

JOB SATISFACTION AND TELEWORKING: A STUDY ON PUBLIC ADMINISTRATION WORKERS IN ITALY

Stefania Capecchi¹

Department of Political Sciences, University of Naples Federico II, Naples, Italy

Giustina Orientale Caputo²

Department of Social Sciences, University of Naples Federico II, Naples, Italy

Abstract. *This paper presents the results of one of the first surveys carried out in Italy on the living and working conditions of public administration employees who were engaged in compulsory telework during the first stages of the COVID-19 pandemic (March–May 2020). Although this study examines a small sample of public workers in Campania region, interesting results emerge in a modelling implementation. In fact, by means of a heteroskedastic Ordered Probit model, some findings are presented with job satisfaction being the response variable. Considering the workers' need to adjust to a completely novel situation, our results reveal a significant role played by a potential lack of concentration and by the satisfaction of using their own home as a workplace as well as by the differences experienced in work efforts. The presence of children in the household turns out to be slightly significant, whereas childcare duties do seem to exert some impacts on job satisfaction, implying relevant effects on work-life balance. Workers' concern regarding a possible lack of recognition of their job by supervisors or managers is also highlighted.*

Keywords: *Job Satisfaction, Teleworking, Covid-19, Ordered Probit Model*

¹ Corresponding author: Stefania Capecchi, ORCID: 0000-0003-2842-8132, e-mail: stefania.capecchi@unina.it

² Giustina Orientale Caputo, e-mail: giustina.orientale@unina.it

1. INTRODUCTION

In 2020, the global COVID-19 pandemic crucially altered global economies and people's ordinary social and working lives. To contain the spread of the virus, governments imposed various social-distancing measures and, as a result, private and public companies began experimenting with strategies to reduce the number of people in contact with each other, thus making it possible for employees to work at their homes. Consequently, all over the world an unprecedented number of workers were asked to or allowed to work from home, after decades of often ineffective attempts to develop the use of telework (Ogbonna and Harris, 2006, Welz and Wolf, 2010; Eurofound, 2010 and 2012; Pyöriä, 2011).

In Italy, teleworking in public administration ("*lavoro agile*" in Italian or "smart working" in everyday language) was introduced by Law No. 124/2015 and is presently regulated by Law No. 81 of 2017. Until the outbreak of the COVID-19 pandemic, such modality of work was not common. In fact, with the arrival of the restrictive measures due to the pandemic, in combination with the low uptake of teleworking in the past decades, Italy displayed one of the largest increases in the figures of employees working from home among European Union (EU) member states: an upsurge of 39.9% as compared to an average EU27 growth close to 36.5% (Eurofound, 2021; EU-OSHA, 2021b). According to data from the National Observatory on Smart Working, an agency of the Ministry of Public Administration (Osservatorio Nazionale del Lavoro Agile, 2020), at the beginning of February 2020 only 2.5% of public employees were classified as teleworkers. Within just a few weeks, this figure had risen to almost 65%. In such a short period, about 86% of public administration offices activated forms of "smart working" for at least part of their staff, and this percentage rose to 99% when considering administration offices with more than 50 employees.

With specific reference to such circumstances, this paper presents the results of one of the first studies of the living and working conditions of public administration personnel in Italy who began teleworking during the first lockdown period, from March to May 2020. The survey was conducted with our scientific support on behalf of the *Confederazione Generale Italiana del Lavoro, Funzione Pubblica* (CGIL for Public Sector), a largely representative Italian trade union. More specifically, the employed data stem from an observational study aimed at analysing the conditions of public administration workers in the Campania region and in the province of Naples during the lockdown periods, to

investigate the unexpected large-scale application of emergency “smart working” arrangements. The survey was designed to determine, on the one hand, the employees’ satisfaction with work conducted under these unprecedented conditions and, on the other hand, the material and environmental conditions under which the telework was carried out. Finally, a further focus of the investigation was the complex balance, sometimes resulting in disruption, between private and working life as compared to the pre-existing circumstances. The fieldwork of the survey was conducted by CGIL for Public Sector, Naples and Campania section, which administered the questionnaire directly through its social media channels.

By means of a heteroskedastic Ordered Probit model, some results are presented with job satisfaction being the response variable. The paper is organised as follows. After a brief review of the recent literature on teleworking conditions in Section 2, data of interest and results of the estimated model are presented in Section 3, while Section 4 discusses the main findings and presents some concluding remarks.

