



LUND UNIVERSITY

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# The Role of Gender and Childcare Responsibility on the Impact of Covid-19 on Employment

A Comparative Study by Gender Equality Index Across EU27 Countries

by

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## Abstract

Research on employment and Covid-19 has shown that women across the world have shouldered many negative socioeconomic consequences of the current global pandemic. This study looks at the relationship between gender, having children, and living with a partner, and the likelihood of losing employment or experiencing a decrease in paid working hours during the first wave of Covid-19 in the EU27 countries. The empirical analysis relies on the Eurofund “Living, Working, and Covid-19” survey, which was launched online on the 9<sup>th</sup> of April 2020, when many of the Member States were in lockdown, coupled with the Gender Equality Index of each Member State, to conduct a series of logistic regressions. The results for the overall sample show that women were less likely to lose employment but more likely to experience reductions in paid working hours than men. When the sample is further restricted to parents, no gender differences can be observed. While the analysis fails to uncover strong gender differences, having young children is found to be correlated with a lower likelihood of losing employment on one hand, and a higher likelihood of experiencing reductions in working hours. This effect is driven by Mid GEI countries. Lastly, living with a partner is strongly associated with lower likelihood of losing employment (effect detected in all GEI groups) and experiencing a reduction in working hours (driven by Mid GEI countries). These results suggest that having children and family composition are better predictors of employment losses and reductions in paid working hours than gender for the sample analyzed.

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# Abbreviations

EIGE	European Institute for Gender Equality
EU	European Union
EU27	Twenty-seven countries in the European Union
GEI	Gender Equality Index
MS	Member States
OECD	Organization for Economic Cooperation and Development

# 1. Introduction

## 1.1. Research Problem

2020 was a year that will be remembered mostly because of the global Covid-19 pandemic. The Covid-19 pandemic is not only a global health emergency but has also led to “a major global economic downturn” (Alon et al., 2020, p. 1). Only a few months after the first case of Covid-19 was identified in Wuhan, China, the world found itself experiencing the worst recession since the Great Depression (IMFBlog, 2020). This was caused by the many social distancing measures, i.e. limiting close face-to-face contact with others to reduce the spread of Covid-19 (CDC, 2020), that have been put in place by government because of the high transmissibility of the virus and a lack of known treatments. Such measures include severe restrictions ranging from lockdowns to moderate shutdowns of parts of the economy, along with school and daycare closures.

The worldwide social distancing measures (to different extents and timing) that have been put in place to slow the spread of the virus since March 2020 had many unintended social and economic impacts. Among the social and public health consequences of such measures are social and functional isolation and economic distress, which are due to a breakdown of existing social structures that has taken place (Bright, Burton & Kosky, 2020). Moreover, the closure of schools coupled with work-from-home adjustments have added to the stress at home. Parents in 2020 found themselves dealing with the stress and risks of a global pandemic, added to a change of the work environment (if not a higher health risk while at work, or worse, unemployment), and the responsibility to be educators and caretakers of their children 24/7. Along with affecting public health, mental health, and the regular ways most people lived their lives, the Covid-19 pandemic has greatly affected the economy and led to the unemployment of hundreds of millions of people around the world. Those who work in certain sectors have been able to switch to remote work, while many others have been faced with the risk of having to go to work (doctors and nurses, but also pharmacy and grocery shop employees, among others), and millions have lost their jobs. Estimates suggest that by December 2020 16 million people in the EU27 were unemployed; compared to December 2019, unemployment in 2020 rose by 1.95 million (Eurostat, 2020c). The effects on the overall economy and employment have been dire.

Concerns about the effects of the Covid-19 restrictions on the economy have generated a considerable body of research. Research on the current Covid-19 recession suggests that men and women have been affected differently by the crisis. Previous recessions have majorly hit male employment,

especially the 2008 recession which resulted in a new term coined for recessions: “mancession” (Alon et al., 2020b). However, differently from previous economic crises and recessions, the current crisis has affected women’s employment more than men’s (Alon et al., 2020a, 2020b; Boca et al., 2020). While the disruption in society and family life that derived from the pandemic has the potential to reshape gender relations, many are concerned that it will instead exacerbate underlying gender inequalities (Collins et al., 2020; Cook & Grimshaw, 2021). Understanding the mechanisms behind the gendered effects on employment of the Covid-19 restrictions is fundamental to inform policymakers on the social support and family support systems that need to be put in place when shocks like the Covid-19 pandemic hit. This is especially important as many health experts, including the World Health Organization Director-General Tedros Adhanom Ghebreyesus, are warning that the Covid-19 pandemic will probably not be the last pandemic we will experience in our lifetime (WHO, 2020). While there is a growing body of research on the gendered effects of the Covid-19 social distancing measures on employment, such studies have primarily focused on looking at one single country at the time, and few attempts have been made to look at such effects in EU Member States (hereinafter MS). To my knowledge, no study looks at such effects on the EU27 countries, grouping and comparing them. For such reasons, this study sets to be the first comprehensive look at gender differences in employment in the EU27 countries with a special emphasis on the power that gender norms, breadwinner norms, and childcare duties play into it.

A disproportionate gender effect of the Covid-19 pandemic impedes the achievement of gender equality as well as the realization of the full growth potential of a country. Gender Equality is a key component to economic growth and sustainable development. Goal number 5 of the United Nations Sustainable Development Goals is devoted to achieving gender equality and empowering all women and girls around the world. More specifically, target 5.4 is recognizing and valuing unpaid care and domestic work that women carry in the household and promoting the shared responsibility within the household and the family. For gender equality to be achieved, it is imperial that men and women are not held to different standards nor are expected to take on a disproportionate share of non-paid work within the family. Women in the world make up half of the population; however, they do not participate in the job market at the same rates as men. The fact that gender is such a contributor to this is even clearer when taking into consideration that women in many countries, EU27 included, are more educated than men (Eurostat, 2020b). A shift from the breadwinner model, e.i. where men are the sole source of income within the family (Pfau-Effinger, 1998), to a model that is based on gender equity in employment and the family duties, is imperial for gender equality to ever be achieved. This is because women need to be able to pursue careers and hold on to jobs as much as men are. If a family is composed of two parents and their children, why is it that one parent (usually



the woman) is expected to devote more of their free time to educating and caring for the children and the house? This could have been “the norm” when men were the main breadwinners, but the situation now is drastically different. Despite men having higher rates of Covid-19 related intensive care hospitalization and death rates (Peckham et al., 2020), Covid-19 has had a severe economic impact on women, which have lost employment across the world at higher rates than men (Oxfam, 2021). Not only that, researchers report women experiencing higher anxiety and loneliness rates and shouldering more of the childcare resulted from the lockdowns and school closures (Adams-Prassl et al., 2020a; Boca et al., 2020; de Pedraza, Guzi & Tijdens, 2020; Etheridge & Spantig, 2020). These social and economic effects of the pandemic are often interlinked, as mental health, loneliness, and higher childcare responsibilities can be linked with employment losses or working hours reductions. These gender differences in many aspects of life are certainly hurting the chances of reaching gender equality anytime soon.

## 1.2. Aim and Scope

There is a growing research sphere on the gendered differences in many aspects of life, from health to employment, induced by the Covid-19 pandemic. However, the issue of exploring the potential relationship between gender, childcare responsibilities, and employment has received little attention. Moreover, a comprehensive study on the effect of the Covid-19 social distancing measures on women’s employment in the EU27 MS is still missing from the literature. In light of this, this study aims to explore such issues under multiple lenses. First, looking at differences in the effects of Covid-19 on employment by gender and family composition, and then further exploring whether being a mother currently carries a premium in the likelihood of losing employment or working hours during the pandemic. These aspects will be looked at under a gender equality lens.

The Covid-19 pandemic has shocked the world’s economy as well as day-to-day life. Many wonder when the world’s population will be able to go back to “normality”, defined as life before the pandemic. Research that points to the fact that going through a global pandemic as a working parent has been hard for many, especially for mothers (Adams-Prassl et al., 2020a; Craig & Churchill, 2020; Etheridge & Spantig, 2020; ILO, 2020c), is emerging. If we lived in a gender-equal society, the share of responsibilities, and the stress that those cause on a parent would be equally shared between mothers and fathers. However, we do not live in a gender-equal world, yet. For such reason, this study aims at investigating whether the Covid-19 pandemic had a different impact on the employment of women versus men, and mothers versus fathers. The analysis of the EU27 countries will provide a

complete overview of this issue in the EU while giving the opportunity to compare more gender-equal countries with countries where gender equality is still far from being reached anytime soon. In order to do this, the Gender Equality Index 2020 (hereinafter GEI) provided by the European Institute for Gender Equality (EIGE) will be integrated with data from the Eurofound “Living, Working and Covid-19” survey dataset. This will provide insights on whether the perception of the role of women (and men) makes a difference in the likelihood of women being disproportionately negatively hit by the effects of Covid-19 on employment. While the perception of the role of women is not directly observed in the data, the integration of the GEI offers a way to take this into consideration during the analysis. Because public policies affect the mitigation or exacerbation of gendered impacts in cases of disruption (Cook & Grimshaw, 2021), research on the extent and the mechanisms that are affecting women’s employment are fundamental to inform policymakers on the best course of action to mitigate the effects of shocks like the Covid-19 pandemic.

This research project, therefore, seeks to address three research questions. Firstly: *“Can gender and family composition, i.e., having children, explain differences in employment loss and working hours reduction in EU MS?”* From that, the following sub-question will be addressed: *“Is there a difference in such effects in MS that are more gender-equal?”*. Lastly, the final question to be addressed will be: *“Is there a difference in such effects between mothers and fathers in MS that are more gender-equal vs less gender-equal?”*. Focusing on a single country fails to capture important differences across EU countries that are characterized by differences in cultural attitudes and welfare structures towards female labor force participation (Cipollone, Patacchini & Vallanti, 2013). For such reason, the EU27 countries, with different levels of gender equality, and different welfare state structures, are chosen for the analysis.

The empirical strategy utilized to answer the research questions mentioned above will include a series of logistic regression models. Investigating the effects of the pandemic on the female labor market is relevant for several reasons. First, women’s labor force participation is a crucial component to reach gender equality. Secondly, analyzing such effects between European countries with different gender equality scores offers the possibility to investigate whether higher gender equality is reflected on the female labor market, also in times of extreme shocks to the economy and the social sphere. Lastly, analyzing the effects of Covid-19 on employment on parents will provide insights on the possible gender differences that being a parent reflects on the labor market. This will shine a light on the different mechanisms that affect women’s labor force participation.

## 1.3. Outline of Thesis

The remaining of the thesis is organized as follows. Chapter 2 contains a background on women's employment and Covid-19 restrictions at the time of the survey. Chapter 3 lays out the theoretical background utilized for this research and reviews the existing and emerging literature regarding the gendered differences in the social effects of the Covid-19 pandemic. Chapter 4 presents the data used for this research investigation and presents descriptive statistics of the survey participants. Chapter 5 describes the methodology chosen for this study and the technical aspects of the econometrics models used. Chapter 6 presents and discusses the main findings of the study, with comments on the practical limitations of this study. Lastly, chapter 7 discusses and concludes this thesis, with a reflection on the results and recommended future research.

## 2. Background

### 2.1. Women's Employment

Globally, women make up 38.8% of the total labor force (World Bank, 2020). In the European Union, that percentage is up to 45.8% (World Bank, 2020). The 1997 Amsterdam Treaty marks a turning point for gender equality in the EU as it enabled the gender dimension to be integrated into EU policies and “established the principle of equal treatment as a fundamental right” (Cipollone, Patacchini & Vallanti, 2013, p. 2). Following, from the 1990s onwards, female labor force participation as a percentage of total labor steadily increased until 2010, when it started to level off (Figure 2-1). Female labor force participation, the share of employed women out of all women in the age between 15 and 65, in the EU in 2019 was 50.8% while male labor force participation was 63.9% (ILO, 2020a). Female labor force participation rates in OECD countries have been increasing since the 1970s, but remain below the rates of men (Klasen, 2019).

While female labor force participation in the EU is not yet at the level of male participation, in most EU countries it is considerably higher than in many other parts of the world. Interestingly, most of the long-run increases in female employment in the last century are attributable to an increase in employment of married women, while the employment rate of single never-married women has only slightly increased (Ortiz-Ospina, Tzvetkova & Roser, 2018). This is mostly because labor force participation of young women has decreased as they are now spending the years of their young adult life in higher education, coupled with the fact that educated women are more likely to join the labor force as they want to make use of the investment they made in getting a higher education (Franz, 1985). Nowadays, women in the EU27 countries are more educated than men. The share of European women (aged 30-34) having completed tertiary education is 45% versus 34% for their male counterparts (Eurostat, 2020b). This should translate to higher participation of women in the labor force compared to men, especially because women make up 51% of the EU population (Eurostat, 2020b). However, this is not the case in the EU, where there is still a significant gender employment (and pay) gap.

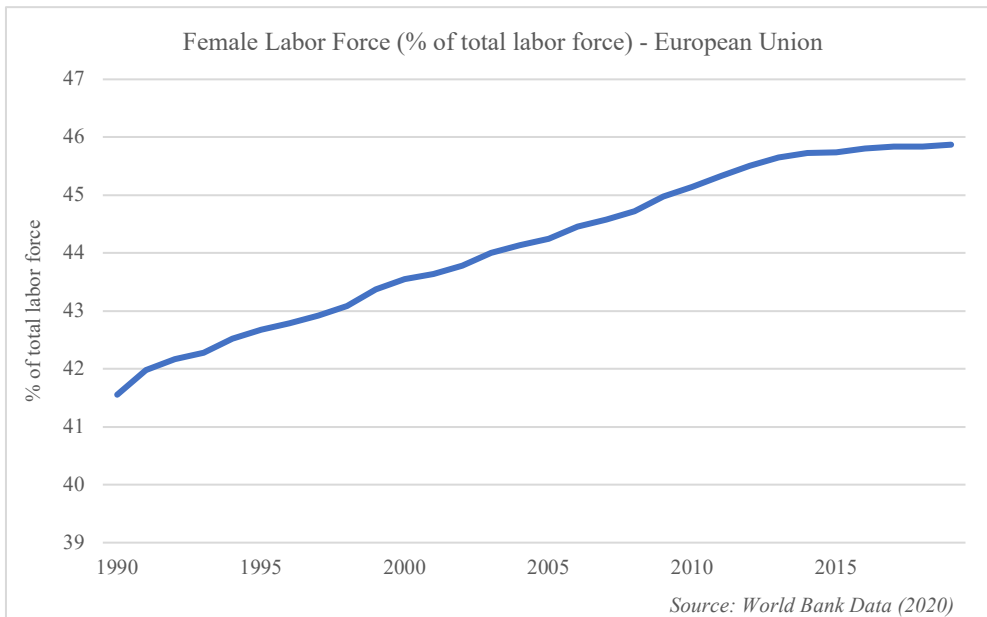


Figure 2-1: Female Labor Force (% of Total Labor Force) - EU, 1990-2019(World Bank, 2020)

## 2.2. Women’s Employment and Covid-19

The Covid-19 pandemic had serious effects on employment in most countries around the world. While the global decline in working hours in 2020 was dire, employment losses were lowest in EU MS, as in these countries job retention schemes avoided the layoff of millions of workers (ILO, 2021). EU27 countries entered the Covid-19 crisis with a fairly low unemployment rate, which was at its lowest since January 2000 (EC, DG ECFIN, 2020). However, the shock that Covid-19 caused to the economy was soon felt, and unemployment spiked at almost 8% (Figure 2-2). Looking at female unemployment, and its trend during the first wave of the Covid-19 pandemic, striking differences can be observed (Figure 2-3). Female unemployment significantly increased in the first half of 2020, reaching 17% in July 2021.

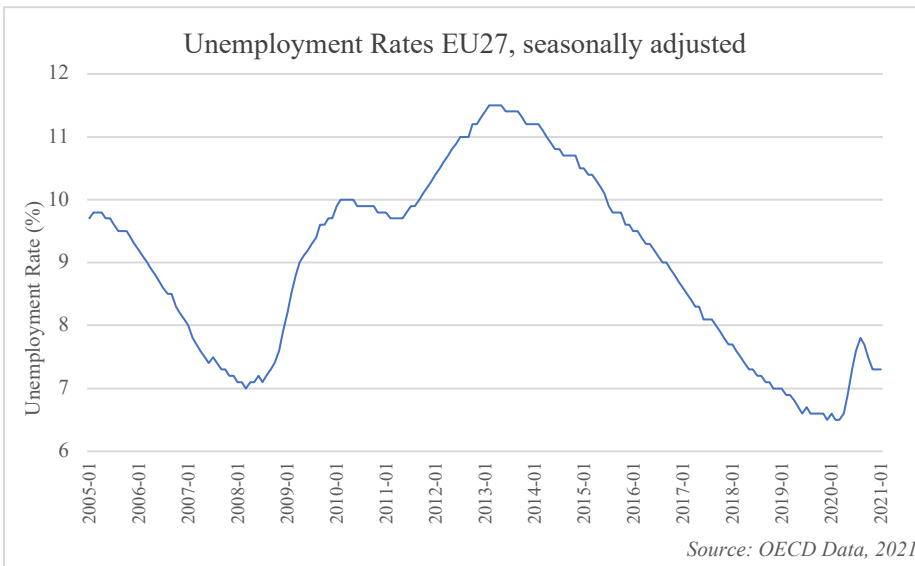


Figure 2-2: Unemployment Rate in the EU, Seasonally Adjusted, January 2005-2021(OECD Data, 2021)



Figure 2-3: Female Vs Total Unemployment Rates EU27, Seasonally Adjusted, July 2019-2020 (Eurostat, 2020a)

“Equal opportunity and equal treatment in the labor market are at the core of decent work” (ILO, 2019). However, the Covid-19 pandemic has hit women’s labor market the hardest. Farré et al., (2020) find that women in Spain were more likely to lose their job than men during lockdown and quarantine measures. Similarly, Adams-Prassl et al., (2020a) find that women were more affected by the impacts of the Covid-19 crisis on the labor market. Alon et al., (2020b) argue that this is the first time that a recession has affected employment of one gender so disproportionately compared to the other. Many are arguing that the Covid-19 crisis is increasing gender inequalities in both paid and unpaid work, at least in the short run (Adams-Prassl et al., 2020b; Alon et al., 2020a; Boca et al., 2020; Farré et al., 2020a).

