Understanding the Relation between Frequency of Technology Usage on Work-life Balance: The Role of Age, Occupation and Education

Using Secondary Analyses of Cross-sectional OECD 2020 Risks that Matter Data to Uncover the Dynamics of Work-life balance in the Digital Age in the Netherlands

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August 2023

Wordcount: 5420

Abstract

Background: Technology, such as computers, laptops and tablets, negatively affects work-life balance due to work and non-work conflicts an individual experiences. This directly affects an individual's well-being and quality of life, as they experience conflicts between roles within work and non-work domains and challenges in setting boundaries. This study aims to investigate whether the frequency of technology use of computers, laptops and tablets in work is associated with work-life balance. This study explores work-life balance and technology use further by using the Ideal Worker Norm, Role Conflict Theory and Boundary Theory and investigates whether there are differences in the association between workers of different ages, occupations and educational backgrounds.

Methods: A quantitative analysis of secondary cross-sectional data was conducted. The data came from the OECD 2020 Risks that Matter Survey and was collected from over 25.000 respondents across 25 countries. The study focused on working Dutch respondents (N=951) and was analyzed using Pearson's Partial Correlation and Hierarchical Regression Analyses via IBM SPSS Statistics v28.

Results: The results were threefold. First, they revealed a positive association between work-life balance and frequency of technology use $r(949)$=.090,p<.05. Second, they revealed a positive correlation for moderator age for workers under the age of 45 and work-life balance (b=.319,p<.001). Third, the results showed no statistically significant correlation for moderator's occupation (b=.218,p=.520) and education (b= -.008,p=.945).

Conclusion: This study confirms that work-life balance is associated with frequency of technology use of computers, laptops and tablets and that this is moderated by age. Future research is recommended to deepen the understanding of this relationship and assert causality.

Keywords: work-life balance, technology, frequency, computer use, laptop use, tablet use, age, occupation, education

Introduction

Nearly 1 out of 10 Dutch workers experiences (very) poor work-life balance (Statistics Netherlands, 2021a). Defined as perceiving work and non-work activities as harmonious and conductive to personal growth based on individual life priorities (Hogarth & Bosworth, 2009; Kalliath & Brough, 2008), work-life balance is a pivotal factor influencing an individual's overall well-being and quality of life (Allen et al., 2015). Successful integration of work and non-work commitments enables individuals to maintain both physical and mental health (Demerouti et al., 2009), while absence of work-life balance is associated with elevated stress levels, burnout, reduced overall satisfaction and compromised mental health (Greenhaus et al., 2003; Grywacz et al., 2007; Nitzsche et al., 2013; Shockley & Singla, 2011). This imposes significant societal costs, estimated to be between 1% and 10% of the GDP (Hassard et al., 2018), burdening the healthcare system and resulting in long-term declines in productivity (OECD, 2020a). Due to this, it is essential to examine aspects related to improving work-life balance and related outcomes.

Integration of technology in work is a major aspect in today's post-industrial society (Houston & Houston, 2005). Technology in work is defined as usage of digital tools, particularly computers, laptops and tablets, in work related responsibility (Statistics Netherlands, 2021a/b). The heavy reliance of the Dutch labor market on technology is increasing, for example, in 2002 52% of workers used computers in work to 78% in 2020 (European Commission, 2022; Statistics Netherlands, 2022a). These developments have brought change, impacting work-life balance (Grywacz et al., 2007; Statistics Netherlands, 2021b). Approximately 23% of Dutch workers indicate that their work has become more mentally challenging due to technological advancements concerning screentime (van den Heuvel et al., 2023), resulting in stress, fatigue and burnouts (Holden & Sunindijo, 2018; Wright et al., 2014).

Technology use has a negative influence on work-life balance (Holden & Sunindijo, 2018; Wright et al., 2014). However, limited knowledge exists regarding potential relationships between work-life balance and frequency of technology use in work, such as computers, laptops and tablets. Fully understanding the impact of the frequency of aforementioned tools on work-life balance is crucial, as it might influence how workers navigate their work-life balance.

The relationship between work-life balance, technology use and worker demographics has been researched before (Bakker et al., 2012; Baylina et al., 2017; Boswell & Olson-Buchanan, 2007; Czaja et al., 2006; Derks et al., 2016; Dwivedi et al., 2021; Frey et al., 2017; Golden & Veiga, 2005; Greenhaus et al., 2003; Hobson et al., 2011; Khallash & Kruse, 2012; Lyonette, 2015; van Deursen & van Dijk, 2014). However, these studies have not touched upon the frequency of technology that was used in work. Examining worker demographics, such as age groups, occupations and educational is crucial and enables nuanced understandings of how possible associations between work-life balance and frequency of technology use may vary based on individual differences.

Firstly, investigating the possible association between work-life balance and frequency of technology use is relevant as it seeks to establish an understanding of potential interplay between work-life balance and technology usage patterns in the Netherlands. This relevance is underscored by the substantial

number of Dutch workers, approximately 900.000, who have reported experiencing (very) poor work-life balance (Statistics Netherlands, 2021a). Secondly, investigating this possible association allows for research into specific demographic groups, as identifying possible different associations within groups could have implications for policy and interventions aimed at improving work-life balance in the Netherlands. This leads to the following research question:

'Is there an association between work-life balance and frequency of technology use in the Netherlands and if so, is this moderated by the individual demographics age, occupation and education?'

Theoretical framework
Work-life balance

Work-life balance is defined as perceiving work and non-work activities as harmonious and conductive to personal growth based on individual life priorities (Hogarth & Bosworth, 2009; Kalliath & Brough, 2008).

Work-life balance is affected by the Ideal Worker Norm (Munsch & O'Connor, 2018), stating that ideal workers exhibit unwavering dedication and constant availability to their work, specifically at the expense of their personal and family lives (Acker, 1990; Davies & Frink, 2014). As a result, workers experience role conflicts due to overlapping expectations between work and non-work domains, as assessed by the Role Conflict Theory (Coser, 1964; Goode, 1960). The Boundary Theory states that these role conflicts influence workers' abilities to manage their boundaries (Ashfort et al., 2000; Bulger et al., 2007; Desrochers & Sargent, 2004), ultimately resulting in lower work-life balance (Leduc et al., 2016).

Frequency of technology use

Technology use in work is defined as the usage of digital tools, particularly computers, laptops and tablets, to carry out work-related responsibility (Statistics Netherlands, 2021a/b). Therefore, frequency of technology use is the quantity of time using said tools in work.

Since post-industrialization, technology use has witnessed significant growth in the Netherlands and changed the way work is conducted with the use of computers in work rising from 57% in 2002 to 78% in 2022, with an average of 4.35 hours daily in the latter (Statistics Netherlands, 2021b/2022a; van der Heuvel et al., 2023).

This perpetuates and intensifies pressures associated with the Ideal Worker Norm, challenging workers to detach from work (Acker, 1990; Halinski & Duxbury, 2020). Workers find difficulty in prioritizing family responsibilities and personal well-being over work commitments, neglecting or sacrificing important non-work aspects (Halinski & Duxbury, 2020). With constant connectivity and accessibility facilitated by technology like computers, boundaries between work and personal life became increasingly blurred, challenging achieving work-life balance (Derks et al., 2016; Sayah, 2013; Thomas, 2014). The pressure workers experience for constant availability and responsiveness to work-related tasks

outside of working hours are amplified by the integration of tools from computers, e.g., e-mail and platforms as Microsoft Teams, reinforcing notions of constant connectivity for work, exacerbating conflicts between work and non-work roles, introducing challenges for boundaries (Ashfort et al., 2000; Allen et al., 2014; Bulger et al., 2007; Desrochers & Sargent, 2004; Grawitch et al., 2010; Halinski & Duxbury, 2020).

Concluding, frequency of technology use combined with pressure associated with Ideal Worker Norm and the struggle between roles and boundaries leads to the first hypothesis:

Hypothesis 1: There is a negative association between work-life balance and frequency of technology use in the Netherlands.

Age

Age, defined as "the period of time someone has been alive, or something has existed" (Cambridge Dictionary, 2023a), influences the frequency of technology used (Statistics Netherlands, 2020). Dutch workers beneath 45 years old (further mentioned as 'younger workers') devote 5 hours to computer related work-tasks daily, while workers above 45 years old (further mentioned as 'older workers') devote little over 4 hours (van der Heuvel et al., 2023). Of younger workers, 52.3% state to work over 6 hours per day behind their computer, while this was 39.9% for older workers (van der Heuvel et al., 2023).

Younger workers report higher levels of work-related technology use outside of working hours, leading to increases in emotional exhaustion and decreased attachment from work (Derks et al., 2016). Older workers are traditionally associated with the Ideal Worker Norm, yet this has shifted as younger workers are trust into work-cultures emphasizing constant connectivity and immediate responsiveness (Mazmanian, 2013; Spieler et al., 2018; Symon & Pritchard, 2015). Technology is integrated into younger workers' lives, with computers always connecting them to work-related communication platforms, challenging boundaries in work-life balance (Chesley et al., 2003; Golden & Geiser, 2007; Kelly et al., 2011; Middleton et al., 2007; Prylipko et al., 2014; Spada et al., 2015). Fearing perception as uncommitted/unproductive, constant connectivity and emotional exhaustion impend younger workers' ability to disconnect from work, leading to role conflicts and permeable boundaries (Bowell & Olson-Buchanan, 2007; Coser, 1964; Derks & Bakker, 2014; Goode, 1960). This results in work interference in personal life (Chesley et al., 2005; Bulger et al., 2007; Derks et al., 2016; Desrochers & Sargent, 2004; Golden & Geiser, 2007).

Thus, higher frequency of technology use by younger workers, in combination with pressures associated with Ideal Worker Norm and the struggle between roles and boundaries leads to the second hypothesis:

Hypothesis 2: Age moderates the association between frequency of technology use and work-life balance in the Netherlands, with younger age workers exhibiting a stronger negative association compared to older workers.

Occupation

Occupation is divided into white-collar workers (professional/managerial/administrative roles) and blue-collar workers (manual labor/physical work) (Kalleberg, 2009). White collar workers in e.g. information/communication (98%), financial services (97%) and consultancy (95%) utilize computers for a higher portion of their work time than blue-collar workers in building industry (73%), trade (62%) and production industry (59%) (Statistics Netherlands,2022a; van der Heuvel et al., 2023).

White-collar workers, associated with the Ideal Worker Norm, conform to societal expectations of loyalty and commitment (Kahn et al., 1964; Acker, 1990). White-collar workers' more frequent use of technology leads to information overload due to constant connectivity more often (Griep et al., 2021; van der Heuvel et al., 2023), resulting in high levels of psychological distress associated with challenges in managing boundary-spanning work demands (Gavin et al., 2011; Schieman & Young, 2013). Driven by expectations created by constant connectivity, they face role conflicts while navigating work responsibilities and personal life commitments, challenging abilities to disengage from work-related activities and set boundaries (Bowell & Olson-Buchanan, 2007; Coser, 1964; Demerouti et al., 2009; McCloskey, 2016)

Thus, higher frequency of technology use by white-collar workers, in combination with pressures associated with Ideal Worker Norm and the struggle between roles and boundaries leads to the third hypothesis:

Hypothesis 3: Occupation moderates the association between work-life balance and frequency of technology use in the Netherlands, with white-collar workers exhibiting a stronger negative association compared to blue-collar workers.

