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THESIS

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Hybrid Work's Post-COVID-19 Productivity: Home VS Office

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DECLARATION

I, the undersigned LUIS CARLOS PRADA MARIN being fully aware of my legal liability hereby declare that the facts and data included in my thesis agree with reality, and what is written therein is the result of my own independent work. I applied the data used in my thesis considering the legal protection of copyright.

No portion of this thesis has been earlier submitted to obtain a degree for any other training at any educational institution.

Budapest, December 13, 2022

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1. INTRODUCTION

1.1 Rationale of topic

Hybrid work has just experienced a burst of popularity due to the COVID-19 pandemic, and a large part of the population has shifted to hybrid work. While being at home, monitoring becomes a harder task for managers and supervisors.

It's not surprising to find that activities that might have been stretched out for long periods in the office can be done in a shorter time while working from home: employees have access to distractors at home, and might want to finish their tasks sooner to dedicate to these distractors (e.g., hobbies, chores, social life), on the other hand, these external factors that are not present in the office might not be shortening, but elongating tasks (e.g., children, insufficient workspace, connectivity issues).

Previous research also seems to be contradictory in the aspects of office occupancy, while some claim that less employees are going to the office than before, others claim that more employees are coming, this might be due to the regions that were inspected and, while not the primary scope of this research, information such as employee preferences will be useful when determining how many days are being worked at home/office and, ultimately justify the perceived changes in productivity, if any.

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For employers this means a possible reduction of office space in the future and reduction of health hazard liabilities, as many contracts have been unchanged.

This research aims to provide an overall outlook on hybrid work and determine if the switch to hybrid work is sustainable on the long term and not just a by-product of the COVID-19 pandemic and, whether a "best" arrangement can be found within hybrid scheduling, in other words, the aim of this research is to learn: How have post covid-19s hybrid work arrangements affected office productivity periods

1.2 Topic Description

During the early 2020/22 Coronavirus pandemic, governments across the globe enforced social distancing, these policies required social distancing to prevent the spread of the virus: keeping a distance of at least 2 meters with others, policies preventing large conglomerations, this forced companies to allow employees to work from their homes or stop production altogether. Companies opted for allowing their office employees to work from home and, as Coronavirus infection numbers began to decrease, so did the requirements of social distancing, and, as of August of 2022, most of the restrictions have been lifted in Europe (and across the globe), however, many large companies have opted for offering their employees a hybrid work schedule: having mandatory days for them to come to the office, while the others are up to the choice of the employee. Employees are then, faced with the choice of pacing their own work, the aim of this dissertation is to investigate the companies that have chosen to offer a hybrid schedule to their office workers and the issues that have arisen with the adoption of a work from home schedule.

1.2.1 Work from home prior the pandemic

Remote work or teleworking has existed ever since computers became operable by single users, IBM, one of its pioneers began using WFH as an experiment in 1979 and by 2009 40% of their employees were working remotely (theatlantic.com), however this was unique to the IBM and the programming industry.

Before Covid times, WFH was a relatively uncommon working method, according to a census by the U.S bureau of labour, by 2015 only 24% of US workers were working remotely in various sectors, moreover it's had a consistent popularity in management, business, and financial operations, having a 37.8% of employees working remotely

(bls.gov), and in the case of Europe approximately 5% of employees working from home in the past decade (ec.europa.eu)

Work from home for the financial sectors has remained popular in the United States, according to the bureau of labour as of 2006, 32,3% were already working remotely and studies were being done to find out whether it was a better way of working as WFH workers would often claim that job flexibility was one the biggest privileges of WFH, unsurprisingly Hybrid Work had been already implemented, and 68% of WFH employees were working from home 1-3 times a week (Baker E, et al 2007).

It's worth noting that while hybrid work is not an entirely new concept in North America, it's been much less popular in Europe, since the results of this studies are based in a service centre of an European company based in Hungary, not only is the data expected to change due to cultural, populational and economic reasons, but also due to the fact that it became more common due to the COVID-19 pandemic, prior to the pandemic only 64,802 of the Hungarian workforce found itself with a hybrid work scheme and 28,642 were working from home fully (ksh.hu).

1.2.2 Work from home during and after the COVID-19 pandemic

During COVID-19, employers were forced to take drastic measures and make their office workers work directly from home, due to the extreme circumstances, studies relating work life balance during that period might have been influenced by the multiple social factors caused by the pandemic such as stress, dealing with cohabitants becoming a more common occurrence, and accommodating homes to become offices (Galanti T. et al 2021), in fact, at the peak of COVID-19 (May 2020), 17% of the employees in Hungary found themselves working remotely (ksh.hu).

Moreover, as the cases of COVID-19 started to go down, WFH did not decrease as much, or at least, not as the times prior to Covid, in fact, the occupancy rates in the United Kingdom and Ireland which prior to the pandemic were at 75% and as low as 1% at the peak of the pandemic, however, the occupancy rates remained as low as 42% as of June 2022 (see figure 1.), when the majority of the COVID-19 measures had already been lifted.

Figure 1.

Occupancy rates in the recent years
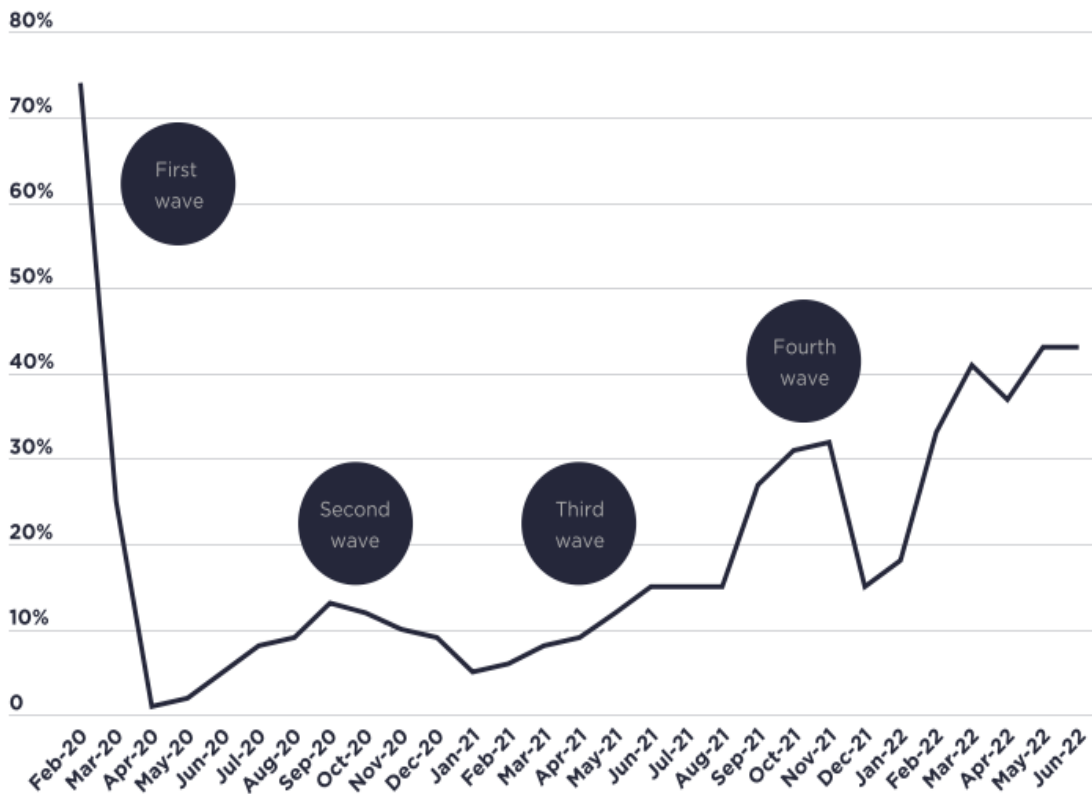
Source: savills.fr

In 2020 Europe saw 12.3% of all employees between the age of 15-65 work remotely, previously approximately 5%, considering that only white-collar jobs may be eligible for remote work, this, however, is by no means a small quantity, according to statista.com 195.7 million people are employed in Europe as of the 3rd quarter of 2021, this means that the total population of remote workers in Europe is 24,071,100, while Hungary only has a fraction of this number, more and more employers are switching to a Hybrid work system (www.reward-strategy.com).

As COVID-19 measures began to be lifted, more employees started to return to the offices, and this led to the implementation of hybrid work schedules, in which employees must go to the office whether some certain days of the week, or a number assigned by the employer. Its success might have to do with multiple factors: whether it's (a) recent implementation's positive effect on job satisfaction (Bellmann L & Hübler O, 2021) its effects on productivity (which this research seeks to clarify), or

perhaps the employees' stubbornness on keeping a hybrid schedule by threatening to quit if removed (bloomberg.com).

To reiterate, since this research is based on a Hungarian workforce, it's important to understand the change within Hungary, according to the Hungarian Central Statistical office remote work has seen a massive spike since the beginning of the COVID-19 pandemic back in 2019 (see Figure 2), the study used the criteria of teleworking "occasionally" (Hybrid work) and regularly (Fully work from home), while work from home has only seen a slight increase compared to its pre-pandemic state, hybrid work has remained popular, as of the months of August-October of 2022, 237,896 workers were hybrid, to put in perspective, when comparing January-March of 2019 and January-March of 2022, the increase in number of Hybrid workers is a whopping 390.37%

Figure 2

Change in WFH in Hungary
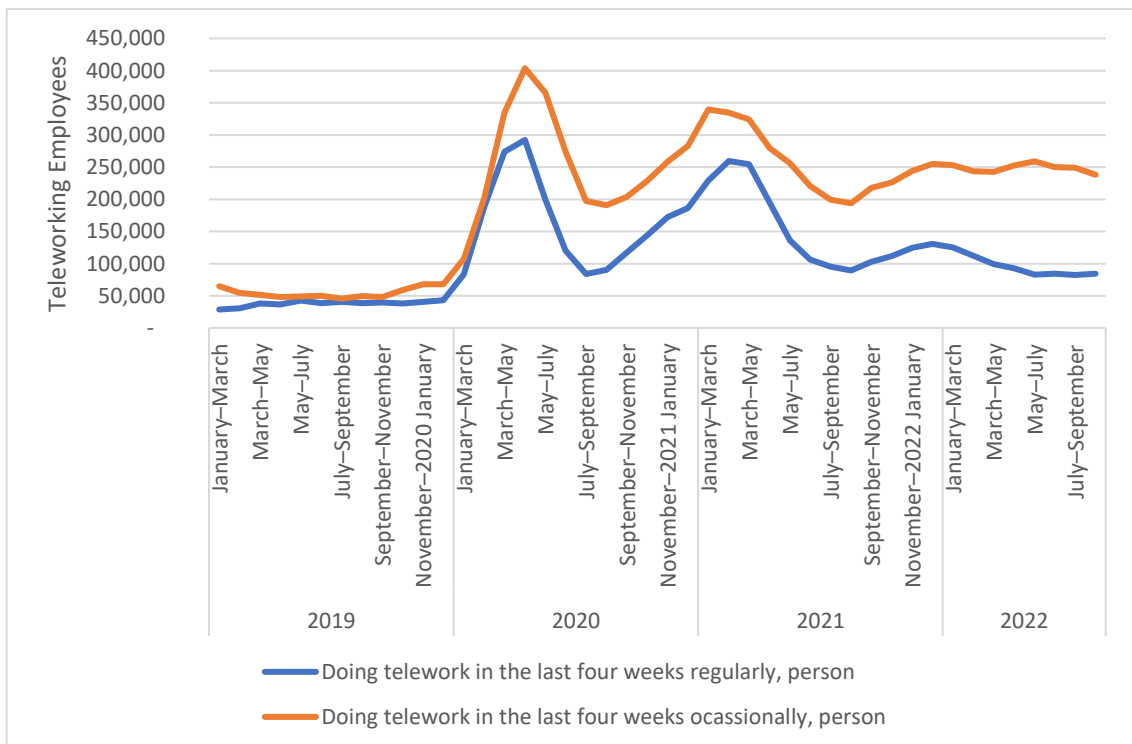
Source: Own construction, based on data from ksh.hu

Ultimately, hybrid work has been adopted by many companies and it seems to be here to stay, at least for the foreseeable future.