The International Labour Organization warns that “working moms are being squeezed out of the labor force” (ILO, 2020c). Multiple studies have found that women have taken on a higher share of the extra housework and childcare that has resulted from the closure of schools and daycares (Alon et al., 2020b; Boca et al., 2020; Craig & Churchill, 2020). This can mostly be reconducted to gender stereotypes. Gender stereotypes that accent the role of women as the main responsible for housework and childcare and view men as the breadwinners are still ingrained in many regions of the world (ILO, 2020b). Unpaid care and housework are fundamental activities in everyday life that because of cultural norms and gender stereotypes tend to fall mostly on women. When looking at the female-to-male ratio of time devoted to unpaid care in selected EU countries, it is clear that women in such countries share different housework burdens (Figure 2-4). Gender stereotypes and cultural views vary highly between Southern and Northern European countries, which is a contributing factor to the unequal distribution of house and care work within the household. While the issue of uneven distribution of non-paid work within the family was present before the pandemic, the social distancing measure and stay at home recommendations have acerbated such differences.

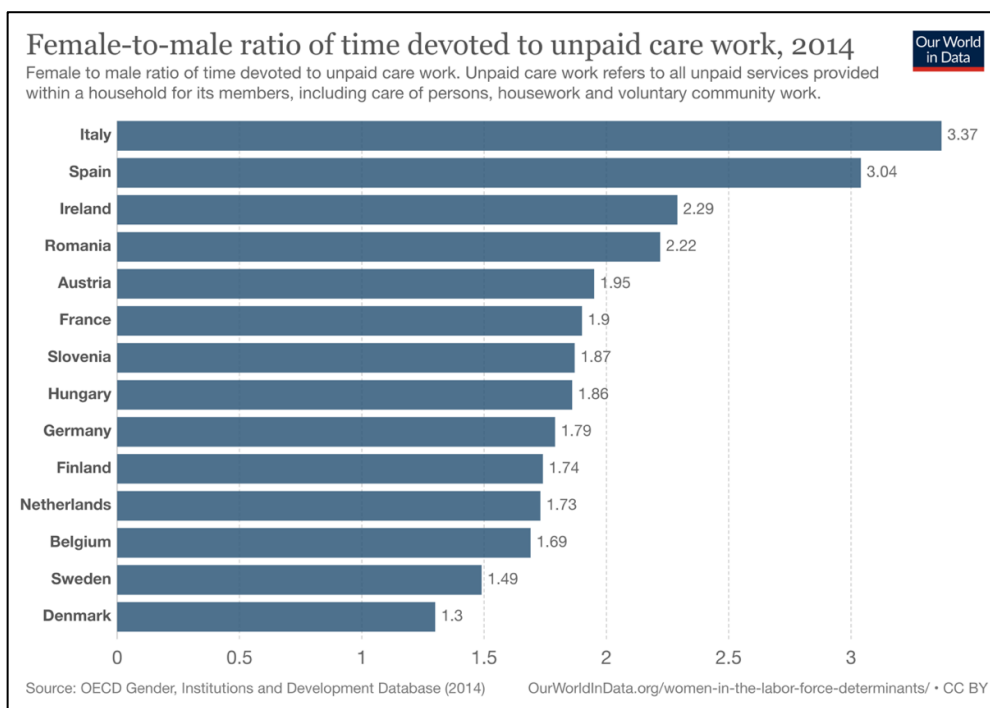


Figure 2-4: Female-to-Male Ratio of Time Devoted to Unpaid Care Work, 2014 (Ortiz-Ospina, Tzvetkova & Roser, 2018)

## 2.3. Survey Timing

The data utilized in this study comes from the Living, working and Covid-19 Eurofound e-survey. The first round of the survey was conducted from April 9<sup>th</sup> 2020 to June 11<sup>th</sup> 2020. The second round of the survey was conducted between June 22<sup>nd</sup> 2020 and July 27<sup>th</sup> 2020. Given the speed of the spread of Covid-19 around the world and the policy responses that followed, it is important to situate the timing of the survey in respect to the mandated shutdowns and especially school closures, as the focus of this study is gender, as well as the extra burden of having children at home for parents, and especially for women. By March 17<sup>th</sup> 2020, the European Council members had agreed to enforce a coordinated temporary restriction on non-essential travel for the EU for 30 days (Timeline - Council Actions on Covid-19, 2021). Italy was the first European country to close schools on March 5<sup>th</sup> 2020. At that point, Italy had the highest number of cases within the EU. By March 16<sup>th</sup> 2020, most EU countries had closed schools and daycares, and enforced strict social distancing measures. Sweden was the only country in the EU that decided to leave preschool and school (children aged 7-16) open while shutting down upper secondary and tertiary education. Learning support was provided and children and parents had to quickly adapt to homeschooling. This situation was prolonged for months, and many countries are still imposing restrictions on schooling in 2021. Around the same time, companies and governmental offices started to recommend or impose teleworking options for their employees. Not all workers were able to switch to working from home; however, at least for the first couple of months of the pandemic, many were forced to stay home because of the lockdown measures and closures of businesses. Many lost their jobs, and many more were forced to leave their business's doors shut or decrease their working hours.



## 3. Theory

### 3.1. Theoretical Background

The aim of this research study lies in asserting the impact of Covid-19 on female employment and on mother's employment compared to their male counterparts. A growing number of researchers are interested in the gender disproportionate effects that the Covid-19 induced recession is having around the world (Boca et al., 2020; Cook & Grimshaw, 2021; Craig & Churchill, 2020; Etheridge & Spantig, 2020; Farré et al., 2020a). However, such research has usually focused on a single country or a handful of countries at the most. This study aims to fill the gap of research on the effects that the Covid-19 social distancing measures had on employment in the EU27 countries. Because the study analyzes the whole EU, the GEI is utilized to categorize countries into three groups based on their score. The GEI is estimated by the European Institute for Gender Equality. It is a tool to measure the progress of gender equality in EU27 countries comprised of six core domains: work, money, knowledge, time, power, and health; and two additional domains: violence against women and intersecting inequalities. Not only that, but this study also aims at looking at gender differences specifically for parents in the EU27 countries. The role that childcare can play in women's (and men's) lives might in fact be fundamental to explain differences in the effects of the Covid-19 crisis on employment. In the current section, an analysis of different gender theories that are relevant to use as a theoretical framework for this study is offered. Following, in sections 3.1.1 overview of the Gender Revolution, and in section 3.1.2 an overview of feminist theory applied to the labor market and household/childcare duties at home, can be found. These will serve as the theoretical framework for this study.

#### 3.1.1. The Gender Revolution

Gender has long determined who is to take on the burden of domestic labor (Ferree, 1990). Women have long been relegated in the home to take care of the housework and the children. However, following the First Industrial Revolution, two spheres of human activity were created: the public and the private (Goldscheider, Bernhardt & Lappegård, 2015). Initially, the public sphere was dominated by men, while the private sphere was dominated by women, which were taking care of the home and the family (Goldscheider, Bernhardt & Lappegård, 2015; Tilly & Scott, 1980). This gave birth to what Goldscheider, Bernhardt, and Lappegård (2015) call the *gender revolution*, which provides a framework for understanding the changing family behavior of modern society.

The first part of the gender revolution began when women “emerged out of the home and entered the public sphere” (Goldscheider, Bernhardt, and Lappegård, 2015, p. 210). The women’s move towards the public sphere was allowed by an increase in demand for female work (Oppenheimer, 1970), coupled with the demographic transition that left women with more time available as they were having fewer children (Watkins, Menken & Bongaarts, 1987). This reshaping of women’s lives led to women having major responsibilities in the workplace as well as the family sphere (Goldscheider, 2000). In Goldscheider, Bernhardt, and Lappegård’s (2015) view, this resulted in a “weakening of the family” as women were taking on “substantial economic support responsibilities, with little relief from their family responsibilities” (p. 210). This is because men have not fully responded to this shift in responsibilities, enjoying the perks of the additional income coming from their wives, while not committing to relieving some of the family burden of housework and childcare. As Goldscheider (2000) writes: “gender equality will have to be achieved in the family, as it has in the public sphere” (p. 535).

The more recent second part of the gender revolution saw an increase in men’s involvement in the private sphere of the home and the family (Goldscheider, Bernhardt, and Lappegård, 2015). However, the second part of the gender revolution has had different timings and different extents depending on the country observed. While it is underway in many countries, it is not far advanced. The difference in the extent of the increase in father’s involvements in the home and the family is shaped by cultural norms and beliefs. “Every individual is at some time a member of a family, and every society defines family roles” (Watkins, Menken & Bongaarts, 1987, p. 346).

Following this framework, this study, looking at employment under the lens of childcare responsibility, aims at unveiling the possible implications that gender unequal roles within the family can have on the likelihood of women being disproportionately hit by the effect of the Covid-19 pandemic on employment. Following this theory, couples which live in countries that are still in the first stage of the gender revolution may conclude that the additional housework and childcare unpaid labor will be the responsibility of the woman, while in countries where the gender revolution has entered its second phase, fathers could shoulder some of this extra work. According to this framework, it follows that when in a certain society’s family roles are less gender-equal, women will take on a disproportionate share of housework and childcare.

### 3.1.2. Feminist Theory – Gender Equality in Paid and Unpaid Labor

In feminist theory, there is no common view on what gender equity means. Is it to have the same opportunities in the labor market for men and women, or is it to pay women for the unpaid work that they do at home, childbearing, and childcare? Perhaps a third possibility is to make men become more like women (Fraser, 1997; José González, Jurado & Naldini, 1999). Perhaps gender equality does not mean that women should be treated like men, because as a matter of fact, they are the sole ones that can bear children and are able to breastfeed. Fraser (1997) argues that a possibility is to induce men to take on the roles that women have traditionally been taking on, deconstructing the gender order. While currently, it is women which in large part have to adapt to the job market, this solution would imply that jobs would be designed for people that are caregivers, regardless of their gender (Fraser, 1997; José González, Jurado & Naldini, 1999). Fraser, (1997) proposes three models to substitute the breadwinner model: the *Universal Breadwinner Model*, the *Caregiver Parity Model*, and the *Universal Caregiver Model*. While policies are needed to move towards this *Universal Care Giver Model*, as the introduction of maternal and paternal leave, probably “the most utopian transformations concern change in the perceptions and preferences of partners within families” (José González, Jurado & Naldini, 1999, p. 31). Fraser (2007) argues that gender has a two-dimensional conception. From the distributive perspective, gender appears to be rooted in the economic structure of society, as the principle of the division of labor underlined the fundamental division between paid productive labor and unpaid labor that is domestic and reproductive labor, which is assigned mainly to women (Fraser, 2007). However, from the recognition perspective gender appears to be a status differentiation, “rooted in the status order of society” (Fraser, 2007, p. 24). As a result of this, women suffer gender-specific subordination (Fraser, 2007).

Following gender theory and the application of gender theory to paid and unpaid labor by Fraser (2007), it is clear that gender roles still persist in society and multiple aspects need to be tackled to ensure that gender equality is reached. In light of this theory, we ought to investigate gender differences within the family and outside the family, in society at large. Women should not be discriminated against and they should not have to reduce their working hours or renounce working because society expects them, or has taught them, to be the caretakers of the household and the children in the house.

## 3.2. Previous Research

### 3.2.1. Why a Pandemic Recession is Different

The effects of economic crises and recessions on female employment are still debated. Many argue that recessions have traditionally hit male employment the most (Alon et al., 2020b; Marchand & Olfert, 2013). However, Cotter, Hermsen and Vanneman (2001) find that the impact of financial crises on female employment has been negative and such effects have persisted for about five years after the crisis. Gender inequality in the labor market of advanced economies has been linked, among other things, to the unequal division of childcare and childbearing (Beland et al., 2020; Kleven, Landais & Sogaard, 2019; Kotsadam & Finseraas, 2011; Miller, 2011). This, during the Covid-19 pandemic, has been exacerbated by the closure of schools and childcare centers. Alon, Dopke, Olmstead-Rumsey, and Tertilt (2020b) argue that the major difference between regular recessions and the current pandemic recession is in the role of women's employment. While traditionally male-dominated sectors like construction and manufacturing are hit the hardest in a recession, this time it has been female-dominated sectors like hospitality, leisure, and travel that have been hit the hardest (Alon et al., 2020b). On top of this, social distancing measures have included the closure of daycares and schools, which has resulted in a reduction in parents' time availability, paired with employment losses (Alon et al., 2020b). From this, they argue, that women's employment has been more affected than men's because of the increases in childcare needs. This is because, in many countries, women tend to take on a higher share of childcare than men (Boca et al., 2020; Goldscheider, 2000).

Business cycles have been shown to impact labor outcomes differently between men and women (Solon, Barsky & Parker, 1992). This is because men's labor outcomes have historically adjusted more to business cycles than women's, "gaining more in upturns and losing more in recessions", which has had an effect on the narrowing and widening of the gender (wage and employment) gaps (Marchand & Olfert, 2013, 2). Alon, Dopke, Olmstead-Rumsey, and Tertilt (2020b) in light of the cyclicity of business cycles and the subsequent effects on the gender gap, call the current pandemic recession a *shecession* as it has affected women's employment the most. They argue that a *shecession* is different from a *mancession* because of the difference in the role that women and man's employment play within the household, and this will have long-lasting consequences on the gender structure of the labor market. While recessions have traditionally narrowed the gender (pay and employment) gap (Marchand & Olfert, 2013; Solon, Barsky & Parker, 1992), as men have lost skills while unemployed has functioned as an equalizer in the labor market, a pandemic recession will most likely widen the gender gap. Women in many families are still the secondary earners. This means that in traditional recessions when men lose employment, their wives step in and either join the labor force, or if they are already working, increase their working hours, e.g. move from part-time work to full-time work (Alon et al., 2020b). This functions as a shock absorber (Alon et al., 2020b). However, in the case of the Covid-19 pandemic, Alon, et al. (2020b) argue, this has not been possible as

women's employment sectors have been hit the most and childcare outside of the house was no longer available, which is a duty that most women have taken on. Moreover, the men cannot take on more work to make up for their wives' job loss as men are usually working full time already, earning (on average) the highest share of the family income.

### 3.2.2. The Social Consequences of Covid-19

There is a growing research sphere on the effects that the pandemic is having on widening gender inequalities. Research on the effect of the Covid-19 pandemic on mental health finds that social distancing measures are hurting individual's mental health. De Pedraza, Guzi, and Tijdens (2020) find that the social distancing restrictions and prolonged lockdowns have negatively affected individual well-being. Women's physical and mental health especially appears to have been hit the most during this crisis. Research on the effects of lockdown measures in the US finds that lockdowns have negatively affected mental health and that the effect was entirely driven by women (Adams-Prassl et al., 2020b). These results are similar to those reported by de Pedraza, Guzi, and Tijdens (2020) who find that women in 2020 reported anxiety feelings more often than men. While these studies do not further investigate what the possible reasons for these gender differences in mental health as a result of the current pandemic are, the authors mention that family care burdens might be a possible explanator.

The effects of lockdowns and isolations have also been linked to increases in domestic violence towards women (Bright, Burton & Kosky, 2020), as most shelters closed down and reporting such crimes becomes harder for victims (Evans, Lindauer & Farrell, 2020). Research on helpline data points to falls in calls related to domestic violence (Brühlhart & Lalive, 2020; Miller, Segal & Spencer, 2020), which could be interpreted as a non-increase in domestic violence, but also as lockdowns being detrimental for victims, as their power to get away from their abuser falls dramatically. Other research points to the inability to meet financial obligations and maintaining social ties to be the cause of increases in domestic violence, operating through social isolation and decreases in bargaining power for women, due to employment loss (Beland et al., 2020).

Research on the effect of the Covid-19 lockdown in Spain shows that the pandemic, in the short-term, has reinforced gender inequalities in paid and unpaid work (Farré et al., 2020a). Research comparing the effects of Covid-19 on employment in the UK, US, and Germany finds "staggering cross-country differences", as well as within countries, "in the labor market impacts of the Covid-19 epidemic" (Adams-Prassl et al., 2020, p. 2). Interestingly, Adams-Prassl, Boneva, Golin, and Rauh (2020) find

that in the UK and the US, there is a gender gap in job loss, with women being more likely to lose their job during the Covid-19 pandemic, even when controlling for occupation, while this difference is not found in Germany. Similarly, Gezici and Ozay (2020) find that in the US women were more likely to be unemployed as a result of the Covid-19 pandemic, even when controlling for education and sector of employment. While these studies have highlighted an important gender issue in the likelihood of losing employment during the Covid-19 recession, they fail to take into account a major component that could explain gender differences: childcare.

The closure of schools has long been used as a tool to slow down the spread of pandemics (Cauchemez et al., 2009). The Covid-19 pandemic was no exception and many countries closed schools to slow down the spread of the virus. As schools and after-school activities (sports, afterschool clubs, etc..) in many countries have shut down (Alon et al., 2020a), family childcare needs have increased greatly. Regarding housework, Farré, Fawaz, Gonzalez, and Graves (2020) find that in Spain the childcare and housework's load taken on by parents of both sexes increased during the lockdown, with women taking on a higher share. Craig and Churchill (2020) find the same dynamic at play in Australia. Similarly, Alon, et al. (2020b) find that in the US, reductions in childcare services outside of the house had impacted more working mothers than working fathers. Similarly, Carlson, Petts, and Pepin (2020) find that while the division of labor within the household, in general in the US, has become more egalitarian, in families where the woman was conducting a disproportionate amount of housework before Covid-19, the pandemic has increased the burden of housework and childcare for women. Boca, Oggero, Profeta, and Rossi (2020) find that in Italy, while both men and women had to dedicate more time to childcare and homeschooling, women took on a higher share of it along with being the sole responsible for the additional housework.