Education

Education, defined as "knowledge received from the process of teaching or learning in school or college" (Cambridge dictionary, 2023), plays a crucial role in shaping individuals' opportunities and outcomes (Bol & van de Werfhorst, 2013). High educated workers engage in digital activities more and possess better digital skills (Khallash & Kruse, 2012; Lyonette, 2015; Jones, 2001; Rosenzweig, 1995; van Deursen & van Dijk, 2014), with 70% of high educated workers having (very) good basic digital skills, compared to 40% of low and middle educated workers (Statistics Netherlands, 2022b). High educated workers use digital tools more (Baylina et al., 2017; Hobson et al., 2011), with 5.5 hours daily devoted to computer related work tasks against low (2 hours) and middle educated (2.3 hours) workers (Statistics Netherlands, 2019).

The Ideal Worker Norm strongly influences higher educated workers as they experience high pressure and commitment to their work more often than lower and middle educated workers (Andreassen et al., 2014). High educated workers exhibit greater access to digital tools, encompassing computers, laptops and tablets with 62.7% against lower and middle educated workers with 50% (Statistics Netherlands, 2022c). This technological accessibility aligns with their heightened responsiveness and constant

connectivity to work-related obligations, disrupting abilities to unwind and recharge, resulting in dissatisfaction with work-life balance (Derks et al., 2016). Higher educated workers struggle with role conflicts more often, as they have greater involvement in different roles than lower and middle educated workers (Kupfer, 2010) leading to difficulties in setting boundaries (Coser, 1964; Bulger et al., 2007; Goode, 1960).

Thus, higher frequency of technology use by high educated workers, in combination with pressures associated with Ideal Worker Norm and the struggle between roles and boundaries leads to the fourth hypothesis:

Hypothesis 4: Education level moderates the association between frequency of technology use and work-life balance in the Netherlands, with higher educated workers exhibiting a stronger negative association compared to lower educated workers.

Figure 1

Operational Model
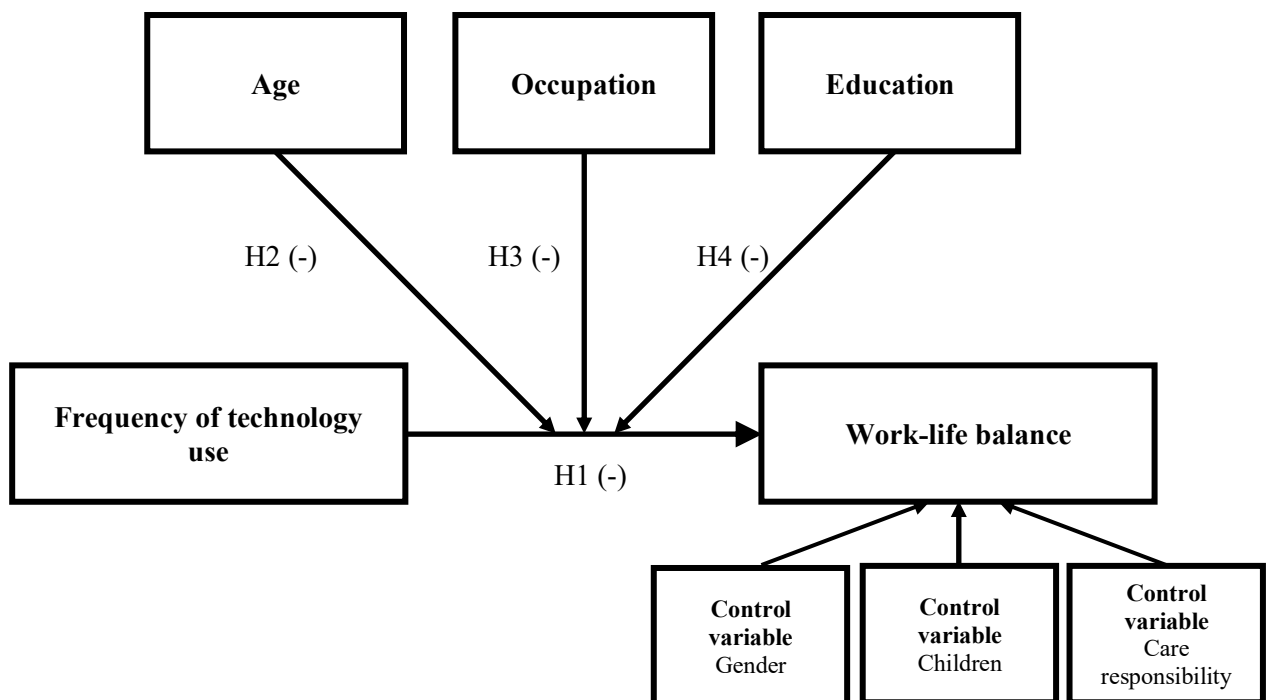
Methods

Study design and procedures

A quantitative secondary analysis of cross-sectional data was conducted. The data, collected in September-October 2020, came from the OECD 2020 Risks that Matter Survey (Appendix 3). The dataset contained information of 25.000 respondents about well-being and risk perception in 25 countries: Austria, Belgium, Canada, Chile, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Israel, Italy, South-Korea, Lithuania, Mexico, The Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Switzerland, Turkey and the United States (OECD, 2021a). Using this survey was appropriate because of the focus on well-being, incorporating work-life balance and potential obstacles. The representativeness enhanced external validity and allowed for generalization. The data was retrieved via Valerie Frey[1] by agreeing to the terms and conditions for the Public Use Microdata.

Participant sample and recruitment

The survey collected data from over 25.000 respondents, 1015 who were Dutch, of working age within 18 to 64 and able to speak their national language. The sample included different ages, genders, educational backgrounds, and occupations. Respondents were compensated with a nominal sum. A multi-stage sampling design was used with random sampling at each stage to ensure representativeness. Primary Sampling Units (PSU) were selected (census enumeration areas/postcodes), then households and then one eligible individual (OECD, 2021a/b). The current study only included employed Dutch respondents, resulting in $N = 951$.

Data was protected according to OECD Guidelines, which govern how data is processed and collected via Privacy Management Programs (OECD, 2023a). Detailed information on recruitment of participants and response rates are private and can be requested via the OECD Data Protection Officer[2] and Commissioner[3] (OECD, 2023b).

Study variables and operationalization

The dependent variable

Work-life balance was operationalized by question 29b:'*to what extent do you agree with the following statements about digitalisation and the use of technology in the workplace? B. I feel that technology is leading to work invading my personal life'* with answer categories: *1'Strongly disagree', 2'Disagree', 3'Neither agree nor disagree', 4'Agree', 5'Strongly agree'* and *6 'Can't Choose'* (OECD, 2020b). This variable was used as a continuous five-point scale variable with categories 4'very high'(category *1*) 3'high'(category *2*) , 2'neutral'(category *3*), 1'low'(category *2*), and 0'very low'(category *1*), with a high score meaning high work-life balance. The original variable was ordinal, but

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treated continuous as results are minimally affected by uncertainty about equal intervals and the linear approximation is robust in most cases (Williams, 2020).

Independent variable

Technology use was operationalized by question 29:'*How often do you use digital information and communication technologies (ICT), such as a computer, laptop or tablet, in your job?*' with answer categories: *a'Constantly, most of the day', b'Several times a day', c'Several times a week', d'Several times a month', e'Less than several times a month', f'Never'* and *g'not applicable: Never been employed'* (OECD, 2020a). This variable was used as continuous three-point scale with categories 0'(almost) never'(answers *5* and *6*), 1'seldom'(answers *2*, *3* and *4*) and 2'always'(answer *1*), with a high score meaning high frequency of technology use. This variable was treated continuous due to reasons explained by Williams (2020).

Moderators

Age was operationalized by question 3:'*In what year were you born?*' with an open text field as answer category (OECD, 2020a). This variable was tuned into a dichotomous variable using OECD variable age group: *1'18-24', 2'25-35', 3'35-45', 4'45-55'* and *5'55-64'*, with categories 0'older workers'(answers *4* and *5*), and 1'younger workers'(answers *1, 2* and *3*). This was based on the division in technology usage by van der Heuvel et al. (2023) and the average age of the respondents in the dataset (43.30 years).

Occupation was operationalized by question 27:'*Which of the following occupations best describes your role in your current job?*' with answer categories: *a'Manager or senior official', b'Professional', c'Technician or associate professional', d'Clerical support worker', e'Service or sales worker', f'Skilled agricultural, forestry or fishery worker', g'Craft or trade worker', h'Plant and machine operator or assembly worker', i'Elementary occupation', j'Other/prefer not to answer'* and *k'Not applicable: never been employed'* (OECD, 2020a). This variable was used dichotomous with categories 0'blue-collar'(answers *d, e, f, g, h* and *i*) and 1'white-collar'(answers *a ,b* and *c*) based on the categories by Kalleberg (2009). Answers *j* and *k* were excluded.

Education was operationalized by question 6: '*What is the highest level of education that you have attained?*' with answer categories *a'No formal education', b'Incomplete primary school', c'Complete primary school', d'Incomplete secondary school: technical/vocational type', e'Complete secondary school: technical/vocational type', f 'Incomplete secondary: university-prepatory type', g'Complete secondary: university-prepatory type', h'Some university-level education, without degree'* and *i'University-level education, with degree'* (OECD, 2020a). This variable was dichotomous, divided by the OECD into categories 0'low and middle' (answers *a, b, c, d, e* and *f*) and 1'high (tertiary)' (answers *h* and *i*).

Control variables

Gender was considered a control variable as previous research showed women experienced work-life balance more negatively than men (Karkoulian et al., 2016; Eby et al., 2005; Friedman & Greenhaus, 2000; Misra et al., 2012). Gender was defined as gender of the respondent and operationalized by question 2: '*How would you describe yourself?*' with answer categories *a*'Male', *b*'Female' and *c*'In another way' (OECD, 2020a). This variable was dichotomous with categories 0'Male'(answer *a*) and 1'Female'(answer *b*). Answer *c* was excluded.

Children was considered a control variable as previous research showed that having children influenced work-life balance negatively (Houston & Houston, 2005; Pace & Sciotto, 2021). Children was defined as having children and operationalized by question 21: '*How many children do you have?*' with categories *a*'open text field' and *b*'I don't have any children' (OECD, 2020a). Respondents could enter the number of children in the open text field. This variable was dichotomous with categories 0'no children'(answer *b*) and 1'children'(answer *a*).

Care responsibility was considered a control variable as previous research showed having care responsibility influenced work-life balance negatively (Delcata, 2011; Pace & Sciotto, 2021). Care responsibility was defined as having long-term care responsibility for others (Delcata, 2011) and operationalized by question 24 '*Are you currently providing long-term care for elderly family members or for other family members with an illness or disability?*' with categories *a*'No', *b*'Yes, for an elderly family member' and *c*'Yes, for a young or working-age family member with an illness or disability'. This variable was dichotomous with categories 0'no responsibility'(answer *a*) and 1'responsibility'(answer *b* and *c*).