1.3 Literature Review

1.3.1 Terms and definitions

Hybrid work: A method of working where the employees work at the office on certain days and the other days are worked remotely (Choudhury P, et al. 2022), according to Harvard Business Review, (hbr.org) hybrid work needs to be analysed from a place-time perspective: considering that while productivity can be significantly boosted, understanding the type of employee, job and task can lead to a successful arrangement.

Work-life balance (WLB): the division of one's time and focus between working and family or leisure/relaxing activities. (www.oxfordlearnersdictionaries.com/), according to Tejero L et al (2021) WLB can be correlated to health issues, which in turn lead to a worse job satisfaction and overall, a worse performance on part of the employees.

Work from home (WFH): Referring to a person doing their job in their home as opposed to traveling to an office to do it. (dictionary.cambridge.org), Baker E et al (2007) emphasise that this method of working is (was) relatively rare, albeit ater the COVID-19 pandemic its popularity has risen (ksh.hu).

Job satisfaction (JS): The employees' perceived pleasure and achievement experienced by performing the job; a feeling that it's a job worth doing. (dictionary.cambridge.org) Bellmann L and Hübler O (2021) claim that Job Satisfaction has an inherently positive result on WLB, the Harvard Business Review (hbr.org) claims that a good work environment can improve JS, such environment will have, among others: coffee breaks, high wages, and benefit packages.

COVID-19: An infectious disease caused by a coronavirus that can lead to severe illness, it caused social-distancing measures such as not being able to commute to the office as to prevent its spread. (dictionary.cambridge.org), according to Tejero L et al (2021) the spread of COVID-19 popularized WFH due to its quarantine measures.

1.3.2 Literature listing

This section is designed to show relevant literatures in WFH productivity studies, the idea behind collecting these literatures is to get a better grasp of all the factors that

affect productivity while working from home, once the most relevant factors towards productivity in WFH become apparent, they will be used to design a questionnaire, which will be the base of this empiric research, since many of these researches were done during the COVID-19 spike (2021) and employees were working WFH full-time, this research will add value by determining if the upsides and downsides of full-time WFH translates into a hybrid work scheduling scheme.

The literatures are listed by their commonalities, as it allows for the research questions to be formulated.

Baker, E., Avery, G. C. & Crawford, J. (2007). Indicate that while work from home (WFH) factors (such as children, location, and hardware) can have an effect towards productivity, job requirements and policies have a more important role on productivity outcomes. The research seems to indicate that employee-manager connection could be key for productivity however, they claim that this might depend on the society's own power distance.

Lourdes Marie S. Tejero, PhD, Rosemary R. Seva, PhD, and Vivien Fe F. Fadrilan-Camacho, MD, MPH (2021) claim that productivity is correlated with work autonomy and has not changed much since the shift to WFH, however the work life balance (WLB) of employees has taken a negative turn, as the line between starting and finishing work has been blurred, resulting in higher stress and irritability, additionally social support seems to be one of the main contributing factors of whether WFH is successful or not, talks with peers and feedback are essential to maintaining a proper WLB, this research shows that these trends affect younger people and people without spouses the hardest. This research provides some strong correlations to social isolation being a negative factor of WFH, moreover, this research was done during the pandemic, before hybrid schedules were implemented and while the restrictions were still in place, social isolation was on multiple aspects of the worker.

Lutz Bellmann and Olaf Hübler (2021) claim that the correlation between WLB and WFH has to do with whether the agreement is contractual or not: contractually agreed work from home tends to have a positive relation with job satisfaction, but non-contractually agreed WFH tends to have negative effects on WLB but, upon being introduced have a positive effect on job satisfaction (being especially relevant given the recent increase in WFH systems), personal traits such as autonomy are also relevant for

job satisfaction, as also mentioned by Tejero et al (2021). Additionally, they add that the timing of the tasks can be a relevant indicator to work satisfaction, the ability to access distractors can lead to a work life imbalance as workers can simply postpone their tasks, however the ability to postpone work should exist to a certain extent to prevent burnout.

According to Tejero et al, (2021) the blurring of work times leads to a negative impact on WLB. In turn, a negative impact on WLB is directly correlated to a negative impact on job satisfaction (JS) and productivity, as mentioned by Bellman and Hübler (2021), however they refer to distractors as one of their main causes, while Tejero et al, (2021) refer to overworking, if autonomy is not an issue, we could assume that:

H1: More time between deadlines leads to a better performance

Teresa Galanti, MPsyc, Gloria Guidetti, PhD, Elisabetta Mazzei, MPsyc, Salvatore Zappala`, PhD, and Ferdinando Toscano, MPsyc (2021) analyzed through their empiric study that autonomy and planning are generally the most important factor when it comes to productivity in WFH, additional variables affecting productivity are such as: social isolation, communication with management and distracting work environments (family, space, unsupervised access to entertainment), seemingly, the higher the autonomy, the less effective these distractors can be. This study was done during the COVID-19 pandemic, employees were full-time WFH so the social factors might see a decrease.

Mehmet Akif Guler, MD, Kutay Guler, PhD, Meryem Guneser Gulec, MD, and Elif Ozdoglar, PhD (2021) claim that employers should consider assisting WFH employees with ergonomics, as musculoskeletal problems, and propensity of gaining weight have become more of an issue lately due to WFH.

Azra Huršidić Radulović, Roko Žaja , Milan Milošević, Bojana Radulović , Ivica Luketić , and Tajana Božić (2021) realized a study on musculoskeletal pain on WFH, the research concludes that ultimately WFH is not a major impediment for employees to perform their duties, however it's noted that WFH employees lack appropriate ergonomics to ensure the safety of their muscles and bones, training is advised on regards to stretching and general wellbeing of employees, this research also uses a sample of 164 for disturbances and only 87 for questionees who share their house with others (and are a possible cause of disturbance).

Prithwiraj (Raj) Choudhury, Tarun Khanna, Christos A. Makridis, Kyle Schirmann (2022) researched the hybrid worker's productivity in relation to the number of emails sent, the study concludes that "intermediate hybrid work" (working 9-14 days in the office) is more productive than "low" (less than 9 days) and "high" (more than 14 days) hybrid work, as there is less isolation and a better WLB. "Intermediate hybrid work" leads to a better JS and generally a better WLB, This study was performed with a Bangladeshi company, while this study focuses on a Hungarian branch of a European company, it's also worth noting that the research used sent emails as a productivity measuring method, which might not apply to every field/job, additionally this research adds value by focusing on perceived productivity as a perceived metric, as opposed to the email method.

Jaroslaw Morawski (2021) claims that while capable of changing the office occupancy market, the office occupier markets have been performing better after WFH, particularly due to trends related to the social aspect of workers, such as WLB and health concerns. The study is limited as the investigation was performed on the whole market, thus the increase of WFH appears to be relatively small as it included jobs that might not even be viable to be done at home, nevertheless this study provides valuable information for analysing the worker population.

Xingzhou Guo, Hongyue Wu, Yuan Chang, Yibin Ao and Yunfeng Chen (2021) made a study on the environment and lifestyle effects on COVID-19's WFH productivity, the study claims that habits such as excessive exercising, drinking coffee and alcohol, and smoking can lead to a worse performance, perceived satisfaction with the audio-visual environment has a positive effect in productivity and, that work interest, a manageable workload, a flexible schedule and personal privacy lead to higher productivity and are some of the most influential factors when referring to positive effects. The recency of this study is a fantastic tool for figuring important lifestyle factors and to ultimately determine if lifestyle choices are the most relevant value, which could be correlated to the autonomy mentioned by Baker E, et al (2007).

Given that productivity is influenced by WLB, JS and factors such as isolation, whether WFH is contractually agreed and employee-manager connection and distracting environments (Bellmann and Hübler 2021), we can wonder if:

H2: Productivity is decreased on non-office days

And in turn, if employees have enough flexibility between their deadlines, we could assume the opposite to be true, additionally we can compare it to pre-covid times, when working from the office was the prevalent method of work, if H2 is proven to be untrue, H3 can also be used to measure if overall productivity has been increased since the switch:

H3: Productivity within the office for WFH employees is higher than before switching to WFH

Finally, once it's known whether employees feel more productive at home or at the office, their work-schedule preference should become also relevant as, for example, if employees were more productive at the office, it would make sense to offer more commuting-heavy schedules, we can also draw parallel lines with JS, as it leads to a better WLB (Choudhury P et al, 2022), thus it's worth considering if:

H4: When possible, employees prefer to commute as less as possible.

1.3.3 WFH trends and variables

This sub-chapter aims to compile relevant facts on previous research done on WFH with the intent to determine the positive and negative effects of WFH on WLB and, consider how these variables might possibly correlate when translated into hybrid work, by classifying them for later analysis.

Organisational policies and scheduling

In their study, Baker E, et al (2007) concluded that ultimately the job requirements and specifications are the most relevant factor in the implementation of successful WFH. Basically, employees who "do their job" won't run into trouble, however there are some factors from the company side that might hinder productivity: lack or defined tasks, higher learning curve and lacking/excessive deadlines.

Following Baker E, et al (2007)'s research, they concluded that several organisational factors came into play in WFH: Manager trust, culture, tech support, HR support, and training quality among others, the research concluded that "task identity"- the task requirements and goals being easily defined, was the most relevant factor, followed by the feeling of trust with a manager, represented by less frequent "direct observation"

and occasional feedback regarding the quality of the job. Technical support is also relatively relevant whenever an issue with the computer comes up

According to Tejero L, et al (2021) workloads have increased since the implementation of COVID-19's WFH, employees are doing more overtime and often exceeding their workhours due to a heavier workload, this would seem to support the "Blurring" of home and work boundaries mentioned by Baker E, et al (2007), interestingly, the workload management on part of the employees has improved: the WFH employees were able to manage their workloads more efficiently, so that it wouldn't excessively accumulate.

The longer times could also be explained by the employees being overwhelmed with their workload and, recurring instead to use a variety of distractors to entertain themselves Bellman & Hübler (2021) and, the lack of supervision means that leisure can be accessed relatively easy, if the tasks are finished, moderate extra leisure should not pose a serious threat to the company.

Lifestyle and psychosocial Factors

The first relevant factor to account for is Autonomy, while all jobs require a certain degree of autonomy, having managers, supervisors, and peers around work as a social mechanism for having the employee "pick up the slack" however, when it comes to work from home autonomy poses a bigger threat, according to Tejero L, et al (2021), out of the psychosocial factors in WFH, autonomy and "self-leadership" have the most relevancy when it comes to productivity at home. Teresa G, et al (2021) also took notice of this trend, claiming it to be the most important factor in WFH productivity, most literatures seem to support autonomy as a crucial factor when it comes to WFH productivity.

Job satisfaction seems to have increased on most of the literatures, in fact, according to a study held in 2022 with a population of 2118 remote workers, job satisfaction has increased significantly (see figure 3.)

According to Bellmann & Hübler (2020) the eagerness to work leads to a higher JS, it's important to note that on the same research it's claimed that this excitement and increase in JS can be due to the recency of the changes and so it might be just a

temporary increase, nevertheless other literatures have also seen positive changes to JS with the implementation of WFH, such as Galanti T, et al (2021).