This disproportional share of housework and childcare within the family has been linked to a reduction in working hours for mothers. In a recent study, Collins, Landivar, Ruppner, and Scarborough (2020) find that due to the increase in childcare and housework needs that have resulted from the social distancing and stay-at-home measures, women in the US have reduced their employment contributions, scaling back their working hours to meet new caregiving demands. Their findings point to a reduction in working hours for mothers of about two hours per week, while fathers' working hours remained stable. That is almost double that observed in the 2007-2009 recession (Collins et al., 2020).

Overall, the growing literature on the effects of Covid-19 on men and women points to the fact that women have been hit the most by the social distancing restrictions and school closures. The empirical

evidence points at reductions in employment and paid working hours for women. However, only a few studies focus on gender differences for parents, failing to bring childcare as a possible explanatory mechanism for the gender gap in employment loss. Not much attention has been paid to the potential explanatory factor of gender expectations for housework and childcare, a gap that this study aims to fill. Moreover, the literature on the effects of the Covid-19 measures on employment for European MS is scarce, and it is missing for the EU as a region. For such reason, this study sets to be the first comprehensive study of the effects of Covid-19 social distancing measures on employment by gender, with special attention to parents and the role that gender expectations for childcare might play in explaining the current gender employment gap.

Based on the theories and previous research above, the following hypotheses regarding the link between gender, childcare needs, and the effects of Covid-19, are the base for this study:

- i. *Hypothesis 1*: Female employment was affected more than male's employment, and having children increases the likelihood of women to have lost their jobs or reduced their working hours due to Covid-19;
- ii. *Hypothesis 2*: In less gender equal countries, female employment was affected more than male's employment as women are the ones that tend to take on childcare responsibilities within the couple;
- iii. *Hypothesis 3*: Mother's employment was affected more than fathers' employment because mothers were left to deal with childcare needs. Because mothers were left to shoulder childcare needs, mother's employment was affected more than father's employment.

## 4. Data

### 4.1. Data Source

The data used in this study comes from the Eurofound “Living, Working and Covid-19” survey that was launched in April 2020. As of April 2021, two rounds of the survey have been completed and made available for research. The survey was conducted via the SoSciSurvey platform for the EU27 countries (Eurofound, 2020). The recruitment of respondents was conducted via uncontrolled convenience sampling, sharing the survey link on social media and with Eurofound’s stakeholders and contacts. The sample was weighted to be representative of each of the EU27 countries demographics. Women and people aged 50-65 were overrepresented in the sample, thus data was weighted by age, gender, education, and urbanization level (Eurofound, 2020). Because this is an online survey open to all and the responses were skewed towards particular demographic groups, weights are applied in the tables and graphs to offer a view of the sample populations that represents the EU27 population as a whole. Applying weights compensates for the differential sampling ratios used in the data gathering process (Orr, 1964). Table A.1 (Appendix) reports the distribution of the sample by country with weights and without weights, as well as the Eurostat EU27 populations of each individual country as a share of total EU population. From the table, it can be observed that the weights in the data have the function to make the sample representative of the EU27 countries.

The dataset excludes partial interviews, and answers like “don’t know” “prefer not to answer” and “not applicable” options, along with questions that were skipped/not answered, which are coded as missing values. The survey includes questions on the country of residence, gender, age, life satisfaction, employment status, childcare needs, and worries in times of Covid-19. The questions asked about the employment status and the effects Covid-19 had on the individuals’ work and family arrangements provide the opportunity to investigate the effect of Covid-19 on men and women. The timing of the first round of the survey, conducted between April 9<sup>th</sup> 2020 and June 11<sup>th</sup> 2020, provides data for the first peak of the Covid-19 outbreak in the EU, at which time many countries had closed schools, enforced lockdowns or restrictions, and enforced telecommuting orders or strong recommendations to work from home when possible. All EU countries had some sort of lockdown or social distancing measure into place when the first round of interviews was conducted. This is fundamental to ensure that there are not striking differences between the countries analyzed. While some countries had harsher restrictions in place than other countries, in all countries many were told



to switch to teleworking and all but one European country, Sweden, had closed their schools at the time of the first survey wave to limit the spread of the virus.

In order to examine gender differences in employment due to the Covid-19 pandemic, two analytical samples are used for this study. The total participants to the survey for the first round were 68,146. The sample was restricted to individuals that answered female or male to the gender question to observe the gender component, and then to individuals in working age (18-65). Following, observations of individuals retired, students, homemakers, and individuals unable to work due to long-term illness were excluded, leading to a sample of 48,045 observations. The sample was then further restricted to only parents, resulting in 16,707 observations.

## 4.2. Descriptive Statistics

This study joins a growing number of studies investigating the gendered effects of Covid-19 on employment. It is, however, the first to do so for the EU27 countries all together. Table A-2 in Appendix reports detailed description of the weighted sample, while table A-3 (Appendix) reports a description of the unweighted sample. This section offers an extensive overview of the data, highlighting employment losses as well as the distribution of housework and childcare within the family.

Looking at the Eurofund data, of the 48,045 people in the sample, slightly less than 30% reported losing employment when asked in the first round of interviews, that took place between April 9<sup>th</sup> 2020 and June 11<sup>th</sup> 2020. Overall, the gender differences for job loss seem imperceptible (Figure 4-1). However, the situation is different when looking at gender differences in the change in working hours. Women report significantly decreasing working hours more than men, and they also report significantly increasing working hours more than men (Figure 4-2). From this it seems that women had to adjust working hours more than men, which could imply a major flexibility expected for women. Overall, a significant number of men and women (over 45% of respondents) found their working hours reduced as an effect of the Covid-19 pandemic.

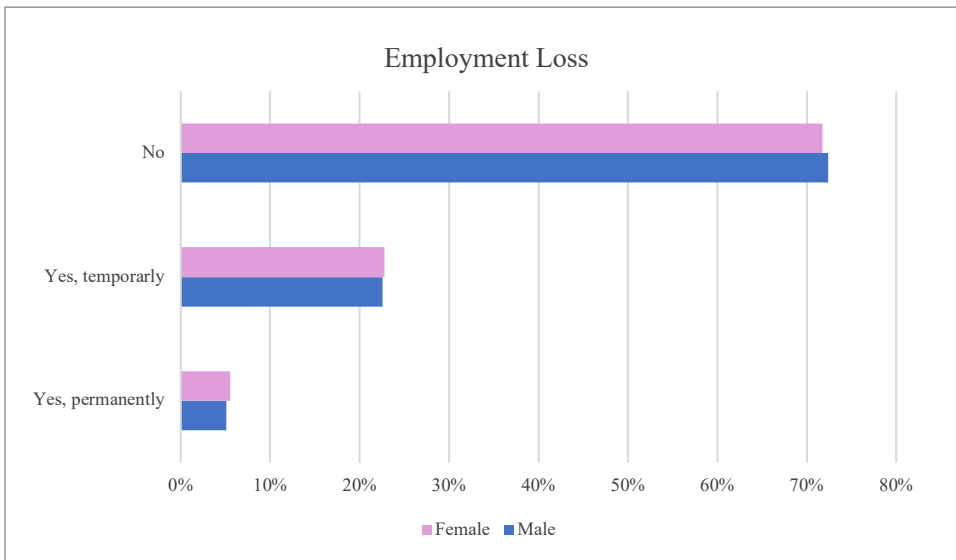


Figure 4-1: Job Loss During Covid-19 Pandemic by Gender, Weighted Sample

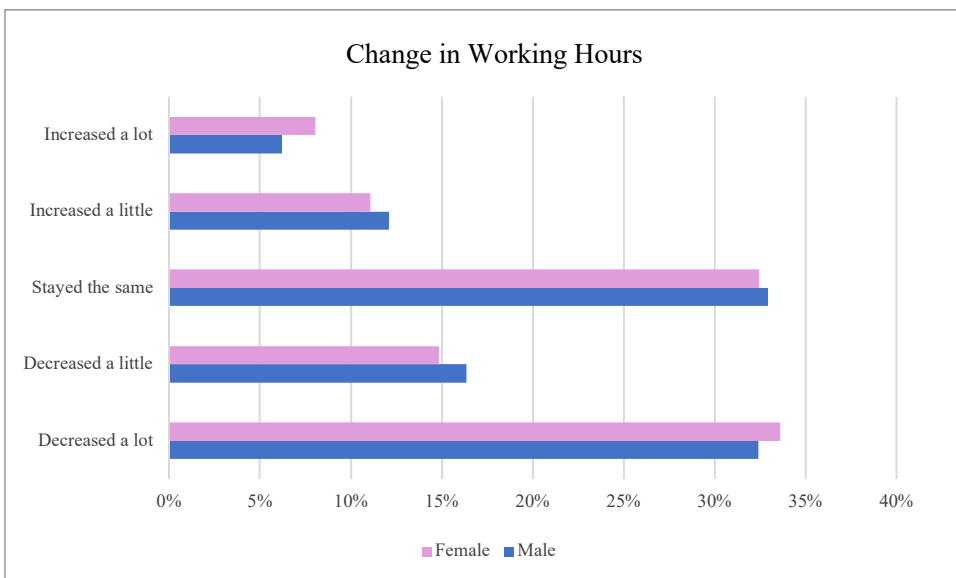


Figure 4-2: Change in Working Hours During Covid-19 Pandemic by Gender, Weighted Sample

#### 4.2.1. Employment and Family Responsibilities

Because this study is interested in the labor market of parents and the role that having children can play in explaining job loss and working hour reductions by gender, in the subsequent analysis we focus on respondents who have declared in the survey to have children that live at home with them. The resulting sample contains 16,707 observations. When looking at survey responses for changes in working hours during the pandemic, we see a higher gender gap in responses. In the sample of parents, women reported having lost their jobs in slightly higher percentages than men (Figure 4-3). However, from simply looking at the data the direction of the change in working hours (reduction vs increase) by gender cannot be established (Figure 4-4).

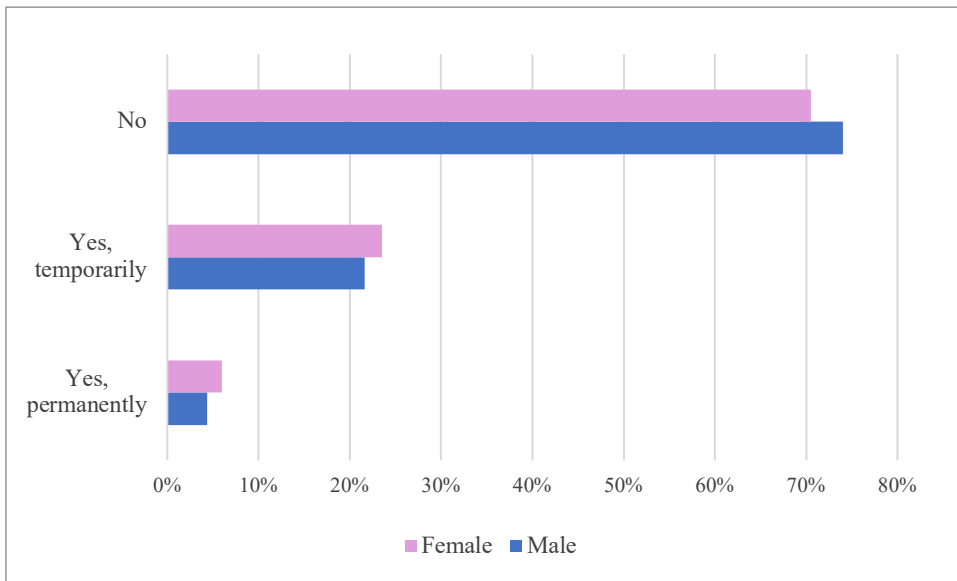


Figure 4-3: Lost Job During Covid-19 Pandemic, Parents Sample

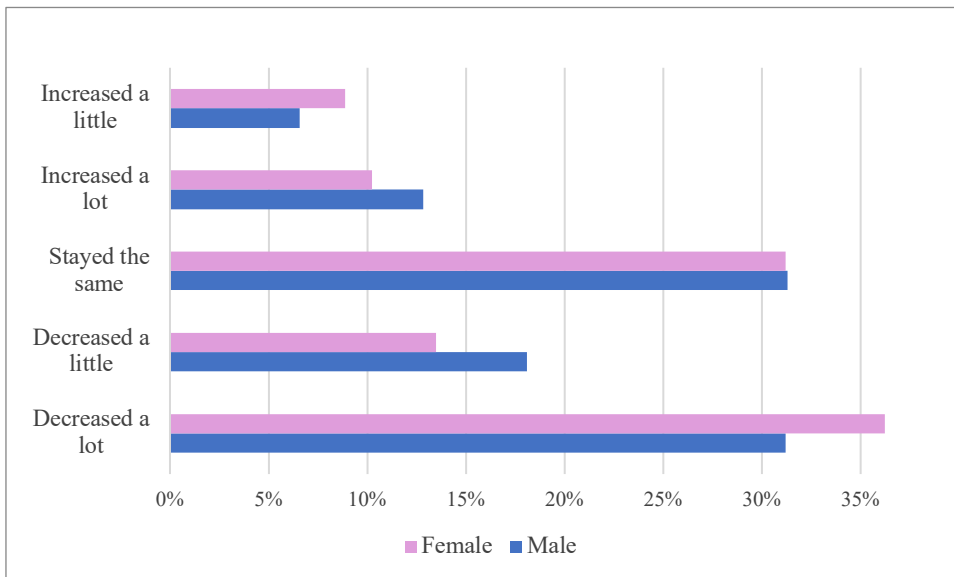
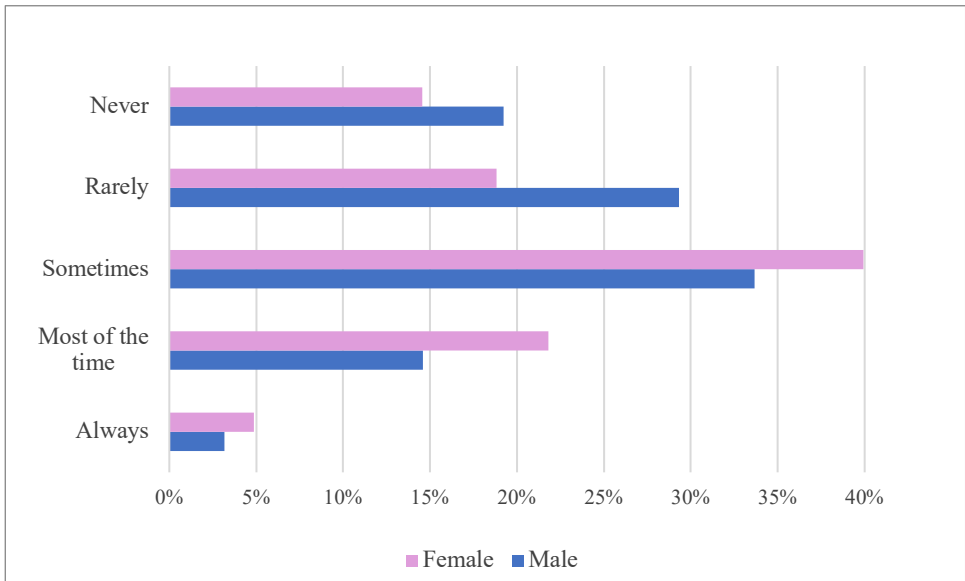


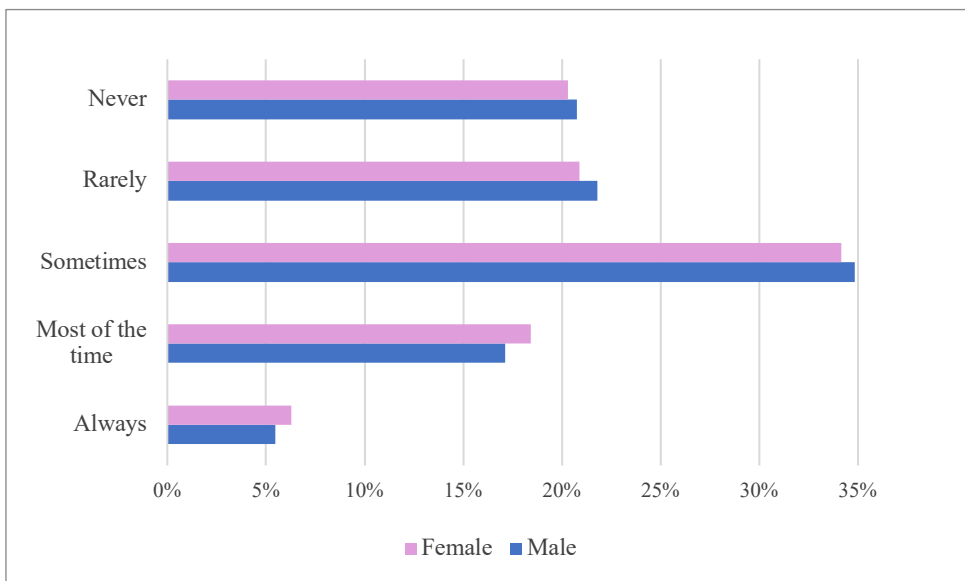
Figure 4-4: Change in Working Hours During Covid-19 Pandemic, Parents Sample

Looking at the interplay between paid work and family responsibilities, the data in the parents sample points to higher family responsibilities for women, which can interfere with their employment. When looking at the question whether the person felt too tired to do household work, a gender difference can already be observed; women report feeling too tired to take care of the household unpaid work needed to be carried out in higher percentages than men, with men answering in higher percentages that they rarely or never feel that way (Figure 3-5). A slightly higher percentage of women reported feeling that their employment responsibilities prevented them from giving the time they wanted to their families (Figure 3-6). Similarly, women also reported they experienced difficulties in focusing on their job due to family responsibilities (Figure 3-7). Moreover, women in the sample reported in slightly higher numbers feeling that their family responsibilities prevented them from giving the time

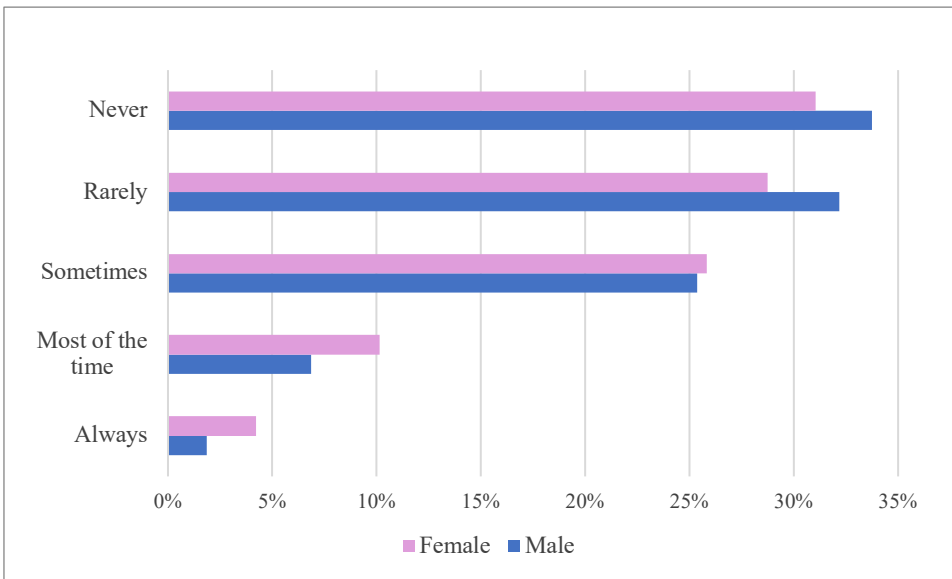
they should to their jobs (Figure 3-8). Lastly, women report having difficulties to concentrate on their jobs because of family responsibilities more than men (figure 3-9).



