2020), it builds on two decades of telework research and exploits a unique methodological opportunity. The former base means it has the pertinent control variables in terms of demography, gender, income, industry, job type, previous telework experience, marital status and family structure up to housing and childcare arrangements; and includes two control groups continuing physical presence and remote working arrangements through the pandemic. In turn, the methodological opportunity can be seized from external shock nature of the pandemic: a sound comparison of the effects resulting from the introduction of telework in two distinct subgroups, namely those with, and without a preference for telework. This is significant because most earlier studies suffered from a selection effect when studying teleworkers who deliberately chose their working arrangements according to their preferences (as noted already in Mokhtarian and Salomon 1996, and, similarly, in Doherty, Andrey and Johnson 2000).

**4. Results**

The below figures illustrate descriptive findings from Japan. “Physical” indicates the control group of employees working in physical presence at all three points in time (Jan 20: pre-pandemic; March 20: first lockdown; December 20: “new normal”). “New TW” indicates the treatment group subjected to a change from physical (Jan 20) to telework arrangements (March and December 20). In Figure 2, “Match” vs. “Mismatch” indicate subgroups of “New TW”, in which their telework arrangement matches – or not – with their personal preferences.

Figure 1: Productivity by work arrangement (“match”)

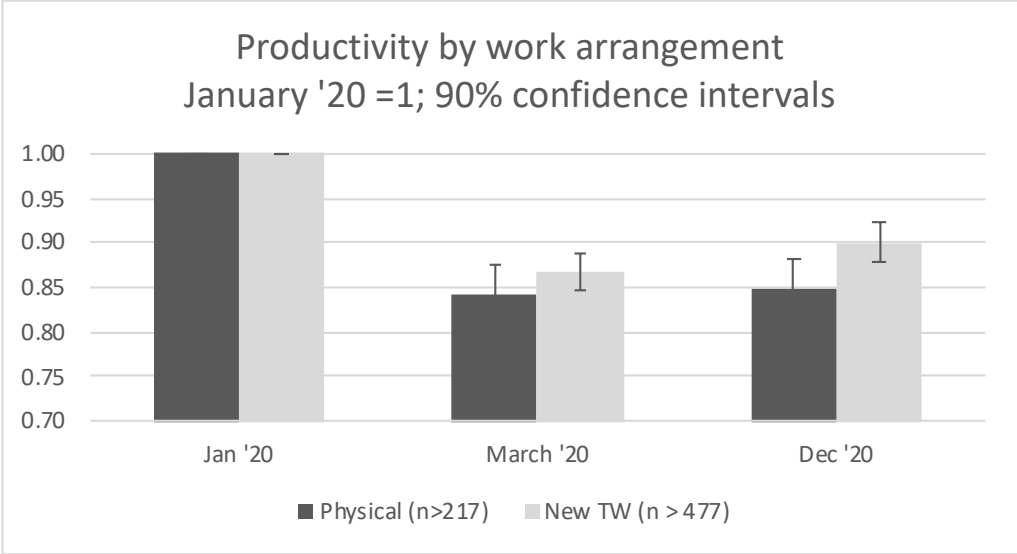
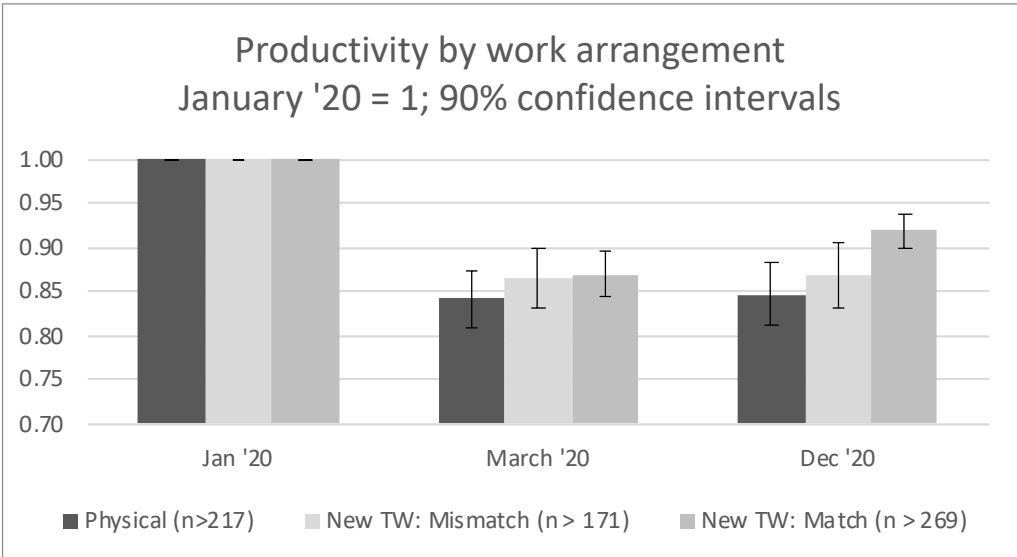