2. LITERATURE REVIEW AND MOTIVATION

During the COVID-19 pandemic, teleworking has been regarded as the most effective and cost-efficient approach to preserve and restore the functioning of the entire economy (among others: ILO, 2021 and 2022). Apart from “native teleworkers”, those employed generally as telemarketers and customer care staff, home-based work assisted by information and communication technology (ICT) was regarded with some degree of scepticism by both employers and workers themselves. On the employers’ side, teleworking was often considered as likely to lead to low productivity because of the lack of direct control (Harker Martin and MacDonnell, 2012; Hilbrecht et al., 2013; Putnam et al., 2014; Messenger, 2019). On the workers’ side, two different attitudes can be distinguished. First, employees’ concerns about career dynamics were heightened by the physical distance from the company premises, due to the perceived difficulty of recognition by managers or supervisors of their work performance. Second, blurred feelings of interest and aversion have arisen towards a condition often perceived as a “privilege” experienced especially by public sector employees in the perspective of reducing their difficulties in balancing work and non-work

duties, and mostly in the case of working women (Chung and Van der Horst, 2018; Kaduk et al., 2019).

However, despite media interest and both corporate and academic debates on the potentials of teleworking, only a comparatively low number of establishments and organisations had adopted some home-based teleworking practices in the past decades. Until March 2020, primarily because of the inadequacy of legal and welfare frameworks, working from home essentially remained a seductive proposition in highly developed countries (Baruch, 2001). Even though the advances in ICT have undoubtedly triggered improvements at both business and societal levels, home-based teleworking benefits have long been regarded as a preferential treatment (Parry et al., 2021).

Additionally, for some scholars, teleworkers seem to be exposed to greater levels of stress than their office worker counterparts, even presenting additional physical health symptoms. Mann and Holdsworth (2003) underline some practical benefits of teleworking, such as increased flexibility, less commuting time, and a better work-life balance in general, while clearly highlighting the potentially unfavourable consequences of telework on workers' mental health, such as perceived loneliness, social isolation, blurring of boundaries, and presenteeism (i.e. the lost efficiency which occurs when employees are not fully functioning in the workplace because of an illness, injury, or other condition) (see also: Steidelmüller et al., 2020).

Wide-ranging practices of flexible working settings have appeared only with the outbreak of COVID-19, and their effects are compared using “before” and “after” benchmarks (Parry et al., 2021; Dunatchik et al., 2021). Furthermore, a new digital divide based on teleworkability is now discussed in literature as a possible driver of increased disparities (among others, Fana et al. 2020; Sostero et al., 2020). Teleworkability indicates the degree to which an activity can be performed remotely thanks to ICT devices, thus implying that job tasks requiring physical handling or duties must necessarily be performed on-site, at the employers' premises (ILO, 2021). Such a concept is essential for properly exploring the impacts of the 2020–2021 actions to develop telework practices in the coming years.

As teleworking remained a marginal issue in the past, mostly confined to private companies and adopted in a few countries, its implementations were rarely the subject of detailed statistical surveys in Western developed countries. With reference to EU countries, the scant statistical evidence on teleworking

across member states has been obtained by extrapolating relevant information from surveys focusing on other related topics, such as the European Working Conditions Survey, the European Survey of Enterprises on New and Emerging Risks, and the European Labour Force Survey itself (EU-OSHA, 2021a and 2021b). Although not up to date, these official statistics are currently the only ones that can be consulted to obtain representative information.

During the first months of the 2020 pandemic, Eurofound conducted a non-statistically representative survey across European countries. Moreover, in 2021 a special wave of the European Working Conditions Survey was implemented to provide comparable and representative data on working conditions during the pandemic across EU 27 member states and other European countries, but those micro-data are not available yet. For the specific Italian context, the situation is similar, since most of the studies conducted in the past two years are qualitative or do not meet the requirements of reliable sample surveys (Eurofound, 2021). The same can be said for the public sector across Europe and in Italy as well. Consequently, we have chosen to employ information stemming from an observational study developed in collaboration with CGIL Campania, which is long established³ in the public sector, to examine the response patterns of a small sample of workers towards job satisfaction during the first lockdown period in the Campania region.

3. DATA AND METHODS

The research targeted the five provinces of Campania, with the aim of assessing organisational aspects and impacts on both working life and perceived job quality during the pandemic, as perceived by public employees.

³ According to the data provided by ARAN (Agency for the Negotiation Representation of Public Administrations), in the three-year period 2019-2021, when distinguishing public employment by sector, for the local functions the percentage distribution of union membership saw CGIL covering 34.3% of unionised workers, CISL 27.4% and UIL 18%. Hence, the CGIL is considered the most representative trade union in the labour sector investigated (see: <https://www.aranagenzia.it/rappresentativita-sindacale-loader/rappresentativita/triennio-2019-2021-provisorio.html>).

To set the scene, it should be mentioned that, according to the Ministry of Economy and Finance (2020), in 2019 the total number of public employees⁴ in Italy was 3,186,014. In the Campania region, 279,077 people were employed in the public sector, thus representing about 8% of the national aggregate. Actually, in the city of Naples, belonging to a large metropolitan area (province), the absolute value is 45,947. Our respondents come mainly from local functions based in the area of Naples. In particular, most of the interviewees (78.5%) live in the province of Naples, with 7.2% in the province of Salerno, 6.1% in both Avellino and Caserta, and only 2.15% in the province of Benevento.