Data analysis approach

The data were analyzed using IBM SPSS Statistics v28 (see Appendix 2 for details). The significance level was set at 5% to reduce Type I error probability, increase internal validity, enhance precision, accuracy and strengthen generalizability. Starting, the data were checked for Chonbach's alpha and normality. Next, frequency of technology use was centered to avoid multicollinearity and used to make interaction variables. Subsequently, a correlation analysis was conducted to evaluate possible correlations between the variables and descriptives were requested. Finally, all assumptions were checked and met per analysis (See Appendix 1 for details).

Firstly, a Pearson's partial correlation was conducted to determine association for the first hypothesis. Secondly, three separate hierarchical linear regressions were run to analyze the added affect for moderators using separate blocks. The first block included the predictor variables, the second block added the moderator and the third block the control variables. The first regression has the dependent variable as outcome variable, with the independent variable, age and moderator age as predictor variable. The second regression has the dependent variable as outcome variable, with the independent variable, occupation and

moderator occupation as predictor variable. The last regression has the dependent variable as outcome variable, with the independent variable, education and moderator education as predictor variable.

Results

Table 1 below showed correlations and descriptives for all variables. Work-life balance and frequency of technology use were positively correlated(r=.090,p<.01). Work-life balance correlated negatively with age(r=-.227,p<.01) and care responsibility(r=-.112, p<.001). Frequency of technology use correlated positively with occupation(r=.272,p<.001) and education(r=.158,p<.001). Age significantly correlated positively with education(r=.070,p<.001), gender(r=.291,p<.001) and children(r=.275,p<.001). Occupation correlated positively with education(r=.302,p<.01), but negatively with gender(r=-.088,p<.001) and children(r=-.070,p<.001). Control variable gender correlated positively with children(r=.112,p<.001).

Table 1 showed the average work-life balance score was 'neutral'(M=2.341,SD=1.111). The average frequency of technology use score was 'sometimes'(M=1.400,SD=0.672). Table 2, below, showed the descriptive statistics for the dichotomous variables. There were small differences between means within subgroups for work-life balance(M=2.341,SD=1.111), except for workers with care responsibility (M=2.033,SD=1.146). The means on frequency of technology use were close to the average for frequency of technology(M=1.400,SD=0.672) for most groups except for blue-collar workers(M=1.185,SD=0.750).

Table 1

Descriptive statistics and correlation matrix

Variable	M	SD	1	2	3	4	5	6	7	8
1.Work-life balance	2.341	1.111	-							
2.Frequency of technology use	1.400	0.672	.090*	-						
3.Age [a]	0.502	0.500	-.117**	-.049	-					
4.Occupation [b]	0.580	0.494	-.005	.272**	-.031	-				
5.Education [c]	0.376	0.485	.025	.158**	.132**	.302**	-			
6.Gender [d]	0.486	0.500	.035	.011	.291**	-.088*	.035			
7.Children [e]	0.482	0.500	-.010	-.047	.275**	-.112**	.037	.112**	-	
8.Care responsibility [f]	.162	.368	-.112**	-.007	-.047	-.019	-.018	.024	-.047	-

Note: N = 951. [a] 0 = older worker, [b] 0 = blue-collar, [c] 0 = lower and middle educated, [d] 0 = male, [e] 0 = no children, [f] 0 = no care responsibility.
*p<.01, **p<.001.

Table 2

Descriptive statistics for dichotomous variables

	Age					
	Older Workers			Younger workers		
	n	*M*	*SD*	*n*	*M*	*SD*
Work-life balance	474	2.471	1.071	477	2.212	1.135
Frequency of technology use	474	1.433	0.692	477	1.367	0.650
	Occupation					
	Blue-collar			White-collar		
	n	*M*	*SD*	*N*	*M*	*SD*
Work-life balance	400	2.348	1.088	551	2.338	1.127
Frequency of technology use	400	1.185	0.750	551	1.555	0.560
	Education					
	Lower and Middle			Higher (tertiary)		
	n	*M*	*SD*	*N*	*M*	*SD*
Work-life balance	593	2.319	1.119	358	2.378	1.098
Frequency of technology use	593	1.317	0.710	358	1.536	0.577
	Gender					
	Male			Female		
	n	*M*	*SD*	*N*	*M*	*SD*
Work-life balance	489	2.381	1.101	462	2.381	1.110
Frequency of technology use	489	1.395	0.670	462	1.407	0.674
	Children					
	No children			Children		
	n	*M*	*SD*	*N*	*M*	*SD*
Work-life balance	493	2.351	1.114	458	2.330	1.109
Frequency of technology use	493	1.430	0.658	458	1.367	0.685
	Care responsibility					
	No care responsibility			Care responsibility		
	n	*M*	*SD*	*N*	*M*	*SD*
Work-life balance	797	2.400	1.094	154	2.033	1.146
Frequency of technology use	797	1.402	0.674	154	1.390	0.660

Note: *N*=951.

Hypothesis 1: *There is a negative association between work-life balance and frequency of technology use in the Netherlands.*

Pearson's partial correlation, presented in table 3 below, assessed the relationship between frequency of technology use and work-life balance when controlling for gender, children and care responsibility. Pearson's partial correlation established that there was a statistically significant positive association between work-life balance and frequency of technology use, $r(949)=.090, p<.05$, indicating that higher scores on frequency of technology use was correlated with higher scores on work-life balance. Pearson's partial correlation showed this positive correlation was less when control variables were added $r_{partial}(946)=.088, p<.01$. Due to the positive correlation, hypothesis 1 was rejected.

Table 3

Pearson's Partial Correlation: Work-life balance with Frequency of technology use

Variable	N	M	SD	1	2	3	4	5
1. Work-life balance	951	2.341	1.110	-				
2.Frequency of technology use	951	1.400	0.671	.090*	-			
3.Gender [a]	951	0.486	0.500	.035	.011	-		
4.Children [b]	951	0.482	0.500	-.010	-.047	.112*	-	
5.Care responsibility [c]	951	0.162	0.369	-.122*	-.007	.024	-.047	-
Covariate								
Work-life balance	951				.088*			
Frequency of technology use	951			.088*				

Note. $N = 951$. [a] 0 = male, [b] 0 = no children, [c] 0 = no care responsibility.
*$p<.001$.

Hypothesis 2: *Age moderates the association between frequency of technology use and work-life balance in the Netherlands, with younger age workers exhibiting a stronger negative association compared to older workers.*

A hierarchical multiple regression, presented in table 4 below, tested hypothesis 2. Model 1 was statistically significant(R^2=.021, $F(2,948)$=9.998,$p<.001$). The R^2 value of .021 suggested total variation 2.1% in work-life balance. Model 2, with moderator age led to a statistically significant increase in R^2 of .009(R^2=.030,$F(3,947)$=9.735,$p<.001$). In Model 3 the addition of control variables statistically significantly increased R^2 of .022(R^2=.052,$F(6,944)$=7.376,$p<.001$).

In Model 1, work-life balance(b=2.446,$p<.001$) was positively associated with frequency of technology use(b=.139,$p<.05$), indicating that a higher score on frequency of technology use meant higher score on work-life balance. Age(b=-.250,$p<.001$) was negatively associated with work-life balance, indicating that younger workers were associated with lower work-life balance compared to older workers.

In Model 2 moderator age(b=.319,$p<.001$) was statistically significantly positively associated with work life balance(b=2.471,$p<.001$). Frequency of technology use(b=-.011,p=.882) was not statistically significantly associated with work-life balance, while age (b=.319,$p<.001$) remained negatively associated with work-life balance.

In Model 3, moderator age remained positively statistically significant(b=-.326,$p<.01$) and age(b=-.326,$p<.001$) remained negatively associated with work-life balance(b=2.465,$p<.001$). Frequency of technology use was not statistically significant(b=-.015,p=.832). Control variable gender showed a positive association with associated with work-life balance(b=0.187,$p<.05$), indicating females associated with higher work-life balance and care responsibility(b=-.398,$p<.001$) was negatively associated with work-life balance, indicating care responsibility negatively associated with work-life balance. Having children did not have a statistically significant association with work-life balance(b=.090,p=232). Hypothesis 2 was rejected as results showed a positive association for younger workers.

Table 4

Hierarchical Regression Results for Moderator Age

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Model 1						.021***	.021***
Constant	2.466***	2.387	2.565	.051			
Frequency of technology use [a]	.139**	.035	.244	.053	.084		
Age [b]	-.250***	-.390	-.109	.071	-.112		
Model 2						.030***	.009***
Constant	2.471***	2.372	2.570	.050			
Frequency of technology use [a]	-.011	-.154	.132	.073	-.007		
Age [b]	-.249***	-.389	-.109	.071	-.112		
Frequency of technology use * Age [c]	.319***	.111	.528	.106	.132		
Model 3						.052***	.022***
Constant	2.465***	2.341	2.590	.063			
Frequency of technology use [a]	-.015	-.157	.126	.072	-.009		
Age [b]	-.326***	-.476	-.117	.076	-.147		
Frequency of technology use * Age [c]	.320**	.114	.527	.105	.133		
Gender [d]	.175*	.030	.320	.104	.079		
Children [e]	.046	-.098	.190	.073	.021		
Care responsibility [f]	-.389***	-.577	-.201	.096	-.129		

Note. $N = 951$. CI = Confidence Interval; LL = lower limit, UL = upper limit.
[a] Centered variable, [b] 0 = older worker, [c] = interaction with centered frequency of technology use, [d] 0 = male, [e] 0 = no children, [f] 0 = no care responsibility.
*$p<.05$, **$p<.01$, ***$p<.001$.

Hypothesis 3: *Occupation moderates the association between work-life balance and frequency of technology use in the Netherlands, with white-collar workers exhibiting a stronger negative association compared to blue-collar workers.*

A hierarchical multiple regression, presented in table 5 below, tested hypothesis 3. Model 1 was statistically significant($R^2=.009$, $F(2,948)=4.3042$, $p<.05$). The R^2 value of .009 suggested that variables accounted for 0.9% of the variation in work-life balance. In Model 2 moderator occupation led to a statistically significant increase in R^2 of .004($R^2=.010$, $F(3,947)=4.143$, $p<.01$), with 1.0% variance explained. Model 3 showed statistically significantly increase R^2 of .017($R^2=.023$, $F(6,944)=4.777$, $p<.001$), with 2.3% variance explained when control variables were added.

In Model 1 work-life balance($b=2.341$, $p<.001$) was positively associated with frequency of technology use($b=0.163$, $p<.01$), indicating that higher scores on frequency of technology use meant higher scores on work-life balance. Occupation($b=0.010$, $p=.340$) was not statistically significant.

In Model 2 neither moderator occupation($b=.218$, $p=.520$), frequency of technology use($b=.068$, $p=.347$) or occupation($b=-.071$, $p=.347$) were statistically significantly associated with work-life balance($b=2.362$, $p<.001$).