Figure 2: Productivity by work arrangement (“match” vs. “mismatch”)

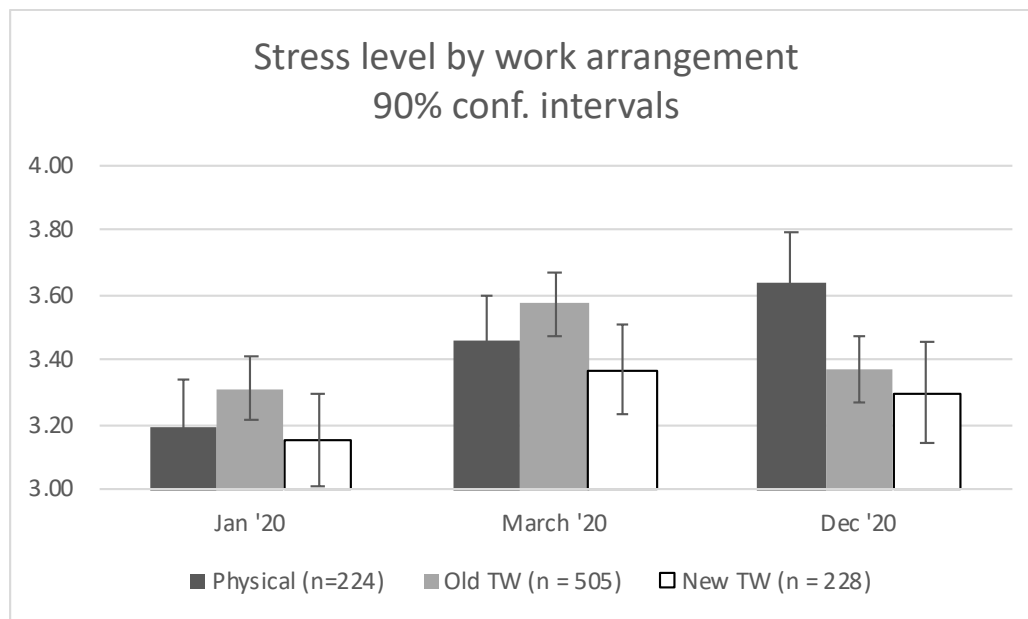


From Figure 1 a most insightful finding can be derived: Productivity levels obviously dropped in March during the onset of the pandemic; but they dropped less in individuals newly under telework arrangements than in individuals with continuing physical presence. Even more surprisingly, this trend has continued into the “new normal” period (December 2020), where productivity of new teleworkers became significantly higher than in the physical presence control group. Figure 2 details differences in two subgroups of new teleworkers, whose new work arrangement came as a match, or a mismatch relative to their personal preferences (i.e., whether they desired to do telework or). At the beginning of the pandemic (March 20), the match/mismatch distinction did not imply a difference between the subgroups. Under new normal conditions, however, productivity gains are concentrated in the subgroups with matching preferences. Still, productivity in the mismatch group keeps a small margin relative to the control group in continuing physical presence arrangements.

Adding to productivity as an objective measure, our survey equally looks into stress and related subjective measures of employee satisfaction associated with long-term effects on productivity and retention.