This disproportion is related to the fact that the responses were collected by a trade union, which traditionally has a stronger presence in more sizeable public offices, therefore helping to explain the larger ratio of respondents from Naples. The fieldwork, in fact, was carried out directly by CGIL Campania, which disseminated 320 questionnaires through its online social media channels between October 2020 and January 2021.

The administered questionnaire focuses on the analysis of workers' conditions following the emergency imposition of remote work practices, with particular reference to: i) assessed job satisfaction with respect to the tasks completed under novel and unexpected circumstances; ii) physical and environmental conditions in which their work was carried out; and iii) suitability or disruption of the work-life balance in comparison to the previous period.

In addition to the usual demographic variables (gender, marital status, education, composition of the household, type of work), information⁵ was collected on the type of public institution to which respondents belonged, as well as on their work organisation, such as workspace at home, working time and procedures. Perceptions and assessments regarding job satisfaction, work-life balance, and relationships with colleagues and supervisors were also considered. Overall, 279 individuals answered the survey, resulting in a response rate of

⁴ The contingent of public employees (excluding those with flexible, temporary, or other non-standard contracts) in Italy is 3,186,014. Of these, 7.1% of the employed people belong to the Central Functions sector, while 38.3% of the employees belong to the Education and Research sector. Three sectors register a number of employees close to each other: about 20% are employed in the public Health sector, while those with public law contracts are about 17.8%; the amount of employees in the local government sector is 15.5% of the total. A marginal quota, out of these sectors, accounts for 1.5% of the total.

⁵ Data are available from Authors on request.

approximately 87%, thus confirming the effective interest of respondents towards the topics of the questionnaire.

The sample, of course, is small; nevertheless, the positive response rate is quite consistent with such types of investigations. The main descriptive statistics to understand the composition of the sample of respondents are presented below.

Our sample of interest is equally distributed by gender; 72.8% of the respondents are married or declare to have a partner, while 10% are single. As far as age is concerned, 50.2% of the sample is in the 35–54 age group, while 43% of the sample is between 55 and 67 years old, and only 7% are younger than 34 years. Because of this age composition, the presence of young children of primary school age is extremely limited, which means that parental care duties may not influence the satisfaction of working from home in our sample. However, 72% of the respondents state that they do have children, and 36.2% of the entire sample report that their partner has a job. When considering only the married respondents, almost 41% affirm that their partner is employed.

Regarding the composition of the household, 8.5% of the sample declare that they live alone (regardless of their marital status), 54.7% of the sample say they live in a household of two or three people, and 36.8% report living in households of more than three people. With respect to the size of the respondents' employer, as indicated in Table 1, more than 56.6% of the workers belong to an administration office with more than 1,000 employees.

Tab.1: Respondents by Administration Size

Administration Size	Freq.	Percent	Cum.
< 15	10	3.58	3.58
15–50	13	4.66	8.24
51–100	32	11.47	19.71
101–250	38	13.62	33.33
251–500	18	6.45	39.78
501–1,000	10	3.58	43.37
> 1,000	158	56.63	100.00
Total	279	100.00	

The distribution by reported net income is presented in Table 2 and includes four income classes. Most of the sample report an annual income from employment ranging from 20,000 to 30,000 euros per year. Participants were also

asked to respond to questions about various aspects of family and work life, using a Likert-type scale to assess their degree of agreement or disagreement with the statements. The results are depicted in Figure 1.

Tab.2: Respondents by Income Classes

Income classes (Euros)	Freq.	Percent	Cum.
< 20,000	56	20.07	20.07
20,001–30,000	154	55.20	75.27
30,001–40,000	55	19.71	94.98
> 40,000	14	5.02	100.00
Total	279	100.00	

Our variable of interest is the satisfaction with telework. The original variable is expressed on an 11-point scale from 0 to 10 (with 0=totally disagree and 10=totally agree) and presents a substantial dispersion, with a considerable number of responses assigned to the “balance” modality of the scale (rating=5), and quite high ratings assigned to both the low modalities and the high ones, as seen in Figure 1.