In Model 3, with control variables, neither moderator occupation(b=.222,p=.051), frequency of technology use(b=.063,p=.391), occupation(b=-.070,p=.352), gender(b=.090,p=.212) or children(b=-.031,p=.667). were statistically significantly associated with work-life balance(b=2.39318,p<.001). Care responsibility(b=-372,p<.001) was negatively statistically significantly associated with work-life balance. Hypothesis 3 was rejected as results showed no statistically significant result for moderator occupation.

Table 5

Hierarchical Regression Results for Moderator Occupation

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Model 1						.009*	.009*
Constant	2.382***	2.271	2.494	.057			
Frequency of technology use [a]	.163**	.054	.272	.056	.098		
Occupation [b]	-.072	-.220	.076	.076	-.032		
Model 2						.013**	.004**
Constant	2.362***	2.249	2.475	.057			
Frequency of technology use [a]	.068	-.077	.213	.074	.041		
Occupation [b]	-.071	-.219	.077	.075	-.032		
Frequency of technology use * Occupation [c]	.218	-.002	.438	.112	.085		
Model 3						.029***	.017***
Constant	2.393***	2.235	2.551	.080			
Frequency of technology use [a]	.063	-.081	.207	.074	.038		
Occupation [b]	-.070	-.219	.078	.076	-.031		
Frequency of technology use * Occupation [c]	.222	.003	.442	.112	0.87		
Gender [d]	.090	-.051	.232	.072	.041		
Children [e]	-.031	-.173	.111	.072	-.014		
Care responsibility [f]	-.372***	-.561	-.182	.097	-.132		

Note. N = 951. CI = Confidence Interval; LL = lower limit, UL = upper limit.
[a] Centered variable, [b] = 0 = blue-collar, [c] = interaction with centered frequency of technology use, [d] 0 = male, [e] 0 = no children, [f] 0 = no care responsibility.
*p<.05, **p<.01, ***p<.001.

Hypothesis 4: *Education level moderates the association between frequency of technology use and work-life balance in the Netherlands, with higher educated workers exhibiting a stronger negative association compared to lower educated workers.*

Hypothesis 4 was tested by hierarchical multiple regression and results are shown in table 6 below. Model 1 was statistically significant(R^2=.006, $F_{(2,948)}$=3.908,p<.05) with total variation 0.6% in work-life balance explained. Model 2, with moderator education, did not statistically significant increase the variance explained(R^2=.005, $F_{(3,947)}$=2.604,p=.051). Model 3 showed a statistically significantly increase in R^2 of .016 (R^2=.025,$F_{(6,944)}$=3.953,p<.001), with 2.5% of total variance explained with control variables.

In Model 1 work-life balance(b=2.331,p<.001) was positively associated with frequency of technology use(b=0.145,p<.01), indicating that higher scores on frequency of technology use meant higher score on work-life balance. Education(b=0.027,p=.724) was not statistically significant..

Model 2 showed neither moderator education(b=-.008,p=.945) nor education(b=.027,p=.720) was statistically significantly associated with work-life balance(b=2.331,p=.001). Frequency of technology use(b=.148,p<.05) was statistically significantly positively associated with work-life balance.

Model 3 introduced control variables. Frequency of technology use(b=-.145,p<.05) remained statistically significantly positively associated with work-life balance(b=2.369,p<.001). Neither moderator education(b=-.008,p=.946), education(b=.021,p=.781), gender(b=.086,p=.232) nor children(b=-.035,p=.624) were statistically significantly associated with work-life balance. Care responsibility(b=-371,p<.001) was negatively statistically significantly associated with work-life balance, indicating that higher score on care responsibility was associated with lower scores on work-life balance. Moderator education was not statistically significant, thus hypothesis 4 was rejected.

Table 6

Hierarchical Regression Results for Moderator Education

Variable	B	95% CI for B		SE B	β	R^2	ΔR^2
		LL	UL				
Model 1						.008*	.008*
Constant	2.331***	2.241	2.420	.046			
Frequency of technology use [a]	.145**	.039	.252	.054	.088		
Education [b]	.027	-.121	.174	.075	.012		
Model 2						.008**	.000**
Constant	2.331***	2.241	2.421	.046			
Frequency of technology use [a]	.148*	.022	.274	.064	.089		
Education [b]	.027	-.121	.176	.076	.012		
Frequency of technology use * Education [c]	-.008	-.224	.227	.120	-.003		
Model 3						.025***	.016***
Constant	2.369***	2.239	2.498	.066			
Frequency of technology use [a]	.145*	.020	.270	.064	.088		
Education [b]	.021	-.127	.169	.075	.009		
Frequency of technology use * Education [c]	-.008	-.242	.226	.119	-.003		
Gender [d]	.086	-.055	.227	.072	.039		
Children [e]	-.035	-.177	.106	.072	-.016		
Care responsibility [f]	-.371***	-.561	-.180	.097	-.123		

Note. N = 951. CI = Confidence Interval; LL = lower limit, UL = upper limit.
[a] Centered variable, [b] = 0 = lower and middle educated, [c] = interaction with centered frequency of technology use, [d] = 0 = male, [e] 0 = no children, [f] 0 = no care responsibility.
*p<.05, **p<.01, ***p<.001.

Discussion

Main findings

The purpose of this study has been to answer the research question '*Is there an association between work-life balance and frequency of technology use in the Netherlands and if so, is this moderated by the individual demographics age, occupation and education?*'. This has been analyzed by four hypotheses, one regarding the main association and three regarding possible moderators. Results showed a positive correlation between work-life balance and frequency of technology use ($p<.05$). However, the effect size was weak, indicating minimal association: changes in one are not strongly predictive for changes in another (Cohen, 1988). Hypothesis one, expecting negative correlation, was rejected. Moreover, the results showed that younger age (<45) moderated this association positively ($p<.05$) and thus hypothesis 2, expecting negative moderation for younger workers, was rejected. The total variance of the model is small, thus the outcome is not strongly predictive. Conversely, occupation ($p=.347$) and education ($p=.945$) did not statistically significantly moderate the association and therefore hypotheses three and four were rejected. The lack of statistically significant findings might be due to methodological limitations discussed later.

Thus, it can be concluded that this study showed that there is a positive association between work-life balance and frequency of technology use in the Netherlands and that this is moderated by age.

Findings in context of theory and other research

The Ideal Worker Norm (Acker, 1990), Role Conflict Theory (Ashforth et al., 2000) and Boundary Theory (Coser, 1964; Goode, 1960) have founded the hypotheses, suggesting that frequent technology use in work associate with lower work-life balance. However, the results have not aligned with these theories.

The positive association between work-life balance and frequency of technology use can be explained by increased efficiency and flexibility for workers (Halinski & Duxburgy, 2020; Chung & van der Lippe, 2020) improving balance in roles and boundary management (Ashforth et al., 2000). Instead of negative association for younger workers (Chesley et al., 2003; Golden & Geiser, 2007; Kelly et al., 2011; Middleton et al., 2007; Prylipko et al., 2014; Spada et al., 2015) results showed a positive association. This can be explained as younger workers (<45) have better digital skills than older workers (>45) (Statistics Netherlands, 2022). They struggle with technology, resulting in high technostress, a determinant for work-life balance (Marchiori et al., 2019; Meyer, 2011; Nedeljko et al., 2023; Srivastava et al., 2015). Additionally, increasing prevalence of remote work, linked to technostress, may further exacerbate the negative impact of technology on older worker's work-life balance (Dropkin et al., 2016; Komp-Leukkunen, 2022).

No statistically significant results for moderation for occupation or education was found, while this was expected based on theory (Baylina et al., 2017; Gavin et al., 2011; Hobsen et al., 2011; Schieman & Young, 2013; Statistics Netherlands,2022). The descriptives did show between-group differences on frequency of technology use, which was in line with theory. A possible explanation for the lack of statistically significant results is that on one hand increased technology use contributed to greater efficiency

and flexibility in work (Halinksi & Duxburgy, 2020; Chung & van der Lippe, 2020), possibly resulting in no negative association for work-life balance. Another explanation is the Human Capital Theory (Becker, 1964; Grossman, 2006). White-collar workers and higher education are associated with higher knowledge and skills (Kahn et al., 1964; Khallash & Kruse, 2012), but blue-collar workers and lower and middle educated workers possibly compensate through practical experience and skill development over time. Experimental learning could have bridged the gap and contributed to similar work-life balance outcomes, resulting in absence of statistically significant findings.

Strengths and limitations

This study has demonstrated multiple strengths. It has contributed to existing literature by examining the overlooked association between frequency of technology use and work-life balance. Focusing on use of digital tools computers, laptops and tablets has allowed for comprehensive explorations of topics from multiple perspectives, increasing relevance and internal validity. The study has used validated data with a large representative sample, improving generalizability. By incorporating three control variables the study has enhanced internal validity and reduced the possibility of alternative explanations. The credibility and validity have been strengthened by the study's rigorous methodology.

This study has showcased interdisciplinarity by incorporating sociological and psychological perspectives in the theoretical framework. The integration of the Ideal Worker Norm, Role Conflict Theory and Boundary Theory (Acker, 1990; Ashforth et al., 2000; Coser, 1964; Goode, 1960), has strengthened the study's theoretical underpinning, provided a framework for the analyses, and enhanced external validity. Moreover, this study has used research from sociological, psychological, and organizational viewpoints and positioned its' results within a broad context.

There are multiple limitations. One limitation is the secondary analysis of existing data, introducing limitations associated with biases and confounding factors not directly controlled for during original data collection. The OECD has not released data collection details; caution should be exercised with interpreting the findings. Furthermore, the study investigated association due to cross-sectional data. This has resulted in low ecological validity and results are not directly applicable for generalization to real-world situations.

Secondly, work-life balance and frequency of technology use have been measured very narrow, based on a single-item measure. This may lack sufficient reliability and validity compared to multi-item scales/measures. Limited variability in scores within work-life balance ('high', 'neutral', 'low') has affected the strength, reliability and generalizability of findings and explained the low variance. This limitation could have been mitigated by conducting longitudinal studies, following participants over an extended period to provide robust examinations of the relationship. The scale for frequency of technology use was very narrow, which was deemed necessary as it was negatively skewed. A broader scale would have enhanced internal validity.

Thirdly, the use of variables occupation and education. The divide between occupation was based on Kalleberg (2009), but these categories do not fully encompass occupation, e.g. *e'Service or sales*

worker' (category 'blue-collar') could respondents within sales behind computers all day. Additionally, as education was divided based on the OECD variable, category 'higher (tertiary)' only included university level education, while in the Netherlands higher vocational education (HBO is also seen as high education (Ministry of Education, Culture and Science, 2023). However, there was no answer category in the data for this. Including this level of education as higher would have enhanced the internal and external validity.

Implications for theory and policy/interventions

The findings have implications for theoretical framework on which the hypotheses were based: the Ideal Worker Norm, Boundary Theory and Role Conflict Theory (Acker, 1990; Ashforth et al., 2000; Coser, 1964; Goode, 1960). The results challenged the theories that have predicted technology-related disruptions and revealed a positive association between work-life balance and frequency of technology use. This, in combination with unexpected findings for age, occupation and education, have pointed towards the need for a nuanced theoretical framework that considers the contextual factors and individual characteristics that shape the association. The results have contributed to understanding the dynamics between the variables and opened avenues for further research.

