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GENDER INEQUALITY IN THE LABOR RETURNS
OF COVID-19 IN SPAIN

REBECA OROZ PÉREZ

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REBECA ECHÁVARRI AGUINAGA

ABSTRACT

The last decades have been of major importance for the inclusion of women in the Spanish labour market, moving towards a work place with an increased gender equality. However, analysing how an unexpected and uncertain shock such as the covid-19 pandemic would affect gender integration in the marketplace is relevant on its own. The stringency of the measures taken by the governments to slow down the speed of contagion made it difficult for adults in charge of children, elderly or any other dependent to outsource their required care needs. Which side of the couple has absorbed these increased responsibilities and how it has affected the labour market is what I study in this dissertation. To overcome these questions, I gather data from Spanish citizens and run a quantitative analysis with it. My study finds that women seem to have been more likely than men to reduce their number of working hours or even to leave their paid jobs in order to take care of their dependents after the covid-19 virus outbreak in Spain. The results found offer an initial picture for further research on gender equality in the labour market. Which are the economic, cultural and psychological reasons underlying the events found, must be of interest in order to be able to move towards a more equalized world.

KEYWORDS: Gender equality, labour market, covid-19 pandemic.

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1. INTRODUCTION

Understanding the impacts of a major global shock such as the covid-19 pandemic is relevant in its own right. Not only the health related effects of this virus have been of major concern during the last couple of years, but also the economic impacts that this event would cause. In particular, getting to understand the labor market consequences of this crisis is of major importance for the well-functioning of the economic markets, and therefore, for the globally dreamed *back to normality*. A large reallocation of workers is likely to happen as a result of the covid-19 crisis (Adams-Prassl et al., 2020). Hence, understanding the labour market forces, as well as their interaction with institutional factors is of high importance for policy-making. Not only for policy-making is this relevant, but also for the relief of workers and employers, who find themselves in a truly uncertain environment. In such a rapid-changing atmosphere, ongoing economic studies are being carried out all around the world. Those which have focused on the labor supply have found inequalities on how the covid-19 shock is affecting different social groups, being both women and migrant workers particularly vulnerable (Lee et al., 2020).

The governments' imposed restrictions and lockdowns in order to slow down the spread of the virus implied closing down every place that gathered a certain amount of people. Some of such places were schools or residences for the elderly. Moreover, another recurrent restriction was to confine at home for at least 10 days when one was either infected by the covid-19 virus or had been in close contact with an infected person. The purpose of this dissertation is to understand how these limitations have been affecting the labor market supply and the lives of those who had to deal with taking care of their dependents, having in mind that these responsibilities could not be outsourced. Analyzing the different impact these restrictions had depending on gender, is the main objective of this research.

The covid-19 impact on gender equality and labor supply literature mainly focuses on the different type of jobs male and female occupied before the pandemic outbreak and during it (Amudeo-Dorantes et al., 2020). Not only this, but analyzing how the inability to outsource during lockdown lead to a disproportionate increase in childcare for mothers and fathers has also been the main focus of several studies (Farré et al., 2020; Sevilla et al., 2020). Going a step further, other academics like Andrew et al. (2020) and Farré et al.(2020), have examined how an adult's job status has affected on how much childcare and housework was taken up by their partner during lockdown. Although important steps

have been taken to better understand which gender has absorbed the biggest share of the covid-19 driven extra burden of childcare and housework, some questions have remained neglected in the current literature: which gender has absorbed the biggest burden of care not only for children but for every dependent under adults responsibility? How has this affected their job status? Who has been more likely to give up his/her paid job in order to face such responsibilities? Answering these questions not only for the first March 2020-May 2020 lockdown period, but all along the 2020-2021 *alarm state* in Spain, is this paper's main contribution to the literature. Not only this, but insights about these gender inequalities when sharing home chores depending on the household age have also been obtained.

In order to overcome this literature gap, I have constructed three regression models to identify the effect of a set of variables considered as essential determinants in who faces housework and care responsibilities. In this context, driving special attention to the gender differences. Data for such variables has been obtained from a specific survey designed for the matter of this study.

To validate my theoretical approach that women have been specially vulnerable to the covid-19 shock in this context, the three econometric models were tested with the survey's responses data. One of these models points out that there have not been interesting differences on how care duties and house chores were shared depending on household's age. Nevertheless, my estimates do show that women have been more likely to reduce their number of working hours than men in order to take up care responsibilities. What is more, I have also found that women have been more likely than men to give up their paid jobs in order to absorb the extra burden of care responsibilities that the pandemic brought due to schools and nursing homes closure. Finally, I have observed strong negative correlations between being female and only taking up a small proportion of care for one's dependents and housework, both before and after the pandemic outbreak.

This paper proceeds as follows. [Sections 2](#) and [3](#) provide this dissertation's main theoretical background. In [Section 4](#) I do both, present the data and introduce the methods and models used. The empirical results are presented in [Section 5](#), to later finish with the discussion in [Section 6](#).