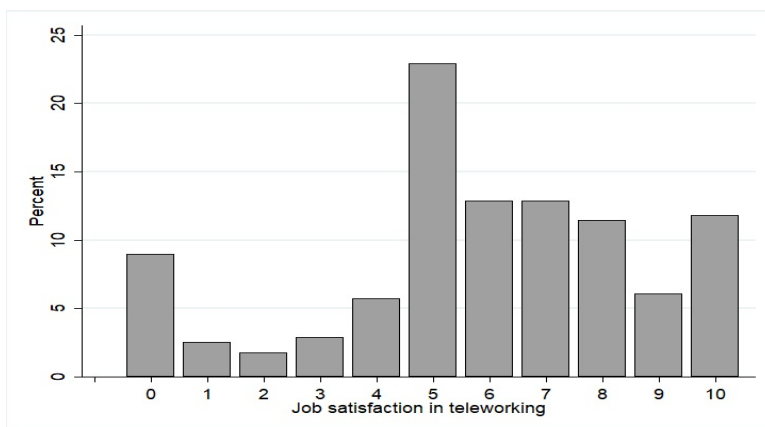


Fig.1: Job Satisfaction in Teleworking, Original Likert Scale (percentage)

We have also explored the interviewees' satisfaction with their own "home as a place of work". Furthermore, the perceived "lack of recognition" from supervisors or managers regarding work performed in teleworking mode is investigated, as well as the employees' perception of a "never-ending" working day. All the considered variables are expressed on the same 11-point scale.

As indicated in Table 3, nearly 6% of the sample declare to be totally dissatisfied (rating=0) with their home as a place of work, while more than 43% reported a high or very high level of satisfaction (ratings between 7 and 9).

Tab3: Respondents' Self-Assessments (percentages)

Level of proposed scale	Satisfaction towards home as a place of work	Lack of recognition of work done in teleworking	Never-ending working days
0	6.1	16.1	17.6
1	2.2	4.7	3.9
2	2.2	4.3	3.9
3	2.2	4.3	3.6
4	3.9	6.8	2.9
5	8.2	14.7	10.4
6	11.8	10.4	9.3
7	15.4	7.5	7.2
8	19.0	9.0	14.7
9	8.6	5.0	7.5
10	20.4	17.2	19.0
Total	100.0	100.0	100.0

Additionally, 20.43% affirm that they are more than satisfied (rating=10). Conversely, it is remarkable that the concern that one's work may not be fully acknowledged due to teleworking is diversely distributed. In fact, while more than 16% of respondents do not rate this as a prominent concern, approximately 22% assign a medium-high rating (between 7 and 9) and as many as 17% claim they fear a significant lack of appreciation of their work (rating=10). With respect to the long working days which "do not seem to finish", responses indicate that

17% totally disagree, 19% totally agree, and 10% express an “intermediate” answer, leaving the remaining categories equally distributed.

Similar response patterns are registered for other self-reported assessments, such as the level of concentration experienced during teleworking. In fact, approximately 58% of respondents assert that their work effort has increased overall while teleworking, whereas 38.8% do not report any change. With respect to housework and other unpaid duties, 61% of respondents state they share child-rearing tasks with their partners, 23% report caring for their offspring alone, and only 10% said they received some help with parental duties from people outside the family. Finally, approximately 61% of interviewees report incurring some additional expenses for useful ICT devices to enable them to telework from home.

3.1 ESTIMATED MODEL RESULTS

Various modelling approaches can be applied in the case of ordinal responses. Agresti (2010), Tutz (2012), and Piccolo and Simone (2019) are the main references in this field. Taking into account the small sample size and the nature of variables, in our opinion, a simple Ordered Probit model is the most suitable methodology. However, due to the dispersion of responses to the job satisfaction question on the original 11-point scale, the response variable was conveniently recoded on a three-level scale (see Table 4), and the probability of being “dissatisfied”, “indifferent”, or “satisfied” (*job satisfaction*) is studied using an Ordered Probit model.

Table 4: Recoded Dependent Variable

Telework satisfaction (original modalities)	Freq.	Percent
0 dissatisfied (0–4)	61	21.86
1 indifferent (5–7)	136	48.75
2 satisfied (8–10)	82	29.39
Total	279	100.00

Given the available information, the model takes into account a number of basic demographics: *gender* (dummy variable, 1=woman), a dummy variable for presence of children in the household (*children*), and *marital status*

(categorical variable, 1=single; 2=married; 3=other). Moreover, *age* classes, dimension of public administration office (*size*), *income*, and *expenses* for buying ICT devices to work at home are inserted. Some ordinal variables are considered: the differences perceived in efforts pursued at work (*work effort change*), expressed level of satisfaction with home as workplace (*home as wp*), lack of concentration (*concentration*), endless working days (*neverending*), perceived lack of recognition of work done (*lack of recog*), and activities devoted to care for children (*carechildren*).

In the Ordered Probit model, the probability of an outcome j is given by the probability that the estimated linear function, plus random error, lies within the range of the estimated cut-points for the outcome. Formally, the model is:

$$\Pr(Y_i = j) = P r(k_{j-1} < \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + u_i \leq k_j) \quad (1)$$

where $u_i \sim N(0, \sigma^2)$, coefficients $(\beta_1 \dots \beta_k)$, and cut-points $(k_1 \dots k_{j-1})$ are the parameters to be estimated; j is the number of possible outcomes; and $i = 1 \dots n$, k_0 is taken as $-\infty$, and k_j is taken as $+\infty$. When in binary or an ordinal regression model the homoskedastic error hypothesis is incorrectly assumed, the standard errors are wrong, and the parameter estimates are biased (Yatchew and Griliches, 1985). Therefore, the inferential conclusions based on the usual z-test statistics can be misleading. To address the potential heteroskedasticity within the data, Williams (2009 and 2011) proposed the heteroskedastic ordered models, in which the factors affecting the heteroskedasticity are explicitly specified.