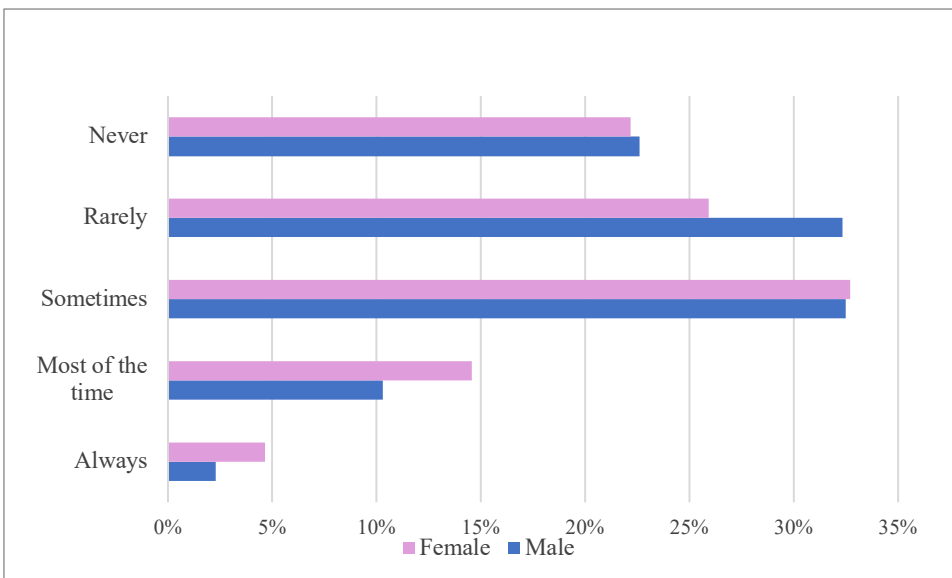
*Figure 4-5: Felt Too Tired After Work to Do Some of the Household Jobs That Needed to Be Done, Parents Sample*



*Figure 4-6: Found That Your Job Prevented You from Giving the Time You Wanted to Your Family, Parents Sample*



*Figure 4-7: Found that Your Family Responsibilities Prevented You from Giving the Time You Should to Your Job, Parents Sample*



*Figure 4-8: Found it Difficult to Concentrate on Your Job Because of Your Family Responsibilities, Parents Sample*

From a preliminary inspection to the data, gender differences within the couple and the allocation of familiar responsibilities that could explain gender differences in employment loss or reduction can be observed. Taking this as a starting point, the following chapter explains the methodology used to offer insights on the possible explanatory mechanisms at play in the gender differences in employment observed in the EU27 countries.

# 5. Method

## 5.1. Methodology

This study explores gender differences in the effect of Covid-19 social distancing measures and closures on employment in the EU27 countries. Because public policy has the potential to mitigate disruptions due to the Covid-19 pandemic (Cook & Grimshaw, 2021), it is fundamental to carry out research that aims at assessing the impacts of the pandemic. This chapter explains in detail the methodology utilized to answer the two research questions.

### 5.1.1. Binary Logistic Regression Model

To answer the two research questions and the sub-question of this study, the methodology utilized employs a binary logistic regression model. The binary logistic model is a binary response model utilized when the dependent variable is a binary variable. Its primary interest is the response probability:

$$P(y = 1|\mathbf{x}) = P(y = 1|x_1, x_2, \dots, x_k)$$

where  $\mathbf{x}$  denotes the set of explanatory variables.

As the probability of an event is bound to be between 0 and 1, the logistic model function ensures that the probabilities are between those parameters.

Logistic models can be derived from a latent variable model:

Let  $y^*$  be a latent, i.e. unobserved, variable, then:

$$y^* = \beta_0 + x\beta + e, \quad y = 1[y^* > 0]$$

where the notation  $1[.]$  defines a binary outcome and takes the value of 1 if the event in the bracket is true and 0 otherwise. It follows that  $y = 1$  if  $y^* > 0$ , and  $y$  is 0 if  $y^* \leq 0$ ;  $e$  is assumed to be independent of  $\mathbf{x}$ . The logistic regression model is utilized to explain the effects of  $x_j$  on the response probability  $P(y= 1|\mathbf{x})$  (Wooldridge, 2012). The logistic regression model thus looks at the probability of an outcome, given a set of explanatory variables.

When utilizing a logistic regression model, the coefficients give the signs of the partial effects of the explanatory variables on the response probability. However, such coefficients cannot be interpreted

to see the estimated effect of the explanatory variables on the response probability. To interpret the magnitude of the effect of  $x_j$  on  $y$ , the logarithm of odds ratios needs to be estimated. The odds ratios in a linear regression model represent the constant effect of  $x_j$  on the likelihood that the outcome  $y$  will occur. The odds ratios provide a single summary score of the effect of an explanatory variable on the likelihood that the outcome will occur. Therefore, to interpret the magnitude of the coefficients, the odds ratios results are reported in the results tables. Odds ratios are exponentials of the coefficients. If the probability of the outcome variable (losing employment/reduction in working hours) given an explanatory variable is greater than the probability of the non-outcome variable (keeping employment/same working hours or higher), the odds are greater than one. On the other hand, if the probability of the outcome variable given an explanatory variable is lower than the probability of the non-outcome variable, the odds are smaller than one. Therefore, odds ratios that are less than one indicate a negative relationship between the variable and the outcome variable, while odds ratios bigger than one indicate a positive relationship.

### 5.1.2. Differences in Effects of Covid-19 on Employment by Gender

The first research question of this study (and its sub question) aims at uncovering whether in the EU disproportionately negative effects of Covid-19 on women's employment compared to men's can be observed. To answer such question, the sample is limited to men and women of working age from (18 to 65) amounting to 48,045 observations. The observed effects on employment that can be measured by answers in the survey are job loss and working hours reductions. To allow for an analysis of such predictors, a linear probability model focusing on the first round of answers is used. The model is inspired by the one used by Adams-Prassl, et al (2020a) for job loss probability during Covid-19 by individual characteristics. The same model, a binary logistic regression econometric model, is utilized with two different dependent variables: employment loss and reduction in working hours. Following their model, variables to account for the possibility to work from home and contract type are included. Similarly to Adams-Prassl et al., (2020a), age and education level are included as control variables.

*Model (1) –Logistic Regression for Employment Loss*

$$Y = \alpha_i + \beta_x + \gamma$$

Where:

Y= employment loss (Yes/No – see dependent variable section for more details)

$\alpha_i$  = intercept of outcome  $\leq i$

$\beta_x$  = explanatory variables

$\gamma$  = control variables

*Model (2) – Logistic Regression for Reduction in Working Hours*

$$Y = \alpha_i + \beta_x + \gamma$$

Where:

Y= reduction in working hours (Yes/No – see dependent variable section for more details)

$\alpha_i$  = intercept of outcome  $\leq i$

$\beta_x$  = explanatory variables

$\gamma$  = control variables

To answer the sub question to question one on whether female employment was affected differently in EU27 countries that have different levels of gender equality, the binary logistic model is run for three different sub samples: high gender equal countries, mid gender equal countries, and low gender equal countries. The GEI was utilized to categorize countries into three groups based on the distribution of the scores in the 27 European Countries. Based in this, the resulting countries that are labeled as “High Gender Equal” are Sweden (GEI: 83.8), Denmark (GEI: 77.4), France (GEI: 75.1), Finland (GEI: 74.7), the Netherlands (GEI: 74.1), Ireland (GEI: 72.2), Spain (GEI: 72), Belgium (GEI: 71.4), and Luxemburg (GEI: 70.3); the “Medium Gender Equal” are Slovenia (GEI: 67.7), Germany (GEI: 67.5), Austria (GEI: 66.5), Italy (GEI: 63.5), Malta (GEI: 63.4), Portugal (GEI:61.3), Latvia (GEI: 60.8), Estonia (GEI: 60.7), and Bulgaria (GEI: 59.6); and the “Low Gender Equal” are: Hungary (GEI: 57.9), Cyprus (GEI: 56.9), Lithuania (GEI: 56.3), Czech Republic (GEI: 56.2), Poland (GEI: 55.8), Slovakia (GEI: 55.5), Romania (GEI: 54.4), Hungary (GEI: 53), and Greece (GEI: 52.2). This division resulted in three subsamples: “High Gender Equal” countries with 14,357 observations, “Mid Gender Equal” countries with 14,115 observations, and “Low Gender Equal” countries with 19,118 observations.

### 5.1.3. Gender Differences in Effects of Covid-19 on Employment for Parents

To answer the second research question, that aims at exploring the gender differences in the effects of Covid-19 on employment specifically for parents, the sample is restricted to individuals that have children younger than 18, amounting to 16,707 observations. In doing so, the aim is to incorporate the component of being a parent with the gender component, given that the literature has highlighted how much of an extra burden parents have had during the Covid-19 crisis, having to work outside the house or switch to remote working, while their children also had to adjust to remote learning. The gender component here is further coupled with childcare responsibilities as explanatory mechanism.



This is important because, if the EU27 were a gender equal reality, then gender would not make a difference in the effects of Covid-19 on employment for parents. Having children is accounted by two different age ranges for children, as having a child aged 0 to 11 might have different repercussions on housework and childcare, and thus be differently correlated to employment effects of Covid-19, than having a child that is 12 to 17 years old. Lastly, living with a partner might contribute to the sharing of the household and childcare duties and ensure that both parents in the same household shared the same responsibilities and duties, which is why this is also included as an explanatory variable.

It is worth mentioning that the statistical analysis conducted does not apply the weights used in the tables and graphs in chapter 4. While there is general consensus in the literature that weights should be used for descriptive statistics (Kish & Frankel, 1974), there is still debate on whether weights should be applied when conducting statistical analysis in regression models (Gelman, 2007; Kott, 2007; Winship & Radbill, 1994). From this, it follows that applying weights when conducting statistical analysis depends on the survey as well as the type of research conducted. Given that the model in this research controls for gender and includes a fixed effect country, weights are deemed not necessary to yield an accurate analysis of the data.

## 5.2. Variables

To allow for this analysis, the data from the Eurofound dataset was manipulated to create new categorical and binary variables. More information on the manipulation of the data is provided below.

### 5.2.1. Dependent Variables

To fully explore the gendered effects of the Covid-19 pandemic for each sample, two separate models are estimated: one with job loss due to Covid-19 as dependent variable, and one with reduction in working hours due to Covid-19 as dependent variable. This allows for a comprehensive analysis of the possible gender differences not solely in employment loss per se, but also reduction in working hours. While job loss is a consequence of the Covid-19 pandemic disruptions to the economy, many individuals have also faced reduction in working hours. Many might have been faced with having to ask for a reduction in working hours to be able to take care of childcare needs due to the closure of schools and daycares, but also afterschool sports and children clubs, as seen in Collins et al., (2020).

Moreover, experiencing a reduction in working hours is conditional on not having lost employment due to Covid-19, which further allows to observe the multiple effects that the Covid-19 pandemic had on employment.

The variable for job loss was created utilizing the data of the survey question: “During the Covid-19 pandemic have you lost your job(s)/contract(s)?”. The possible answers to the question were “No”, “Yes, temporarily”, “Yes, permanently”, and “Don’t know/Prefer not to answer”. From this data, the job loss variable was created as a binary variable equal 1 if the person had answered “Yes, temporarily” and “Yes, permanently” and equal 0 when the answer was “No”.

The variable for decreased working hours was created utilizing the data respective to the survey question: “During the Covid-19 pandemic your working hours...” with possible answers being “Decreased a lot”, “Decreased a little”, “Stayed the same”, “Increased a little”, “Increased a lot”, and “Don’t know/Prefer not to answer”. From this data, the decreased working hours variable was created as dummy variable equal 1 if the answer to the question was “Decreased a little” or “Decreased a lot”, and 0 otherwise. The choice to treat those whose working hours increased as well as stayed the same as the reference category was dictated by the fact that this analysis aims to uncover a gender difference for those who were negatively impacted by the Covid-19 situations in terms of earnings and responsibilities at work. While many saw their working hours increase, the aim of this study it is not to uncover increases in paid workload, but rather decreases in paid workload which are likely due to the sudden lack of childcare outside of the household that is due to the Covid-19 restrictions. Individuals that have answered yes to the question asking if they had lost their job during the Covid-19 pandemic were excluded from this analysis, as experiencing a change in working hours is conditional on still being employed.

## 5.2.2. Independent Variables

### *Gender*

The aim of this study is to uncover gender differences in job loss or paid work reductions. For such reason a female variable is included which is equal to 1 when the gender of the respondent is female and 0 when the gender is male. The respondents who do not identify with either gender were excluded from the sample (143 observations) as the aim of this study is to specifically look at the effects of Covid-19 restrictions by gender.

### *Children*

Because this study looks at gender differences in the effects of Covid-19 on employment focusing on the role that having children and the distribution within the couple of childcare responsibilities, a categorical variable for children was created. The Eurofound Survey asked interviewees how many children lived in the interviewee's household, giving the possibility to answer with the number of children in the household that are age 0 to 11 and 12 to 17. Because those were the only two options given in the survey, two dummy variables for children were created: a dummy "children aged 0 to 11" equal to 1 when the respondent has one or more children aged 0 to 11, and another dummy "children aged 12 to 17" equal to 1 when the respondent has one or more children aged 12 to 17. While from the way the question in the survey is formulated there is no way to find out if the person living with the children is the parent, this research assumes it to be the case.

### *Lives with Partner*

Because the focus of this study is the possible explanatory effect that increases in childcare needs due to Covid-19 social distancing measures have on gender differences in employment loss and reduction, a dummy variable that equals 1 when the interviewee lives with their partner is included. This is to further explore whether having a partner to share the burden of childcare has an effect in mitigating the possible gender differences in employment loss due to Covid-19.

## 5.2.3. Control Variables

### *Working Arrangements: Contract Type*

An great number of research on the effects of Covid-19 on employment has focused on the contract arrangements of individuals as well as their areas of employment (Gezici & Ozay, 2020). However, the Eurofound data for the first round of the survey does not include questions on the sector of occupation of the interviewees. Nonetheless, the survey contains other information on employment contract and working arrangements that can be used to control for employment type. Similarly to Craig and Churchill (2020) an employment categorical variable is included in the models with reduction in working hours as outcome variable. The survey included a question on current employment, which was: "Which of these categories best describes your situation?" and the possible answers were: "Employee", "Self-employed with employees", "Self-employed without employees", "Unemployed", "Unable to work due to long-term illness or disability", "Retired", "Full-time

homemaker/Fulfilling domestic tasks”, “Student” and “Don’t know/prefer not to say”. Because the focus of this study is the effect of Covid-19 on employment, the sample was restricted to those who answered that they were employed and unemployed. This is because of those that answered unemployed, over half reported losing their job due to Covid-19. This indicates that many were employed before Covid-19 and lost their job and answer unemployed at the time of their survey because they felt like that was the most accurate representation of their situation at the time. However, this could also be an indication of those who were employed in less stable jobs/contracts, or even were working in the informal economy, and thus any other possible answer was not the right choice for their employment status. The contract type variable was created as a categorical variable, equal to 1 when the answer was “Employee”, 2 for “Self-employed with employees”, 3 for “Self-employed without employees”, and 4 for “Unemployed”. Because the answer to this question can be correlated with the answer to the employment loss question, this control variable is left out of the models with employment loss as outcome variable. This variable is included in the models with reduction in working hours as a the outcome variable to include some sort of control variable for employment type, to the extent it was possible with the dataset used.