Future research should explore the various dimensions of work-life balance, not relying on one single-item measurement. Frequency of technology used should be deepened to also include other digital devices. Furthermore, more individual differences and contextual factors should be explored to create the full picture of what influences work-life balance. Longitudinal studies should be conducted deepen understanding of long-term effects and potential moderating/mediating factors.

This research has focused on correlation, not causality. Further research is necessary to establish the results for policy and intervention recommendations. If future research supports these findings, policy should focus on promoting frequent technology use, such as computers, to manage work-life balance, with the focus on encouraging flexibility for integrating work and personal life. Extra attention could be placed on developing digital skills among workers above the age of 45. An awareness campaign should be launched to promote importance of work-life balance and highlight the positive association with frequency of technology use.

Concluding statement

This study has aimed to answer the research question "*Is there an association between frequency of technology use and work-life balance in the Netherlands and, if so, is this moderated by the individual demographics age, occupation and education?*" using a secondary analysis of cross-sectional OECD 2020 Risks that Matter Survey. The results showed that there work-life balance and frequency of technology use were positively associated ($p<.05$). No statistically significant results for moderators occupation and education were found. However, the association was statistically significantly moderated by moderator age, with younger workers showing a positive association in the interaction with frequency of technology use ($p<.05$).

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Appendices

Appendix 1: Assumptions

In this appendix, the assumptions for each statistical analysis are described in detail.
To test the hypothesis *there is a negative association between work-life balance and frequency of technology use in the Netherlands* (H1) a Pearson's Partial Correlation was run to investigate possible association between work-life balance and frequency of technology use (n=951). There were linear relationships between work-life balance and frequency of technology use, as assessed by scatterplots and partial regression plots. There was univariate normality, as assessed by Shapiro-Wilk's test (p<.05) and there were no univariate or multivariate outliers, as assessed by boxplots and Mahalanobis Distance respectively.

To test the hypothesis *Age moderates the association between frequency of technology use and work-life balance in the Netherlands, with younger age workers exhibiting a stronger negative association compared to older workers* (H2) a hierarchical regression was run. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 2.010. There was homoscedasticity, as assessed by visual inspection of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no studentized deleted residuals greater than ±2 standard deviations, no leverage values greater than 0.2 and values for Cook's distance above 1. The assumption of normality was assessed by a Q-Q plot.

To test the hypothesis *Occupation moderates the association between work-life balance and frequency of technology use in the Netherlands, with white-collar workers exhibiting a stronger negative association compared to blue-collar workers* (H3) a hierarchical regression was run. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of . There was homoscedasticity, as assessed by visual inspection of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There were no studentized deleted residuals greater than ±2 standard deviations, no leverage values greater than 0.2 and values for Cook's distance above 1. The assumption of normality was assessed by a Q-Q plot.

To test the hypothesis *Education level moderates the association between frequency of technology use and work-life balance in the Netherlands, with higher educated workers exhibiting a stronger negative association compared to lower educated workers* (H4) a hierarchical regression was run. There was linearity as assessed by partial regression plots and a plot of studentized residuals against the predicted values. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.983. There was homoscedasticity, as assessed by visual inspection of studentized residuals versus unstandardized predicted values. There was no evidence of multicollinearity, as assessed by tolerance values greater than 0.1. There

were no studentized deleted residuals greater than ±2 standard deviations, no leverage values greater than 0.2 and values for Cook's distance above 1. The assumption of normality was assessed by a Q-Q plot.

Appendix 2: IBM SPSS Statistics v28 Syntax

* Encoding: UTF-8.

*My dependent variable is work-life balance.

FREQUENCIES q29b .

DESCRIPTIVES q29b .

RECODE q29b (1=4) (2=3) (3=2) (4=1) (5=0) (ELSE=SYSMIS) INTO wlb.

EXECUTE.

VALUE LABELS wlb

   4 "very high worklife balance"

   3 "high worklife balance"

   2 "neutral"

   1 "low worklife balance"

   0 "very low worklife balance" .

FREQUENCIES wlb .

DESCRIPTIVES wlb .

*My dependent variable is done. A high score on work-life balance means very high work-life balance. In the variable view I added that this is a scale variable, as I am measuring this as a continous variable.

*My independent variable is the frequency of technology use.

FREQUENCIES s29.

DESCRIPTIVES s29.

RECODE s29 (1=2) (2 thru 4=1) (5 thru 6=0) (ELSE=SYSMIS) INTO freq.

EXECUTE.

*a high score on technology use means a frequent technology use.

VALUE LABELS freq

   0 "(almost) never"

   1 "sometimes"

   2 "constantly" .

DESCRIPTIVES freq.

*My independent variable is done. A high score on frequency of technology use means a very frequent amount of technology used.In the variable view I added that this is a scale variable, as I am measuring this as a continous variable.

*On to the moderators. i will look at age first. Age neeeds to be divided into two groups and I will make a dummy variable.

FREQUENCIES s3_agegroup.
DESCRIPTIVES s3_agegroup.

RECODE s3_agegroup (4 THRU 5=0) (1 THRU 3=1) (ELSE=SYSMIS) INTO age.
EXECUTE.

VALUE LABELS age
    0 "older workers"
    1 "younger workers" .

*The second moderator is occupation. For this moderator I will create a dummy variable.

FREQUENCIES s27.
DESCRIPTIVES s27.

RECODE s27 (Lowest thru 3=1) (4 thru 11=0) (ELSE=SYSMIS) INTO wc.
EXECUTE.

VALUE LABELS wc
    0 "blue collar"
    1 "white collar" .

FREQUENCIES wc.
DESCRIPTIVES wc.

*the last moderator is education. This moderator is already a dichotomous variable, i will make it a dummy variable.
RECODE s6_simple (1=0) (2=1) (ELSE=SYSMIS) INTO high .
EXECUTE.

VALUE LABELS high

   0 "lower education"

   1 "higher education" .

FREQUENCIES high .

*The only variables I still need to prep are my control variables, starting with gender.

FREQUENCIES s2.

DESCRIPTIVES s2.

RECODE s2 (1=0) (2=1) (ELSE=SYSMIS) INTO female.

EXECUTE.

VALUE LABELS female

   0 "male"

   1 "female" .

*now on with having children .

FREQUENCIES s21_zero.

DESCRIPTIVES s21_zero.

RECODE s21_zero (0=0) (1=1) (ELSE=SYSMIS) INTO child.

EXECUTE.

VALUE LABELS child

   0 "no children"

   1 "children" .

*my last control variable is long term care responsibility .

FREQUENCIES s24 .

DESCRIPTIVES s24 .

RECODE s24 (1=0) (2 THRU 3 = 1) INTO care.

Execute.

VALUE LABELS care

   0 "no responsibility"

   1 "responsibility" .

FREQUENCIES wlb freq age wc high female child care.

DESCRIPTIVES wlb freq age wc high female child care.

*currently, my n is not the same for all variables. I will compute a filter for this. I also want to include only dutch respondents.

COMPUTE filter_var = (NOT MISSING(wlb) AND NOT MISSING(freq) AND NOT MISSING(age) AND NOT MISSING(wc) AND NOT MISSING(high) AND NOT MISSING(S15_NL) AND NOT MISSING(female)

   AND NOT MISSING(care) AND NOT MISSING(child)).

FILTER BY filter_var.

EXECUTE.

FREQUENCIES wlb freq age wc high female child care.

DESCRIPTIVES wlb freq age wc high female child care.

* I have 951 respondents .

*I will center my variable frequency of technology use.

COMPUTE c_freq= freq -1.3996.

EXECUTE.

*Now i will make interactions with my centered variables .

COMPUTE ciage = age*c_freq .

COMPUTE ciwc = wc*c_freq .

COMPUTE cihigh = high*c_freq.

*First i will look at my descriptives and correlations.

CORRELATIONS
  /VARIABLES=wlb freq age wc high female child care
  /PRINT=TWOTAIL NOSIG FULL
  /STATISTICS DESCRIPTIVES
  /MISSING=PAIRWISE.

*for my describing statistics I need to compare the means for my dichotomous variables.

MEANS TABLES= wlb freq BY age wc high female child care
  /CELLS=MEAN COUNT STDDEV.

*H1.
PARTIAL CORR
  /VARIABLES=wlb freq BY female child care
  /SIGNIFICANCE=TWOTAIL
  /STATISTICS=DESCRIPTIVES CORR
  /MISSING=LISTWISE.

EXAMINE VARIABLES=wlb freq
  /PLOT BOXPLOT HISTOGRAM NPPLOT
  /COMPARE GROUPS
  /STATISTICS DESCRIPTIVES
  /CINTERVAL 95
  /MISSING LISTWISE
  /NOTOTAL.

* Chart Builder.
GGRAPH
  /GRAPHDATASET NAME="graphdataset" VARIABLES=freq wlb MISSING=LISTWISE
REPORTMISSING=NO
  /GRAPHSPEC SOURCE=INLINE
  /FITLINE TOTAL=NO SUBGROUP=NO.
BEGIN GPL
  SOURCE: s=userSource(id("graphdataset"))
  DATA: freq=col(source(s), name("freq"))

```
DATA: wlb=col(source(s), name("wlb"))
GUIDE: axis(dim(1), label("freq"))
GUIDE: axis(dim(2), label("wlb"))
GUIDE: text.title(label("Scatter Plot of wlb by freq"))
ELEMENT: point(position(freq*wlb))
END GPL.
```

*H2 .


```
REGRESSION
 /DESCRIPTIVES MEAN STDDEV CORR SIG N
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP CHANGE
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT wlb
 /METHOD=ENTER c_freq age
 /METHOD=ENTER ciage
 /METHOD=ENTER female child care
 /PARTIALPLOT ALL
 /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
 /CASEWISE PLOT(ZRESID) OUTLIERS(3)
 /SAVE COOK LEVER SRESID SDRESID.
```

*H3.
```
REGRESSION
 /DESCRIPTIVES MEAN STDDEV CORR SIG N
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP CHANGE
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT wlb
 /METHOD=ENTER c_freq wc
 /METHOD=ENTER ciwc
 /METHOD=ENTER female child care
 /PARTIALPLOT ALL
 /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
```

/CASEWISE PLOT(ZRESID) OUTLIERS(3)
/SAVE COOK LEVER SRESID SDRESID.

*H4 .
REGRESSION
 /DESCRIPTIVES MEAN STDDEV CORR SIG N
 /MISSING LISTWISE
 /STATISTICS COEFF OUTS CI(95) R ANOVA COLLIN TOL ZPP CHANGE
 /CRITERIA=PIN(.05) POUT(.10)
 /NOORIGIN
 /DEPENDENT wlb
 /METHOD=ENTER c_freq high
 /METHOD=ENTER cihigh
 /METHOD=ENTER female child care
 /PARTIALPLOT ALL
 /RESIDUALS DURBIN HISTOGRAM(ZRESID) NORMPROB(ZRESID)
 /CASEWISE PLOT(ZRESID) OUTLIERS(3)
 /SAVE COOK LEVER SRESID SDRESID.