2. LITERATURE REVIEW

The covid-19 crisis has been disproportionately damaging for women workers. Lee et al. (2020) finds that from all the women employed around the world, 40 per cent happen to work in hard-hit sectors by the virus, being this figure smaller for men. Second, even though 70 per cent of the worldwide labor force employed in health and social work are female, they tend to be engaged in these sectors' lower-skilled and lower-paid jobs, such as cleaning services. Finally, the closure of care services and schools globally has as well exacerbated the unequal distribution of care. Many studies have focused their research specifically around mothers, segment of the labor supply that has been particularly reduced (Amudeo-Dorantes et al., 2020).

The inability to outsource during the first lockdown period led to a large increase in childcare and household tasks. This increase in household responsibilities was, according to Farré et al., 2020, absorbed by both mothers and fathers, but while it is true that men did increase their participation at home, most of the burden still disproportionately fell on women. The gender gap found in parents' share of these tasks during lockdown was of about 17 percentage point on average in Spain (Farré et al., 2020). This gap has been a matter of study for many renowned researchers all around the world during the last months, centering their research on the impacts schools closure had on the division of at home non-paid work. All in all, the covid-19 crisis appears to have increased gender inequalities, at least in the short-term. In particular, school closures seem to have had a greater impact on "non-essential" working mothers and the ones that were able to telework, who have reported to have devoted much more hours to childcare and housework than they did before (Amudeo-Dorantes et al., 2020).

Being the percentage of unemployment practically equal for both genders in Spain, the fact that women were more likely to work from home or to be furloughed since the pandemic outbreak (Farré et al., 2020), could explain the fact that they took over most of the home duties. Nevertheless, different patterns have been found for unemployed, teleworking or furloughed men and women with children. The additional childcare that schools closure meant for families during and after lockdown is much less sensitive to women's employment status than it is for men (Sevilla et al., 2020). Mothers have been in charge of more childcare and housework during lockdown, irrespectively in most cases of their partner's employment situation. Something that cannot be extrapolated to the male gender, as the extent to which fathers have taken over additional home chores has

been more dependent on their partner's employment situation (Farré et al., 2020). Mothers who have stopped working during the covid-19 crunch while their spouse continued doing so did twice as much housework as their partner. Nonetheless, being this the opposite situation when fathers would be the ones at home, both adult members of the family would share childcare and housework in equal proportions (Andrew et al., 2020). It is not only that patterns are different for working mothers and fathers, but also that an increase in such gender and work differences has been seen since the beginning of the crisis. This differences increase has been experienced in all three dimensions: being in paid work at all as has already been explained, the hours spent on paid work, and the likelihood of being interrupted during working hours (Andrew et al, 2020b). The percentage of working mothers per working fathers has been reduced with respect to the 2014/2015 labor market situation (Andrew et al., 2020). Mothers are spending less time on paid work but more on household responsibilities since the beginning of lockdown. Before, it has been explained how schools closure affected more to mothers working on non-essential jobs or to the ones being able to telework, as they absorbed the biggest burden of their households' responsibilities. However, still mothers working on classified essential jobs and the ones not being able to telework during lockdown have been as well highly affected by the crisis. In fact, the aforementioned reduction in paid working hours has been significantly more severe among those mothers who were not able to telework (Amudeo-Dorantes et al., 2020), which explains one of the main reasons for such a decline in employment propensity. Something that can again be noticed if analyzing the differences between essential and non-essential employed mothers. The ones classified as to be essential were more likely to stop working than the ones who were not essential, as they had no option but to leave their houses during the working day and could not attend their at home responsibilities (Amudeo-Dorantes et al., 2020). Furthermore, while both men and women with children were equally likely to be interrupted by such responsibilities during their working hours prior to the pandemic, now mothers are over 50% more likely to suffer such interruptions. Besides all this, even the presence of another adult figure in the household different from the spouses, has affected differently to both genders, having helped more fathers than mothers to maintain the labor supply (Andrew et al., 2020).

Therefore, it is not only that mothers have been more likely to be furloughed or to work from home since the beginning of the pandemic and that they have taken over a higher

share of the household responsibilities. But also, working mothers have been more likely to leave work than men in order to attend such duties. All this summed up to the fact that both genders behave differently depending on whether the one staying at home is the male or female part of the couple, leads to the already claimed conclusion that the covid-19 pandemic has been detrimental for gender equality.

Were all these findings not enough, there are also experts that suspect these inequalities to be longer-lasting in time, as the labor market involvement by female is being reduced in every of the aforementioned ways (Hopkau et al., 2020). The high returns to experience are key in the labor market, reason for which the effects of the covid-19 related crisis on working mothers are likely to be persistent (Alon et al., 2020). How long these increased gender differences in at home activities and as a result in the labor market will last, should be of major importance for future studies as well. Attempting to define such change will be of crucial relevance for accurate policy-making.