#### *Working Arrangements: Teleworking*

Many authors investigating the effects of Covid-19 on employment have highlighted the importance of the possibility for workers to switch to teleworking, with workers in sectors that can easily perform their tasks from home being less likely to lose their employment (Adams-Prassl et al., 2020b; Gezici & Ozay, 2020). As mentioned above, one major limitation of the Eurofound dataset for the first wave of interviews is that it did not include a question on the industry and occupation of the interviewees. This makes it not possible to add a control variable for the degree of teleworkability of the industry like Gezici and Ozay (2020) do. However, the survey included a question on the frequency of teleworking before Covid-19 as well of teleworking arrangements as a result of Covid-19. The first question asked: “How frequently did you work from home before the outbreak of Covid-19?”, with possible answers “Daily”, “Several times a week”, “Several times a month”, “Less often”, “Never”, “Don’t know/Prefer not to answer”. From these answers, a categorical variable for telework before Covid-19 was created that equals 0 when the answer was “Never”, 1 for “Daily”, 2 for “Several times a week”, 3 for “Several times a month”, and 4 for “Less often”, “Don’t know/Prefer not to answer” were coded as missing values. The second question asked: “Have you started to work from home as a result of the Covid-19 situation?”, with possible answers “Yes”, “No”, “Don’t know”. From that question, a dummy variable equal 1 for those that were able to switch to telework was created. Because this last variable includes parts of the outcome variable employment loss, i.e. someone

cannot have lost employment if at the moment of the survey they report being able to switch to teleworking, such control variable is included only in the analysis that has reduction in working hours as dependent variable.

### *Other Control Variables*

In order to compare similar individuals that have a different gender, control variables for age (continuous) and education level (categorical: primary, secondary, and tertiary) were also added to the analysis. Moreover, countries fixed effects are included in the analysis to control for the country variation across EU MS. The following interpretation of the results implies *ceteris paribus*. This implies that when interpreting a result, it is assumed that all the variables in the model are held constant. This allows for a comparison of individuals that have the same age, same educational level and live in the same country, and that differ in gender, whether they have children, and their contract/sector of work/ability to switch to teleworking, based on the explanatory variable of interest.

### 5.2.4. Summary Statistics

Below are the summary statistics for the variables explained in the previous section for the full sample. Table 5-1 reports the summary statistics for the dummy variables. It is a small part of the sample (23%) that reported losing employment due to Covid-19. Of those that did not lose employment during the pandemic, over 40% report experiencing a decrease in working hours. 70% of the individuals in the sample are women. 22% of the individuals in the sample live with children aged 0 to 11 and 18% percent live with children aged 12 to 17; from this it can be inferred that at most 40% of individuals in the sample have children, as some can have both young and older children.

*Table 5-1: Summary Statistics, Dummy Variables*

Variable	Observations	Mean	Min	Max
(Y) Lost Job	47,004	0.234	0	1
(Y) Decrease in Working Hours	42,850	0.426	0	1
Female	47,590	0.706	0	1
Has kids 0-11	47,590	0.228	0	1
Has kids 12-17	47,590	0.181	0	1
Lives with Partner	46,588	1.680	0	1

Table 5-2 reports summary statistics for the categorical variables. Overall, 48% of individuals in the sample report being able to switch to telework during the Covid-19 pandemic (this is out of the total sample, which includes those that have lost employment). Overall, the majority of the individuals in

the sample report they never worked remotely before the pandemic (55%). The majority of the interviewees is an employee (78%), and 8% report being unemployed. The majority of the interviewees in the sample has tertiary education (69%).

*Table 5-2: Summary Statistics, Categorical Variables*

Variable	Frequency	Percentage	Cumulative (%)
Switched to Teleworking due to Covid-19			
No	21,937	51.340	51.34
Yes	20,790	48.660	100
Worked from Home Before Covid-19			
Daily	4,427	10.12	10.12
Several Times per Week	3,524	8.06	18.18
Several Times per Month	4,052	9.26	27.44
Less Often	7,656	17.5	44.94
Never	24,085	55.06	100
Contract Type			
Employee	37,546	78.34	78.34
Self-employed with Employees	2,014	4.2	82.55
Self-employed without Employees	4,505	9.4	91.95
Unemployed	3,860	8.05	100
Education Level			
Primary	1,194	2.53	2.53
Secondary	13,300	28.17	30.7
Tertiary	32,719	69.3	100

Lastly, table 5-3 reports the summary statistics for the continuous variables. The minimum GEI score is 52.2 while the maximum is 83.3, out of 100 possible points. The average age in the sample is 45 years old.

*Table 5-3: Summary Statistics, Continuous Variables*

Variables	Observations	Mean	Standard Dev.	Min	Max
Gender Equality Index Score	47,925	62.883	7.909	52.2	83.8
Age	47,925	45.515	10.933	18	65

## 5.3. Limitations

The dataset used in this study and the model developed to answer the research questions for this research project might incur in some limitations. The first limitation of this study is the survey data, with some unclear questions and answer possibilities for interviewees. First, concerning the question “During the Covid-19 pandemic your working hours...”, the possible answers were “Decreased a lot”, “Decreased a little”, “Stayed the Same”, “Increased a little” and “Increased a lot”, which do not include a clear definition on what these categories mean in hours or percentage of working hours, leaving the interviewee ample room for interpretation. Because of this, the decrease in working hours outcome variable in this study was created including answers to the question that were “Decreased a lot” and “Decreased a little”, de facto categorizing individuals that have experienced a small decrease in working hours the same way as those that experienced a significant reduction in working hours. Similarly, in the survey there is no clear question on the employment of individuals before Covid-19, therefore leaving ample room for interpretation to the question “Which of these categories best describes your situation?” that had “employee”, “self-employed with employees”, “self-employed without employees”, and “unemployed” as possible solutions (among others that were dropped in the sample, e.g., student, retiree, etc..). This implies that from the dataset there is no way to know if the individuals that answered “unemployed” were also unemployed before Covid-19 or not, as many (over 50%) answered the following question “Have you lost your jobs/contract as a result of Covid-19?” with a yes. A similar issue raises with the question regarding the number of children, as the question asks “How many children live in your household?” rather than “How many children do you have?”. This can imply that some individuals that are grouped in the parents sample might actually be grandparents that live with their grandchildren, possibly because their son or daughter went through a divorce or was going through hard financial conditions and decided to seek help. This can also imply that some individuals that have children have answered 0 to the question because they do not live with their children but have children. While this is a limitation of the dataset that repercussions on the study, it is worth reflecting on the fact that this study looks at the childcare burden that followed the Covid-19 pandemic; therefore, the results are still relevant as it still offers an overview on the effect that living with young children, and thus having to take care of them, can have on employment. This is because living with children often implies having to provide or arrange for childcare, which has been challenging during Covid-19, regardless if the person living and taking primary care of the children is their parent, legal guardian, grandparent, etc.

Another limitation of this study is that the sample is the result of an online open access survey by Eurofund (2020). Online surveys are a convenient way to gather data, especially under the current global pandemic. Eurofund successfully launched its “Living, working and Covid-19” survey only a month after the outbreak of Covid-19 in Europe, to gather tempestive data on the effects of the Covid-19 restrictions on employment. Therefore, while this was at the time the best way to gather data on the issue, there are some limitations to the dataset that derived from the online survey design. Online surveys commonly suffer from two methodological limitations: the population that fills out the survey cannot be described and the respondents may select themselves into the sample, leading to a selection bias (Andrade, 2020). Those that have selected into the sample, answering the survey questions, might have been differently affected by Covid-19 compared to those that have not participated in the survey. Selection bias arises when a sample is gathered through methods that are different from sample random sampling, resulting in the distorted representation of a true population (Heckman, 2010). A clear example of this is that the sample is 70% constituted by female participants, which could lead to the sample being biased towards female responses. This also raises the issue of self-selection: male respondents could have different characteristics than female respondents, as self-selection could be in relation to different factors. To mitigate the effects of selection bias in online surveys, different methodological techniques can be utilized. Weights are commonly used to make individual responses representative of a country’s demographic. However, studies have shown that statistical analysis conducted using weights for online samples can reduce bias for some variables while increasing it for others (Greenacre, 2016). Because the model developed to answer the research questions for this study includes the variable female as explanatory variable, along with countries fixed effects, weights were deemed not necessary to conduct the statistical analysis in this study. Moreover, the weights in the original data are not fully explained and no information is given on whether weights should be applied in the statistical analysis.

A further limitation to the model, that raises from the dataset and the survey design, is the absence of a control variable for the degree of telework ability of the industry like done by Gezici and Ozay, (2020), or a control variable for the sector of employment, which is known to have had a large heterogeneity in employment rates during the pandemic (Farré et al., 2020b). The relationship between gender and employment is in many cases related to sectors of employment. In the EU27 countries, like in much of the rest of the world, certain sectors employ a larger share of women than others, namely primary education, nursing, personal care and domestic work, while in others women are largely underrepresented, like construction work, engineering, and information and communication technology professionals (EIGE, 2018). For such reason, including a control variable for sector occupation would have better provided insights on gender differences in employment



disruptions due to the Covid-19 pandemic. This shortfall of the model is due to the Eurofund dataset not including a question on the industry and occupation of the interviewees for the first round of interviews. Such information is included in the second round of the interviews, however, the sample size for the second wave of interviews is significantly lower, with only 24,123 observations, which drop to 16,066 when the sample is restricted to individuals of age between 18 and 65 years old which are in labor force (or were before the Covid-19 pandemic). Because of the many missing variables in the sample for the second waves of interviews, this data is not included in the analysis.

Another potential limitation of the data and methodology is that the first round of the survey was conducted from April 9<sup>th</sup> 2020 to June 11<sup>th</sup> 2020. While this includes the months of the first Covid-19 wave in most of the MS, it also poses a limitation as not all individuals in the sample were interviewed on the same date, or even the same month, and there is no date indication to allow for a differentiation of the respondents depending on the date the interview was conducted. Because of the unfolding of the Covid-19 pandemic and the effect that social distancing measures had on businesses and work arrangements, some individuals in the sample have had more time for losing employment or decreasing working hours than others, and some might have lost and regained employment in the meantime, e.g. those that were interviewed in June.

Lastly, because of the complexity of the issue and the limitations explained above, the model might suffer to some extent of endogeneity. Endogeneity happens when an explanatory variable is correlated with the error term. This can arise when an observed or omitted variable is confounding both independent and dependent variables, or when the independent variables are measured with error. While the model developed includes the explanatory and control variables that are deemed appropriate to answer the research question, it is likely that other factors that are not accounted by can influence the outcome variables. For such reason, the ability of this research project to claim the existence of a causal relationship between gender and childcare responsibilities are undermined. Therefore, the results of this study should be interpreted as signals of significant correlation rather than causality.

While the data chosen have some limitations, it is important to recognize that perfect data does not exist and that survey data have always limitations, to some extent. Registered data would have been more accurate, but because of the Covid-19 outbreak, such data on the EU27 countries for the first wave of Covid-19 is not publicly available. Nonetheless, this should not discourage from seeking to find answers to complex questions and address correlation between variables to uncover mechanisms that can aid the fight against gender inequality. In this research project, all the due diligences were

taken to make sure that the model could represent reality at its best with the data available, and produce the best data analysis and results possible with the data used. Many of these limitations are addressed in the sensitivity analysis.

# 6. Empirical Analysis

## 6.1. Results

### 6.1.1. Effects of Covid-19 on Employment by Gender

Below, results for the sample of men and women in working age and in the job market are presented to address the first research question: “*Can gender and family composition, i.e., having children and living with a partner, explain differences in employment loss and working hours reduction in MS?*” and its sub-question: “*Is there a difference in such effects in MS that are more gender-equal?*”. The first hypothesis of this study is that female employment in EU27 countries was negatively affected by the Covid-19 measures compared to male’s employment, and that having children increases the likelihood of women to have lost their jobs or experienced reductions in working hours during the Covid-19 pandemic. This hypothesis is in line with previous studies in EU and non-EU countries, and with the theoretical framework of this study. The second hypothesis, related to the sub-question for question one is that in less gender equal countries, female employment was affected more negatively than male’s employment because women are the ones that tend to take on a higher share of childcare responsibilities within the couple. This section tests such hypotheses.

Table 6-1 reports the odds ratios for the logistic regression with employment loss as outcome variable. Model 1 includes female, children aged 0 to 11, children aged 12 to 17, and lives with partner as explanatory variables, model 2 adds an interaction term between female and children to capture any possible premium for women with children, compared to women without children, while model 3 includes and interaction term between female and the variable that indicated living with a partner, to capture any possible premium for women living with partners compared to man living without partners in the same household. Models 4, 5, and 6, add a variable for telework frequency before Covid-19.

*Table 6-1: Odds Ratios Employment Loss*

	Job Loss					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	0.932*** (0.023)	0.926** (0.028)	0.948 (0.041)	0.902*** (0.024)	0.892*** (0.029)	0.885** (0.043)
Has Children 0-11	0.929** (0.027)	0.897** (0.045)	0.927** (0.027)	0.959 (0.030)	0.920 (0.048)	0.960 (0.030)
Has Children 12-17	1.005 (0.030)	1.027 (0.058)	1.005 (0.030)	1.021 (0.033)	1.032 (0.062)	1.021 (0.033)

Lives with Partner	0.856***	0.856***	0.871***	0.896***	0.897***	0.878***
	(0.021)	(0.021)	(0.039)	(0.025)	(0.025)	(0.043)
Interaction						
Female*Has Children 0-11		1.051			1.063	
		(0.062)			(0.067)	
Female*Has Children 12-17		0.972			0.983	
		(0.064)			(0.070)	
Female*Lives with Partner			0.975			1.029
			(0.051)			(0.060)
Telework before Covid-19 (Never):						
Daily				1.582***	1.581***	1.581***
				(0.064)	(0.064)	(0.064)
Several Times per Week				1.383***	1.383***	1.383***
				(0.063)	(0.063)	(0.063)
Several Times per Month				1.017	1.016	1.017
				(0.047)	(0.047)	(0.047)
Less Often				0.870***	0.870***	0.870***
				(0.032)	(0.032)	(0.032)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.477***	0.478***	0.404***	0.288***	0.290***	0.261***
	(0.061)	(0.061)	(0.050)	(0.042)	(0.042)	(0.037)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.038	0.038	0.038	0.043	0.043	0.043
Observations	45,519	45,519	45,519	41,779	41,779	41,779

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The results in table 6-1 show a slight correlation between employment loss due to the Covid-19 pandemic and gender. However, the relationship is the inverse of the initial hypothesis of this study. The female variable is associated with a lower probability of employment loss in all models excluding model 3 (which includes an interaction term between female and living with a partner) in which the coefficient is not significant. Women have 0.88 to 0.94 times the odds of losing employment than men, with a significance level from 1% to 5%. Having children aged 0 to 11 is also associated with lower odds of losing employment. Individuals with children aged 0 to 11 have 0.92 to 0.89 times the odds of employment loss than individuals with no children of that age (including no children at all). However, once the variable for teleworking frequency before the pandemic is added, such relationship is no longer observed (models 4, 5, and 6). Similarly, living with a partner is associated with lower probability of employment loss. Individuals that live with a partner have 0.89 to 0.85 times the odds of losing employment compared to those that do not live with a partner, with a significance level at 1% level. The gender and children results contradict the first hypothesis, while the results for the living arrangements point to the fact that living with a partner, for both men and women, is

associated with lower odds of employment loss, which could indicate a tendency to share housework and childcare responsibilities. However, interaction terms are not statistically significant, meaning that there is no gender premium for having children or living with a partner. This once again contradicts the first hypothesis. Lastly, the effect of the control variable for telework frequency before Covid-19 is interesting as it indicates that people that worked from home before the Covid-19 pandemic daily and several times per week were more likely to lose employment in the Covid-19 pandemic than people that never worked remotely. On the other hand, people that worked remotely less often than several times per month were less likely to lose employment than those that never worked remotely. While this variable was not inserted in the model for explanatory purposes, but rather as a control variable, the results are quite counterintuitive and could underline potential differences in sectors that are not observed in the model due to limitations of the data.

Table 6-2 reports the odds ratios for the logistic regression with reduction in working hours as outcome variable. The sample used is restricted to people that have not lost their employment due to Covid-19, as the outcome variable in this case is changes in paid working hours. For this analysis the rationale was that people that have lost employment cannot have experienced a reduction in working hours, as a 100% reduction in working hours results in loss employment, rather than merely a reduction in paid hours. Models 1, 2 and 3 include the same variables as above, while model 4 adds a variable for employment status, where employee is the category of reference. Model 5 adds a dummy variable that accounts for having been able to switch to teleworking due to Covid-19. Model 6, instead, includes a variable that accounts for the frequency as to people were able to telework before Covid-19.