Appendix 3: Questionnaires

OECD Risks That Matter Survey 2020: Core Questionnaire

Introduction

Message to Respondents:

You are about to be asked a series of questions about your social and economic circumstances, how you feel about public policies and government effectiveness, and what public policies you would like to see put in place in future. This survey will take about 20 minutes.

We understand that you may not be sure how to answer all of the questions asked. Perhaps you are unsure about the topic or feel that you can't choose between the different options given. We do not want to force you into picking an option that does not reflect your honest opinion. For this reason, for some questions, we have provided the option to pick "Don't know" or "Can't choose".

Social and economic risks and well-being

1. **In general, thinking about the next year or two, how concerned are you about your household's finances and overall social and economic well-being?**

   [1. Not at all concerned; 2. Not so concerned; 3. Somewhat concerned; 4. Very concerned; 5. Can't choose]

2. **What are your specific <u>short-term</u> worries? Thinking about the near future (the <u>next year or two</u>), how concerned are you about each of the following?**

   [1. Not at all concerned; 2. Not so concerned; 3. Somewhat concerned; 4. Very concerned; 5. Can't choose]

   a. Becoming ill or disabled

   b. Losing a job or self-employment income

   c. Not being able to find/maintain adequate housing

   d. Not being able to pay all expenses and make ends meet

   e. Not being able to access good-quality child care or education for your children (or young members of your family)

   f. Not being able to access good-quality long-term care for elderly family members

   g. Not being able to access good-quality long-term care for young or working-age family members with an illness or disability

   h. Being the victim of crime or violence

3. **Looking <u>beyond the next ten years</u>, what are your <u>long-term</u> worries? How concerned are you about the following?**

   [1. Not at all concerned; 2. Not so concerned; 3. Somewhat concerned; 4. Very concerned; 5. Can't choose]

   a. Not being as well-off and financially secure as your parents and/or that you had hoped to be

   b. Your children (or young members of your family) not being as well-off and financially secure as you are

   c. Not being in good health

   d. Not having the right skills and knowledge to work in a secure and well-paid job

   e. Not being financially secure in old age

   f. Not being able to find/maintain adequate housing

   g. Not being able to access good-quality long-term care for yourself

   h. Not being able to access good-quality long-term care for elderly family members

   i. Not being able to access good-quality long-term care for young or working-age family members with an illness or disability

[Filter: Q4 asked only if S12=1 (i.e. currently in employment)]

4. **How likely do you think it is that you might lose your job or self-employment income in the next 12 months?**

   [Tick one]

   a. Very unlikely

   b. Unlikely

   c. Likely

   d. Very likely

   e. Can't choose

[Filter: Q5 asked only if S12=1 (i.e. currently in employment)]

5. **Compared to how you felt before the COVID-19 pandemic, do you think the likelihood of losing your job or self-employment income (in the following 12 months) has decreased, not changed, or increased?**

   [Tick one]

   a. Strongly decreased

   b. Decreased

   c. Not changed

   d. Increased

   e. Strongly increased

   f. Can't choose

6. If you (or your partner) lost your job, for roughly how long could you and your family get by before being in serious financial trouble?

Note: Keep in mind that, depending on your circumstances, you might be eligible for unemployment or social benefits if you (or your partner) lost your job. When answering the question, please take into account any benefits that you believe you might receive in this situation.

[Tick one]

    a. Two weeks or fewer

    b. Three weeks to one month

    c. One to two months

    d. Three to six months

    e. Six months or more

    f. Can't choose

    g. Not applicable: Neither partner currently employed

7. If you and your household were to experience financial trouble, how confident are you that:

[1. Not at all confident; 2. Not so confident; 3. Somewhat confident; 4. Very confident; 5. Can't choose]

    a. Another adult in your household could work more to bring in more money.

    b. A friend or family member would be able and willing to help out.

    c. Cash benefits and services provided by government would sufficiently support you through the financial difficulties

    d. Cash benefits and services provided by charity or non-profit institutions would sufficiently support you through the financial difficulties

8. Do you think that the country's current economic situation is better than, the same as, or worse than it was 12 months ago?

[Tick one]

    a. Much worse

    b. worse

    c. About the same

    d. Better

    e. Much better

    f. Don't know

9. Do you think that your household's financial situation is better than, the same as, or worse than it was 12 months ago?

[Tick one]

a. Much worse

b. Worse

c. About the same

d. Better

e. Much better

f. Don't know

10. Looking ahead to five years from now, do you think that your household's financial situation will be better than, the same as, or worse than it is today?

[Tick one]

a. Much worse

b. Worse

c. About the same

d. Better

e. Much better

f. Can't choose

Satisfaction with government and social policy

11. Please indicate the degree to which you agree or disagree with the following statement:

"I think that my household and I have/would have access to good quality and affordable public services in the area of [#ITEM#], if needed."

[1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose]

a. Family support (e.g. child care, parenting support services, etc.)

b. Education (e.g. schools, universities, adult education, etc.)

c. Employment (e.g. job search supports, skills training supports, self-employment supports, etc.)

d. Housing (e.g. social housing, etc.)

e. Health (e.g. public medical care, subsidised health insurance, mental health support, etc.)

f. Incapacity-related needs (e.g. disability services, long-term care services for people with disabilities etc.)

g. Long-term care for elderly people

h. Public safety (e.g. policing)

12. Please indicate the degree to which you agree or disagree with the following statement:

"I think that the government would (or does) provide my household and me with adequate income support in the case of income loss due to [#ITEM#]"

[1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose]

a. Unemployment

b. Illness/disability

c. Becoming a parent

d. Leaving work to care for elderly family members or family members with disabilities

e. Retirement

f. Death of spouse or partner

13. Please indicate the degree to which you agree or disagree with the following statement:

"I feel the government incorporates the views of people like me when designing or reforming public benefits and services."

[1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose]

14. Please indicate the extent to which you agree or disagree with the following statement: "I think I could easily receive public benefits if I needed them"

[1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose]

[Filter: Only show Q15 if Q14 =1 OR 2]

15. You have said that you do not think it would be easy to receive public benefits if you needed them. Why do you think it would not be easy to receive public benefits?
[Tick at least one]

a. You are not sure whether you would qualify for public benefits

b. You are not sure how to apply for public benefits

c. You think the application process would be difficult, lengthy and/or time-consuming

d. You are not sure that you would be treated fairly by the government office processing your claim

e. Other

f. Don't know

16. Please indicate the degree to which you agree or disagree with the following statement:

"I feel that I receive a fair share of public benefits, given the taxes and social contributions I pay or have paid in the past."

[1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose]

17. Please indicate the degree to which you agree or disagree with the following statement: "Many people receive public benefits without deserving them."

[1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose]

Social policy preferences

18. Do you think the government should be doing less, about the same, or more to ensure your economic and social security and well-being?

[Tick one]

    a.   Government should be doing much less

    b.   Government should be doing less

    c.   Government should be doing about the same as now

    d.   Government should be doing more

    e.   Government should be doing much more

    f.   Don't know

19. Thinking about the taxes you might have to pay and the benefits you and your family might receive, would you like to see the government spend less, spend the same, or spend more in each of the following areas?

[1. Spend much less; 2. Spend less; 3. Spend the same as now; 4. Spend more; 5. Spend much more; 6. Can't choose]

    a.   Family supports (e.g. parental leave, child care benefits and services, child benefits, etc.)

    b.   Education services and supports (e.g. schools, universities, adult education services, etc.)

    c.   Employment supports (e.g. job search supports, skills training supports, better access to funds to start a business, etc.)

    d.   Unemployment supports (e.g. unemployment benefit, etc.)

    e.   Income supports (e.g. minimum-income benefits)

    f.   Housing supports (e.g. social housing services, housing benefit, etc.)

    g.   Health supports (e.g. public hospitals, subsidised health insurance, mental health services, etc.)

    h.   Incapacity-related supports (e.g. illness and disability benefits and services, etc.)

    i.   Pensions

    j.   Long-term care services for elderly people

    k.   Public safety (e.g. policing)

20. **Would you be willing to pay an additional 2% of your income in taxes/social contributions to benefit from better provision of and access to:**

> *[Tick all that apply]*
>
> a. Family supports (e.g. parental leave, child care benefits and services, child benefits, etc.)
>
> b. Education services and supports (e.g. schools, universities, adult education services, etc.)
>
> c. Employment supports (e.g. job-search supports, skills training supports, better access to funds to start a business, etc.)
>
> d. Unemployment supports (e.g. unemployment benefits, etc.)
>
> e. Income support (e.g. minimum-income benefits)
>
> f. Housing supports (e.g. social housing services, housing benefits, etc.)
>
> g. Health supports (e.g. public hospitals, subsidised health insurance, mental health services, etc.)
>
> h. Incapacity-related supports (e.g. illness and disability benefits and services, etc.)
>
> i. Pensions
>
> j. Long-term care services for elderly people
>
> k. Public safety (e.g. policing)
>
> l. None
>
> m. Don't know

Income inequality

21. **According to you, how much of your country's total income goes to the richest 10%? Please enter a number between 0 and 100 to indicate the percent of your country's total income that goes to the richest households.**

> *[0-100] %*

22. **In your country, out of 100 children coming from the poorest 10% of households in terms of income, how many do you think will still be living in a poor household (the poorest 10%) once they become adults?**

> Note: Please note that we refer to the poorest in terms of post-tax and benefit income.
>
> *[0-100]*

23. **Thinking now more generally about the evolution of income inequality in your country over the last decade, do you think that it has decreased, remained stable, or increased?**

> *[1. Decreased a lot; 2. Decreased a little; 3. Remained broadly stable; 4. Increased a little; 5. Increased a lot; 6. Don't know]*

24. **Governments can reduce income differences between the rich and the poor by collecting taxes and providing social benefits. In your country, do you think the government should do more or less to reduce income differences?**

    [Tick one]

    a. Government should do much less

    b. Government should do less

    c. Government should do about the same as now

    d. Government should do more

    e. Government should do much more

    f. Can't choose

25. **Should the government tax the rich more than they currently do in order to support the poor?**

    [*1. Definitely no; 2. No; 3. Neutral; 4. Yes; 5. Definitely yes; 6. Can't choose*]

Digitalisation, technology, and the changing world of work

The past few decades have been characterised by significant technological innovations in computing, automation, and artificial intelligence, which are contributing to an increased "digitalisation" or "computerisation" of our lives. In this section, we would like to ask about your views on the risks and opportunities related to the increased use of robots and digital technology at work.

26. **Do you think it is a good or a bad thing if robots and digital technology…**

    [*1. Very bad; 2. Bad; 3. Neither good nor bad; 4. Good; 5. Very good; 6. Can't choose*]

    a. … are increasingly used in most workplaces.

    b. … are increasingly used to evaluate job applications and make hiring decisions.

    c. … are increasingly used to help job seekers find a job.

    d. … are increasingly used to assess applicants' rights to public benefits.