Nonetheless, there are some that argue that this shock's impacts on the labor market and gender equalization could eventually mean be the beginning of the reversal in traditional gender roles (Andrew et al., 2020b). With this, these authors refer to the fact that the results found by all the studies that have been carried out so far are utterly heterogeneous among different households. Even in a sizable share of UK homes it has been seen how the traditional gender roles have been reversed since the covid-19 outbreak, being fathers the ones taking the primary role in childcare (Hupkau et al., 2020). The fact that women have taken over most of the home responsibilities in average, should not outshine that fathers have as well increased their participation in their at home responsibilities. Notwithstanding that fathers are absorbing a smaller proportion of childcare, their time spent on such obligations has been nearly doubled during lockdown (Andrew et al., 2020). Away from the immediate crisis caused by this unprecedented shock, there are opposing forces such as the reshaped attitudes towards gender and work just mentioned, which may turn prompt lasting changes in families and could ultimately promote gender equality in the labor market (Alon et al., 2020). The insights obtained by recent studies seem to be clear on how the pandemic has negatively affected gender equality. However, they seem to get ambiguous conclusions on whether the crisis will in the near future either accelerate the erosion of those social norms that currently lead to a lopsided distribution of the division of household responsibilities towards mothers, or in contrary, will reinforce them.

Being more specific and focusing on how working mothers were more prompt to leave their paid-work positions than fathers, most of the literature has mainly examined how schools closures affected the likelihood of such event depending on gender during 2020 lockdown. Having been Spain one of the countries around the world under the toughest covid-19 restrictions, declaring two national *alarm states* which were elongated until May 9th, 2021, way longer than the March-May 2020 lockdown, it would be of great interest and contribution to the literature to investigate along the entire period of the covid-19 driven restrictions. For instance, once the at home lockdown period was over and schools were able to go back to in person activity, every time a kid tested positive in covid-19, the entire classroom of that child had to be confined, measure taken in every Spanish primary school. Situation that was constantly repeated in the country and required at least one of the household's adults to stay at home with their kid every time they were sent home for confinement. Moreover, not only children schools shut down during lockdown and had reduced activity afterwards, but every external source of dependent people care, such as special education centers or day-care services for elderly people were either closed or under exceptional activity reductions. Hence, these are the literature gaps that this dissertation attempts to fill for the case of Spain. How not only during the 2020 lockdown, but all along the 2020-2021 *alarm state* period the household responsible had to leave their paid work to devote their time to home duties. Being, furthermore, these responsibilities not only children but every dependent person on the spouses. Studying the different gender responses to voluntary working leaves and reductions during the pandemic, will contribute to the covid-19 driven gender inequalities literature.

3. CONCEPTUAL FRAMEWORK

Women labor force participation has dramatically increased during the last century. In the United States, for instance, almost 50 per cent of the current labor force is female, something that truly contrasts with the almost non-existent women participation in paid jobs at the beginning of the XX century (Fernández et al., 2004). Many explanations given for such event come along with the development of technologies that would liberate women from housework.

According to Greenwood et al. (2004) a great decrease in the amount of household responsibilities came thanks to the liberating effects of new consumer durables such as washing machines or vacuum cleaners, which would reduce the time required to carry

out traditional home tasks, explaining part of the transformation of mother's role in the family and workplace. Goldin and Katz (2002) also argue the revolutionary effect that the oral contraceptive had on facilitating women to control fertility and enabling them to focus on their careers. Furthermore, in 1985 Smith and Ward found out how 60 per cent of women's increase in labor force participation since the 1950s was attributed to the increase in real wages. Being the considerable remaining 40 per cent of such increase due to other factors, one of them was the increasing level of schooling, which would also liberate women and enable them to devote their time to other activities. Hence, what would happen in the female labor market seems an obvious question to ask to oneself when a shocking event such as the covid-19 pandemic happens to increase back the at home responsibilities.

All of the aforementioned technological innovations could be added up to the growing appearance of a *new type of man*, who has been a key factor in the increase of female labor force participation over time according to Fernández et al. (2004). This *new type of man* is the one who has been brought up by a working mother (Fernández et al., 2004). This has made him have a greater household productivity, arising from a different attitude towards traditional housework roles, which has allowed his wife to spend more relative time in the paid market.

Along these lines there exists a growing literature examining how employment status of both sides of the couple may affect the risk of intimate partner violence. Using Spanish data, Alonso-Borrego and Carrasco found in 2017 that women of unemployed men are at the highest risk of violence. Men use violence against their female partners to restore their self-sense of power, lost due to a violation of their traditional social norms regarding family arrangement (Tur-Prats, 2021). Being unemployment and furlough levels in Spain high since the covid-19 outbreak regardless of gender, these violent situations could be expected to have been multiplied all around the country. The persistence of these norms overtime may explain the already existing differences in female labor force participation before the pandemic, as well as the division of home production for those households with a *traditional type of men* (Tur-Prats, 2021). All of the aforementioned could lead to the hypothesis that **younger households, prior to the pandemic outbreak, were more likely to share housework and care responsibilities between both adult members in equal proportions**, which is the first research question of this dissertation.