Figure 3

Job excitement post WFH switch
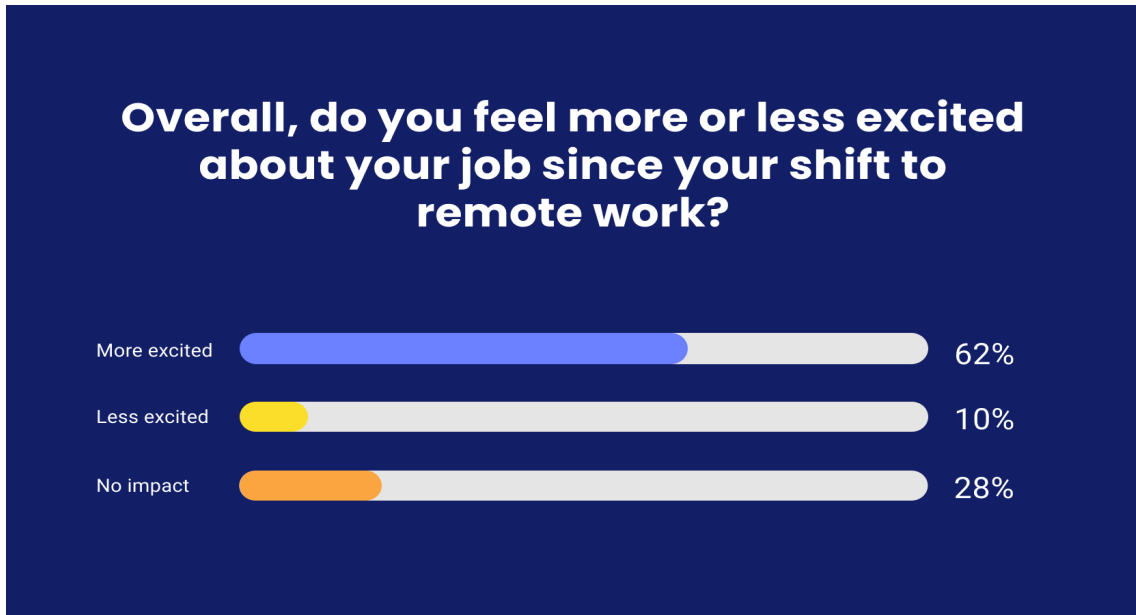
Source: buffer.com/state-of-remote-work/2022

Even the most important individual performance indicators are related to autonomy: planning the day and difficulty deciding when to stop working (disregarding schedule in favour of finishing tasks) as mentioned Baker E, et al (2007) and Galanti T, et al (2021) to influence positive outcomes when present.

This trend of not knowing when to stop seems to be supported by Tejero L, et al (2021), as they noticed that WFH has had an increase in overtime and general work hours "As for workload perception, only measures on overtime and exceeding required work hours are significantly increased on WFH" (Tejero L, et al 2021, 1068), while this aspect can be tied not only to lifestyle and psychosocial factors, it's important to mention as they also claim that a heavier workload is related to higher levels of stress which ultimately leads to a lower productivity, this is attributed to employees who attach themselves psychologically to the work and, leads to a poor work life balance causing, among others: difficulty sleeping, increased anxiety, inability to set boundaries for work and lack of leisure according to Tejero L, et al (2021) in fact, overworked employees might start adding leisure to their work-hours (Bellman and Hübler 2021) leading to an even
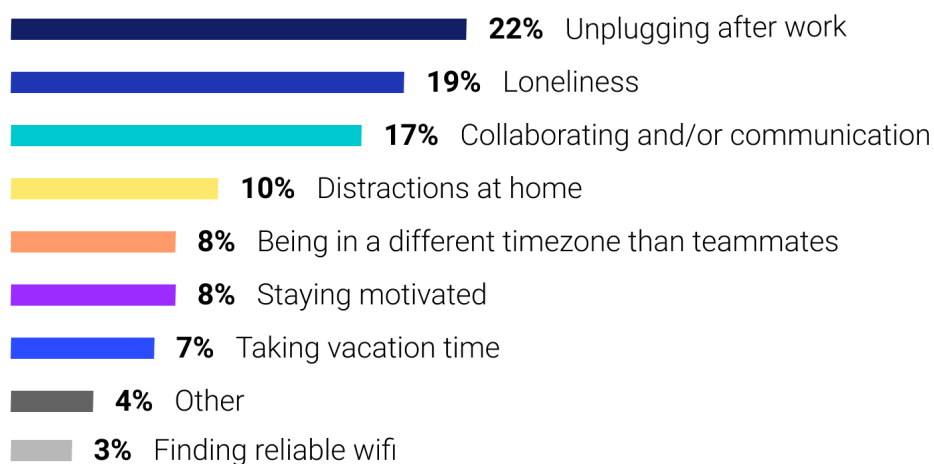
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poorer WLB and, furthering the blurring of work and home as previously mentioned, furthermore overall full-time WFH productivity was also perceived to be lower.

According to a buffer.com 2019 study on the primary WFH struggles (see figure 4), the inability to finish working, loneliness and communication are important downsides to WFH (albeit loneliness change is expected, as hybrid work allows for more social interaction between co-workers).

Figure 4

Biggest struggles when working remotely

What's your biggest struggle with working remotely?

22%	Unplugging after work
19%	Loneliness
17%	Collaborating and/or communication
10%	Distractions at home
8%	Being in a different timezone than teammates
8%	Staying motivated
7%	Taking vacation time
4%	Other
3%	Finding reliable wifi

Source: buffer.com/state-of-remote-2019

These results match Tejero L et al(2021) and Baker E et al (2007)'s claims of employees having a harder time knowing when to "unplug" from work, this can be a promising lead on H1: More time between deadlines leads to a better performance, as employees working for longer and being unable to tell when the job ends and when it starts can mean that deadlines are being met more frequently.

On the other hand, according to Guo X, et al (2021) habits such as drinking alcohol, smoking and even too much coffee will lead to a worse job satisfaction, which in turn will lead to a poorer performance.

From the social standpoint most studies concur that social isolation is a factor present on WFH, however it does not translate in its entirety to hybrid work, as companies have agreements (informal) on mandatory days and if they don't, teams tend to arrange days to meet each other, so isolation might be overruled to some extent, further details will be determined after the survey.

The other negative outcome can come from employees not being able to tell when their job ends and when it starts,

Household factors.

Tejero L et al (2021)'s research also showed a decrease in perceived productivity, this means that while employees are perceiving heavier workloads, their perceived productivity has also gone down also, a decrease in mental health (anxiety, stress, poor sleep) can lead to a tougher time working at home, this seems to be corroborated by Guler M, et al (2021), in which they claim that poor adjustments to a house's "office" arrangement can lead to spinal problems, muscular problems and even a weight increase.

According to Baker E, et al (2007) financial support is a positive factor in productivity such as modifications to the house-office and providing with the necessary equipment to perform the tasks (computers, monitors, mouses, etc…), which also proved a relation with better work performances during the same research, all which also seems to agree with Guler M, et al (2021)'s claims of the importance of having better ergonomics while working from home.

1.3.4 Summary of literature review

The primary research question is *How have post covid-19s hybrid work arrangements affected office productivity periods?* in hopes of answering theis questions, the forementioned hypotheses will be crucial:

Tejero L et al (2021) claims that overworking leads to a decrease in WLB (by proxy, performance), since WFH employees tend to mix life with work it's possible that:

H1: More time between deadlines leads to a better performance.

WFH has some inherently negative factors, according to Baker E et al (2007) these can range from isolation, lack of proper ergonomics and access to distractors, then it's possible that:

H2: Productivity is decreased on non-office days.

According to Bellmann L & Hübler O (2021), job satisfaction has had an increase, this, in theory, should increase performance, yet it's important to take into consideration the negative factors of H2, therefore it's important to know if:

H3: Productivity within the office for WFH employees is higher than before switching to WFH.

Once the research question is solved, understanding employee scheduling preferences can lead to a preferred schedule/arrangement recommendation, so it's important to know if:

H4: When possible, employees prefer to commute as less as possible.

Across studies, the most important factor to productivity seems to be deeply intertwined with personal autonomy, planning skills and job requirements, while it's safe to say that working from home has many drawbacks such as ergonomic problems, space problems, excessive access to distractors and poor social life issues, generally speaking: a poorer WLB, the increase in privacy and the ability to rearrange work more easily, and-or access distractors is enough for employees to threaten quitting, were this benefit lost. (bloomberg.com).

1.4 Research methodology

This research aims to determine beneficial and detrimental factors for office workers using a hybrid schedule. The research has used secondary data to determine four, hypotheses and, primary data looking to survey workers who are currently working on a hybrid schedule which will help confirming the hypotheses, it will also use an assortment use a hybrid of qualitative and quantitative research methods as well to sustain and answer the research questions.

An overview of previous studies in WFH serve as a foundation for the development of the research questions and the development of theories which potentially carried on to Hybrid Work.

Quantitative methods will be useful for delimitating the target demographic, characteristics relevant to the work environment (e.g., number of children at home, age, tenure), which then will use a qualitative approach to analyse how does our target demographic interact with these work environment factors (e.g., perceived productivity satisfaction, concerns regarding work environment). To achieve this, this empirical research will count with a survey, in conjunction with information made publicly accessible by companies using WFH, aiming to get data on these demographic factors and the overall perceived satisfaction. And interviews seeking to provide a further insight on trends seen in the survey.

Previous research show that WFH has negative effects in the area of social life, work life balance, body wellness and stress, hybrid work, however, offers employees the freedom to choose which days suits them best personally: if, for example, their house has internet connection issues, they can still go to the office and have their performance relatively unaffected, it offers employees to have the social interactions that they lacked when working full-time WFH, the research will aim to see if these negative factors persist when considering a hybrid work schedule and their extent, for they might be able to simply go to the office if WFH proves unviable.

1.4.1 Design of the Questionnaire

The questionnaire works as the base of the Thesis as this is empirical research, as mentioned previously the questionnaire will use a snowball method, the surveyed population will be a multinational oil company's branch in Hungary which has requested not to be mentioned by name.

Before submitting the questionnaire to the company, it's essential to ensure that the questionnaire covers relevant topics mentioned in previous literatures and, provides clear and consistent information that can provide a better insight into the research question's answer, for this purpose a pilot questionnaire has been formulated and has been passed among three individuals that use WFH, the current questionnaire has been modified according to their feedback and, the pilot itself can be found in the appendix section.

1.4.2 Demographic questions

The study uses data from the oil company, using a snowball method, a few managers agreed to share the survey questions with their teams, the only exclusion question being if they currently don't work from home or if they have worked from home previously, in case their answer is negative, the survey will be invalidated.

The survey includes basic population questions such as age, education, gender, and seniority at their current workplace to get a better grasp on the population and their tendencies, this information will then, be analysed through a regression analysis and compared to previous literature, to prove or disprove visible trends.

1.4.3 WFH variable questions

The following questions were used to draw conclusions in conjunction to previous studies to provide a better overview of hybrid work, therefore, it's important to explain their relevance and purpose.

A key point is the type of hybrid work schedule that the employees are using, since it's implementation can vary from company to company or even from manager to manager, understanding how the scheduling is set will provide crucial information when it comes to assessing employee preferences, for example, if an employee has complete flexibility in their hybrid work schedule and they choose to work 5 days at home, their WFH experience will be different than an employee who also has a hybrid work arrangement but it's forced to visit the office three times a week, this is, in fact, one of the biggest perks of WFH.

Firstly, to measure the average work schedule of the surveyed employees, (out of their X number of workdays, how many are being worked at home?) and, whether this "average" schedule is mandatory, optional or a mix between the two, this schedule information will be crucial when confirming their work preferences as the aim of this thesis is to measure employees when/where they are at their most productive, if the employees claim that they have no control of their schedule and have 0 days worked at home, their response will be also invalidated.

The employees are asked their seniority alone, regardless of their time working from home, this question is intended to identify workers that might struggle more, according to Baker et al (2007) the newer employees (<1 year) face a steeper learning curve than

they would if they worked in person, this in conjunction with the next questions might show a correlation to determine if Baker's trends are still present in the current Hybrid-workforce.

Duration of transport to the office is also relevant, as employees with longer commuting times, might prefer saving time from their days, while employees that live closer to their offices might not find commuting an issue.

Based on a demographic study by ksh.hu in 2018, here are some of the most relevant factors concerning WFH (according to the Hungarian population), noticeably, many of these factors are also present in the literature and, will be used in conjunction to formulate the survey:

- Work-life balance.
- Decrease in stress
- Schedule flexibility.
- Schedule planning.
- Personal relationships and communication with colleagues.
- The blurring of working and free times.
- Access to distractions.

The second half of the survey seeks to clarify the employee's preferences and their effects in productivity through Likert Scale questions, the hybrid employees were asked questions ranking from their level of agreeability on 5 different levels.

The first set of Likert questions aims to measure job satisfaction and workload. The questions go as it follows: "I feel more satisfied with my job since I started WFH", "I feel more productive at WFH", "My workload has increased since WFH", "I can easily organize my workload" (no specific timeframe), "I can manage my deadlines more easily with WFH". The workload questions aim to confirm whether the trend that Tejero L et al (2021) saw in an overall increase in workload and slower production times translate to hybrid work, as that research was done at the peak of COVID-19 (employees were full WFH) and the research was done in the Philippines as opposed to Europe. The capability of workload organization can also be correlated with the "Planning" mentioned by Baker E, et al (2007), in this case, it can be used as an indicator to their autonomy and ultimately their individual performances/capabilities in

relation to their perceived workload changes, this data also proves useful with the next section of questions.