[Filter: Q27 asked only if S12 == a OR b [i.e. currently in employment, or have been in employment in the past]

27. **How likely do you think it is that the following will happen to your job (or job opportunities) over the next five years?**

    Note: If you are retired or currently out of work, please answer for your most

    recent job. [*1. Very unlikely; 2. Unlikely; 3. Likely; 4. Very likely; 5. Can't*

    choose]

    a. My job will be replaced by a robot, computer software, an algorithm, or artificial intelligence.

    b. My job will be replaced by a person providing a similar service on an internet platform.

    c. I will lose my job because I am not good enough with new technology or because I will be replaced by someone with better technological skills.

  d. Technology will help my job and working hours become more compatible with my private life.

  e. Technology will help my job become less dangerous or physically demanding.

  f. Technology will help my job become less boring, repetitive, stressful or mentally demanding.

  g. My job could be lost due to a general downturn of the economy.

[Filter: Q28 asked only if S12 == a OR b [i.e. currently in employment, or have been in employment in the past]

28. Thinking more generally <u>about the industry in which you work</u>, how do you think the industry will change over the next five years as a result of digitalisation and technological progress?

Note: If you are retired or currently out of work, please answer for your most

recent job. [*1. Very unlikely; 2. Unlikely; 3. Likely; 4. Very likely; 5. Don't know*]

  a. Technology will lead to more people becoming self-employed and working for themselves.

  b. Technology will lead to more people working on temporary or fixed-term contracts.

  c. Technology will lead to more people working for multiple employers at the same time.

[Filter: Q29 asked only if S12 == a OR b [i.e. currently in employment, or have been in employment in the past]

29. To what extent do you agree with the following statements about digitalisation and the use of technology in the workplace?

Note: If you are retired or currently out of work, please answer for your most recent job.

[*1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose*]

  a. I feel that technology forces me to do more work than I can handle.

  b. I feel that technology is leading to work invading my personal life.

  c. I often find it difficult to understand how to use new technologies.

  d. I feel that new technologies are a constant threat to my job security.

  e. I feel that the pace at which new technologies are introduced in my workplace is overwhelming.

30. To what extent do you think each of the following should or should not be responsible for dealing with the potential negative side effects of technological change?

[1. Definitely should not be responsible; 2. Probably should not be responsible; 3. Probably should be responsible; 4. Definitely should be responsible; 5. Can't choose]

  a. The national government

  b. Intergovernmental organisations or political unions, such as the United Nations or, if you live in a European Union member state, the European Union

  c. Trade unions

    d.   Firms, businesses, and employers

    e.   Civil society groups, such as professional associations, non-profit organisations, and charitable organisations

    f.   Individual workers themselves

31. Governments can introduce measures aimed at helping workers and industries cope with the challenges created by digitalisation and technological change, such as outdated skills, skills shortages, and possible job loss.

Keeping in mind how much they might cost as well as how you and your family might benefit, to what extent would you <u>oppose</u> or <u>support</u> the government taking the following actions as a response to digitalisation and technological change?

[*1. Strongly oppose; 2. Oppose; 3. Neither support nor oppose; 4. Support; 5. Strongly support; 6. Can't choose*]

    a.   Investing more in university education and vocational training opportunities for young people

    b.   Investing more in re-training opportunities for working age people

    c.   Investing more in digital infrastructure, such as the broadband network

    d.   Introducing (or increasing) a tax on robots and/or technology companies

    e.   Introducing (or lowering) a limit on working hours, so that work can be shared across more workers

    f.   Making public benefits and services, such as unemployment benefits, more generous to provide a better safety net for workers facing possible job loss.

    g.   Introducing a universal basic income that covers essential living costs to everyone, regardless of their financial situation.

    h.   Promoting the migration of skilled workers to your country

32. Think of the following hypothetical scenario: Your government has decided to set up a special support fund to help with the challenges of digitalization and technological change. How would you distribute the funds across the different policy proposals below? The total needs to add up to 100.

[*0-100 for each item, with the sum forced to 100*]

    a.   Investing in university education and vocational training opportunities for young people

    b.   Investing in re-training opportunities for working age people.

    c.   Making public benefits and services, such as unemployment benefits, more generous to provide a better safety net for workers facing possible job loss.

    d.   Providing a universal basic income that covers essential living costs to everyone, regardless of their financial situation.

    e.   Providing subsidies to firms in industries that are hardest hit by technological change, so as to avoid job loss

33. Firms can also take actions to help workers overcome the challenges created by digitalization and technological change. This could include training, job search assistance, and compensation. Many of these actions would involve costs for firms, which may come out of profits, but may also be passed on through increased prices for goods and services or decreases in employees' salaries.

Keeping these factors in mind, to what extent do you agree or disagree that firms have a responsibility to their workers to take the following actions:

[*1. Strongly disagree; 2. Disagree; 3. Neither agree nor disagree; 4. Agree; 5. Strongly agree; 6. Can't choose*]

    a.   Provide workers with better training and re-training opportunities

    b.   Be open and transparent in informing workers about how data are used to monitor and evaluate their work performance.

    c.   Involve and consult workers in the adoption of new technologies

    d.   Help workers who have had their jobs replaced by technology find a new job (inside or outside the firm)

    e.   Provide financial compensation to workers who have had their jobs replaced by technology

    f.   Give workers complete ownership and control over any data collected by their employer on their work and at the workplace. Workers could then decide to share, trade or restrict access to this information (with their employer or a third party).

OECD Risks That Matter 2020: Background Questionnaire

1. **Please select your language:**

    [Show relevant languages per country, if more than one language. If only 1 language in country, then auto-recode and hide this question]

Country	Language #1	Language #2	Language #3
Austria	de_AT		
Belgium	nl_BE	fr_BE	de_BE
Canada	en_CA	fr_CA	
Chile	es_CL		
Denmark	da_DK		
Estonia	et_EE		
Finland	fi_FI	sv_FI	
France	fr_FR		
Germany	de_DE		
Greece	el_GR		
Ireland	en_IE		
Israel	he_IL		
Italy	it_IT		
Korea	ko_KR		
Lithuania	lt_LT		
Mexico	es_MX		
Netherlands	nl_NL	en_US	
Norway	nb_NO		
Poland	pl_PL		
Portugal	pt_PT		
Spain	sp_ES		
Slovenia	sl_SI		
Switzerland	fr_CH	de_CH	
Turkey	tr_TR		
United States	en_US	es_US	

Introduction

You are about to read and answer a series of background questions about your work and home life.

We assure you that all answers will be treated anonymously and confidentially. Your statements will not be used for commercial purposes.

Socio-demographics

Before we begin, we would like to know a little bit about you.

2. How would you describe yourself?

[Tick one]

    a. Male

    b. Female

    c. In another way

3. What year were you born?

    _____ *[Open text field; screen out if <18 or >64]*

4. In which country do you live?

[Dropdown list of 25 countries + "Other"; screen out if "Other" or if wrong country for market version selected]

5. Including yourself, how many people usually live in your household?

Note: Please include all people (adults and children), including people who usually live in your household but are temporarily living elsewhere.

    _____ *[open text field; valid entries >=1 and <=10]*

Your education

6. What is the highest educational level that you have attained?

[Tick one]

a.	No formal education	[CODE 1]
b.	Incomplete primary school	[CODE 1]
c.	Complete primary school	[CODE 1]
d.	Incomplete secondary school: technical/vocational type	[CODE 1]
e.	Complete secondary school: technical/vocational type	[CODE 1]
f.	Incomplete secondary: university-preparatory type	[CODE 1]
g.	Complete secondary: university-preparatory type	[CODE 1]
h.	Some university-level education, without degree	[CODE 2]
i.	University-level education, with degree	[CODE 2]

Earnings and income

7. **Please tell us the total *gross annual income* of your *household* in 2019.**

    Note: By gross annual income, we mean before tax and deductions, but including benefits/allowances. By household, we mean all members of your household, regardless of whether or not they are a member of your family.

    _____*[Open numerical field]*

8. **Please tell us the *total disposable (net) annual income* of your *household* in 2019.**

    Note: By disposable annual income, we mean *after* taxes, benefits, and allowances. By household, we mean all members of your household, regardless of whether or not they are a member of your family.

    _____*[Open numerical field; auto-recode S8 by equivalising for household size (divide by the square root of S5) and cross-referencing against national equivalised disposable income deciles]*

Employment status at the end of last year

9. **Were you employed and in paid work at any point during the last three months of 2019?**

    Note: We are referring here to your employment status in October, November, and December 2019, only. For the moment, please disregard any changes to your employment status in the months since.

    [Tick one]

    a. Yes
    b. No

[Filter: Only show S10 if response to S9=a ("Yes")]

10. **And were you working as an employee or were you self-employed?**

    Note: We are referring here to your employment status in October, November, and December 2019, only. For the moment, please disregard any changes to your employment status in the months since.

    [Tick one]

    a. Employee
    b. Self-employed

[Filter: Only show S11 if response to S10=a ("Employee")]

11. **What type of employee contract did you have? Were you employed on a permanent contract (i.e. an open-ended contract without a fixed end date), a temporary contract (i.e. job contract of limited duration) or employed without a contract?**

> Note: We are referring here to your employment status in October, November, and December 2019, only. For the moment, please disregard any changes to your employment status in the months since.
>
> *[Tick one]*
>
> > a. Employed on a permanent contract
> >
> > b. Employed on a temporary contract
> >
> > c. Employed without a contract

Current employment status

12. **And what is your employment status <u>now</u>? Are you now currently employed, have you been employed in the past, or have you never been employed?**

> Note: We are referring now to your current employment status (i.e. your status at the moment). Your answers here may be different to those for the previous few questions, which asked for your employment status in October-December 2019.
>
> *[Tick one]*
>
> > a. Currently employed
> >
> > b. Current not employed, but have been employed in the past
> >
> > c. Never been employed

[Filter: Only show S13 if S12=a ("Currently employed")]

13. **Are you currently working as an employee or are you self-employed?**

> Note: We are referring now to your current employment status (i.e. your status at the moment). Your answers here may be different to those for the previous few questions, which asked for your employment status in October-December 2019.
>
> *[Tick one]*
>
> > a. Employee
> >
> > b. Self-employed

[Filter: Only show S13 if S12=a ("Employee")]

14. **What type of employee contract do you have in your current job? Are you employed on a permanent contract (i.e. an open-ended contract without a fixed end date), a temporary contract (i.e. job contract of limited duration) or employed without a contract?**

> Note: We are referring now to your current employment status (i.e. your status at the moment). Your answers here may be different to those for the previous few questions, which asked for your employment status in October-December 2019.