For women to give up their care responsibilities for their dependents may not be as easy as giving up other home chores such as the cleaning. “Women may be reluctant to pursue gender equality if they fear for the well-being of children and other dependents” (Folbre, 2006, p. 184). This fear of risking dependents’ well-being that women feel according to Folbre (2006), could lead to suppose that the amount of women that gave up their paid jobs for attending their dependents’ needs during the confinement was, therefore, higher than the amount of men that did so. Leading to the second hypothesis of this dissertation, **how women took over a higher burden of the extra housework and care responsibilities driven by the impossibility of outsourcing during the entire covid-19 confinement period.**

Folbre (2006) claims how care means costs for women in the form of financial obligations, lost opportunities and forgone wages, but also how it generates intrinsic rewards and higher-quality services for dependents. In fact, it is not that when women incorporate to the labor market they reduce their participation at home, in contrast, this is done on the expense of time that was once devoted to their personal care, sleep and leisure (Folbre, 2006). Being this sacrifice already done, working mothers living together in a household with a *new type of man*, could only face schools and other care centers closure during the pandemic either by trusting their partner on taking over the extra care responsibilities and remaining in the labor market, or by giving up their paid jobs, which is still an empirical question to be examined. Which of these events happened more often in Spain, together with what happened to those working mothers living with a *traditional type of man* is what this dissertation attempts to answer, as its main objective is not differentiating such events depending on the type of household in which these working women were living at.

It should not be ignored the fact that human behavior responds to its environment. Negative socioeconomic shocks, as the most recent one derived from the pandemic, make social norms (Echavarri, 2021) and therefore gender discrimination to reemerge. This is why, it would not be wrong to expect these traditional mindsets to be sharpened due to the covid-19 crisis, affecting the matter of this study. How the labor market negative impacts of the covid-19 crunch have been more detrimental for women, which are related to the extra burden of home tasks absorbed by female as a result of the reinforcement of traditional social norms is what this dissertation attempts to demonstrate with the pre- and post- pandemic analysis.

Moreover, nowadays still more female than male are employed in care occupations such as nursing and teaching (Folbre, 2006), which have been essential during the pandemic and made it impossible to balance such increase in at work and at home responsibilities. Moreover, as stated by Budig et al. (2002), such occupations tend to pay less than others of similar characteristics, which could also be an incentive for leveraging the increased household work during the confinement by leaving such jobs. Therefore, the third and main hypothesis of this dissertation is that **the female part of labor supply gave up their market jobs more often than the male part during the covid-19 crisis. Either meaning to completely stop working, asking for working leaves or switching from full-time to part-time jobs.**

4. EMPIRICAL FRAMEWORK

In an attempt to test the three aforementioned hypotheses, data has been collected in an online survey due to how recent this topic is. Since the covid-19 full confinement in Spain was just no more than two years ago and the pandemic related restrictions were still present at the moment of conducting the survey, there are not already existing data bases that could be useful for answering this research's questions for the case of Spain.

4.1. Data

Data from a survey specifically designed for the matter of this paper has been used for answering this dissertation's main hypotheses (see the [Appendix](#)). This survey has been mainly spread across adult Navarre inhabitants, independently of their gender, which has been answered only by Spanish citizens, obtaining a total of 131 final responses.

Out of those 131 answers, only 94 fitted the required profile for their responses to be useful for the matter of this study. This is why the size of the sample that has eventually been used is of 94 respondents.

Moreover, this data set presents a quasi-panel data structure, as it is data collected from multiple individuals, 131 in total, about two different time periods, before and after the pandemic outbreak and first confinement, this is, before March 2020 and after May 2020. The survey's responses were recorded between the months of November and December of 2021, which was spread using the Google Forms platform.

4.1.1. Variable measurement and definition

The variables presented now are the ones included in the equations presented later in [Section 4.2.](#), which are the basis of the three models that will serve to test the aforementioned hypotheses. In the Table 1, a full list of not only the variables but also their measurement and definition is presented.

The variables used in this study follow previous literature, for instance Fernández et al. (2004) which makes use of the variable *household time allocation*, referring to the time allocated to household production, or Folbre (2006) making use of all *unpaid work*, *unpaid subsistence production* and *informal market work*, referring to what it takes to take care of dependents and other household chores. Tur-Prats (2021) makes use of other more basic variables that are also used in this paper, such as *age*, *respondent's level of education*, *civil state* or *labor status*.