In particular, in heteroskedastic ordered models, the log-variances are specified by:

$$\log(\sigma_i^2) = \sum_{j=1, h} z_{ij} \gamma_j \quad i = 1 \dots n \quad (2)$$

where z_{ij} is the value assumed by variable Z_j for the i -th observation. The vector $Z = (Z_1, Z_2, \dots, Z_h)$ may include dummy or continuous variables and define groups with different error variances.

The estimated coefficients for the model are presented in Table 5 as obtained by maximising the likelihood function with the ordinal generalised linear models (OGLM) package in STATA14 (Williams, 2011). Given the results, it is possible to assume that, since the survey refers to the beginning of a strict lockdown period, response patterns appear to be mainly affected by a potential lack of

concentration and by the availability of a comfortable home, suitable as a workplace.

Considering workers' necessity to adjust to a completely new situation, the impacts of such variables are somehow expected, since they are, of course, strongly interconnected.

Table 5: Heteroskedastic Ordinal Probit for Teleworking Job Satisfaction, Coefficient Estimates, Variance Equation Coefficients, and Cut Points Estimates

TW job satisfaction	Coef.	Std. Err.	Z	P > z	
Gender	0.009	0.136	0.060	0.948	
Children	0.354	0.211	1.680	0.093	*
Marital status	-0.174	0.143	-1.210	0.225	
Age	-0.098	0.074	-1.320	0.185	
Size	0.045	0.036	1.250	0.211	
Income	-0.189	0.111	-1.700	0.090	*
Home as wp	0.157	0.066	2.370	0.018	**
Work effort change	0.351	0.166	2.110	0.035	**
Concentration	0.368	0.141	2.610	0.009	***
Neverending	0.008	0.023	0.340	0.735	
Expenses	0.307	0.168	1.820	0.068	**
Log(sigma) equation					
Children	0.350	0.225	1.550	0.120	
Age class	-0.070	0.097	-0.730	0.468	
Lack of recognition	0.041	0.023	1.790	0.073	*
Carechildren	-0.165	0.083	-1.970	0.048	**
Cut point1	1.534	0.794	1.930	0.053	
Cut point2	3.142	1.241	2.530	0.011	
Pseudo R ² = 0.21			LR test $\chi^2(15)=119.83$		

***: significant at 1%; **: significant at 5%; *: significant at 10%

The presence of children is significant at 10%, since it should be considered that, as mentioned, children in the households are almost all in their late teens,

and, therefore, substantially autonomous. The variable *carechildren* is significant in the variance equation, thus indicating some impact of the overall amount of usual family caregiving duties.

No statistical significance is attached to age, gender, and marital status (80% of the sample were married), consistent with the respondents' status of public employees, therefore presumably sharing similar overall conditions. Income class, instead, is slightly significant.

To consider the different effects of determinants, the model was estimated with the variance taking into account factors such as age, caring for children as a parental duty, and a variable referred to the lack of acknowledgement of the work carried out (*lack of recognition*). The latter driver turns out to be significant only in the variance equation but not as a general explanatory variable in the model: In fact, it was deleted from the model main equation, so as not to overload it with non-significant explanatory variables.

The discussion of the results from the estimated model must take into account that in the Ordinal Probit model the magnitude and sign of the coefficients cannot be interpreted by themselves, so it could be worth examining specific response profiles.

In particular, we analyse the probability to be “very satisfied” and “not satisfied” as a function of the level of satisfaction with home as a workplace and the perceived variation in work effort, assigning to all the remaining variables in the model their median value, considering a female individual with children who has encountered some expenses to be able to work from home.

In general, as it may be observed in Figure 2, the probability of being more satisfied with telework clearly grows as the degree of satisfaction with home as a place of work increases and the work efforts varies. This circumstance is more evident in case of greater work effort, meaning that home conditions do play a prominent role. On the contrary, the probability of being less satisfied is undoubtedly higher for the same conditions, when respondents' satisfaction for home as a workplace declines (Figure 3), even in case of a lower work effort.

It should be noted that since gender is not statistically significant, the corresponding estimated probabilities for a male with the same characteristics are almost identical.