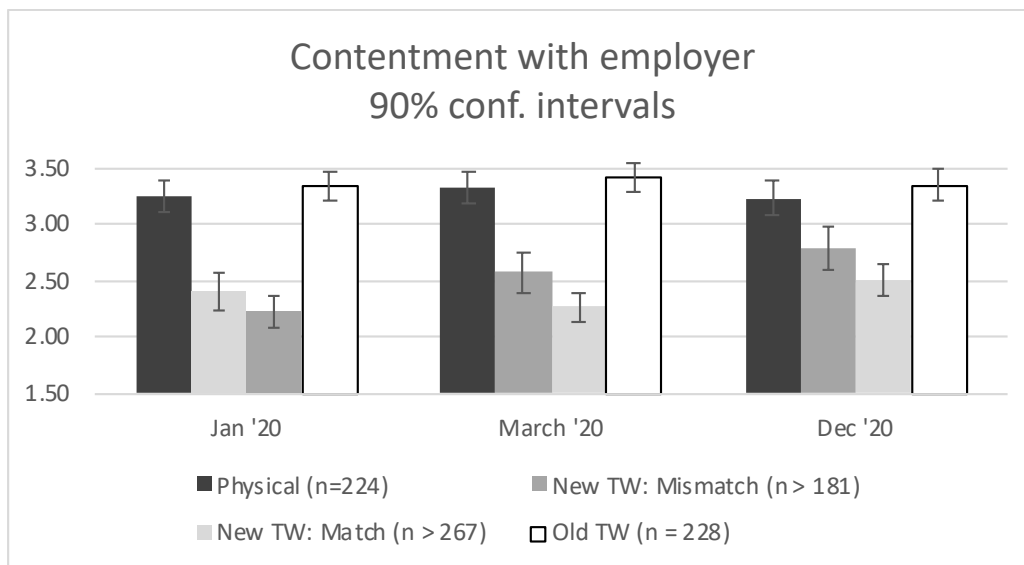
Figure 3: Stress level by work arrangement



Teleworkers continuing from before the pandemic (“Old TW”) are a second important control group. Figure 3 compares these to the treatment group and to the group of employees in continuing physical presence. In the first pandemic wave, stress levels uniformly increased for the treatment and both control groups (compare Fig. 3). But into the “new normal” period the treatment group (i.e., those employees subjected to a change from physical (Jan 20) to telework arrangements (March and December 20)) showed the largest relieve in terms of stress reduction, almost matching that of established teleworkers (“Old TW”) in spite of starting from a higher pre-pandemic level. In a first confirmatory analysis, this differential reduction was *not* linked to a decline in working hours, one main determinant of stress levels.

Even more strikingly, contentment with employers improved most in the mismatch portion of the treatment group (compare Figure 4; note that the treatment group was under a physical presence work arrangement in January, implying that a mismatch meant that they would have preferred telework; to account for this fact Fig. 4 reverses colour coding for January). A first conjecture points to the fact that a substantial share of employees find their (earlier) concerns about telework unfounded once they make the experience.

Figure 4: Contentment with employer



Contrary to our expectations (see section 2), quantitative analyses have not produced significant differences between the types of firms (established Japanese firm, Japanese start-up firms and foreign subsidiaries in Japan). A first explanation for this finding may be identified in the “no precedent”-nature of the Covid-19 pandemic. None of the three types of firms had any previous experience or established processes. In addition, with much of the telework requirements being decided by the authorities, approaches were as rudimentary as they were pragmatic. Only with a continuing practice, we may reasonably expect substantial differences to arise between the three types of firms.

In contrast, regression analyses using a wide set of pertinent controls indicate several significant moderating factors see (see Table 2). Among these, a number of findings were according to our expectations. For instance, new teleworkers with a prior preference for telework (but no opportunities) showed a significantly stronger productivity increase than those for whom telework came as an undesired mandate. Similarly, a productivity being moderated by income is an expected result because higher income – other factors held equal – typically signals higher IT literacy.

Table 2: Moderating factors of productivity and stress levels with pertinent controls  
( $\alpha < 0.1$ ; Dec '20)

|                                    | Productivity | Stress |
|------------------------------------|--------------|--------|
| Women                              | +            | n.a.   |
| Preference match                   | +            | -      |
| Tenure                             | +            | n.a.   |
| Income                             | +            | n.a.   |
| Breadwinner                        | n.a.         | +      |
| Management rank                    | -            | (-)    |
| Single (no spouse)                 | +            | +      |
| 2019 share of direct communication | n.a.         | -      |

A number of other findings, however, were either unexpected or contradictory to our expectations. Among these were a higher productivity increase in women (as compared to men), and in more tenured employees (as compared to staff with lower tenure) and a more marked increase in stress levels in single individuals (as compared to individuals with spouses). Before our study, we expected no gender difference, a relatively lower levels of stress in single individuals who were thought to be able to concentrate more easily when working from home.

## 5. Discussion

From the above outlined quantitative analysis, we extracted five findings that were not self-explaining and could not be further inquired with our data. To further explore them, we opted for semi-structured interviews with employees (n=30) in established Japanese, Japanese start-up firms and foreign subsidiaries in Japan (10 employees each); further selection criteria were a minimum of 30% be female employees and some 20% (male or female) with a management role. The interviews were conducted online during February and March 2022. Each interview lasted approximately 30 minutes.

The participants were presented the following findings from our quantitative analysis and asked for their view or explanation:

- On average, individuals in Corona-triggered telework arrangements were more productive (1) and happier with their employers (3) than those continuing to commute; this finding is also true for those who would have preferred to continue to commute.