The survey's answers have been transformed into dummy variables, which can only take either value 1 or 0 as explained in the table below. For that reason several dummies can be generated for one question, such as in the case of the income level, from which 7 different dummies will be created. In order to avoid the perfect multicollinearity problem in independent variables, one of the answer options for the questions included in the survey should be used as a control variable. Therefore, that control variable does not appear on the modified data base, and will not appear in the models constructed bellow. Which is the control variable in each of the different question is also included in the following table.

Table 1 – Variable measurement and definition

Variable	Measurement and Definition
After	Dummy variable that takes value 0 when individual <i>i</i> is answering a question related to their pre-pandemic condition, and value 1 when answering regarding their condition after March 2020.
Female	Dummy variable that takes value 1 when individual <i>i</i> is female, and 0 otherwise.
Age [18-25y.o.]	Dummy variable that takes value 1 when individual <i>i</i> is between 18 and 25 years old, and 0 otherwise.
Age [25-35 y.o.]	Dummy variable that takes value 1 when individual <i>i</i> is between 25 and 35 years old, and 0 otherwise.
Age [over 35y.o.]	Control variable, which represents those individuals that are over 35 years old.
Single	Dummy variable that takes value 1 when individual <i>i</i> is single, and 0 otherwise.
Divorced	Dummy variable that takes value 1 when individual <i>i</i> is divorced, and 0 otherwise.
Married	Control variable, which represents those individuals that are married.

Tertiary Studies	Dummy variable that takes value 1 when individual <i>i</i> has university-level or tertiary level studies, and 0 otherwise.
Secondary Studies	Dummy variable that takes value 1 when individual <i>i</i> has secondary level studies, and 0 otherwise.
<i>Primary Studies</i>	Control variable, which represents those individuals whose top studies are compulsory level studies.
Part-time job	Dummy variable that takes value 1 when individual <i>i</i> has a part-time job contract, and 0 otherwise.
Student	Dummy variable that takes value 1 when individual <i>i</i> is a student, and 0 otherwise.
Retired	Dummy variable that takes value 1 when individual <i>i</i> is retired, and 0 otherwise.
Dedicated to home chores	Dummy variable that takes value 1 when individual <i>i</i> is dedicated to home chores, and 0 otherwise.
<i>Full-time hob</i>	Control variable, which represents those individuals that have a full time job.
Employed	Dummy variable that takes value 1 when individual <i>i</i> is employed, and 0 otherwise.
Flexible job	Dummy variable that takes value 1 when individual <i>i</i> had a flexible work schedule, and 0 otherwise.
Income [500€-1000€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 500€ and 1000€, and 0 otherwise.
Income [1000€-1500€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 1000€ and 1500€, and 0 otherwise.
Income [1500€-2000€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 1500€ and 2000€, and 0 otherwise.
Income [2000€-2500€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 2000€ and 2500€, and 0 otherwise.
Income [2500€-3000€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 2500€ and 3000€, and 0 otherwise.
Income [3000€-5000€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 3000€ and 5000€, and 0 otherwise.
Income [5000€-7500€]	Dummy variable that takes value 1 when individual <i>i</i> has a monthly income between 5000€ and 7500€, and 0 otherwise.
<i>Income [less than 500€]</i>	Control variable, which represents those individuals whose monthly income is below 500€.
Being in charge of most care responsibilities for their dependents	Dummy variable that takes value 1 when individual <i>i</i> takes up most of the care for their dependents, and 0 otherwise.
Being in charge of an important part of care responsibilities while sharing it	Dummy variable that takes value 1 when individual <i>i</i> takes up an important part of care for their dependents while sharing it, and 0 otherwise.
<i>Being in charge of a small part of care duties</i>	Control variable, which represents those individuals that take up a little part of care for their dependents.
Being in charge of most housework	Dummy variable that takes value 1 when individual <i>i</i> takes up most of the home chores, and 0 otherwise.
Being in charge of an important part of housework while sharing it	Dummy variable that takes value 1 when individual <i>i</i> takes up an important part of home chores while sharing it, and 0 otherwise.