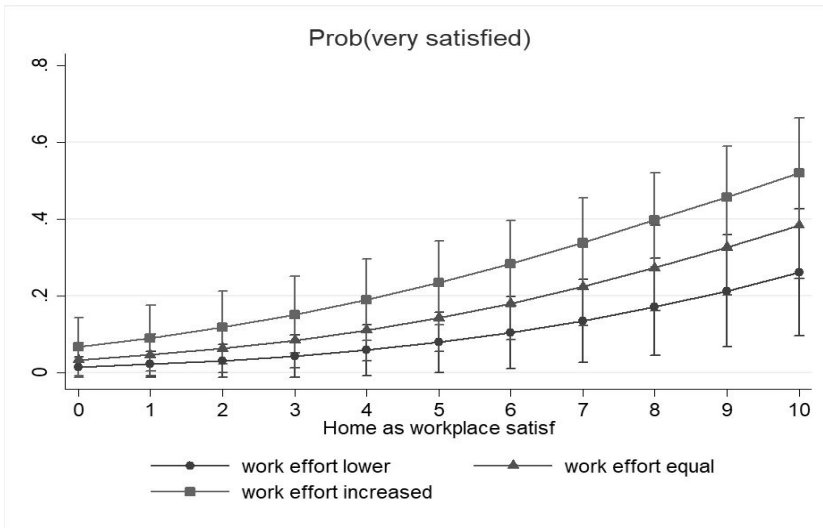


Fig.2: Marginal effects of being “very satisfied” with telework for a female respondent with children, by varying work effort

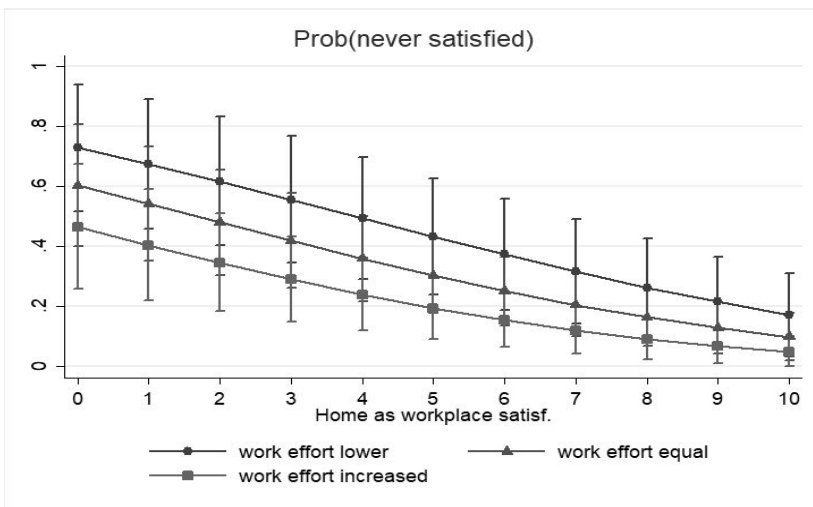


Fig.3: Marginal effects of being “not satisfied” with telework for a female respondent with children, by varying work effort

4. DISCUSSION AND CONCLUDING REMARKS

The probability of being satisfied with telework, as well as with using their own home as a place of work, is rather high for the surveyed public employees. This first observation might seem to contrast with some findings of several research studies on the level of satisfaction with this specific job arrangement. The widespread consensus found in this study was rarely seen in previous transformation processes of work organisation, therefore representing a resource not to be disregarded as a basis for future improvements (among others: Messenger, 2019).

The respondents clearly perceived the unusual circumstances they experienced in the first phase of the COVID-19 pandemic to be potential advantages, envisaging the benefits in terms of less commuting, greater productivity, and increased self-management of workload. This outcome could not have been predicted, especially in light of the upheavals to daily life caused by the pandemic as well as of the lack of an established culture of telework in Italy.

Beyond a general good reception of compulsory teleworking practices in the early stages of containment and social distancing measures, some essential aspects and limitations of the study should be underlined. First and foremost, our research refers to a small sample of interviewees with respect to conditions experienced in the period between March and May 2020, a time in which the workers were basically forced to telework. We may assume that the novelty of working from home exerted an initially strong positive effect because of the possibility of staying “safe”, not commuting to workplaces, and, at the same time, remaining connected to the world.

Additionally, respondents’ positive perceptions may have benefitted from other effects, such as the awareness of being observed and studied as a sub-group of interest. This could also be a manifestation of the well-known Hawthorne effect, which refers to the set of modifications in a phenomenon or a behaviour which occur as a result of the presence of observers, but which is not likely to last over time (for a statistical interpretation of the Hawthorne effect, see Franke and Kaul, 1978).

Negative impacts, as underlined in the literature (Fana et al., 2020; EU-OSHA, 2021a; Eurofound, 2021) seem to take place only at a subsequent stage, when the problems and inconveniences of teleworking have begun to become

more palpable in everyday life. In fact, the detrimental effects of such a new working arrangement likely would arise only when employees encountered an increase in their workload, more pressure regarding their work performance, and, in the long run, a failed opportunity to settle work-life balance.