The second set of Likert questions is trying to measure the environment in which employees work from home, not only physical tools (such as tables, chairs and company laptops) necessary to perform their jobs optimally, but also their access to distractors, such as children, house cleaning and cooking duties, distractors such as phones, television…, and, communication (in order to measure how relevant isolation still is compared to full WFH) generally speaking, lifestyle factors (which will also be connected to our analysis on their capability of organising themselves). The questions had between parenthesis examples such as the ones previously mentioned (chairs, kids, phones…) "I can work comfortably from home" relating to the tools and their level of comfort," I tend to use more distractors working at home", "When I work from home, I need to divide my attention" (cooking, kids, cleaning…) "Communicating with my colleagues has become more difficult" and finally "My work is disrupted by the people who live with me". These questions should provide a decent information regarding the psychosocial environment in which employees find themselves in and, possibly connect with their productivity and workload trends.

Finally, an open question regarding any comments on how their WFH experience has been or any additional comments, this will help provide further insight on the trends that will become visible upon studying the results.

2.SURVEY RESULTS & DESCRIPTIVE STATISTICS

While the company approved the questionnaire, the methodology used a snowball method, so the population remained more or less consistent with younger age groups being the largest and the oldest the smallest. This might be due to the methodology or the branch of the company itself: A centre focused primarily on financial related activities. This, however, ensured that most of the population was working hybrid.

The total answers were 52, unfortunately 3 of the responses were deemed invalid as they did not meet the requirement of having worked at home, so only 49 answers will be used: Table 1 presents general demographic information regarding the surveyed employees:

Table 1: Demographic information of Hybrid Workers (N=49)

Characteristic	Total	%
Gender		
Female	24	48.98%
Male	25	51.02%
Age		
18-25	30	61.22%
26-35	15	30.61%
36-45	4	8.16%
45-55 and 56+	-	-
Level of Education		
Primary (High school)	1	2.04%
Secondary (University, vocational education)	35	71.43%
Tertiary (Masters, PhD)	13	26.53%
Total household inhabitants		
1	8	16.33%
2	18	36.73%
3-4	21	42.86%
5+	2	4.08%
Seniority at job		
Between 1-3 years	24	48.98%

Between 3-5 years	7	14.29%
Less than 1 year	17	34.69%
More than 5 years	1	2.04%

The genders are evenly distributed, most of the participants are between 18-25 years of age and, 97.96% have had access to higher education, primarily secondary.

Most of the employees share their households, the most popular arrangement being 3-4 followed by 2 people, seniority is intended to measure expertise rather than time working hybrid, roughly half of the answers came from a moderate seniority of 1-3 years followed by the group with less than a year of experience, the surveyed group has a moderate work experience (at least with their current company).

Table 2 presents employee's work from home schedule and commuting details from a demographic perspective and frequency.

Table 2: Commuting details (N:49)

Characteristic	Total	%
Average time to commute		
Between 15 and 30 minutes	22	44.90%
Between 30 and 45 minutes	19	38.78%
Less than 15 minutes	2	4.08%
More than 45 minutes	6	12.24%
Work Schedule		
I can choose which days I go to the office	21	42.86%

|		
I can only go to the office on specific days	6	12.24%
Some days are mandatory, the rest is my choice	22	44.90%
Days worked		
1	-	-
2	-	-
3	-	-
4	-	-
5	49	100.00%
6	-	-
7	-	-
Days worked at home		
1	2	4.08%
2	3	6.12%
3	27	55.10%
4	12	24.49%
5	5	10.20%

All the employees (100%) work 5 days a week, 89.08% of the employees work from their homes for more than half of the week (3 days =60%) and the most popular arrangement seems to be working 3 days at the office. only 12,24% of the population has no flexibility when it comes to their arrangement (whether having to commute on some days, or being able to go whenever they please) the largest group of employees live 15 to 30 away on average from their workplace while the second largest group lives

from 30 to 45 minutes away on average from the office, this data is relevant as employees who take longer to commute might prefer to work from home.

Figure 5 aims to show the correlation within the preferences of when to work from home for employees that can choose when to work from home.

Figure 5

Days worked from home by schedule arrangement
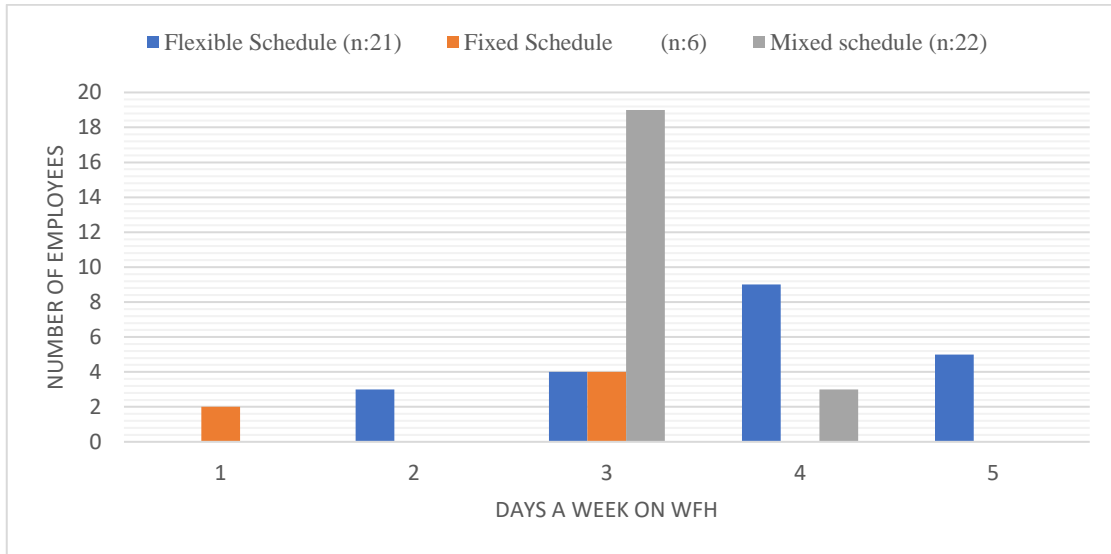
Source: own construction.

Its seen that 12.24% of the employees have a fixed schedule, which means that they are unable to choose which days they work from home, out of the employees that can choose their schedules fully, 85.71% chose to work 3 days or more from home and, 23.81% of the 21 employees with full flexibility chose to work all their days from home, 86.36% of the employees who have a mixed schedule ended up working from home 3 days a week, and the remaining 13.64% worked from home 4 days.

Table 4 presents the frequency in which employees agreed or disagreed with statements on a Likert Scale, no values were assigned to the responses (agreement level) for clarity, but it's worth noting that numbers will be present on calculations of correlation.

Table 4: Likert Scale Results (N:49)

Question set	Question responses

Productivity-related statements	Strongly disagree	Somewhat disagree	Not agree nor disagree	Somewhat agree	Strongly agree
I feel more satisfied with my job since I started working from home.	4	0	9	9	27
I feel more productive working at home	4	16	4	13	12
My workload has increased since I started working from home.	6	13	12	14	4
I can easily organize my workload.	0	1	11	16	21
I can manage my deadlines more easily with hybrid work.	1	5	11	20	12
Home-related statements	Strongly disagree	Somewhat disagree	Not agree nor disagree	Somewhat agree	Strongly agree
I can work comfortably from home (laptops, chairs,	2	5	3	19	20

monitors...).					

I tend to use more distractors working at home (phones, snacks...).	6	2	7	20	14
When I work from home, I need to divide my attention (cleaning, cooking, kids...).	4	3	7	23	12
Communicating with my colleagues has become more difficult.	8	12	8	15	6
My work is disrupted by cohabitants.	13	11	12	9	4

For the following information these numbers have been converted into percentage form (x/N), the most prominent details go as it follows: 55% of employees feel strongly more satisfied with their jobs, while 18,37% fell somewhat more satisfied and another 18,37% feels neutral about the changes, 40,82% of the workers feel less productive working at home, while 51.02% do in fact, feel more productive while working at

home. Workload changes are present, while 24,49% of employees felt like their workload was unchanged, 36.73% felt an increase and 38,78% disagree with an increase, most employees feel like their workload became more easily organizable and can meet their deadlines more easily.

For the second set of questions, the vast majority seem to agree that they can work comfortably from home (on regards to chairs, tables and general equipment), 69.39% agree that they use more distractors (such as cell phones) while working at home and, 71.43% agreed that they need to divide their attention between work and housekeeping tasks, 41.86% claim that their communication with co-workers has become more complicated and 40.82% disagree, 48.98% of employees are undisturbed by their housemates.

Table 5 has a regression analysis made to the question "I feel more productive working at home", the response should provide further insight on the main research question, two variables were removed: the number of days worked weekly as all the respondents claimed not to work more than 5 days a week, and whether employees could choose their schedules, as its irrelevant to their actual satisfaction when working from home.

A confidence ratio of 95% was used.

Table 5: Regression Analysis of "I feel more productive working at home" N:(49)

Variable Value	Significance	St.Error	P-
Intercept	4.1286	2.5770	0.1190
Age	0.4635	0.3443	0.1877
Gender	-0.2011	0.3312	0.4540
Education	-1.6501	0.3979	0.0002
Seniority (at work)	0.0936	0.3144	0.7678
Cohabitant #	0.5768	0.2686	0.0395
Commuting time	0.0796	0.2261	0.7272

WFH days	0.1430	0.1800	0.4327
WFH satisfaction	0.7487	0.1603	0.0001
Increase in Workload	-0.3383	0.1550	0.0365
Workload organization	-0.1415	0.2782	0.6145
Deadline Management (with WFH)	0.1138	0.3296	0.7321
Ergonomics/comfort	0.2041	0.1358	0.1427
Distractors while WFH	-0.2311	0.1407	0.1103
Dividing attention	-0.3944	0.1567	0.0170
Communication with colleagues	-0.0397	0.1251	0.7531
Cohabitant disruption	0.0089	0.1575	0.9551

The Rˆ2 value is 86,25%, showing a good level of correlation between the perceived productivity of the employees and the questions made, and all the P-values are lower than the significance level, proving the validity of the results on varying degrees, from the get-go we can see that gender, education, workload increases and how orderly the workload is, distractors available, communication with colleagues, and not paying attention while working have no correlation with perceived productivity.

The most meaningful values were WFH satisfaction. number of cohabitants. age and ergonomics.

The questionnaire also asked respondents for comments to consolidate the consensus regarding hybrid work, out of 10 total responses only 5 of them were non monosyllabic, while the answers help getting some insight, they're hardly decisive. Here are some of the anonymous comments:

- "Working from home gave me 50 minutes a day for myself and my daily needs."
- "It is rather difficult to measure, because when working from the office I take more time for breaks - even going to the bathroom takes more time - however my attention is more focused on the actual task when I'm sitting in front of the computer."
- "I can't say that working from home had a strong impact on my productivity, in fact I'd say it made me less productive but it's better than the seeing my co-workers every day."
- "I get more work done in the office than home office because there are no distractions."
- "Thanks to the nature of my work, I can do my tasks in 2 to 3 hours and then finish but the only problem is that I need to wait until the workday finishes in case of any emergencies."

3.DISCUSSION AND FINDINGS

The objective of this chapter is to determine if the results of the survey match the hypothesised relationships and, to determine how the results fare in comparison to previous literatures to help ensure veracity and provide a basis for answering the research question.

3.1 Demographic factors

Albeit relatively small, the population's segmentation provided some valuable information regarding employee preferences which this section aims to clarify, furthermore, here are some details of the population: 51.02% is male and 48.98% is female.

To compute the relationship between gender and productivity, males were assigned the value of "1" and females the value of "2", the regression analysis' result was -0.2011, in this scenario, the perceived productivity of females was lower than the male population, a possible explanation can be seen in Radulović A et al (2021)'s research, in which

employee tendencies were also seen, females tend to feel disturbed more often than men and, they also take breaks less often, this could possibly lead to a worsened WLB as the blurring of work is one of the lead causes for a bad WLB (and a JS) according to Galanti T et al (2021).

The population is relatively young, 61,22% is between 18-25 and 30.61% for the group between 26 and 35, the results of the regression were 0.4635, which means that as age goes up, so does perceived productivity.