<i>Being in charge of a small part of housework</i>	Control variable, which represents those individuals that take up a little part of home chores.
Indefinite contract	Dummy variable that takes value 1 when individual <i>i</i> has an indefinite contract, and 0 otherwise.
Permanent contract	Dummy variable that takes value 1 when individual <i>i</i> has a permanent contract, and 0 otherwise.
Full-time contract	Dummy variable that takes value 1 when individual <i>i</i> has a full time contract, and 0 otherwise.
The reason for having a partial contract was to take care of dependents	Dummy variable that takes value 1 when individual <i>i</i> has a partial contract and the reason was to take care of his/her dependents, and 0 otherwise.
In charge of other workers	Dummy variable that takes value 1 when individual <i>i</i> is in charge of other workers, and 0 otherwise.
Less studies	Dummy variable that takes value 1 when individual <i>i</i> is in a position that requires less studies than what he has, and 0 otherwise.
After May 2020, the return to work was fully in person	Dummy variable that takes value 1 when individual <i>i</i> had a full in person job after the first confinement, and 0 otherwise.
After May 2020, the return to work was fully remote	Dummy variable that takes value 1 when individual <i>i</i> had a full online job after the first confinement, and 0 otherwise.
<i>After May 2020, the return to work was hybrid</i>	Control variable, which represents those individuals who had a combination of both in person and online job mode after the first confinement.
Stop working in order to face care responsibilities	Dummy variable that takes value 1 when individual <i>i</i> stopped working to take care of his/her dependents after March 2020, and 0 otherwise.
Ask for a working leave in order to face care responsibilities	Dummy variable that takes value 1 when individual <i>i</i> had to take a working leave to take care of his/her dependents after March 2020, and 0 otherwise.

4.1.2. Descriptive Analysis

This section includes a brief description of some of the most important variables used in the study. All the variables described above are qualitative variables, this is the reason why their maximum, minimum, mean or other descriptive statistics cannot be obtained. Instead, their frequencies differencing by gender are presented.

It is worth mentioning an interesting insight that has been obtained from the data gathering. In the end, 100 of the answers were from women and 31 from men, 84% of whom were older than 35 years old. Although the proportion of men and women to which the survey was spread was very similar, 76.3% of the final respondents happened to be female. Being just the only piece of information available the survey's title ("*Covid-19*

and gender inequality”), how much more women than men were prompt to answer is an interesting question to be studied in itself in further researches.

Care Responsibilities

It refers to the level at which the individual took care of their dependents before the pandemic outbreak (March 2020) and after the first confinement (May 2020). The scale used for measuring this variable is giving respondents the choice to answer whether they take up most care responsibilities, take up an important part of such responsibilities but share them or if they take up just a little part of care for their dependents.

Before the pandemic outbreak the situation was such that for the sample used, 13.64% of total male took up most of the care for their dependents, while 28.17% of total women did so (see Figures 1 and 2). Whereas 54.54% of total men took up an important part of care for their dependents while sharing it, 64.79% of total women did so. Moreover, while 31.82% of total men have claimed to just have taken up a small part of their dependents care before May 2020, 7.04% of women have done so. Therefore, it seems, given the data in the sample used, that before the covid-19 virus arrival, women were already taking up a bigger care share than men.

Figure 1 – Distribution of women given the level at which they were responsible for their dependents care before March 2020.

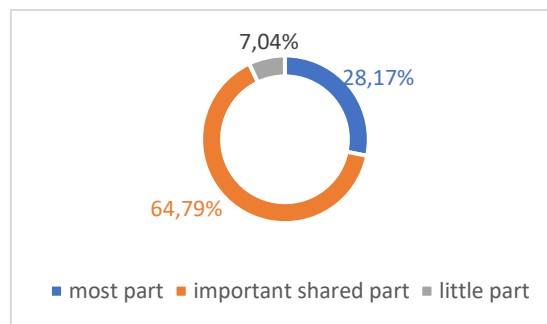
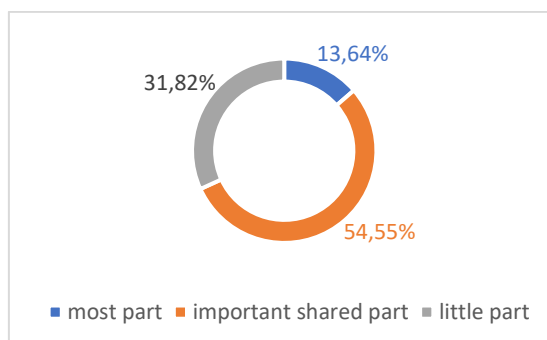


Figure 2 – Distribution of men given the level at which they were responsible for their dependents care before March 2020.



After the first confinement in Spain, May 2020, while the percentage of men taking up most of the care for their dependents remained the same, 13.64%, the percentage of women that did so increased to 65.7% (see Figures 3 and 4). The percentage of both men and women that took up an important part of care for their dependents while sharing it with their partners increased, for men to 59.09% and for women to 65.71%. Finally, the percentage of both men and women that took up a little part of care for their dependents decreased, but the share was still smaller for women, 4.29%, while the percentage of men was 27.27%.

Figure 3 - Distribution of women given the level at which they were responsible for their dependents care after May 2020.