The situation was entirely new in the Italian context, since the country's teleworking implementation figures before the pandemic were extremely low in comparison to other similar European economies. Then, the continuation of the pandemic and protracted periods of involuntary work from home began to negatively affect the perceived quality of life of teleworkers, also in terms of technostress⁶. These occurrences were higher for teleworkers (28% compared to 22% of other employees) and even stronger for women (29% compared to 22% of male colleagues). Moreover, teleworkers have been considerably affected by the reduction or absorption of social contacts and by the blurring of boundaries between working and non-working time (INPS, 2021).

In general, although with some intrinsic limits due to the small sample size, our results reveal that the probability of being satisfied with teleworking increases as satisfaction with home as a place of work rises, even in the case of work effort intensification. These circumstances lead us to surmise that workers in our sample are deeply engaged and can express their own ability to control their work processes.

It seems remarkable that many respondents in middle- and low-income classes have undertaken expenses to enable them to work from home. This observation is apparently at odds only with the fact that our sample consists of workers employed in the public sector: Italian public employees have seen many of their advantages eroded over the past 30 years. To date, figures demonstrate that, in comparison with the rest of Europe, the Italian public sector workers are in the lowest positions⁷ with respect to almost all the available indicators.

⁶ Some possible negative effects of the so called "technostress" are deterioration of the work-life balance and overworking. Overall, overworking (i.e. dedicating a large amount of time to work and neglecting moments of rest) involved 13% of workers and to a greater extent teleworkers than other workers (17% compared to 9%), women than men (19% compared to 11%) and managers than collaborators (19% compared to 9%) (Osservatori.net, 2021).

⁷ As an instance, the percentage of public workers out of the total number of workers in Italy in 2017 (13.4%) is lower than it is in France (19.6%), Spain (15.9%), and in the United Kingdom (16%), and higher only as compared to Germany (10.8%) (Eurofound and ILO, 2017).

With respect to a better balance of living and working time, our results – consistent with evidence at a national and international level (among others, Del Boca et al.; 2020; Dunatchik et al., 2021; EU-OSHA, 2021b) – have demonstrated that teleworking may be considered an effective contributor to a better work-life balance only if it is properly managed. In fact, research on the impacts of telework has begun to disclose that telework activities, when not properly managed, could lead to a non-sustainable overlapping of care and professional roles, with more severe consequences for women, especially with regard to their career prospects (Rodríguez-Modroño and López-Igual, 2021).

These results call for further research on larger datasets and deep investigation of the impacts of telework on the quality of working life, aiming to provide valuable information to both policy makers addressing specific regulatory measures and to managers in charge of implementing companies' welfare.

REFERENCES

- Agresti, A. (2010). *Analysis of ordinal categorical data*. Hoboken, N.J., Wiley.
- Baruch, Y. (2001). The Status of Research on Teleworking and an Agenda for Future Research. *International Journal of Management Reviews* 3(2): 113-129.
- Chung, H., Van der Horst, M. (2018). Women's employment patterns after childbirth and the perceived access to and use of flexitime and teleworking. *Human relation* 71(1): 47-72.
- Del Boca, D., Oggero, N., Profeta, P., Rossi, M. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household* 18: 1001-1017.
- Dunatchik, A., Gerson, K., Glass, J., Jacobs, J.A., Stritzel, H. (2021). Gender, Parenting, and The Rise of Remote Work During the Pandemic: Implications for Domestic Inequality in the United States. *Gender & Society* March 2021, doi:10.1177/08912432211001301
- EU-OSHA (2021a). *Teleworking during the COVID-19 pandemic: risks and prevention strategies*. Publications Office of the European Union, Luxembourg.
- EU-OSHA (2021b). *Home-based teleworking and preventive occupational safety and health measures in European workplaces: evidence from ESENER-3*. Publications Office of the European Union, Luxembourg
- Eurofound (2010). *Telework in the European Union*. Publications Office of the European Union, Luxembourg.