*Table 6-2: Odds Ratios Reduction in Working Hours*

	Reduction in Working Hours					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	1.031 (0.028)	1.028 (0.034)	1.029 (0.052)	1.059** (0.029)	1.050* (0.029)	1.027 (0.034)
Has Children 0-11	1.144*** (0.035)	1.118** (0.059)	1.144*** (0.035)	1.142*** (0.035)	1.155*** (0.036)	1.126** (0.059)
Has Children 12-17	0.971 (0.031)	0.996 (0.062)	0.971 (0.031)	0.973 (0.031)	0.969 (0.031)	1.004 (0.063)
Lives with Partner	0.967 (0.027)	0.967 (0.027)	0.965 (0.050)	0.962 (0.027)	0.970 (0.027)	0.968 (0.027)
Interaction						
Female*Has children 0-11		1.033 (0.064)				1.032 (0.064)
Female*Has children 12-17		0.965 (0.070)				0.954 (0.069)
Female*Lives with Partner			1.003 (0.060)			

Employment Status (Employee):						
Self-employed with Employees				1.809***	1.762***	
				(0.129)	(0.128)	
Self-employed without Employees				1.791***	1.786***	
				(0.097)	(0.099)	
Switched to Teleworking Due to Covid-19					0.965	
					(0.026)	
Telework before Covid-19 (Never):						
Daily						0.736***
						(0.033)
Several Times per Week						1.064
						(0.049)
Several Times per Month						0.894**
						(0.040)
Less Often						0.938*
						(0.031)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.566***	0.567***	0.548***	0.586***	0.607***	0.584***
	(0.073)	(0.074)	(0.069)	(0.076)	(0.082)	(0.076)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.024	0.024	0.024	0.028	0.028	0.025
Observations	32,871	32,871	32,871	32,871	32,215	32,742
Robust seeform in parenthses *** p<0.01, ** p<0.05, * p<0.1						

The results in table 6-2 show a correlation between gender and experiencing a reduction in working hours only when controlling for employment contract and the ability to switch to teleworking (Models 4 and 5). Women have 1.05 times the odds of experiencing a reduction in paid working hours than men. Having children aged 0 to 1, on the contrary to the case for employment loss, is associated with higher probability of experiencing a reduction in working hours. Individuals that have children aged 0 to 11 have 1.11 to 1.15 the odds of reporting decreases in working hours compared to individuals that do not have children of that age, with a significance level between 5% and 1%. Living with a partner appears not to be correlated with a reduction in working hours. Also in this case, the interaction terms between female and having children as well as between female and living with a partner are non-significant. These results weakly support the first hypothesis, but more importantly show that having young children might indeed be a mechanism that can explain reductions in working hours regardless of gender. Lastly, it is worth noting that in the case of reduction in working hours, the direction of the control variables for employment follows the intuition that individuals that are self-employed had higher probability of experiencing a reduction in working hours, while individuals that worked remotely more often before Covid-19 were less likely to experience a reduction in working hours compared to those that never worked remotely before.

To answer the sub-question “*Is there a difference in such effects in MS that are more gender-equal?*” the data is split into three sub-samples by GEI. Below, in table 6-3 are the results for the three sub-sample by GEI for the probability of job loss and experiencing a reduction in working hours.

Table 6-3: Odds Ratios Employment Loss and Decrease in Working Hours by GEI

	High GEI			Mid GEI			Low GEI		
	Lost Job	Decrease in WH		Lost Job	Decrease in WH		Lost Job	Decrease in WH	
Female	0.952 (0.056)	0.957 (0.060)	0.972 (0.061)	0.966 (0.052)	1.101 (0.067)	1.107* (0.068)	0.877*** (0.041)	1.031 (0.054)	1.052 (0.056)
Has Children 0-11	0.896 (0.092)	1.040 (0.105)	1.050 (0.107)	0.913 (0.084)	1.200* (0.115)	1.209* (0.118)	0.892 (0.065)	1.121 (0.090)	1.125 (0.091)
Has Children 12-17	0.830 (0.095)	0.902 (0.101)	0.888 (0.101)	1.061 (0.116)	0.947 (0.116)	0.949 (0.119)	1.131 (0.094)	1.102 (0.106)	1.118 (0.109)
Lives with Partner	0.879*** (0.042)	0.932 (0.048)	0.931 (0.048)	0.794*** (0.036)	0.914* (0.046)	0.911* (0.047)	0.890*** (0.035)	1.032 (0.045)	1.042 (0.046)
Interaction Female*Has Children 0-11	0.959 (0.114)	1.183 (0.138)	1.196 (0.141)	1.047 (0.113)	0.968 (0.108)	0.980 (0.112)	1.126 (0.100)	0.981 (0.094)	0.982 (0.095)
Female*Has Children 12-17	1.196 (0.157)	1.010 (0.131)	1.011 (0.132)	0.913 (0.116)	0.963 (0.135)	0.942 (0.136)	0.906 (0.089)	0.939 (0.105)	0.936 (0.105)
Employment Status (Employee):									
Self-employed with Employees			1.880*** (0.299)			1.944*** (0.256)			1.608*** (0.169)
Self-employed without Employees			2.827*** (0.320)			1.754*** (0.185)			1.449*** (0.116)
Switched to Teleworking Due to Covid-19			0.907** (0.045)			0.961 (0.047)			1.025 (0.043)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.397*** (0.076)	0.277*** (0.061)	0.333*** (0.078)	0.506*** (0.089)	0.905 (0.178)	0.958 (0.201)	0.820 (0.123)	0.434*** (0.083)	0.423*** (0.085)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.0416	0.0263	0.0352	0.028	0.015	0.020	0.038	0.021	0.023
Observations	13,886	10,413	10,335	13,388	9,625	9,319	18,245	12,833	12,561

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The results in table 6-3 offer a snapshot of the gender effects for both outcome variables of this study by GEI. The results indicate that in countries with a high GEI, gender is not correlated with employment loss. In this group of countries, only living with a partner is correlated with lower odds of losing employment. Individuals in countries with a high GEI that live with a partner have 0.88

times the odds of losing employment compared to those that do not live with their partner, significant at the 1% level. In countries with a mid GEI score, the only statistically significant explanatory variable is living with a partner, which is associated with 0.80 times the odds of losing employment. In countries with a low GEI, women have 0.88 times the odds of losing employment compared to men, significant at the 1% level. In such countries, people living with their partner have 0.89 times the odds of losing employment, significant at the 1% level. The results for the gender variable once again contradict the first hypothesis of this study but are consistent with the results for the overall sample not distinguishing by GEI.

For countries with a high GEI neither gender, having children, or living with a partner are correlated with experiencing decreases in working hours. For countries with a mid GEI, being a woman is correlated with 1.11 the odds of experiencing a reduction in working hours compared to men, albeit significant at the 10% level. In such countries, having young children is associated with 1.2 times the odds of experiencing a reduction in working hours, compared to those that do not have any children aged 0 to 11, significant at the 10% level. Lastly, living with a partner is associated with 0.91 times the odds of experiencing a reduction in working hours, also significant at the 10%. These results indicate that gender, having young children and living with a partner all correlate with experiencing decreases in paid working hours, consistent with the initial hypotheses. For countries with a low GEI, neither gender, having children, nor living with a partner is a predictor of experiencing decreases in working hours, which is strongly against the first and second hypothesis of this study.

The above table 6-3 shows gender and family composition differences in effects on employment loss and reduction in working hours for countries with different GEI. However, when a model to test for differences in employment loss and decreases in working hours by GEI is run, the results show no gender difference. Table 6-4 shows two models with the two dependent variables, where a categorical variable for GEI score group (High, Mid, Low) and an interaction term between female and GEI score group are introduced. This allows to test for differences between the three groups (High, Mid, Low GEI). The fact that neither the gender variable, or the interaction variable are statistically significant indicates that perhaps there are other mechanisms at play in the three groups of countries by GEI score that explain the observed effects of Covid-19 on employment. Individuals in countries with Mid GEI have 1.51 times the odds of losing employment compared to individuals in countries with High GEI, significant at the 5% level. Individuals in countries with Low GEI have 2.44 times the odds of losing employment compared to individuals in countries with High GEI. However, the interaction terms between female and the three GEI categories are non-statistically significant. Having children aged 0 to 11 is associated with lower odds of employment loss (0.92) compared to those that do not



have children of that age (significant at the 5% level), like in the original analysis on the whole sample not divided by GEI (table 6-1). Similarly, living with a partner is associated with 0.86 times the odds of employment loss compared to those that do not live with a partner, significant at the 1% level.

Living in a country with a Mid GEI score is associated with 3.39 times the odds of experiencing decreasing in working hours compared to those that live in countries with a high GEI, significant the 1% level. Living in a country with Low GEI is associated with 2.64 times the odds of experiencing reductions in working hours, compared to those that live in countries with a high GEI. Once again neither female nor the interaction term between female and GEI score group is statistically significant. Regarding the effects of having children and living with a partner on reduction in working hours likelihood, the results in the table below are consistent with the results in table 6-1, similarly to the consistency with the results for job loss. Having children aged 0 to 11 is associated with 1.14 times the odds of experiencing a reduction in working hours, compared to those that do not have children of that age, significant at the 1% level. Living with a partner or having older children are not statistically significant.

Table 6-4: Odds Ratios Employment Loss and Decrease in Working Hours, GEI

	Lost Job	Decrease in WH
Female	0.965 (0.047)	1.006 (0.051)
GEI (High):		
Mid GEI	1.515** (0.290)	3.392*** (0.551)
Low GEI	2.440*** (0.440)	2.635*** (0.425)
Interaction:		
Female*Mid GEI	1.003 (0.066)	1.056 (0.075)
Female*Low GEI	0.920 (0.057)	1.018 (0.067)
Has Children 0-11	0.928** (0.027)	1.143*** (0.035)
Has Children 12-17	1.006 (0.030)	0.971 (0.031)
Lives with Partner	0.856*** (0.021)	0.967 (0.027)
Controls for Age and Education	Yes	Yes
Country FE	Yes	Yes
Constant	0.306*** (0.056)	0.164*** (0.029)
Prob > $\chi^2$	0.000	0.000
Pseudo $R^2$	0.038	0.024
Observations	45,519	32,871

seEform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 6.1.2. Effects of Covid-19 on Employment for Parents by Gender

To answer the second research question of this study, “*Is there a difference in such effects between mothers and fathers in MS that are more gender-equal vs. less gender equal?*” the three sub-samples by GEI are further reduced to include only parents with children living at home. This results in three sub samples with 5,192 observations for “High GEI” countries, 4,854 for “Mid GEI” countries, and 6,661 for “Low GEI” countries. Table 6-5 reports the odds ratios for employment loss for the parents sample by GEI group. Model 1 includes binary variables for female, having children aged 0 to 11, and living with a partner, along with controls for age and education and country fixed effects. Model 2 adds a control for telework frequency before Covid-19.

Table 6-5: Odds Ratios Employment Loss by GEI, Parents Sample

	High GEI		Mid GEI		Low GEI	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Female	0.984 (0.086)	0.946 (0.087)	0.942 (0.076)	0.871 (0.074)	0.879** (0.057)	0.873* (0.061)
Has Children 0-11	0.960 (0.085)	0.981 (0.092)	1.001 (0.085)	1.025 (0.095)	0.961 (0.065)	1.002 (0.074)
Lives with Partner	0.646*** (0.063)	0.649*** (0.068)	0.666*** (0.061)	0.740*** (0.076)	0.854** (0.068)	0.900 (0.080)
Telework before Covid-19 (Never):						
Daily		2.049*** (0.265)		1.386** (0.183)		1.537*** (0.165)
Several Times per Week		1.222 (0.178)		1.262* (0.176)		1.346** (0.165)
Several Times per Month		0.900 (0.123)		0.883 (0.130)		1.118 (0.141)
Less Often		0.619*** (0.080)		0.995 (0.106)		0.981 (0.089)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.557 (0.228)	0.467* (0.209)	0.584 (0.211)	0.310*** (0.127)	0.969 (0.286)	0.511** (0.172)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.0539	0.0657	0.040	0.042	0.040	0.044
Observations	5,090	4,815	4,667	4,361	6,485	5,964

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The logistic regression with employment loss as outcome variable for the parents sample (table 6-5) shows a gender difference in employment loss only for countries with a low GEI. However, also in this case the observed relationship is in the opposite direction as the one hypothesized. In countries with low GEI women have 0.88 to 0.87 times the odds of losing employment compared to men, with

a significance level at 5% and 10% respectively. In such countries, parents that live with a partner have 0.85 times the odds of losing employment compared to parents that do not live with their partners. Living with a partner is associated with lower odds of employment loss also for countries with high and mid GEI. However, the magnitude of the odds is smaller. This means that the odds of losing employment for parents that cohabit with their partners compared to those parents that live without a partner are 36% lower in countries with high GEI, 34-26% lower in countries with mid GEI, and 15-10% lower in countries with a low GEI. This implies that in countries with higher GEI, being a parent that lives with a partner makes a bigger difference in the likelihood of not losing employment than in countries with low GEI. This does confirm the third hypothesis of this study, suggesting that in countries that are more gender-equal parents shared the childcare burden during the pandemic, correlating with lower likelihoods of losing employments than those observed in countries that are less gender equal. The age of the children is non-significant, thus not correlating with the outcome variable (employment loss).

Table 6-6: Odds Ratios Decreases in Working Hours by GEI, Parents Sample

	High GEI			Mid GEI			Low GEI		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Female	1.057 (0.088)	1.089 (0.092)	1.029 (0.086)	1.077 (0.090)	1.101 (0.093)	1.073 (0.090)	1.019 (0.073)	1.057 (0.077)	1.034 (0.075)
Has Children 0-11	1.071 (0.095)	1.084 (0.096)	1.080 (0.096)	1.121 (0.103)	1.114 (0.103)	1.134 (0.105)	1.000 (0.073)	0.997 (0.073)	1.000 (0.074)
Lives with Partner	0.908 (0.097)	0.915 (0.098)	0.930 (0.100)	0.844 (0.088)	0.845 (0.088)	0.847 (0.089)	1.006 (0.090)	0.999 (0.089)	1.001 (0.090)
Employment Status:									
Self-employed with Employees		1.712** (0.446)			2.451*** (0.482)			2.170*** (0.364)	
Self-employed without Employees		2.671** (0.502)			1.437* (0.268)			1.638*** (0.228)	
Telework before Covid-19 (Never):									
Daily			0.897 (0.124)			0.807 (0.112)			0.598*** (0.073)
Several Times per Week			0.914 (0.120)			1.087 (0.146)			1.144 (0.141)
Several Times per Month			0.850 (0.099)			0.963 (0.125)			0.925 (0.113)
Less Often			0.759*** (0.078)			0.952 (0.096)			1.096 (0.094)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Constant	0.866 (0.378)	0.848 (0.372)	0.852 (0.373)	1.975* (0.791)	2.026* (0.814)	2.040* (0.819)	0.796 (0.290)	0.786 (0.287)	0.843 (0.309)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.021	0.027	0.022	0.016	0.021	0.017	0.021	0.026	0.025
Observations	3,989	3,989	3,981	3,451	3,451	3,432	4,583	4,583	4,555

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 6-6 reports the odds ratios for reduction in working hours for the parents sample by GEI. Model 1 includes binary variables for female, having children aged 0 to 11, and living with a partner, along with controls for age and education and countries fixed effects. Model 2 adds a control for employment status, while model 3 adds a control variable for telework frequency before Covid-19. The results in table 6-6 show no difference for gender, age of children in the household, and partner presence in the household. This implies that gender, the age of children, and cohabiting with a partner do not correlate with loss in paid working hours for parents during the Covid-19 pandemic.

### 6.1.3. Sensitivity Analysis

Various sensitivity analyses were conducted to determine the robustness of the results in this study. The main scope of a sensitivity analysis is to see whether the results of study would change if different assumptions in the methodology and variables creation were used. First, as a limitation of the data used is the oversampling of women, the same logistic regression models ran on the sample of individuals in working age (tables 6-1 and 6-2) were run on a randomized subsample that contains an equal number of men and women. This is made possible by the Stata command “sample”, which when specified a number for the sample variable and the variable to sample by, can draw a sample of the specified size by a specified variable (female). Thanks to this command, a subsample composed of the number of men in the sample (13,995) and an equal number of women randomly drawn from the sample was created. The results of this analysis, which can be found in tables B.1 and B.2 in the Appendix, are consistent with the overall reduction in magnitude and direction, indicating that there is no female bias in the analysis.

Secondly, a possible critique to the methodology is that Sweden is included in the analysis. Sweden has distinguished itself since the start of the pandemic because it never closed primary and secondary schools and it also never enforced a nationwide lockdown. Some might therefore argue that including Sweden in this research would bias the results. For such reason, the same logistic regression models ran on the sample of individuals in working age (tables 6-1 and 6-2) were run again excluding the observations for Sweden. However, when Sweden is excluded, the results (tables B-3 and B-4 in Appendix) show consistency with the results obtained including all the EU27 countries. When

looking at the sample of individuals in countries with high GEI excluding Sweden, the results (table B-5 in Appendix) also show overall consistency with the results of the full sample with the sole exception of the female interaction with having children aged 0 to 11 (Model 3) that is statistically significant at the 10% level and positively correlated with experiencing a decrease in working hours. The robustness of the results might indicate that while Sweden did not enforce a lockdown and children were not forced to online schooling, Swedes were encouraged to social distance and stay at home as much as possible (telework, reduction in contacts outside school like playdates and after school activities, etc.), which still affected the gender disparities in the effects of Covid-19 on employment.

Thirdly, another possible critique to the methodology and limitation is that the outcome variable for decreases in working hours was composed utilizing answers for the question “During the Covid-19 pandemic your working hours...” that were “Decreased a lot” and “Decreased a little”, which might be different outcomes. To address this, the analysis is run changing the outcome variable for decrease in working hours to a dummy variable equal 1 when the answers are “Decreased a lot” and 0 for all other answers (“Decreased a little”, “Stayed the same”, “Increased a little”, “Increased a lot”). The results (table B-6 in the Appendix) show that the results for the female variables are strengthened in significance, having young children is still associated with higher odds of experiencing significant reductions in working hours, and living with a partner is associated with lower odds of experiencing significant reductions in working hours. This indicates that indeed differences in the magnitude of reduction in working hours can yield different results. This is important not only for future research methodology, but also for the drafting of surveys, which should include specific references to the number of hours rather than indications like “a lot” and “a little” which leave room for subjective interpretation.

Lastly, because the analysis includes dummy variables indicating whether or not individuals have children in a specific age group, rather than their number of children, the same logistic regressions on the parents sample from tables 6-5 and 6-6 were run with a continuous variable for the number of children of each age rather than a categorical dummy variable, which are reported in the Appendix (tables B-7 and B-8). Changes in the assumptions under the categorization of the variables for children show an overall consistency with the results obtained for employment loss and reductions in working hours, with few minor exceptions.