When it comes to education, 71% of workers had a university/vocational diploma and 26,54% had access to masters/PHD, the remaining only had primary education, a significance level of -1.6501 shows that the higher the education, the lower the perceived productivity, since only 2.04% of the population did not have access to higher education, moreover, according to Bellmann L & Hübler O (2021) education has a negative correlation with JS, the more educated an individual is, the less satisfied they'll become with their job, and a low JS will in turn, lead to a decreased perceived productivity, which can be a possible explanation for this correlation, the surveyed demographic had, in a vast majority, higher education, further research might be needed to prove this correlation, as the surveyed group was mostly heterogeneous when it comes to the type of education received.

3.2 Scheduling Preferences

Before proceeding with other factors, it's necessary to determine the employee working preferences, this will help to 1. Calculate how many days are being worked at home. 2. Estimate on average, how many days are being worked at home and, 3. Correlate the preferences/schedules to the actual perceived productivity, this will also prove (or disprove) *H4:* When possible, employees prefer to commute as less as possible.

At a first glance, upon checking the significance of days worked at home, a positive correlation of 0.1430 means that the more days the employees can work from home, the more their perceived productivity increase, so while it's become clear that employees tend to feel more productive while working at home, this doesn't necessarily indicate that they will actively seek to work less days at the office. (bloomberg.com)

In Figure 5, we can see that employees prefer to work from home as much as possible while minimizing social interaction no more than necessary, the Flexible Schedule

group had complete freedom to pick their schedule and, this group had as well the highest variance between all variables, while we can draw a few conclusions from this, Further research is clearly needed in order to fully assess the topic with questions such as "which is your preferred day of the week to work at the office", "have you got an agreement with your colleagues to visit the office on the same days?" and so on.

Essentially we can reach a few conclusions with this: on average, employees work from home 3.32(3) days a week, out of those employees who can choose, they'll choose to spend most of their days working from home, 23.81% of this group won't go to the office at all, and the rest will be satisfied with visiting the office a few days, this trend also persists in the group with mixed arrangements, by far, the most popular arrangement (86.36%) was to WFH three times a week, while we have no specific information regarding these arrangements (for example, some of the managers request for their employees to go to the office twice a week), we can safely assume that for at minimum, the employees have to go to the office once a week and, out of the 22 employees who have this mixed setup, none of them have to go to the office more than thrice a week, therefore we can safely assume that the mandatory days are anywhere between 1-2 days a week, thus, we can prove that *H4:* When possible, employees prefer to commute as less as possible.

Employees preferring to commute less raises another question; what about isolation? isolation has been proven to have significantly negative effects on WLB (Tejero L et al 2021) which in turn lowers JS and productivity (Bellmann L & Hübler O, 2021) out of the total population surveyed only 10% are fully isolated and, this it was by choice. Overall, the variable regarding days worked and positive effects in productivity, had a coefficient of 14,3% in the correlation of table 5, these two pieces of information are relevant as 1. The people who were isolated, did by choice, and 2. Because most of the employees WFH 3 days a week and, have a chance of meting their colleagues without experiencing full isolation.

As a final note on Table 3, it's worth noting that according to table 4, JS increased according to 73.47% of the surveyed employees, so perhaps a schedule of 3 days WFH works best, this is partly aligned with Choudhury P, et al (2022) who claim that 9-14 days/month at the office are more efficient than the 8 days/month proposed by this study but, it also shows that 8-11 days at the office has shown positive results in JS

satisfaction albeit not as high as the employees who work 12-14 days at the office (arrangement for highest JS but not necessarily highest efficiency), it is also worth noticing that Choudhury's research used a population of 16,357 in Bangladesh by tracking sent emails, while this research used a modest population of 53 using employee's opinions and, was based in Hungary, nevertheless, the improvements in JS seem to match, at least, partially.

Another interesting trend is that employees who live the farthest, tend to feel more productive working from home, this can perhaps be attributed to the exhaustion associated with commuting or the employees might have felt started performing better do to a better WLB, pin-pointing the reason behind this can be complicated, as it varies from individual to individual, nevertheless, a 0.0795 significance ratio indicates the existence of this correlation.

Another point in the survey is commuting times, in the research, most employees live at a relatively close distance, 44.90% can reach the office between 15 and 30 minutes and 4.08% in less than 15 minutes, the employees classified as employees with longer commuting times are between 30 and 45 minutes - 38.78% (the second largest group) and, more than 45 minutes 12.24%, in order to measure this preferences, a correlation was calculated between the responses (see figure 6), the correlation was calculated using a Pearson's coefficient, the result was -0.1186, with a slope of -0.1393x this means that, unexpectedly, the farther the surveyed employees worked from the office, the more they would come.

These results, when paired with another piece of information can, in fact, provide a useful argument for H2: Productivity is decreased on non-office days, the results of the regression show a correlation between perceived productivity and commuting time of 0.0796, that means that the longer employees take to commute, the more productive they are (in their own perception).

It's also known that the employees who take longer to commute, for whichever reason, prefer to commute more often, therefore it can be inferred that: employees who are working at the office are more productive than those who are not.

Figure 6

Correlation between distance and days worked at home
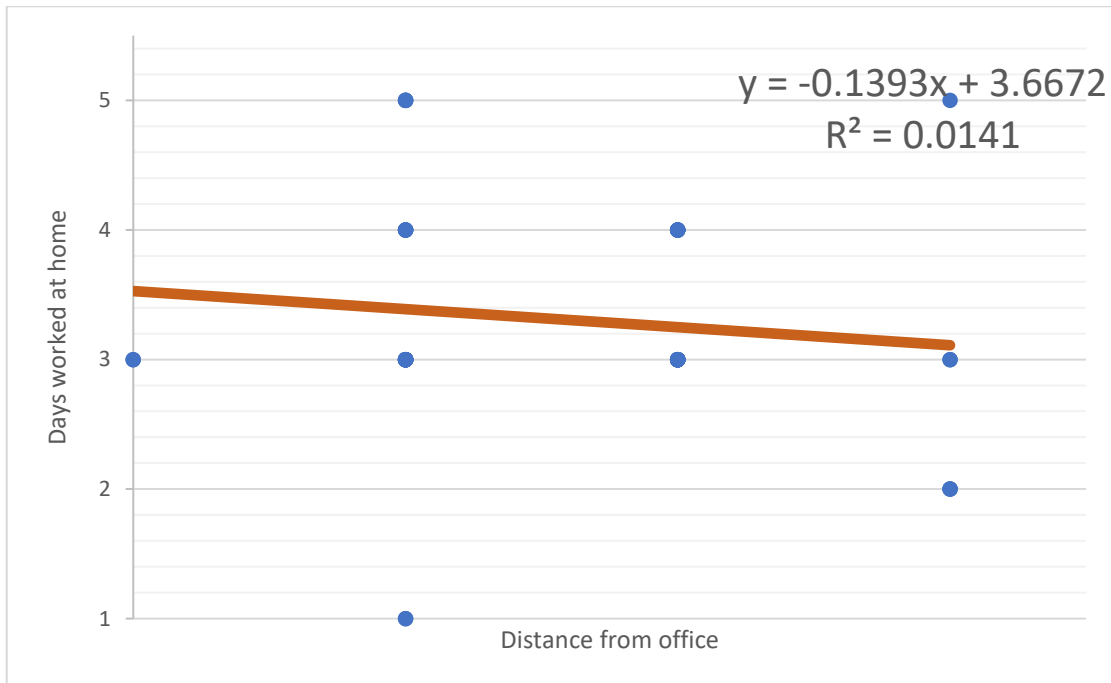
Source: Own construction

Another possible explanation is isolation, a variable which unfortunately was not researched in the current study, however, according to Galanti T et al (2021), isolation can lead to a poor WLB, a decrease in JS and ultimately, a decrease in productivity, since isolation is inversely correlated with productivity, it can be understood that employees who commute more, can be more productive due to a healthier WLB.

Admittedly, the regression does not have a massively strong correlation, but the data ensures that this is more than a conjecture, further research on commuting times and hybrid work isolation is advised.

3.3 Autonomy & workload factors

The autonomy related questions are set to answer *H1*: More time between deadlines leads to a better performance, these questions are not related to the deadlines per se, but the individual's capacity of managing their time, the reasoning behind this is that if autonomy wasn't assessed, it would be necessary to assess the tasks themselves and, the employees' opinions as to what they consider to be a reasonable time frame, this seems to be backed up by the fact that, according to ksh.hu 62% of employers do not monitor

the worked hours, but rather the results, due to the fact that the surveyed group was part of the same company, performance results might be based on results, rather than hours worked.

Before assessing the employees' autonomy, and how it's correlated to their productivity, it's crucial to assess whether there were increases or decreases within their workload in hopes of determining if it's justifiable to keep a hybrid work system to begin with (currently it seems to be the case, as JS has increased substantially).

With this in mind, regression analysis shows a significance of -0.3383 in workload and perceived productivity, the question asked: "My workload has increased since I started working from home" it's essential to mention that a strong disagreement doesn't necessarily imply a decrease, and a neutral answer (not agree nor disagree) could also be interpreted as a "negative" response on regards to workload increase, this semantical problem means that further research might be necessary with either a "workload decreased" and a "workload increased" on both sides of the Likert Scale, or perhaps an additional question such as "my workload has decreased since I started working from home", furthermore, according to the regression, a non-increase in workloads is associated with higher perceived performances. According to Tejero L et al (2021), the highest variation is seen in employees having to do more overtime, this might have to do with the questionees, as 34.91% of the population used was above 40 and 46,86% of the total population was on some degree of a managerial level, it's concluded that although overtime increases, productivity decreases due to a poor WLB, ultimately, it can be understood that higher workloads do, in fact, decrease productivity, which would support *H1:* The more time between deadlines leads to a better performance.

The statement "I can easily organize my workload" has shown a surprising correlation of -0.1415, this implies that the more disorganized the workers are, the more productive they are and vice-versa, this contradicts most of the literatures seen in the literature review, according to Baker E et al (2007) those employees who plan their day in advance are capable of be more productive and, as a cherry on top, this group of employees who plan their day face less difficulties when it comes to ending their workday which, according to Tejero L et al (2021) reduces the stress, as it leads to a better WLB, which in turn leads to a better productivity.

65.31% of the respondents of "I can easily organize my workload" responded with an "agreement" answer and 22,45% remained neutral, a possible explanation as to why the answers differ so much from the literature can be explained by Bellmann L & Hübler O (2021) in which they explain that if due to personal reasons or interest, work life balance will get a negative impact, this could mean that while the set of employees could organize their schedule more easily, the activities that they were doing thanks to WFH were not work-related, so it could be said that the questioned group was perhaps less responsible, but rather than conjecture this could be proven with another of the questions made: the results of "I tend to use more distractors when working at home (phones, snacks...)" show a correlation of -0.2311 with perceived productivity, this means that employees who had a tendency to get distracted for non-housekeeping purposes performed worse than their peers, 40.82% of the population chose "somewhat agree" as a response to this point in the questionnaire and 28.57% showed a strong agreement, this means that a large 69.39% of the total population has been using more distractors, while this seems to contradict Baker E et al (2007), Bellmann L & Hübler O (2021) provide with a sound explanation as to why these results might be: employees planning their breaks more often, leading to a bigger work-life imbalance and thus affecting overall productivity.

Interestingly and, returning to *H1:* "The more time between deadlines leads to a better performance." The statement that sought to provide a direct answer to the statement was "I can manage my deadlines more easily with hybrid work" is shown to have a positive correlation with perceived productivity of 0.1138, while not as strong as "I can easily organize my workload", its crucial to mention that the aforementioned does not necessarily target office or WFH, but rather both (Hybrid), in other words: Its measuring employee skill, this means that while employees aren't necessarily getting the best results while planning their days, working from home has allowed for a better planning and a better productivity. This trend is difficult to interpret due to its seemingly contradictory nature, and while other literatures can provide with a close approximation, further research with a larger question-set and respondents could lead to a better, more direct confirmation of this theory of "planned distractors".

The key takes are that organizing capabilities are important when being more productive, hybrid work has allowed for employees to manage their deadlines better, if they, however, start planning more breaks and using more distractors, their overall

performance will decrease, due to a poorer WLB, based on this, we can claim that job autonomy has a direct relation with H2: Productivity is decreased on non-office days, it's up to the individual whether their performance is on par with their colleagues, although other negative aspects of WFH will be discussed in the next sub-topics, there seems to be a considerable correlation on these "autonomy related" factors.