- By late 2020, new teleworkers - including those that did so involuntarily - were back to pre-pandemic (lower) stress levels, but this does not apply to continuing commuters; their stress levels remained high (2).
- Productivity of new teleworkers was higher in women, singles, and increasing with tenure (4).  
Stress levels were equally higher in single individuals (applies only to singles with full telework arrangements) (5)

While we did not significant differences in our quantitative analysis with regards of the type of firm (Japanese, foreign and start-up firms in Japan), our qualitative analysis revealed several differences pertaining to the type of firm.

### *Increased productivity*

The absence of commuting – very frequently referred to as “commuting hell” by our respondents – was mentioned by respondents of both sexes as the most important factor behind the increased productivity across all types of firms, regardless of whether the respondents had preferred telework or not. Commuting not only consumes a substantial amount of time, but was described as extremely tiring, mentally and physically. Respondents reported that by the time they arrived at their office, they already felt exhausted. The lack of commuting frees up considerable time and energy and allows the employees to gain an extra hour of sleep.

A second factor mentioned by respondent of all types of firms is the elimination of time-consuming and tiring social relationships at work. By not having to cultivate interpersonal relationships at the office, interview partners responded that they could concentrate better, use their time more efficiently (no sitting around in their offices just to please superiors) and that there was less workplace distraction in general, especially no need to pay close attention to their colleagues.

While respondents from foreign firms did not mention any IT-related difficulties, several employees from established Japanese firms reported IT-infrastructure problems as a major stumbling block for an increased productivity. This finding ties in well with the general image of traditional Japanese firms as still heavily relying on paper and physical meetings.

Start-up companies tend to have a stronger need for discussions than established companies (building a business as opposed to running one). This explains why some respondents mentioned that remote work helped to solve their lack of meeting rooms. Also, it seems that their relatively flat hierarchies and style have generally created an atmosphere where

one can ask for help and advice anytime to the extent that productivity becomes negatively affected. In one respondent's view remote work has set that hurdle higher.

#### *Increased satisfaction with the employer*

For those who preferred to work from home during the pandemic, to be given the *choice* to do so was a major driver for the increased satisfaction with their employer. But satisfaction increased also in those employees who were initially against telework, because many were pleasantly surprised by the scale and number of benefits of telework. This partly applies also to those encountering substantial IT-related challenges. In hindsight, mandatory telework increased their awareness of the many benefits associated with telework. Many also found the transition to telework much smoother than expected. From a change management perspective, change is most frequently met with resistance, and hence the respondents' initial opposition is not unusual. What is rather surprising is the speed of adapting to the new circumstances, indicating that the newly found benefits such as better work-life-balance, less commuting or less cumbersome interpersonal interactions were substantial. Adding to these benefits may have been two "Japan-specific peculiarities" (statement by respondents): the fact that "Japanese are more comfortable with change when everybody is changing" and the fact that telework caters to the younger generations who are said to be less skillful in interpersonal relationships in general (a side effect of social media) and prefer to work independently.

Interestingly, and particularly at established Japanese firms, dissatisfaction among those required to continue working in physical presence seems to originate from process interruptions caused by the physical absence of teleworkers. Again, in the light of the importance of physical presence in established Japanese firms, this finding ties in well with the extant literature. And it is equally consistent with our finding of traditional Japanese firms reporting more IT-infrastructure problems than for example foreign-affiliated businesses (see above).

#### *Stress levels*

The fact that teleworkers reported lower stress levels by late 2020 compared to those who continued to commute was explained by respondents from all three types of firms with the commute stress relief and the reduced threat of getting infected once employees had gotten used to telework. Spending more time with the family, more "me-time", less interpersonal interaction, and more time for exercising added to stress reduction. Continuing commuters, however, were not only cut off from these advantages, but were exposed to a constant health risk of an. Respondents from established Japanese firms reported that commuters had to "hold the fort" at

the office and cover for those employees working from home, as the absence of teleworkers created difficulties in daily operations.

The pressure from inter-personal relationships seems particularly pronounced in smaller organizations. One respondent from a start-up company with staff of 30 mentioned that only remote work offered the chance to avoid people that one does not like.

#### *Higher productivity in women*

The higher productivity in women did not come as a surprise to the majority of respondents. Marginal utility from telework is assumed to be greater for women than for men due to the fact or the reality that in Japan, the majority of household chores and caretaking of children is still borne by women. To combine work, family and housework is easier when working from home. Women can take care of older children by simply being at home. They are closer to kindergarten or school to pick up smaller children. Household chores like washing and hanging up clothes can be done during short breaks.