## 6.2. Discussion

### 6.2.1. Gender, Employment Loss, and Reduction in Working Hours

To fully understand the results of this study and their implications, it is important to look at the results considering the framework of this study. This thesis first and foremost set out to investigate gender differences in the effects of Covid-19 restrictions on employment, advocating for the non-discrimination of women on the workplace and within the household. Overall, the results indicate that there is more the one story to tell on the effects of Covid-19 on employment, and a clear distinction is needed between the effects of the pandemic on employment loss and working hours reductions.

The results for the relationship between gender and employment loss partially contrast the starting hypothesis of this study. When the EU27 countries are divided into three groups according to their gender equality index - high, mid, and low GEI - the results indicate that this correlation was driven by the countries with a low GEI. Such relationship and statistical significance persists for the analysis that includes only parents. While these results contrast the results obtained by other researchers for studies conducted outside the EU27 countries (Adams-Prassl et al., 2020a; Gezici & Ozay, 2020), they indicate that female gender alone, in the EU, is not correlated with negative impacts of Covid-19 restrictions on employment. This can possibly be explained by the fact that the data available does not allow to control for the type of occupation of individuals, as well as the possible selection biases mentioned in the limitations section. One possibility is that those that filled out the survey tend to have higher levels of education (61% have secondary education and 32% have tertiary education – table A-2), which might imply that they hold positions that could have been impacted less by the restrictions. Many authors have argued that education, computer literacy, and access to internet affect the type of individuals that are active online and thus participate in online surveys (Chen, 2015; Valliant & Dever, 2011). Moreover, particular topics might further encourage (or discourage) certain types of individuals to participate in a survey (Fan & Yan, 2010; Tjidsens, 2014). When looking at the fact that countries with a low GEI in this analysis are the driving ones for this negative relationship between employment loss and being a man, another possible explanation could be that the job market in such countries might look differently compared to the rest of the European countries. Hungary, Cyprus, Lithuania, Czech Republic, Poland, Slovakia, Romania, Hungary, and Greece tend to have a significant informal economy, higher employment rates in agriculture and manufacturing, and higher gender norms that impact gender employment segregation. On the other hand, the results for the relationship between gender and reductions in working hours show a higher,

albeit limited and small, likelihood for women to experience reductions in working hours. Such results are not particularly strong and lose statistical significance once the analysis focuses on parents only.

Overall, there is no support for the hypothesis that women were negatively affected by the Covid-19 restrictions compared to men, regarding possible employment loss. The results do not support the claim that gender alone can explain the higher rates of employment loss for women, and contrast the results of studies for other parts of the world (Adams-Prassl et al., 2020b, Gezici & Ozay, 2020) and focused research on individual EU countries (Farré et al., 2020b). However, there is some evidence pointing to the fact that women in the sample were more likely to experience reductions in working hours, effect that vanishes for the parents sample.

### 6.2.2. Family Responsibilities, Employment Loss, and Reduction in Working Hours

This research project does not only focus on gender. It in fact points to the role that family responsibilities like childcare can play in explaining differences in the effects of Covid-19 on the observed gender gap in unemployment in the EU27 countries. This is because, through the lenses of the gender revolution and feminist theory, it might be argued that it is the burden of the housework and child work, which has long been shouldered by women, that implies less flexibility in employment opportunities and the ability to adapt to shocks. The literature has pointed to increases in childcare needs (Alon et al., 2020a) as countries put Covid-19 restrictions in place, with housework loads taken on by parents of both sexes increased during the lockdown, with women taking on a higher share (Alon et al., 2020; Boca et al., 2020; Craig & Churchill, 2020; Evans, Lindauer & Farrell, 2020).

The results for one of the other two explanatory variables of this study other than gender, having children, point to the fact that childcare responsibilities are correlated with impacts on employment during the Covid-19 pandemic. Having children in the age range 0 to 11 is associated with lower likelihood of employment loss and higher odds of experiencing a reduction in working hours for the sample at large. However, no premium for women that have children is detected from the analysis, thus implying that it is having children, rather than being a woman that has children, that can explain the effects of Covid-19 restrictions on employment. Because the effect of children for the full sample is not statistically significant when controls for telework are introduced, this could point to the fact that individuals in certain sectors that have children might have been hit differently compared to

sectors in which individuals with children were not able to switch to teleworking. When the sample is divided in sub samples by GEI score, having young children is correlated with a higher likelihood of experiencing a decrease in working hours only in countries with a medium GEI score. This points to possible differences across countries within the EU, as the significance of the results drops once the countries are divided in GEI score subsamples. The results point to the fact that individuals with young children, regardless of their gender, were more likely to experience reductions in paid work during the pandemic compared to those that are childless or have children that are older than 12. The results for the parents sample regarding children show no difference in the effect of having young children compared to having older children, which point to the fact that the above mentioned difference for the young children variable in the overall sample is mostly due to the difference between having children versus being childless. Because the analysis includes control variables for age, education, and country fixed effects, this indicates that the burden of care for younger children during the Covid-19 crisis had an effect on parents. While no gender differences are found, the results point to the fact that childcare can be used as a mechanism to explain the potential differences observed in employment loss. Further research on gender differences should include childcare as a mechanism to investigate gender differences in employment, relying on more accurate data that reflects the number of children of the individual rather than asking for the number of children that live with the interviewee.

Lastly, the other explanatory variable in the study, having a partner in the household to possibly share housework and childcare, significantly reduces the likelihood of employment loss for individuals across the full sample, but is not correlated to reductions in working hours. When the sample is divided in sub-samples by GEI, the effects of having a partner on the likelihood of employment does not cancel out; however, the magnitude of the odds differs across GEI categories. Moreover, the effect remains for the parents sample, where the result point not only to the fact that living with a partner is correlated with lower employment loss, but also to the fact that in countries with a higher GEI, the magnitude of the effect is bigger. In other words, there is a greater reduction in the odds of losing employment in relation to having a partner in countries with a higher GEI than in countries with a lower GEI. This is in support to the theory behind this study. However, while having a partner in the household can mean that housework and childcare are shared within the household, there might be other mechanisms associated with living with a partner that can reduce the odds of losing employment, which further research should explore.



## 7. Conclusion

This study set out to investigate the relationship between gender and employment during the first wave of Covid-19 in the EU27 countries. Indicators for having a partner and having children, as a measure of family responsibilities and childcare, were included in the study to investigate whether gender alone can explain the gender differences in employment that have been observed across the world as a result of the various restrictions imposed to contrast the spread of Covid-19. This research was motivated by the numerous studies and reports highlighting the gender disparity in employment loss between men and women during the Covid-19 pandemic. The lack of comprehensive research on the effects of Covid-19 on employment by gender in EU27 countries, and the possible mechanisms behind it motivated this research project. As a result, this study attempted to fill this research gap offering a clear and comprehensive picture of the characteristics of an individual, like gender, their family, and the gender culture in their country that can correlate with negative effects on employment due to the Covid-19 restrictions. To do so, an empirical investigation utilizing logistic regression was carried out utilizing the Eurofound “Living, Working and Covid-19” survey dataset which was integrated with the most recent GEI for EU27 countries provided by EIGE.

This study joins a growing number of studies on the negative effects that the pandemic has had on individuals. Gender differences in the effects of the pandemic on employment losses can be observed, but not as hypothesized. The results of the empirical analysis show that female gender for the full sample is, to some extent, correlated with a lower likelihood of employment loss, while being slightly correlated with a higher likelihood of experiencing a reduction in working hours. The results for the dependent variable for employment loss oppose those of other researchers in non-EU countries (Adams-Prassl et al., 2020b; Alon et al., 2020b) and in EU countries (Farré et al., 2020b). Overall, for the EU-27 countries women in the sample are less likely to experience employment losses compared to men, and this effect seems to be driven mostly by countries that have low GEI scores. However, the situation changes when the outcome variable is reductions in working hours, where the results indicate a slightly higher likelihood of women to experience cuts in paid work compared to men. This trend seems to be driven by countries that have mid GEI scores, and when parents only are considered, the gender difference disappears. These results are also different from previous research. While Collins et al., (2020) find that in the US mothers of young children during Covid-19 were more likely to reduce working hours than fathers, the results for this study in the EU27 do not point to differences in reductions in working hours between fathers and mothers. This discredits the

hypothesis that women with children in a couple would be more negatively hit by Covid-19 in regard to employment compared to men because of the higher share of childcare they have been taking on.

While the gender results are not particularly strong and mostly go against the hypotheses of this study, the results show that having young children and living with a partner is correlated with lower likelihoods of losing employment during the Covid-19 pandemic for the overall sample. However, the effects of having children disappear when the sample is split in the GEI sub-samples. Nevertheless, this effect changes when the outcome variable is reductions in working hours. Having young children is strongly correlated with increases in the likelihood to experience reductions in paid work, an effect that seems to be driven by countries with Mid GEI scores. While for the overall sample living with a partner is not correlated with employment losses, when the sample is split in GEI category, it can be observed that living with a partner in countries that have Mid GEI scores is associated with a slightly lower likelihood of losing paid working hours compared to those that do not live with a partner.

While this study offers a somewhat optimistic picture for gender equality in EU27 countries, as the findings do not point to negative gender differences for women, it is important to question whether the data used gives a picture that is close to the reality of the EU27 countries. As mentioned before, the data used for this research projects has some limitations that include the lack of clarity in the questionnaire questions and responses, lack of relevant data on sector of employment, and an oversampling of women, which led to limitations to the model used to answer the research questions. These limitations are joined by further methodological limitations on the definition of the outcome variables as well as some explanatory and control variables. Despite these limitations, the data used was questioned multiple times and many robustness checks were run to assess the validity of the results and provide an exhaustive analysis of the results. All being said, these results might be related to the possible biases in the survey respondents, possible different characteristics of the male and female respondents, and the selection bias that can often arise with online survey data.

Given the limitations of the data and methodology utilized in this study, the external validity of the results is questionable, and more research on the topic should be conducted in the EU27 countries, singularly, and as a region. Moreover, gender research is a complex subject as many factors that can appear to be part of gender are in fact just dependent on the cultural gender norms in a region or country. For such reason, research on the current gender disparities in employment and in the effects of the Covid-19 pandemic ought to focus on the possible mechanisms behind them. In EU27 countries, there are significantly more households that are headed by single women compared to

single men, as in many cases women are the ones who keep the children in the household when a couple splits (Rense, 2020). This is a factor that is not investigated in this study but that should further be researched. Moreover, gender occupational segregation with EU27 countries is predominant (EIGE, 2018). While research controlling for occupation will show that female gender does not correlate with negative effects of Covid-19 restrictions on employment, the sole fact that some occupations are deemed to be for women while others are male dominated also indicates that gender inequality is present in our society. Therefore, while the results in this study do not point at a correlation between the female gender and negative effects of Covid-19 on employment, and do not find a difference in the effect of having children or living with a partner for women compared to men, these issues should be further investigated. Further analysis on the gender effects of Covid-19 on employment should be conducted with more comprehensive datasets that include information on whether the individual has children, rather than if the individual lives with their children like in the Eurofound dataset, the age of their children, and the detailed occupation of the interviewee. Register data, if available, would provide better data than survey data to explore gender issues related to Covid-19. Indeed, further studies would provide additional information needed to uncover how gender, gender norms, and family compositions have affected employment in EU27 countries during the Covid-19 pandemic.

While the limitations of this study affect the generalizability of the results, this research project contributes to the existing research on the effects of Covid-19 in many ways. First, it considers all the EU27 countries, providing the first comprehensive research project on the effects of Covid-19 on employment in the EU. Secondly, it differentiates between MS using the GEI, which is an innovative way to examine gender differences in the EU. Lastly, it includes family care and family composition in the gender discussion, offering insights on how familiar responsibilities might play a role in the uneven gender effects of Covid-19 on employment observed in previous research. Although the results of this study do not confirm the main hypothesis of this study, namely that female gender is associated with negative impacts on employment related to Covid-19 restrictions, the results are in any case positive for EU27 countries as no gender (voluntary or involuntary) discrimination is found. Because no gender differences can be found between parents, perhaps the EU27 countries are experiencing the second part of the gender revolution (Goldscheider, Bernhardt & Lappegård, 2015), in which men are taking over the children's care responsibilities that were once left solely to mothers. Perhaps men are becoming more like women, like advocated by Fraser (1997, 2007), after all.

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# A. Appendix

*Table A-1: Respondents by Country and Distribution of EU27 Population*

Country	Non-Weighted Data		Weighted Data		Percent of Total EU27 Population*
	Frequency	Percentage	Frequency	Percentage	
Austria	1,015	2.11	1087.53	2.26	2.00
Belgium	1,451	3.02	1148.81	2.39	2.60
Bulgaria	2,724	5.67	795.12	1.65	1.60
Croatia	3,063	6.38	441.88	0.92	0.90
Cyprus	529	1.10	101.81	0.21	0.20
Czechia	958	1.99	1191.86	2.48	2.40
Denmark	632	1.32	591.69	1.23	1.30
Estonia	632	1.32	139.91	0.29	0.30
Finland	1,134	2.36	662.23	1.38	1.20
France	863	1.80	6514.18	13.56	15.00
Germany	2,911	6.06	9159.60	19.06	18.60
Greece	2,395	4.98	1091.08	2.27	2.40
Hungary	3,871	8.06	1094.97	2.28	2.20
Ireland	6,144	12.79	508.05	1.06	1.10
Italy	2,202	4.58	6699.95	13.95	13.30
Latvia	595	1.24	209.93	0.44	0.40
Lithuania	2,561	5.33	331.95	0.69	0.60
Luxembourg	434	0.90	67.53	0.14	0.10
Malta	415	0.86	54.04	0.11	0.10
Netherlands	506	1.05	1756.77	3.66	3.90
Poland	1,430	2.98	4031.08	8.39	8.50
Portugal	3,124	6.50	1253.90	2.61	2.30
Romania	3,376	7.03	2018.15	4.2	4.30
Slovakia	1,169	2.43	616.32	1.28	1.20
Slovenia	604	1.26	225.60	0.47	0.50
Spain	2,819	5.87	5185.54	10.79	10.60
Sweden	488	1.02	1065.48	2.22	2.30
<b>Total</b>	<b>48,045</b>	<b>100</b>	<b>48,045</b>	<b>100</b>	<b>100</b>

\* (Eurostat, 2020)

Table A-2: Weighted Sample Description

	Male	Female	Total	Male	Female	Total
<b>Education</b>						
Primary	1,863.19	1,401.35	3,264.54	7.67%	6.96%	6.96%
Secondary	14,946.36	13,640.71	28,587.08	61.53%	60.95%	60.95%
Tertiary	7,480.87	7,568.51	15,049.38	30.80%	32.09%	32.09%
Total	24,290.43	22,610.57	46,901	100.00%	100.00%	100.00%
<b>Employment Status</b>						
Employee	18,482.53	17,627.77	36,110.30	75.19%	76.61%	75.88%
Self-employed with employees	1,141.34	585.00562	1,726.35	4.64%	2.54%	3.63%
Self-employed without employees	2,569	1,906.65	4,475.88	10.45%	8.29%	9.41%
Unemployed	2,388	2,889.17	5,277.48	9.72%	12.56%	11.09%
Total	24,581	23,008.60	47,590	100.00%	100.00%	100.00%
<b>Lost job during COVID-19 pandemic</b>						
Yes, permanently	1,230.96	1,252.58	2,483.54	5.07%	5.51%	5.28%
Yes, temporarily	5,477.58	5,171.57	10,649.15	22.56%	22.76%	22.66%
No	17,569.11	16,302.20	33,871.31	72.37%	71.73%	72.06%
Total	24,277.65	22,726.35	47,004	100.00%	100.00%	100.00%
<b>Change in working hours during COVID-19 pandemic</b>						
Decreased a lot	7,335.24	6,795.13	14,130.37	32.42%	33.60%	32.98%
Decreased a little	3,699.44	3,000.57	6,700	16.35%	14.84%	15.64%
Stayed the same	7,450.43	6,557.85	14,008.28	32.93%	32.43%	32.69%
Increased a little	2,732.88	2,241.61	4,974.49	12.08%	11.08%	11.61%
Increased a lot	1,408.28	1,628.59	3,036.87	6.22%	8.05%	7.09%
Total	22,626.25	20,223.75	42,850	100.00%	100.00%	100.00%
<b>Worked from home before Covid-19 pandemic</b>						
Every day	2,180.48	1,807.22	3,987.70	9.59%	8.72%	9.18%
Every other day	1,574.12	1,348.10	2,922.23	6.93%	6.50%	6.72%
Once or twice a week	1,927.39	1,383.64	3,311.03	8.48%	6.67%	7.62%
Less Often	3,694.38	2,637.26	6,331.64	16.25%	12.72%	14.57%
Never	13,353.32	13,555.09	26,908.40	58.75%	65.38%	61.91%
Total	22,729.69	20,731.31	43,461	100.00%	100.00%	100.00%
<b>Round 1: started working from home as a result of the Covid-19 situation</b>						
No	14,559.84	12,431.95	26,991.79	65.47%	61.49%	63.58%
Yes	7,677.81	7,786.39	15,464.21	34.53%	38.51%	36.42%
Total	22,237.66	20,218.34	42,456	100.00%	100.00%	100.00%
<b>Live with spouse or partner</b>						
No	8,755.51	7,975.61	16,731.12	36.56%	35.23%	35.91%
Yes	15,194	14,662.89	29,856.88	63.44%	64.77%	64.09%
Total	23,949.51	22,638.49	46,588	100.00%	100.00%	100.00%
<b>Children in household</b>						
No	16,778.57	14,745.88	31,524.45	68.26%	64.09%	66.24%
Age 0-11	4,365.09	3,955.63	8,320.72	17.76%	17.19%	17.48%
Age 12-17	2,186.49	2,789.28	4,975.78	8.89%	12.12%	10.46%
Both ages	1,251.26	1,517.80	2,769	5.09%	6.60%	5.82%
Total	24,581.40	23,008.60	47,590	100.00%	100.00%	100.00%