3.4 Psychosocial Factors

3.4.1 Job Satisfaction

One of the metrics used was job satisfaction, white this metric doesn't have to do with either office or WFH days, it's an overall indicative for performance improvements, as it's been previously stated, JS will lead to a better productivity and WLB, the research statement was "I feel more satisfied with my job since I started working from home", most of the population found itself happy working from home, while not necessarily aware of other changes in WLB a whopping 55.10% of the population strongly agreed that their JS had increased and, 18.37% only somewhat agreed and, another 18.37% had a neutral opinion / saw no changes, these overwhelmingly positive results are also translated into how much perceived productivity is affected, a formidable significance level of 0.7487 is present on perceived job satisfaction and JS changes, what this means is that the more satisfied employees are upon changing to JS the more productive they are, fortunately seniority, a metric that had been previously discarded becomes useful again, 48.98% of employees have been working their current job between 1-3 years, the hybrid work system was implemented in the surveyed company in the midst of 2021, the peak of COVID-19, what this means is that it's very possible that a high amount of these employees got the chance to experience to WFH and, the remaining 51.02% of the population, which has worked for a longer time, is certain to have seen the transition to WFH. The reason why this piece of information is crucial is that according to Bellmann L & Hübler O (2021) employees who recently started WFH have a boost in JS, while explaining the circumstances under which new joining employees hasn't been explored for a longer period of time, this research shows promising results which can lead to further discussion if studied under a longer period of time, this however, is not the primary focus of the current research.

Moreover, this significant increase in JS, inherently implies that H3: Productivity within the office for WFH employees is higher than before switching to WFH, this is due to JS' positive relationship towards productivity, to further illustrate this:

Figure 7

Relationship between job performance and job satisfaction.

$$y = -0.1059x^2 + 0.8447x + 0.1453$$
$$R^2 = 0.9892$$
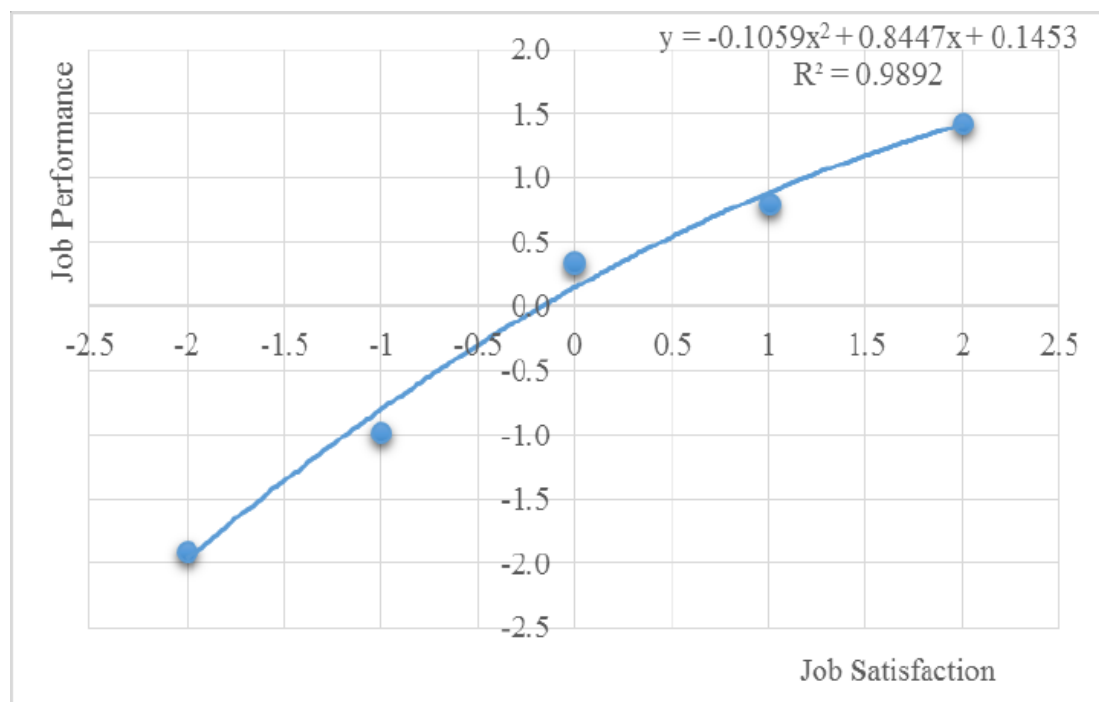
Source: Nicoleta, Isac & Anghel, Daniel-Constantin & Yanik, Prof. Dr. Telat. 2015, P293

The study realized in Figure 6 uses a more detailed criteria to characterize "Job satisfaction" and "Job performance" which might slightly differ from the usage in the different literatures used through the dissertation, the more relevant factors utilized for "Job satisfaction" are supervisor appreciation, positive image and impact, which matches Baker E et al (2007) questions regarding manager connection, this is, however, not fully utilized in this research, but employee skills, goal definition and benefits are included among these categories, which are analysed in the current research.

"Job performance" isn't much different than what one would come to expect: output, accuracy, commitment, and responsibility, although this dissertation uses a "Perceived" productivity (another measure of performance).

3.4.2 Communicating with colleagues

The literatures seem to agree that isolation and lack of communication are one of the biggest problems of WFH with, isolation being one of the primary reasons for a poor WLB, according to Baker E et al (2007) WFH can cause a worse teamwork due to lack of communication with colleagues and, according to Galanti T et al (2021) social isolation is one of the leading causes for a lower productivity.

One of the purposes of the study is to measure social interaction's effect on overall productivity and, a hybrid work system might have caused this isolation levels to drop, according to the Likert scale statement "Communicating with my colleagues has become more difficult" the results show a significance level of -0.0397, those who agreed the most, saw a negative effect in their productivity, 24.49% of the employees somewhat disagreed and, 30.61% somewhat agreed, ultimately communication has to do with the tasks related to the job, therefore it can be understood that overall there has been less communication than before and, it leads to a lower perceived productivity, although the significance level was relatively low, in a similar way in which Baker E et al (2007)'s claim that "dealing with others" (unless it's a manager/boss) is not a strong factor for JS.

The survey did not cover job descriptions, it is possible that the job requirements for the surveyed group were not communication-heavy, so this metric might vary depending on the task at hand, however it proved to be irrelevant on the research at hand.

3.5 Household factors

3.5.1 Cohabitants

The first factor has to do with how many people live within the household, while our regression shows that cohabitants disrupting hardly has any influence on the overall productivity, (0.008 significance) 48.98% of the employees disagree on feeling disrupted by their cohabitants and 24,49% don't agree nor disagree, and 18.37% only somewhat agree, so perhaps while a mild inconvenience is present, it's never "too much", that being said, the number of cohabitants has a much higher significance level, sitting at 57.68%, this can be attributed to the fact that the question is directed to "direct" disruptions, it's worth considering that most of the population is relatively young and perhaps are not responsible for people in their households, further research should expand on whether they live with children, or if they are responsible for

someone else, nevertheless this line of reasoning can't be pursued with the current information and, fortunately it's significance wasn't high enough to be considered relevant to the research, when compared to other researches, such as Baker E, et al (2007) and Galanti T, et al (2021), children are shown to have a small relevance and, none of these researches had questions that aimed at "direct" disruptions but rather number of cohabitants (out of which, children).

Going back to number of inhabitants, 42.86% of the population had between 2 and 3 cohabitants (plus themselves), 36.73% only have one cohabitant, 16.33% live by themselves and, 4.08% have 4 or more cohabitants, when correlating number of inhabitants and perceived productivity, by calculating a Pearson's coefficient we can see a negative correlation of -0.0855 and a negative slope of -0.0504x (see figure 8), implying that: the more cohabitants, the less productivity is perceived and vice versa, while not the strongest negative correlation, this negative correlation seems to match the results of Baker E, et al (2007) in which "other people present" was a variable used to measure number of cohabitants, in conclusion, while less people present can lead to a decrease in perceived productivity, social interaction can't be fully discarded, as social isolation has been shown to have negative effects on WFH, according to Galanti T, et al (2021), it's also worth noticing that in a Hybrid Work environment, the type of scheduling arrangement might be an influential factor in this regard, as it directly influences how many interactions an employee can have.

Since "direct" disruptions have been discarded, as the correlation is too weak to be considered, the negative relation between cohabitants and productivity could be explained in terms of employees lacking their own space, this trend was also present in Baker E et al (2007)'s research in which more cohabitants let to a negative relationship with productivity.

Figure 8

Correlation between perceived productivity and number of cohabitants
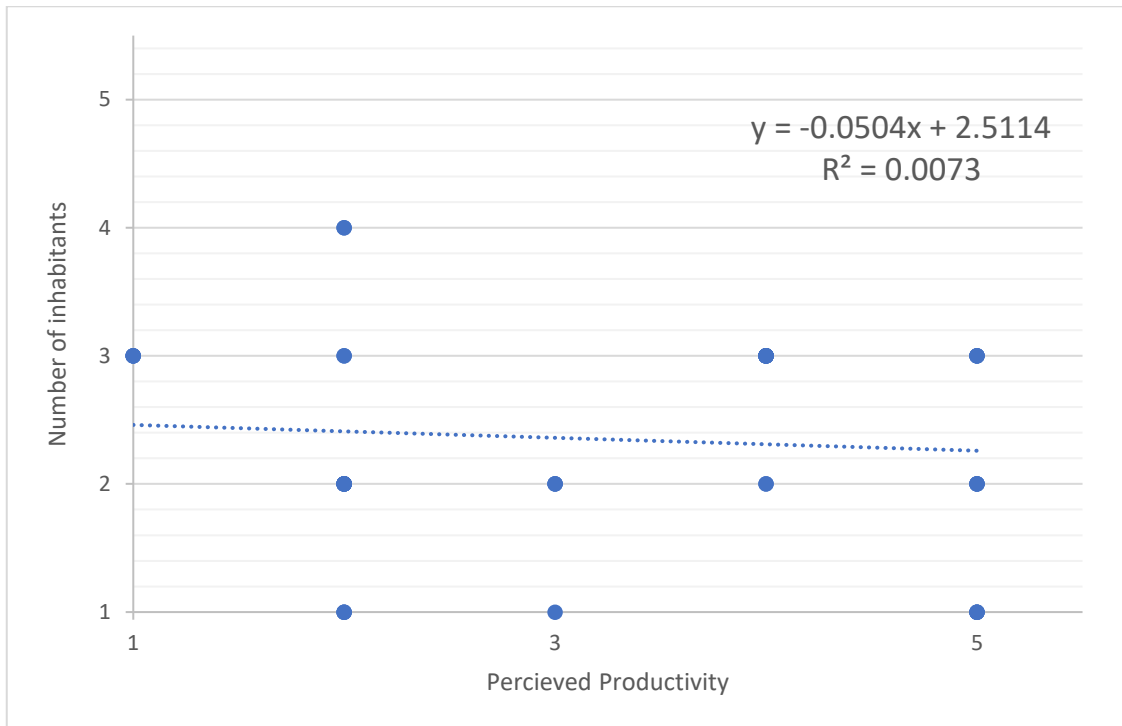
Source: own creation.

3.5.2 Ergonomics

One of the most interesting topics are ergonomics, without a doubt, office workers tend to suffer from musculoskeletal disorders, particularly back pains, strains, arthritis, and carpal tunnel syndrome (cdc.gov), companies generally have a handful of rules in place to prevent the development of these disorders, such as ergonomically designed chairs, movable tables, larger screens that protect against glare, sport areas and a wide variety of trainings regarding proper sitting positions, stretches and resting times.

It is no wonder that while companies have a large set of tools at their disposal to protect the well-being of employees, employees working at home might not have an adjustable desk or a chair in which the handles can be adjusted, they might even be forced to hunch their necks to better see the screen, literature seems to indicate that employees working from home are more likely to suffer from these issues, particularly back pain and extra weight (Guler A et al 2021) and while employees prefer to work from home, they aren't exempt from these issues.