- Eurofound (2012). *Organisation of working time: Implications for productivity and working conditions*. Publications Office of the European Union, Luxembourg.
- Eurofound (2021). *European Working Conditions Survey 2021*. <https://www.eurofound.europa.eu/surveys/2021/european-working-conditions-survey-2021>. Last access: 15/02/2022
- Eurofound and ILO. (2017). *Working anytime, anywhere: The effects on the world of work*. Luxembourg and Geneva, Switzerland.
- Fana, M., Tolan, S., Torrejón, S., Urzi Brancati, C., Fernández-Macias, E. (2020). *The COVID confinement measures and EU labour markets*. EUR 30190 EN, Publications Office of the European Union, Luxembourg.
- Franke, R.H., Kaul, J.D. (1978). The Hawthorne Experiments: First Statistical Interpretation. *American Sociological Review* 43(5): 623-643.
- Harker Martin, B., MacDonnell, R. (2012). Is telework effective for organizations? A meta-analysis of empirical research on perceptions of telework and organizational outcomes. *Management Research Review* 35(7): 602-616.
- Hilbrecht, M., Shaw, S.M., Johnson, L.C., and Andrey, J. (2013). Remixing work, family and leisure: teleworkers' experiences of everyday life. *New Technology, Work and Employment* 28(2): 130-144.
- ILO (2021). *Working from home: From invisibility to decent work*. ILO, Geneva, Switzerland.
- ILO (2022). *World Employment and Social Outlook, Trends 2022*. Geneva, Switzerland.
- INPS (2021). *Rapporto di Ricerca 2/2021. Indagine sullo Smart Working*. Available at: https://www.inps.it/docallegatiNP/Mig/Dati_analisi_bilanci/Attivita_ricerca/Studi_e_analisi/Rapporto_Smart_Working_Inps2020_n2-2021.pdf. Last access: 10/03/2022.
- Kaduk, A., Genadek, K., Kelly, E.L., Moen, P. (2019). Involuntary vs. voluntary flexible work: Insights for scholars and stakeholders. *Community, Work & Family* 22(4): 412-442.
- Mann, S., Holdsworth, L. (2003). The Psychological Impact of Teleworking: Stress, Emotions and Health. *New Technology, Work and Employment* 18(3): 196-211.
- Messenger, J. (ed.) (2019). *Telework in the 21st century: an evolutionary perspective*. ILO-Edward Elgar (elgaronline.com)
- Ministry of Economy and Finance (2020). *Conto Annuale, Andamento dell'Occupazione*, Ministero dell'Economia e delle Finanze, Ragioneria Generale dello Stato, Roma: <https://www.contoannuale.mef.gov.it/ext/Documents/ANDAMENTO%20DELL'OCCUPAZIONE.pdf> Last access: 15/02/2022
- Ogbonna, E., Harris, L. (2006). Organisational Culture in the Age of the Internet: An Exploratory Study. *New Technology, Work and Employment* 21(2): 162-175.

- Osservatori.net (2021). Rivoluzione Smart Working, Un futuro da costruire adesso. <https://www.osservatori.net/it/ricerche/infografiche/rivoluzione-smart-working-futuro-da-costruire-adesso-infografica>. Last access: 15/02/2022.
- Osservatorio Nazionale del Lavoro Agile (2020). *Monitoraggio sull'attuazione del lavoro agile nelle pubbliche amministrazioni nel periodo gennaio-aprile 2020*. https://www.funzionepubblica.gov.it/sites/funzionepubblica.gov.it/files/documenti/SW_COVID/Monitoraggio/Report_Monit_LavoroAgile_%20gen_apr2020.pdf. Last access: 28/02/2022
- Parry, J., Young, Z., Bevan, S., Veliziotis, M., Baruch, Y., Beigi, M., Bajorek, Z., Salter, E., Tochia, C. (2021). *Working from Home under COVID-19 lockdown: Transitions and tensions, Work after Lockdown*. <https://www.employment-studies.co.uk/system/files/resources/files/Working%20from%20Home%20under%20Covid-19%20Lockdown%20-Transitions%20and%20Tensions.pdf>. Last access: 28/02/2022
- Piccolo, D., Simone, R (2019). The class of CUB models: statistical foundations, inferential issues and empirical evidence. *Statistical Methods and Application* 28, 389-435.
- Putnam, L., Myers, K.K., Gailliard, B.M. (2014). Examining the Tensions in Workplace Flexibility and Exploring Options for New Directions. *Human Relations* 67(4): 413-440.
- Pyöriä, P. (2011). Managing Telework: Risks, Fears and Rules. *Management Research Review* 34(4): 386-399.
- Rodríguez-Modroño, P., López-Igual, P. (2021). Job Quality and Work-Life Balance of Teleworkers. *International Journal of Environmental Research and Public Health* 18(6): 3239. <https://doi.org/10.3390/ijerph18063239>
- Sostero, M., Milasi, S., Hurley, J., Fernández-Macias, E., Bisello, M. (2020). *Teleworkability and the COVID-19 crisis: a new digital divide?* JRC121193, European Commission, Seville.
- Steidelmüller, C., Meyer, S.C., Müller, G. (2020). Home-Based Telework and Presenteeism Across Europe. *Journal of Occupational and Environmental Medicine* 62(12): 998-1005.
- Tutz, G. (2012). *Regression for categorical data*. Cambridge, Cambridge University Press.
- Welz, C., Wolf, F. (2010). *Telework in the European Union*. European Foundation for the Improvement of Living and Working Conditions, Dublin.
- Williams, R. (2009). Using heterogenous choice models to compare logit and probit coefficients across groups. *Sociological Methods & Research* 37: 531-559.
- Williams, R. (2011). Fitting heterogeneous choice models with oglm. *The Stata Journal* 10(4): 540-567.

Yatchew, A., Griliches, Z. (1985). Specification error in probit models. *Review of Economics and Statistics* 67: 134-139.