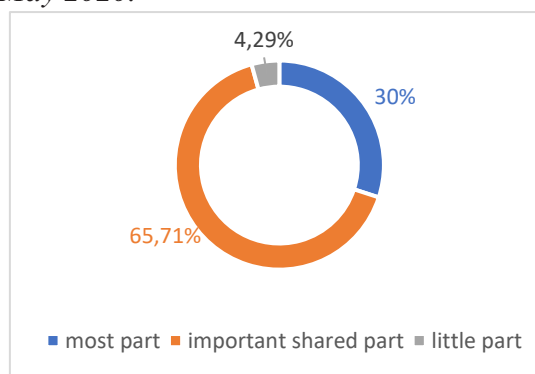
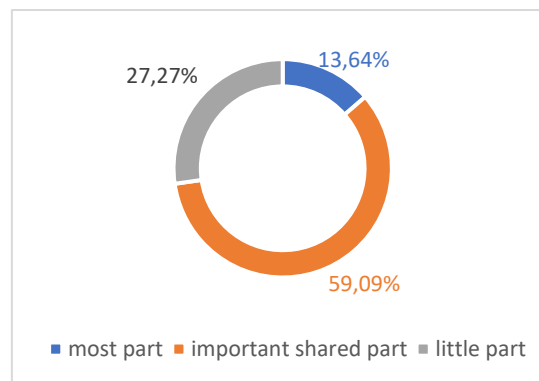


Figure 4 - Distribution of men given the level at which they were responsible for their dependents care after May 2020.



Housework

It refers to the level at which the individual took up home chores before the pandemic outbreak (March 2020) and after the first confinement (May 2020). The scale used for measuring this variable is giving respondents the choice to answer whether they take up most of household chores, take up an important part of such responsibilities but share them or if they take up just a little part of housework.

Before March 2020, while just 9.10% of male in the sample used claimed to have taken up most of housework, 31% of women did so (*see Figures 5 and 6*). 66.18% of women said to have taken up an important part of housework while shared, whereas 54.54% of men said so. Finally, while 36.36% of male claimed to take up a little part of housework, only 2.82% of women did so. Hence, it could be concluded that women were already taking over most of household chores before the pandemic.

Figure 5 – *Distribution of women at the level in which they were responsible of home chores before March 2020.*

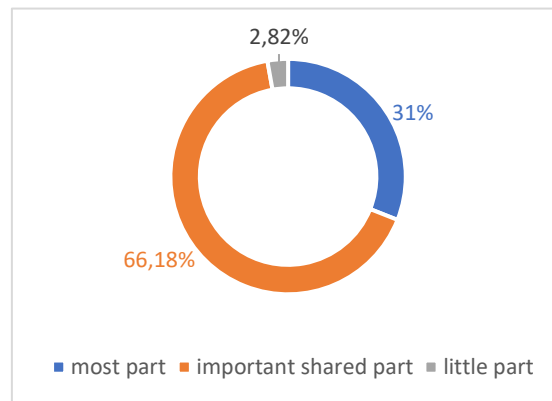
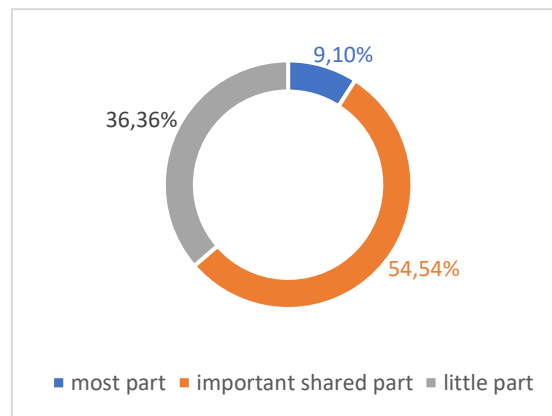


Figure 6 – *Distribution of men at the level in which they were responsible of home chores before March 2020.*



After the first Spanish full confinement, this is May 2020, out of every women in the sample used, 30% took up most of housework, 68.57% took up an important part of it while sharing it and 1.43% took up just a little part of it (*see Figure 7*). In the case of men, 9.10% of them took up most of the housework, 59.10% took up an important part of it while sharing it and 31.80% took up just a little part of it (*see Figure 8*). No big temporary changes can be appreciated here, but still, given the data in the sample used, women took over a higher burden of household chores than men.

Figure 7 – *Distribution of women at the level in which they were responsible of home chores after May 2020.*

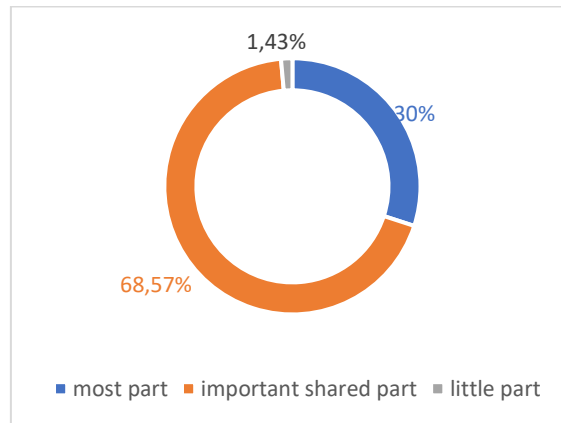
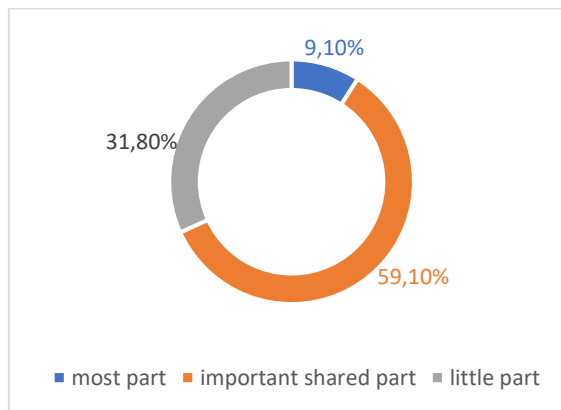