According to Table 5, ergonomics and comfort have a 20,41% significance level on perceived productiveness at home, from the information attained in table 4, we can see that only 14.29% of the population disagreed with being able to work comfortably from home, while it's good to know that most employees don't necessarily feel uncomfortable with WFH, the question failed to be more specific on regards of musculoskeletal issues which could have led to a more complete conclusion, nonetheless, employees who felt more comfortable working from home, also had better results in the job satisfaction results.

Having emphasised that the Liker Scale statement might lack clarity, Figure 9 shows the study realized by Radulović et al (2021) in which it's shown how much more employees feel some degree of pain in their WFH experience as compared to the office:

Figure 9

**Change of upper back pain severity in WFH employees**
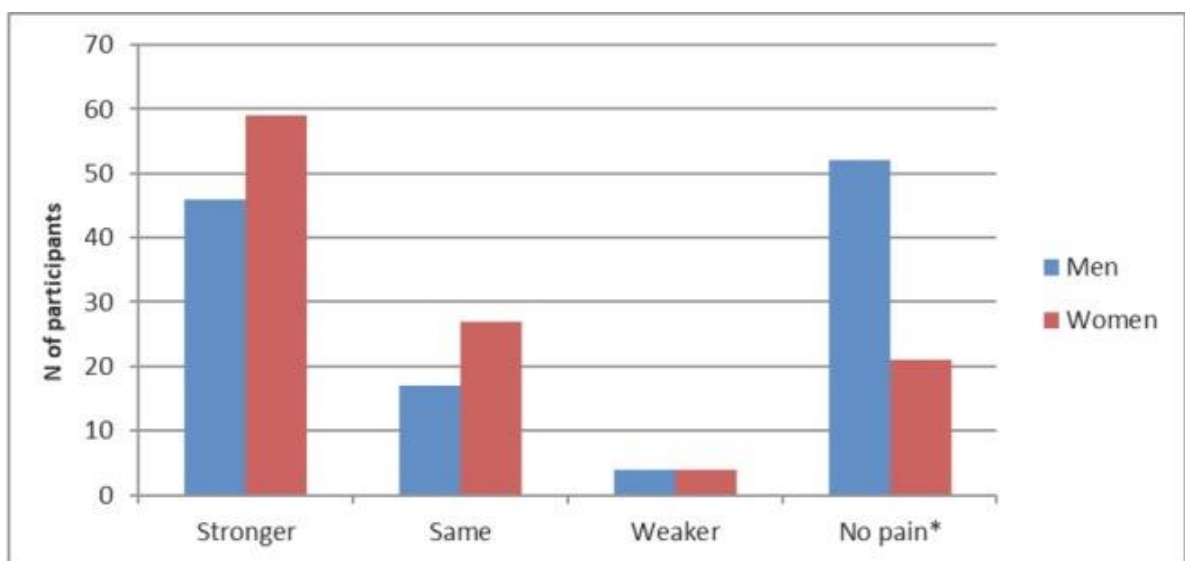
Source: Radulović et al (2021), P 235

It is worth noticing how hand pain saw a smaller change (see figure 9), as employees are provided with the necessary equipment (mouses or laptops) and thus the pain can only be increased inherently by the conditions of the house (such as a smaller or shorter table).

Figure 10

Change in hand pain severity of WFH employees
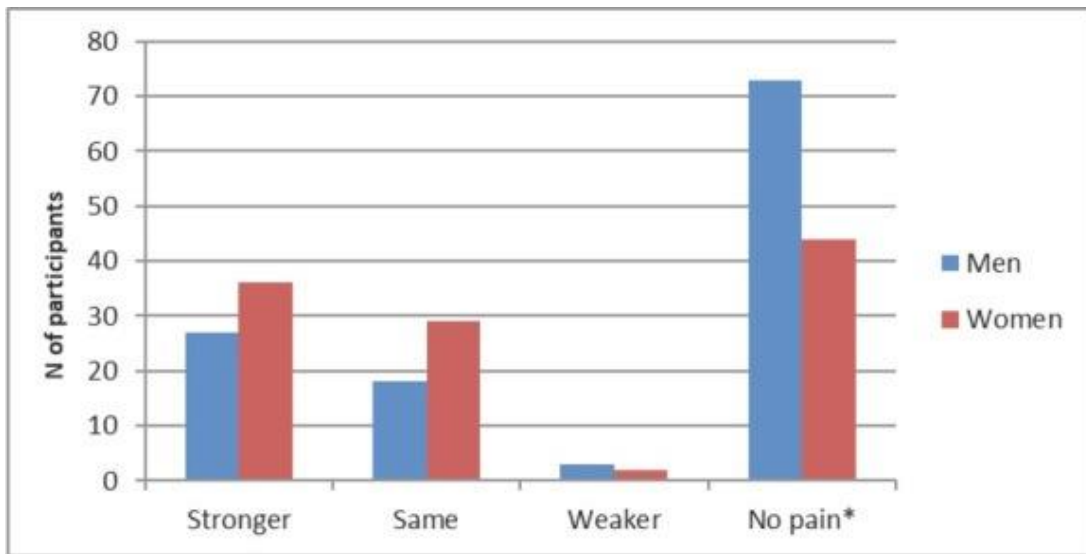

Source: Radulović et al (2021), P 235

According to the institute of chronic pain (www.instituteforchronicpain.org) pain can be one of the primary reasons for stress, and, as it's shown in Tejero L et al (2021)'s research, stress has an impactful effect in both WLB and productivity (see figure 11)

With such a recent change it's possible that employees have not yet suffered from any of these negative factors or, it might as well be very possible that the comfort from working from home, outweighs pains that hybrid workers might be dealing with.

It can't be determined how strong does pain affect the results as it wasn't measured, but its effects are still tangible, in the way of a decreased WLB.

Figure 11

Hypothesised relationship between variables
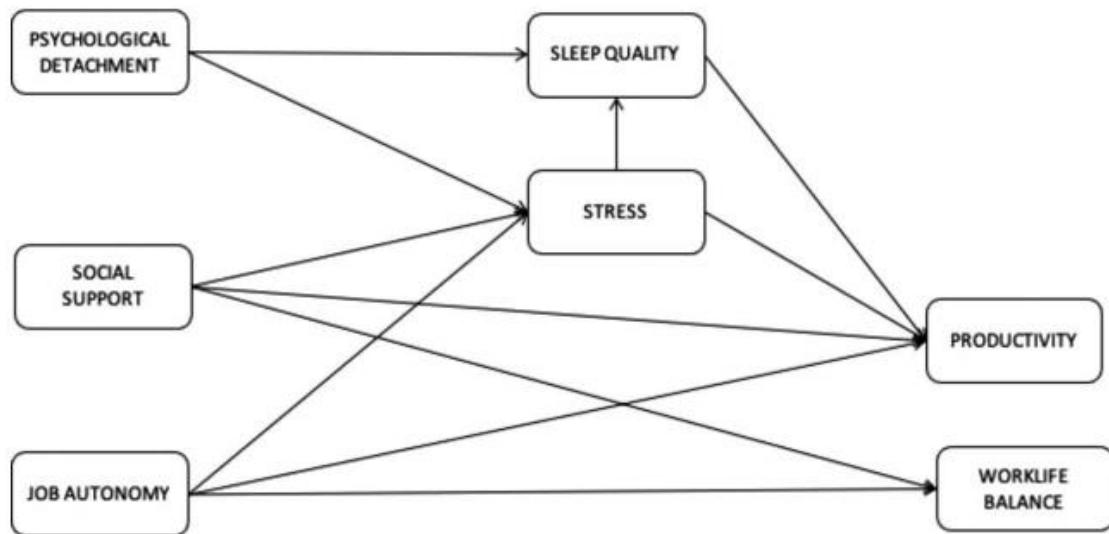
Source: Tejero L et al (2021) JOEM vol 63, No 12, P, 1067

3.5.3 Chores

House chores are one of the most interesting factors since personal autonomy has to do with the timing in which the chores are made, moreover the question asked to the questionees Is "When I work from home, I need to divide my attention (cleaning, cooking, kids...)", while employees are expected to do this in their own time, certain activities are hard to postpone, such as taking care of children, or perhaps cleaning an unexpected mess, in theory, if employees are more productive and their workload has been unchanged, the employees will be able to assign time to do chores without necessarily interfering with productivity. in this case a significance level of -0.3944 seems to indicate otherwise, 71.43% of the employees agreed on having to divide their time between tasks and chores, what this seems to suggest is that rather than having to divide their time as an emergency measure, most of the employees tend to occupy themselves with different activities and this, in turn, has decreased their perceived productivity.

This result could match Bellmann L & Hübler O's (2021) claims that taking time for personal reasons (whichever it is) leads to a worsened WLB, this claim also helps the research as the Likert Scale question did not ask for a particular distraction type.

A noteworthy note is that while employees are getting distracted more often, the added time from being able to manage their schedule helps meeting their deadlines more easily.

3.6 Comments from the surveyed group

The comments made by the employees provide a bit of insight into the possible characteristics of the workers, and are corroborated by the variables on an individual level, from it we can get an understanding that A. Some employees can finish their tasks in a short time, WFH provides them with the advantage of keeping that time for themselves, B. Distractions in the office are less, therefore attention to the actual tasks is bigger. C. Employees who are more productive/have a smaller workload would spend more time on breaks and "waste" more of their time while being at the office.

3.7 Summary of discussion

Amongst all the findings made, a few prove useful towards the hypotheses:

H1: More time between deadlines leads to a better performance

A heavier workload is inversely correlated with perceived productivity, and employees (if they haven't had their workloads increased) have inherent access to "longer" deadlines, since they can manage their daily workload more easily with a hybrid work schedule. H1 is true.

H2: Productivity is decreased on non-office days

Productivity per se has in fact, increased thanks to hybrid work, therefore H2 is false, however, when hybrid workers go to the office their productivity is, in fact, higher, thus when comparing home-vs-office, productivity is decreased, H2 is true

H3: Productivity within the office for WFH employees is higher than before switching to WFH

Overall perceived productivity has increased due to a spike in JS, independently of the correlation between office-vs-home productivity, H3 is true

H4: When possible, employees prefer to commute as less as possible.

Scheduling data shows that when given the choice, employees will tend to WFH as much as possible, H4 is true

Given that office days are more productive, but overall JS increased thanks to hybrid work, practitioners are advised to find an optimal set-up for employees, limiting the number of days in which the employees can work from home seems crucial in preventing isolation, abuse of distractors and a generally poor WLB.

4. CONCLUSIONS

4.1 Investigation results and recommendations

Hybrid work and WFH have caused significant changes to WLB, JS and productivity, this research sought to answer *How have post covid-19s hybrid work arrangements affected office productivity periods?* whether there would be an increase in perceived productivity while working at either the office or home in post-COVID-19's hybrid work,

It can be safely stated that the result is overall positive and as previous WFH-only research indicates, it's mainly influenced by employee autonomy but, hybrid work does manage to take the upper hand in a series of negative WFH connotations due to the fact that JS has skyrocketed upon the implementation of WFH, these negative connotations are primarily isolation, difficulties communicating (that are still present, albeit in minor degrees), it is worth noting that 40.82% saw varying degrees of negative effects towards their WFH productivity, this however, remains optional for most of the surveyed group, meaning that deadlines can still be met/ employees can still visit their office if they're lagging behind while WFH.

WFH productivity remains a divisive topic among younger employees, the research suggests that as employees acquire more seniority their perceived productivity increases in a hybrid work environment, it is strongly advised to warn employees against the use of distractors and the proper planning of the work-day schedule to prevent having to deal with housework tasks, as this should prevent WLB imbalances and improve productivity.

Schedule management and deadline management have seen massive improvements, this allows most employees to be able to meet their deadlines, although the surveyed employees lessened / increased their workload at an almost even rate, most seemed to agree that management had become easier, for the purpose of meeting deadlines,

keeping a hybrid work arrangement seems to be very effective, the maintenance of equal workloads at home and at the office is strongly advised.

Finally, to determine if the research question: *How have post covid-19s hybrid work arrangements affected office productivity periods?* was answered successfully or not: employees are relatively less productive at home due to the access to distractors, home responsibilities, lack of ergonomics, however, due to the nature of remote work deadlines have been "extended" in the sense that employees are now able to dispose of their day as they wish and, as long as deadlines are met, they won't face any issues at work, this means that working periods have been extended/postponed, in conclusion: office periods are still more efficient than WFH periods, but due to improved time management, this change is barely perceived and, most importantly, overall perceived productivity saw an increase due to a better time management and possibly a better WLB.