Table A-3: Non-Weighted Sample Description (Round 1)

	Male	Female	Total	Male	Female	Total
<b>Education</b>						
Primary	430.00	743.00	1,173.00	3.12%	2.24%	2.50%
Secondary	4,104.00	9,086.00	13,190.00	29.77%	27.44%	28.12%
Tertiary	9,254.00	23,284.00	32,538.00	67.12%	70.32%	69.38%
Total	13,788.00	33,113.00	46,901	100.00%	100.00%	100.00%
<b>Employment Status</b>						
Employee	10,422.00	26,885.00	37,307.00	74.47%	80.03%	78.39%
Self-employed with employees	853.00	1143	1,996.00	6.10%	3.40%	4.19%
Self-employed without employees	1,629	2,843.00	4,472.00	11.64%	8.46%	9.40%
Unemployed	1,091	2,724.00	3,815.00	7.80%	8.11%	8.02%
Total	13,995	33,595.00	47,590	100.00%	100.00%	100.00%
<b>Lost job during COVID-19 pandemic</b>						
Yes, permanently	666.00	1,334.00	2,000.00	4.83%	4.02%	4.25%
Yes, temporarily	2,891.00	6,119.00	9,010.00	20.95%	18.43%	19.17%
No	10,245.00	25,749.00	35,994.00	74.23%	77.55%	76.58%
Total	13,802.00	33,202.00	47,004	100.00%	100.00%	100.00%
<b>Change in working hours during COVID-19 pandemic</b>						
Decreased a lot	3,492.00	8,043.00	11,535.00	27.49%	26.68%	26.92%
Decreased a little	2,079.00	4,634.00	6,713	16.36%	15.37%	15.67%
Stayed the same	4,595.00	10,520.00	15,115.00	36.17%	34.90%	35.27%
Increased a little	1,611.00	4,013.00	5,624.00	12.68%	13.31%	13.12%
Increased a lot	928.00	2,935.00	3,863.00	7.30%	9.74%	9.02%
Total	12,705.00	30,145.00	42,850	100.00%	100.00%	100.00%
<b>Worked from home before Covid-19 pandemic</b>						
Every day	1,322.00	3,073.00	4,395.00	10.33%	10.02%	10.11%
Every other day	1,064.00	2,441.00	3,505.00	8.31%	7.96%	8.06%
Once or twice a week	1,309.00	2,719.00	4,028.00	10.23%	8.87%	9.27%
Less Often	2,514.00	5,115.00	7,629.00	19.64%	16.68%	17.55%
Never	6,589.00	17,315.00	23,904.00	51.48%	56.47%	55.00%
Total	12,798.00	30,663.00	43,461	100.00%	100.00%	100.00%
<b>Round 1: started working from home as a result of the Covid-19 situation</b>						
No	6,889.00	14,879.00	21,768.00	55.01%	49.71%	51.27%
Yes	5,635.00	15,053.00	20,688.00	44.99%	50.29%	48.73%
Total	12,524.00	29,932.00	42,456	100.00%	100.00%	100.00%
<b>Live with spouse or partner</b>						
No	4,231.00	10,667.00	14,898.00	30.97%	32.40%	31.98%
Yes	9,431	22,259.00	31,690.00	69.03%	67.60%	68.02%
Total	13,662.00	32,926.00	46,588	100.00%	100.00%	100.00%
<b>Children in household</b>						
No	9,254.00	21,629.00	30,883.00	66.12%	64.38%	64.89%
Age 0-11	2,592.00	5,520.00	8,112.00	18.52%	16.43%	17.05%
Age 12-17	1,416.00	4,430.00	5,846.00	10.12%	13.19%	12.28%
Both ages	733.00	2,016.00	2,749	5.24%	6.00%	5.78%
Total	13,995.00	33,595.00	47,590	100.00%	100.00%	100.00%

## B. Appendix – Robustness Check

Table B-1: Odds Ratios Employment Loss, Subsample Equal Number of Men and Women

	Job Loss					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	0.923*** (0.028)	0.920** (0.033)	0.906* (0.047)	0.896*** (0.029)	0.893*** (0.036)	0.830*** (0.049)
Has Children 0-11	0.914** (0.035)	0.892** (0.045)	0.915** (0.035)	0.940 (0.038)	0.911* (0.049)	0.945 (0.038)
Has Children 12-17	0.986 (0.039)	1.012 (0.058)	0.987 (0.039)	0.986 (0.042)	1.021 (0.062)	0.987 (0.042)
Lives with Partner	0.880*** (0.029)	0.881*** (0.029)	0.869*** (0.040)	0.928** (0.034)	0.928** (0.034)	0.879** (0.045)
Interaction						
Female*Has Children 0-11		1.052 (0.075)			1.071 (0.082)	
Female*Has Children 12-17						
Female*Lives with Partner			1.027 (0.065)			1.114 (0.078)
Telework before Covid-19 (Never):						
Daily				1.538*** (0.081)	1.537*** (0.081)	1.537*** (0.081)
Several Times per Week				1.366*** (0.081)	1.368*** (0.081)	1.368*** (0.081)
Several Times per Month				1.023 (0.061)	1.022 (0.061)	1.023 (0.061)
Less Often				0.877*** (0.041)	0.877*** (0.041)	0.878*** (0.041)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.394*** (0.065)	0.394*** (0.065)	0.349*** (0.056)	0.238*** (0.045)	0.239*** (0.045)	0.226*** (0.042)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.04070	0.04070	0.04070	0.04690	0.04690	0.04690
Observations	26,733	26,733	26,733	24,537	24,537	24,537

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B-2: Odds Ratios Reduction in Working Hours, Sub-sample Equal Number of Men and Women

	Reduction in Working Hours					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	1.039 (0.034)	1.053 (0.042)	1.050 (0.063)	1.065* (0.035)	1.053 (0.035)	1.051 (0.042)
Has Children 0-11	1.113*** (0.044)	1.118** (0.060)	1.112*** (0.044)	1.110*** (0.044)	1.119*** (0.045)	1.127** (0.060)
Has Children 12-17	0.963 (0.041)	0.995 (0.063)	0.963 (0.041)	0.965 (0.041)	0.970 (0.041)	1.002 (0.063)
Lives with Partner	0.972 (0.036)	0.971 (0.036)	0.980 (0.052)	0.968 (0.036)	0.973 (0.036)	0.969 (0.036)
Interaction						
Female*Has Children 0-11		0.988 (0.073)				0.991 (0.073)
Female*Has Children 12-17		0.944 (0.079)				0.931 (0.078)
Female*Lives with Partner		0.985 (0.069)				
Employment Status (Employee):						
Self employed with Employees				1.888*** (0.165)	1.846*** (0.164)	
Self employed without Employees				1.742*** (0.117)	1.717*** (0.118)	
Switched to Teleworking Due to COVID-19					0.950 (0.033)	
Telework before Covid-19 (Never):						
Daily						0.708*** (0.042)
Several Times per Week						1.112* (0.067)
Several Times per Month						0.936 (0.054)
Less Often						0.937 (0.041)
Controls for Age and Education						
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.540*** (0.089)	0.538*** (0.089)	0.522*** (0.083)	0.559*** (0.093)	0.597*** (0.103)	0.549*** (0.091)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.0251	0.0251	0.0251	0.0298	0.0296	0.027
Observations	19,155	19,155	19,155	19,155	18,761	19,077

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B-3: Odds Ratios, Employment Loss Excluding Sweden

	Job Loss					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	0.932*** (0.023)	0.928** (0.028)	0.948 (0.041)	0.902*** (0.025)	0.894*** (0.029)	0.884** (0.043)
Has Children 0-11	0.926*** (0.027)	0.899** (0.045)	0.925*** (0.027)	0.956 (0.030)	0.922 (0.049)	0.957 (0.030)
Has Children 12-17	1.006 (0.030)	1.029 (0.059)	1.006 (0.030)	1.021 (0.033)	1.035 (0.062)	1.021 (0.033)
Lives with Partner	0.858*** (0.022)	0.858*** (0.022)	0.874*** (0.039)	0.898*** (0.025)	0.899*** (0.025)	0.879*** (0.044)
Interaction						
Female*Has Children 0-11		1.045 (0.062)			1.056 (0.067)	
Female*Has Children 12-17		0.969 (0.064)			0.981 (0.069)	
Female*Lives with Partner			0.975 (0.051)			1.030 (0.060)
Telework before COVID-19 (Never):						
Daily				1.580*** (0.064)	1.580*** (0.064)	1.580*** (0.064)
Several Times per Week				1.385*** (0.063)	1.385*** (0.064)	1.385*** (0.064)
Several Times per Month				1.020 (0.048)	1.020 (0.048)	1.020 (0.048)
Less Often				0.869*** (0.032)	0.870*** (0.032)	0.870*** (0.032)
Controls for Age and Education						
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.479*** (0.061)	0.480*** (0.061)	0.408*** (0.051)	0.291*** (0.042)	0.292*** (0.042)	0.264*** (0.037)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.0368	0.0369	0.0368	0.0423	0.0424	0.0424
Observations	45,046	45,046	45,046	41,332	41,332	41,332

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B-4: Odds Ratios Reduction in Working Hours Excluding Sweden

	Reduction in Working Hours					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	1.033 (0.028)	1.030 (0.034)	1.032 (0.053)	1.061** (0.029)	1.052* (0.029)	1.028 (0.035)
Has Children 0-11	1.143*** (0.035)	1.114** (0.059)	1.143*** (0.035)	1.141*** (0.035)	1.155*** (0.036)	1.123** (0.059)
Has Children 12-17	0.972 (0.031)	1.000 (0.063)	0.972 (0.031)	0.974 (0.031)	0.970 (0.031)	1.008 (0.063)
Lives with Partner	0.966 (0.027)	0.966 (0.027)	0.965 (0.050)	0.961 (0.027)	0.968 (0.027)	0.967 (0.027)
Interaction						
Female*Has Children 0-11		1.037 (0.064)				1.036 (0.064)
Female*Has Children 12-17		0.963 (0.070)				0.951 (0.069)
Female*Lives with Partner			1.001 (0.060)			
Employment Status (Employee):						
Self-employed with Employees				1.821*** (0.131)	1.772*** (0.129)	
Self-employed without Employees				1.782*** (0.097)	1.774*** (0.099)	
Switched to Teleworking Due to Covid-19					0.960 (0.026)	
Telework before COVID-19 (Never):						
Daily						0.735*** (0.033)
Several Times per Week						1.052 (0.049)
Several Times per Month						0.885*** (0.040)
Less Often						0.931** (0.031)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.571*** (0.074)	0.572*** (0.075)	0.551*** (0.070)	0.591*** (0.077)	0.617*** (0.084)	0.590*** (0.077)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.0228	0.0228	0.0228	0.027	0.0269	0.0245
Observations	32,461	32,461	32,461	32,461	31,805	32,333

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B-5: Odds Ratios Employment Loss and Working Hours Reduction, High GEI Excluding Sweden

	High GEI		
	Lost Job	Decrease in WH	
Female	0.961 (0.057)	0.960 (0.061)	0.976 (0.062)
Has Children 0-11	0.904 (0.093)	1.025 (0.105)	1.034 (0.107)
Has Children 12-17	0.836 (0.097)	0.914 (0.104)	0.899 (0.103)
Lives with Partner	0.889** (0.043)	0.927 (0.048)	0.927 (0.049)
Interaction			
Female*Has Children 0-11	0.933 (0.112)	1.207 (0.143)	1.225* (0.146)
Female*Has Children 12-17	1.188 (0.157)	0.998 (0.131)	0.999 (0.133)
Employment Status (Employee):			
Self-employed with Employees			1.933*** (0.310)
Self-employed without Employees			2.781*** (0.321)
Switched to Teleworking Due to Covid-19			0.887** (0.044)
Controls for Age and Education	Yes	Yes	Yes
Country FE	Yes	Yes	Yes
Constant	0.403*** (0.078)	0.283*** (0.064)	0.354*** (0.084)
Prob > $\chi^2$	0.000	0.000	0.000
Pseudo $R^2$	0.040	0.025	0.034
Observations	13,413	10,003	9,925

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1



Table B-6: Odds Ratios Reductions in Working Hours "Decreased a Lot"

	Reduction in Working Hours					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Female	1.130*** (0.042)	1.061 (0.048)	0.994 (0.066)	1.162*** (0.043)	1.154*** (0.043)	1.047 (0.047)
Has Children 0-11	1.092** (0.044)	0.965 (0.070)	1.100** (0.045)	1.090** (0.044)	1.107** (0.045)	0.972 (0.070)
Has Children 12-17	1.072* (0.044)	0.988 (0.084)	1.074* (0.044)	1.076* (0.044)	1.062 (0.045)	0.998 (0.085)
Lives with Partner	0.937* (0.034)	0.940* (0.034)	0.818*** (0.056)	0.931* (0.034)	0.943 (0.035)	0.946 (0.035)
Interaction						
Female*Has Children 0-11		1.191** (0.100)				1.198** (0.101)
Female*Has Children 12-17		1.112 (0.107)				1.096 (0.106)
Female*Lives with Partner			1.199** (0.095)			
Employment Status (Employee):						
Self-employed with Employees				1.739*** (0.150)	1.665*** (0.147)	
Self-employed without Employees				1.748*** (0.115)	1.706*** (0.115)	
Switched to Teleworking Due to Covid-19					0.810*** (0.029)	
Telework before Covid-19 (Never):						
Daily						0.685*** (0.043)
Several Times per Week						1.016 (0.063)
Several Times per Month						0.714*** (0.046)
Less Often						0.815*** (0.037)
Controls for Age and Education						
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.282*** (0.046)	0.291*** (0.048)	0.284*** (0.045)	0.292*** (0.048)	0.384*** (0.066)	0.305*** (0.050)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.037	0.037	0.037	0.041	0.043	0.040
Observations	32,871	32,871	32,871	32,871	32,215	32,742

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B-7: Odds Ratios Employment Loss, Parents Sample

	High GEI		Mid GEI		Low GEI	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Female	1.014 (0.092)	0.972 (0.094)	0.897 (0.075)	0.820** (0.073)	0.874* (0.061)	0.871* (0.065)
Number of Children 0-11	0.964 (0.051)	0.971 (0.055)	1.033 (0.052)	1.047 (0.055)	0.960 (0.040)	0.965 (0.045)
Number of Children 12-17	1.008 (0.054)	1.026 (0.063)	1.098* (0.062)	1.115* (0.067)	0.949 (0.043)	0.972 (0.046)
Lives with Partner	0.679*** (0.070)	0.676*** (0.076)	0.656*** (0.065)	0.737*** (0.081)	0.815** (0.071)	0.863 (0.083)
Telework before Covid-19 (Never):						
Daily		2.203*** (0.294)		1.429*** (0.197)		1.608*** (0.182)
Several Times per Week		1.250 (0.188)		1.290* (0.188)		1.350** (0.173)
Several Times per Month		0.940 (0.133)		0.854 (0.133)		1.163 (0.152)
Less Often		0.646*** (0.086)		0.994 (0.111)		0.997 (0.096)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.555 (0.235)	0.484 (0.221)	0.701 (0.270)	0.358** (0.154)	1.141 (0.363)	0.675 (0.244)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.053	0.066	0.043	0.044	0.038	0.042
Observations	4,814	4,567	4,305	4,036	5,815	5,383

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table B-8: Odds Ratios Working Hours Reduction, Parents Sample

	High GEI			Mid GEI			Low GEI		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Female	1.061 (0.090)	1.093 (0.094)	1.033 (0.089)	1.041 (0.090)	1.062 (0.092)	1.037 (0.090)	0.979 (0.073)	1.010 (0.076)	0.992 (0.075)
Number of children 0-11	1.030 (0.053)	1.028 (0.054)	1.034 (0.054)	0.995 (0.056)	0.978 (0.055)	1.003 (0.057)	0.951 (0.041)	0.937 (0.041)	0.968 (0.042)
Number of children 12-17	0.977 (0.055)	0.973 (0.055)	0.969 (0.055)	0.813*** (0.055)	0.796*** (0.054)	0.814*** (0.056)	0.965 (0.044)	0.962 (0.045)	0.972 (0.044)
Lives with partner	0.920 (0.102)	0.933 (0.104)	0.942 (0.105)	0.833* (0.092)	0.832* (0.092)	0.835 (0.092)	1.068 (0.102)	1.064 (0.102)	1.061 (0.102)
Employment Status: Self-employed with employees		1.672* (0.451)			2.603*** (0.546)			2.133*** (0.379)	
Self-employed without employees		2.691*** (0.518)			1.389 (0.283)			1.630*** (0.237)	
Telework before Covid-19 (Never):									
Daily			0.884 (0.126)			0.810 (0.116)			0.568*** (0.073)
Several Times per Week			0.919 (0.123)			1.110 (0.154)			1.175 (0.148)
Several Times per Month			0.867 (0.102)			0.963 (0.128)			0.886 (0.113)
Less Often			0.751*** (0.078)			0.931 (0.096)			1.087 (0.097)
Controls for Age and Education	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.782 (0.348)	0.772 (0.345)	0.760 (0.339)	2.403** (0.996)	2.512** (1.045)	2.486** (1.034)	0.974 (0.377)	0.990 (0.385)	0.994 (0.387)
Prob > $\chi^2$	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo $R^2$	0.020	0.026	0.022	0.021	0.026	0.022	0.021	0.026	0.027
Observations	3,813	3,813	3,806	3,233	3,233	3,215	4,183	4,183	4,161

Robust seeform in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1