#### *Higher productivity in singles*

While productivity in women was higher because they could multitask, the higher productivity in singles, regardless of sex, was explained with the absence of disturbance and distraction. Singles can fully concentrate on work in a quiet working environment with less distractions than at work and less social obligations, i.e. going out for an after work-drink or paying attention to their superiors and colleagues (“less *kizukai*”).

#### *Productivity increasing with tenure*

The observation that productivity increases with tenure did not elicit an immediate reaction or explanation in most respondents, because it runs counter the initial expectation of “longer tenure → more senior age group → less familiar with IT → less productivity”. Employees with longer tenure enjoy, however, a crucial advantage compared to new employees: they know the processes, are more familiarized with their work (making judgement, finding solutions) and have an established network that they can utilize in the case of questions or problems. New employees, on the other hand, still have many questions regarding daily operations and cannot draw on an established network. Since they are not physically present at the office, they cannot informally ask their desk neighbor and might hesitate to call or write for help.

On an interesting side note, the increase in productivity may not apply to employees in management ranks in established Japanese companies. The main task of management in

established Japanese firms reportedly is “supervising employees”, which proves to be difficult when done online. Employees in foreign affiliates and Japanese start-ups firms are predominantly led by MBO (management by objectives), which is thought to empower and confer more responsibilities to employees. Accordingly, the role of a manager is understood as being more that of an enabler and coach (and less that of a supervisor).

As mentioned before, flat hierarchies and open working-style in start-up companies create an atmosphere in which tenured staff may find it difficult to concentrate when junior staff approach them too frequently for questions. Two respondents from start-up companies independently gave this explanation. One noted that the possibility to switch between meetings online may have added to the over-proportional productivity increase in tenured staff.

#### *Higher stress levels for single individuals in full telework arrangements*

Singles in telework arrangements have the least distractions at home and thus can or are expected to fully concentrate on their work. There seems to be, however, a substantial downside to a fulltime telework arrangement for singles: loneliness. While social interactions can be cumbersome and a reduction thereof is often felt as a relief, too few interactions, too much time spent alone with no occasion to exchange a few words during coffee breaks results in social isolation, which can become a major source of stress. Picking up the phone just to exchange a few pleasantries is not an option, according to the respondents. The feeling of isolation was further aggravated during the pandemic because social contacts and places for meeting people outside the firm were also substantially reduced.

Furthermore, precisely because singles could work in a quiet environment when at home and were not distracted by other family members, especially children, expectations and workload placed on singles might have been higher compared to other groups of employees. This might have placed additional stress on singles in telework arrangements.

## **6. Conclusion**

We studied the effects of mandatory introduction of telework arrangements on productivity, stress levels and employee satisfaction in Japan. Unlike earlier research, our study allows to correct for self-selection effects resulting from preference-matching. This is because, the Covid-19 pandemic made telework transform from a largely voluntary employee benefit to a widespread mandatory working arrangement. Our study has thus clearly benefitted from Covid-19 causing a large-scale natural experiment in the workplace. Ruling out selection effects due

to the non-voluntary nature of the pandemic, we were able to control and measure earlier sample biases (for example, telework being chosen solely by employees wishing to work from home). As we found for the case of Japan, the selection effect is substantial, but normatively positive gains (more productivity and satisfaction and less stress) still outweigh utility loss implied by a preference mismatch.

Despite a below-average initial telework utilization rate and the importance of direct interaction in a high-context culture, our n=1500 quantitative survey finds substantially higher productivity and employee satisfaction and lower levels of stress in individuals changing into telework arrangement even after correcting for preference-matching. Productivity gains were higher in women and single individuals, but the latter reported relatively higher levels of stress. Qualitative interviews with n=30 respondents suggest that the pandemic “mandate” helped to overcome initial reservations against telework. Indications are that women tend to benefit from a larger marginal effect in terms of stress relief, whereas a loss of social contacts in single individuals implies increased levels of stress.

The reluctance of employers to impose telework arrangements on employees against their preferences are obvious and justified. However, as the results presented above indicate, introducing telework arrangements must not necessarily imply productivity losses, nor less employee satisfaction, even for employees preferring a physical presence at work.

Results of our study provide insights instrumental for minimizing the adverse impact on productivity that future social-distancing measures are prone to have on workplaces in developed economies. In concrete terms, the effect of workplace arrangements in response to a pandemic may be substantially turned toward the positive, if companies understand which accompanying measures may best help to improve employee satisfaction and productivity in which kind of labour market segment.

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