This research also shows that when given the opportunity, employees will attempt to WFH as often as possible, even if their WFH environment causes a decrease in productivity, it is strongly advised that if flexibility is given for the employees to choose when to work, days to visit the office should be agreed upon to offset isolation and lack of communication, moreover, certain degree of restrictions is given, rather than a verbal agreement i.e. 2 mandatory days at the office (which was the most popular arrangement in the survey, with relatively positive results).

Furthermore a "fixed" schedule arrangement in which JS increases but employees have to commute more often could also be advised, as it seems to be a matter of finding the "right" configuration for this sort of arrangements.

4.2 Investigation limitations and fields of extension

One of this research's biggest weakness is the fact that the overall surveyed group was a relatively small sample of 49 workers, when compared to the hybrid worker population in Hungary, this is a measly 0.00021% of the total population, however, trends from previous literature can clearly be seen upon the study of the results of the survey,

nevertheless a larger group, would be advised to strengthen the value of research on office/WFH configurations.

Surprisingly, most of the population ended up being in the 18-25 year old group (61,25%), this may be due to the distribution method used, as managers distributed the questionnaire to the groups managed, but did not spread it to their bosses, whose seniority and age are probably bigger, another concern arose with the question of seniority level, while time with the company can be an useful measure in knowing if they worked with the company during the COVID-19 period, it ultimately doesn't say much about the worker's experience, because while they might be more experienced it is possible that they joined the company recently, ultimately it only had a relevance of 9,36%, which while not negligible, it's not major either.

Ultimately, the seniority (see figure 10) was not too problematic for the research itself since most of the population is unlikely to have accrued much work experience as they're relatively young, but the 26–35-year-old population was 30.61% of the population, which is not negligible, the company implemented hybrid work in the midst of the COVID-19 pandemic, so perhaps asking employees if they had previously worked remotely, or in offices and, for how long, would have been an useful way of measuring seniority at WFH and overall seniority.

Seniority, or rather, work experience, according to Baker E et al (2007) is one of relevant factors in WFH productivity and, training is strongly advised for new WFH employees (which would match with the age/seniority group in this research), according to Galanti T et al (2021).

Another inconvenience is the fact that whether employees work X days a week does not necessarily confirm if they're part time or full-time employees, resulting in 100% of the employees claiming that they worked 5 days a week, unfortunately this question did not provide any additional useful information, but it helped with assuring the heterogeneity of the scheduled preferences.

Another possible cause of concern (albeit much smaller) can be the way in which the Likert scale was marked, as the stages of agreement go from "somewhat agree" into "strongly agree" as opposed to the more common approach on 5-point scales of "agree" into "strongly agree".

Figure 10

Distribution by seniority
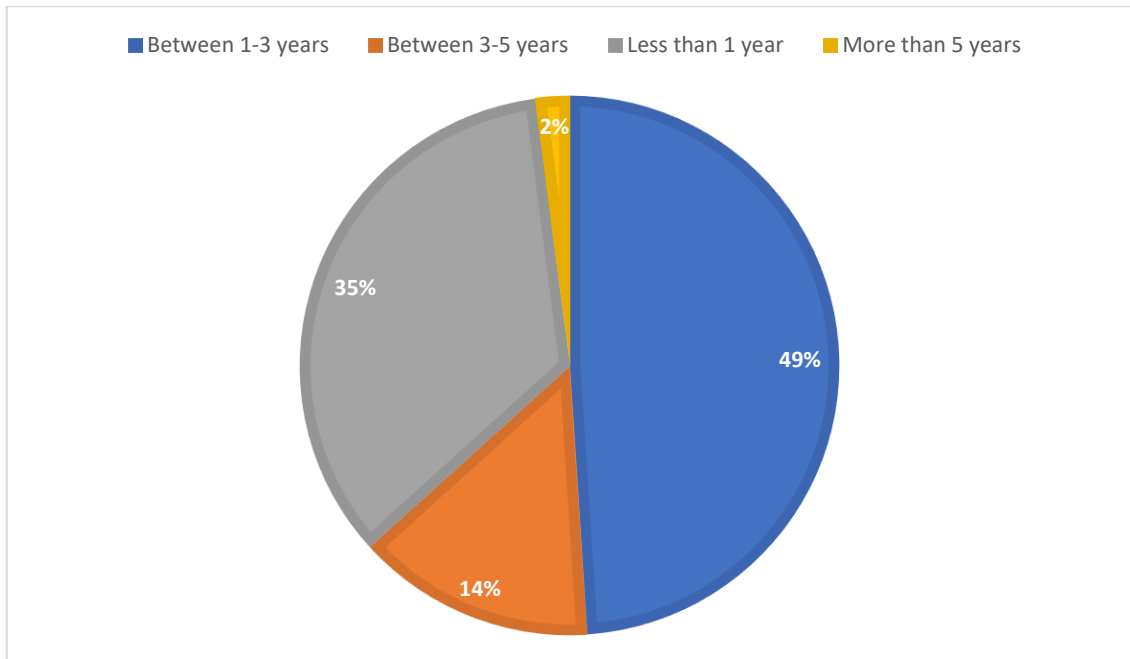
Source: own construction

It's worth noticing that the employees might have been biased, as it was promoted by managers within departments, employees might have tried to prevent the possible removal of WFH as employees have gone as far as quitting their jobs than commuting to the office (forbes.com).

Future research is advised on the area of time insertion of WFH for the employees: while the results are generally positive and the effect in productivity is not as negative (due to deadline management), there seems to be a "novelty" effect on the introduction of WFH, new research on a more homogeneous population of hybrid work employees, with particular attention to the time in which WFH is introduced, their seniority level and gender differences is strongly advised.

Additionally further research is recommended on an "Optimal" setup for employees, as office days are indeed more productive, but productivity has had an overall increase thanks to JS.

5.SUMMARY

This dissertation is set with the purpose of analysing post-COVID-19's hybrid work; due to the COVID-19 pandemic, many companies were forced to switch to remote work, and ultimately, hybrid work.

Information on the literature and what the expected/possible conclusions might be are mentioned on part 3, which tries to analyse where the connections between hybrid work and WFH might be, since, as previously mentioned, most of the studies in the literature were done before the massive post-COVID-19 implementation of hybrid work (ksh.hu), therefore, chapter 3 has vital information as to the expected changes and additional hypotheses which compliment the points that are mentioned in this summary.

Within these lists, factors are qualified with matching criteria for the analysis as follows: scheduling preferences, personal autonomy, psychosocial factors, and household factors.

Most of the surveyed demographic was no more than 25 years old, followed up by 26-35, meaning that this study focuses primarily on a younger demographic, additionally the population was evenly distributed by gender, although males reported a higher perceived productivity, most of the population had college education and 83.67% of them had been working between 0 and 3 years in the same company, out of the whole group, 65.31% had enough seniority to have witnessed the company switch into hybrid work as opposed to full-time office.

With consideration that the results are based primarily on a young population, key findings come from the discussion:

- Job satisfaction increased drastically, therefore; production saw an increase.
- Perceived productivity saw slight positive improvements.
- The older, the more productive.
- Distractors are being used more frequently.
- Most of the population is satisfied with their ergonomics.
- Communication has worsened.
- Hybrid workers have an enhanced ability to meet their deadlines.
- When possible, employees will tend to choose WFH instead of commuting.

Due to the employees' tendency to choose to WFH if given the flexibility to do so, a more restrictive schedule can be beneficial on regards of what days to visit the office, this should also improve communication.

Promotion of a healthy WLB is crucial, through company trainings as distractor use has increased since employees are able to procrastinate their deadlines while still meeting them, this leads to a blurring of working and resting times while being at home.

Further research on Hybrid Work implementation time is needed, specifying whether the JS increase is just temporary due to the novelty or if, a flexible schedule can outweigh the negative WFH factors.

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7. APPENDIX

Draft questionnaire: Study on Hybrid work and productivity.

Thank you for taking your time to answer this anonymous pilot questionnaire! the purpose of this questionnaire is to address the perceived productivity while using a hybrid style of work. Your information will be handled confidentially.

For any feedback, comments or questions regarding this research please reach: luis.prada.marin.66@unibge.hu

1. How old are you?
   a. 18-25
   b. 26-35
   c. 45-55
   d. 60+

2. What's your gender?

    a. Male

    b. Female

    c. Other

3. Do you currently work hybrid e.g., work 2 days at the office and 3 days at home

    ☐ Yes   ☐ No

4. What is your level of education?

    a. None

    b. Primary (High School Diploma)

    c. Secondary (Bachelors Diploma, Vocational education)

    d. Tertiary (Masters, PhD)

5. With how many people do you share your household?

    a. I live by myself

    b. 1-2

    c. 3-4

    d. 6+

6. How long does it take you to get to the office?

    a. 15 minutes or less

    b. 30-45 minutes

    c. 1 hour or more

7. How many hours a week do you work?

    a. Less than 30

    b. 30-36

    c. 37-40

8. 6. How many days a week do you work?

    a. Flexible (depending on how fast you finish your tasks)

    b. ☐ 1

    c. ☐ 2

    d. ☐ 3.

    e. ☐4.

    f. ☐ 5.

    g. ☐ 6.

    h. ☐ 7.

9. Usually, how many days a week do you work from home? ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6.

10. Is your schedule set or do you get to choose your workdays?

   a. I must go on specific days

   b. I get to choose which days I go to the office

11. What is your work from home preference?

   a. If I could, I would work from home most of the time (61-100% of the time working from home)

   b. would like to work from home and at the office evenly (41-60% of the time working from home)

   c. prefer to work from the office (0-40% of the time working from home)

For the following questions please answer how strongly you feel about the statements:

12. . I feel inclined to believe that my productivity is higher at:

   Office-Fully Agree ☐Partially agree ☐ Neutral ☐Partially agree ☐ Fully agree-Home

13. I can balance my own workload as I wish

   Strongly disagree ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6. Strongly agree

14. I use distractors (e.g., phone, staring windows, music…) more often while I work from home

   Strongly disagree ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6. Strongly agree

15. When I work from home, I need to divide my attention between my job tasks and my home activities (e.g., cleaning, kids, cooking…)

   Strongly disagree ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6. Strongly agree

16. Being monitored by a supervisor at the office helps me perform better

   Strongly disagree ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6. Strongly agree

17. I socialize often with my colleagues (small talk, chit-chat)

   Strongly disagree ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6. Strongly agree

18. Ever since work from home started, I feel more satisfied with my job

Strongly disagree ☐1. ☐ 2. ☐ 3. same as before ☐.4☐. 5 ☐6. Strongly agree

19. Overall, I feel like work from home has affected my productivity

    Negatively ☐1. ☐ 2. ☐ 3. ☐.4☐. 5 ☐6. Strongly agree Positively

20. (optional) please comment how working from home has changed your perceived productivity and/or any additional remarks

Pilot Questionnaire evaluation

The aim of this pilot study is to ascertain the suitability of the questionnaire for employees of all levels and from all areas of the Budapest Business School and eliminate any items or issues that pose difficulties in completing for respondents. The following questions will be discussed once you have completed the questionnaire.

1. Were the instructions clear and easy to follow?   ☐ Yes   ☐ No

2. Were any of the questions unclear and ambiguous?   ☐ Yes   ☐ No

    If yes, please give details (number of question and unclear words / expressions):

    _____

–

    _____

–

    _____

–

3. Were you able to answer all the questions?   ☐ Yes   ☐ No

If no, please specify which ones and give reasons why not:

_____

–

_____

–

_____

–

4. Did you object to answer any of the questions?　　　☐ Yes　　☐ No

       If yes, please specify which ones and give reasons why:

_____

_____

–

_____

–

5. Did you find any of the questions embarrassing, irrelevant or irritating? ☐ Yes ☐ No

       If yes, please specify which ones:

_____

6. In your point of view are there any important or concerned issues omitted? ☐ Yes
      ☐ No

If yes, please give details:

_____

_____

_

7. Was the layout of the questionnaire clear? ☐ Yes   ☐ No

8. How long did it take you to complete the questionnaire?

    5-9 minutes☐   10-19 minutes ☐   20-29 minutes☐   30-39 minutes☐

    40 minutes+. Please specify:_____

Thank you for your time, please add any further comments that may make the questionnaire more effective:

_____

_____