[Tick one]

    a. Employed on a permanent contract

    b. Employed on a temporary contract

    c. Employed without a contract

[NOTE TO RESPONDI: Break in screener here. All following questions should come after the core questionnaire]

Living arrangements

15. In which one of the following regions of [#country#] do you currently live?

    _____*[show relevant regions for country]*

16. What is the size of the town or place you are currently living in?

[Tick one]

    a. Under 2,000 inhabitants

    b. 2,000 - 10,000 inhabitants

    c. 10,000 - 50,000 inhabitants

    d. 50,000 - 100,000 inhabitants

    e. 100,000 - 500,000 inhabitants

    f. 500,000 and more inhabitants

    g. Don't know

[PUBLIC USE FILE NOTE: Published in the public use microdata file with categories a. and b. aggregated together]

17. Thinking about the place where you currently live, are you and your family:

[Tick one]

    a. The outright owner
(i.e. you live in a house or apartment owned by you or a family member, without a mortgage)

    b. The owner paying a mortgage
(i.e. you live in house or apartment owned by you or a family member, with a mortgage)

    c. A tenant paying rent at the market rate
(i.e. you live in a rented house or apartment that you, your employer, or a family member pays for, without government assistance)

d. A tenant paying rent at a subsidised rate
(i.e. you live in a rented house or apartment offered or paid for partially through government assistance)

      e. Other

18. What is your current marital status?

[Tick one]

      a. Single

      b. Married or in a registered partnership

      c. Separated

      d. Divorced or previously in a dissolved registered partnership

      e. Widowed

[Filter: Only show S19 if S5>1 (i.e. household size is greater than 1)]

19.   **Do you currently live with a spouse or partner?**

[Tick one]

      a. Yes

      b. No

[Filter: Only show S20 if S19=a (i.e. they live with a spouse or partner)]

20. Is your spouse or partner currently employed, have they been employed in the past, or have they never been employed?

[Tick one]

      a. Currently employed

      b. Current not employed, but have been employed in the past

      c. Never been employed

21. How many children do you have?

      a. ____ *[open text field]*

      b. I don't have any children

[Filter: Only show S22 if (S21>=1 (i.e. respondent has at least 1 child) AND S5>=2 (HH size is min. 2)]

22. How many of your children currently live in your household?

      a. ____ *[open text field with plausibility check]*

23. How old (in years) is the youngest of your children currently living in your household?

        a.   *[open text field with plausibility check]*

24. Are you currently providing long-term care for elderly family members or for other family members with an illness or disability?

        [Tick one]

        a. No

        b. Yes, for an elderly family member

        c. Yes, for a young or working-age family member with an illness or disability

Current job

25. Please tell us which of these statements best describes your current situation. If more than one statement applies to you, please indicate the statement that best describes how you see yourself.

        [Tick one]

        a. Employee working full-time (30 or more hours per week)

        b. Self-employed working full-time (30 or more hours per week)

        c. Employee working part-time (fewer than 30 hours per week)

        d. Self-employed working part-time (fewer than 30 hours per week)

        e. Unemployed

        f. Student

        g. Apprentice or intern

        h. In retirement or early retirement

        i. Person with a long-term illness or disability and/or unfit to work

        j. In military or community service

        k. Looking after children or the family

        l. Other

26. Including yourself, how many workers in total work in your company or firm? Please include your local site and any workers at other locations of your company or firm.

        Note: If you are retired or currently out of work, please answer for your most recent job.

        [Tick one]

a. 1

b. 2-9 workers

c. 10-249 workers

d. 250+ workers

e. Don't know

f. Not applicable: Never been in work

27. **Which of the following occupations best describes your role in your current**

job? Note: If you are retired or currently out of work, please answer for your

most recent job. *[Tick one]*

a. Manager or senior official
(e.g. Director or chief executive, business manager, sales manager, production manager, human resource manager, shop manager, restaurant or hotel manager)

b. Professional
(e.g. Scientist, engineer, architect, doctor or nurse, veterinarian, teacher or professor, software developer, lawyer, journalist)

c. Technician or associate professional
(e.g. Science or engineering technician, medical or pharmaceutical technician, business or administration associate, ICT technician, sports coach or instructor, photographer, chef)

d. Clerical support worker
(e.g. Secretary, receptionist, customer service worker, bank teller, library clerk)

e. Service or sales worker
(e.g. Shopkeeper, sales assistant, child care worker, health care assistant, police officer, firefighter, security guard, cook, waiter, hairdresser or beautician, travel attendant, housekeeper)

f. Skilled agricultural, forestry or fishery worker
(e.g. Livestock, poultry or diary producer, crop producer, forestry worker, fishery worker, subsistence farmer)

g. Craft or trade worker
(e.g. Bricklayer, carpenter or joiner, plumber, electrician, plasterer, painter, blacksmith or metal worker, handicraft worker, butcher and food processing worker, tailor)

h. Plant and machine operator or assembly worker
(e.g. Miner, manufacturing plant machine operator or assembly worker, car, truck or locomotive driver)

i. Elementary occupation
(e.g. Cleaner, labourer, food preparation assistant, refuse worker)

j. Other / prefer not to answer

k. Not applicable: never been employed

28. Which of the following categories best describes the sector you primarily work in (regardless of your actual position)?

Note: If you are retired or currently out of work, please answer for your most recent job.

[Tick one]

a. Agriculture, forestry and fishing

b. Mining and quarrying

c. Manufacturing

d. Electricity, gas, steam and air conditioning supply

e. Water supply; sewerage, waste management and remediation activities

f. Construction

g. Wholesale and retail trade; repair of motor vehicles and motorcycles

h. Transportation and storage

i. Accommodation and food service activities

j. Information and communication

k. Financial and insurance activities

l. Real estate activities

m. Professional, scientific and technical activities

n. Administrative and support service activities

o. Public administration and defence; compulsory social security

p. Education

q. Human health and social work activities

r. Arts, entertainment and recreation

s. Other service activities

t. Other / prefer not to answer

u. Not applicable: never been employed

Online platform work and the use of digital technologies

29. How often do you use digital information and communication technologies (ICT), such as a computer, laptop or tablet, in your job?

Note: If you are retired or currently out of work, please answer for your most recent job.

[Tick one]

a. Constantly, most of the day

b. Several times a day

c. Several times a week

d. Several times a month

e. Less than several times a month

f. Never

g. Not applicable: Never been employed

30. **How often do you use complex technology in your job, such as robots or specialist software?**

Note: By "specialist software", we mean software that requires specialist training and/or advanced computing or programming skills to operate. This excludes common software/applications, such as Microsoft Office and other common workplace applications. If you are retired or currently out of work, please answer for your most recent job.

[Tick one]

a. Constantly, most of the day

b. Several times a day

c. Several times a week

d. Several times a month

e. Less than several times a month

f. Never

g. Not applicable: Never been employed

31. **In the past 12 months, have you used an app or online platform to find "gig" work?**

Note: By "gig" work, we mean short jobs or tasks, such as food or retail delivery, driving, IT work, data entry, or personal services, accessed using a smartphone app or online platform (e.g. internet website). Examples include being a driver for a ride-sharing app or a rider for a food-delivery app.

[Tick one]

a. No, never

b. Yes, once or a few times

c. Yes, occasionally (once every few months)

d. Yes, regularly (once a month or more often)

The COVID-19 pandemic and economic crisis

Note to users: Question 32 is excluded from the Public Use Microdata file for privacy protection.

32. **Has the COVID-19 pandemic and associated crisis affected your physical or mental health, or the physical or mental health of any member of your household, in any of the following ways?**

Note: This is just your opinion. You do not need to have received a formal medical diagnosis. The ways in which your (or your household's) physical health might have been affected include through decreased fitness, missed medical appointments, or any other physical health complications caused by the pandemic and crisis. The ways in which your (or your household's) mental health might have been affected include increased anxiety, depression, loneliness, or any other mental health complications caused by the pandemic and crisis.

[Tick all that apply]

a. You (or at least one member of your household) have/has contracted the virus

b. Your (or at least one member of your household's) physical health has been affected by the pandemic and crisis in another way

c. Your (or at least one member of your household's) mental health and well-being has been affected by the pandemic and crisis

d. No, none of the above

e. I would rather not answer

[PUBLIC USE FILE NOTE: Variable not available in the public use microdata file]

33. At any time since the start of the COVID-19 pandemic, have you or has any member of your household experienced any of the following?

[Tick all that apply]

a. Lost your job or been laid off permanently by your employer

b. Been laid off temporarily by your employer or been placed on a job retention scheme

c. Had your working hours reduced by your employer or been placed on a part-time job retention scheme

d. Had your pay reduced by your employer

e. Lost your self-employed job or your own business

f. Lost income from your self-employed job or your own business because of a drop in work, sales, or similar

g. Had to take leave from work (paid or unpaid), or had to work reduced hours, for at least one week due to own illness or advice or order to self-quarantine.

h. Had to take leave from work (paid or unpaid), or had to work reduced hours, for at least one week in order to look after children or an adult or elderly family member

i. Had to take leave from work (paid or unpaid), or had to work reduced hours, for at least one week for other reasons

j. Had to resign from your job due to own illness or advice or order to self- quarantine.

k. Had to resign from your job in order to look after children or an adult or elderly family member

l. Had to resign from your job for other reasons

m. No, none of the above

34. At any time since the start of the COVID-19 pandemic, have you or has your household experienced any of the following?

[Tick all that apply]

a. Failed to pay a usual expense (e.g. rent or mortgage, utility bill, credit card bill) because you could not afford to pay

b. Taken money out of your savings or sold assets to pay for usual expenses

c. Taken money from friends or extended family to pay for usual expenses

d. Taken on additional debt or used credit to pay for usual expenses

e. Asked a charity or non-profit institution for assistance because you could not afford to pay for usual expenses

f. Gone hungry because you could not afford to pay for food

g. Lost your home because you could not afford to pay the mortgage or rent

h. Declared bankruptcy or asked your bank or credit provider for assistance

i. No, none of the above

35. Overall, since the start of the COVID-19 pandemic, do you think that your household's
financial situation has got worse, stayed about the same, or improved?

[Tick one]

a. A lot worse

b. Worse

c. About the same as before

d. Improved

e. Improved a lot

f. Can't choose / difficult to say

[Filter: Show S36 only if S22>=1 and S23<=17 [i.e. they have at least one own child in the household and the youngest child is 17 or under]]

36. At any time since the start of the COVID-19 pandemic, have any of your children had their school/child care facility closed due to the virus? This could be for any length of time.

[Tick one]

a. Yes

b. No

37. In your household, who took on any additional care work as a result of school or child care facility closures? This could include leading/supervising the children's learning during school closure, watching/supervising children, and/or any other additional household or care work (e.g. cooking, cleaning) caused by school or child care facility closures.

[Tick one]

a. Entirely you

b. Mostly you

c. Equally shared between you and your spouse/partner

d. Mostly your spouse/partner

e. Entirely your spouse/partner

f. Mostly someone else (another member of your household or someone from outside your household)

g. A mixture of you (and/or your spouse/partner) and someone else (another member of your household or someone from outside your household)

h. Can't choose / difficult to say

i. Not applicable: The children did not need supervising and/or school and child care facility closures did not cause any additional unpaid care work in your household

Other questions

38. Which social class do you see yourself and your household belonging to?

[Tick one]

a. Lower class

b. Working class

c. Middle class

d. Upper-middle class

e. Upper class

f. I would rather not answer

39. Please feel free to share your thoughts on what social and economic risks you face, and whether and how government should address them.

_____*[Open text field; optional]*