Figure 8 – *Distribution of men at the level in which they were responsible of home chores before March 2020.*



Employment

It describes the individuals' employment situation before the COVID-19 pandemic outbreak (March 2020) and after the first confinement (May 2020). The scale used for measuring this variable has been giving respondents the choice to answer whether they were employed or not before March 2020, and whether they have been employed or not since the end of the first Spanish confinement, May 2020.

Before the covid-19 pandemic outbreak, March 2020, while 95.77% of women in the sample used were employed, a 100% of men were (*see Figure 9*). Then, after the first Spanish confinement, May 2020, the percentage of women employed of the sample used decreased to 88.73%, while the percentage of men employed remained pretty high, 95.45% (*see Figure 10*). Therefore, it is worth noting that given the sample used for this analysis, more women than men lost their job since the beginning of the covid-19 crisis.

Figure 9 – *Distribution of men and women depending whether they were employed or not before March 2020.*

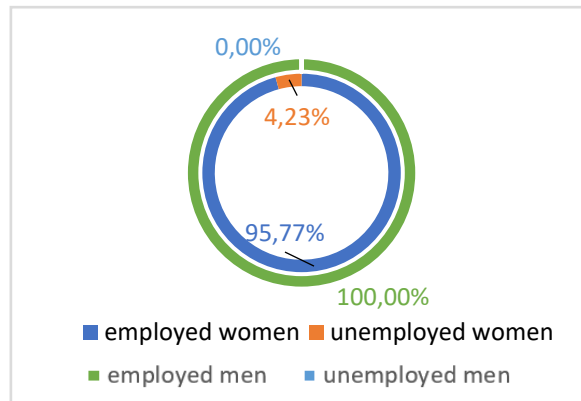
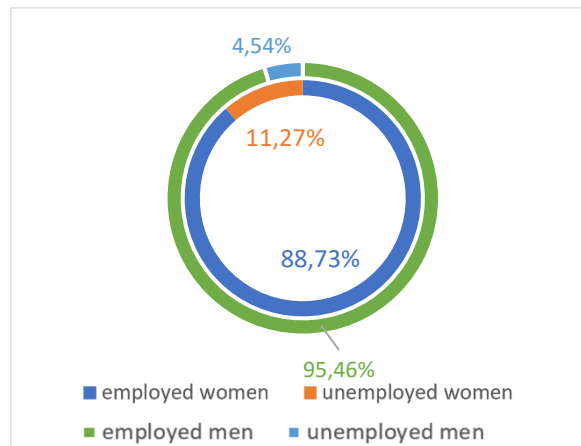


Figure 10 - *Distribution of men and women depending whether they were employed or not after May 2020.*

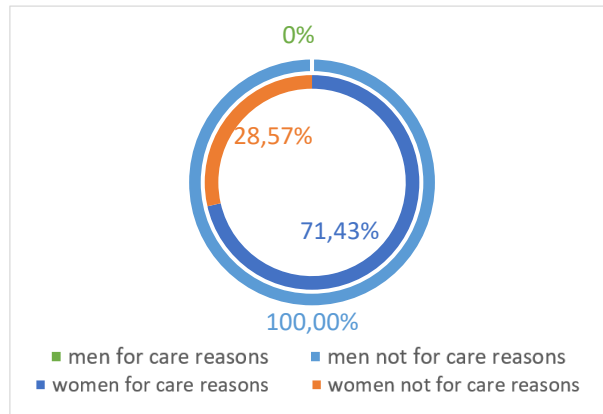


Giving up on one’s paid job

It gives information about the individuals that had to stop working due to the impossibility of outsourcing their dependents care needs after the first confinement in Spain (May 2020).

Out of all women in the sample who have stopped working since the pandemic outbreak, 71.43% have done it due to the necessity of taking care of their dependents, as outsourcing these services became more complicated, this represents a 7% of all women in the sample (see Figure 11). However, none of the men in the sample reported to have stopped working for the only reason to take up their care responsibilities.

Figure 11 – *Distribution men and women who had to stop working to face their dependent’s care needs.*

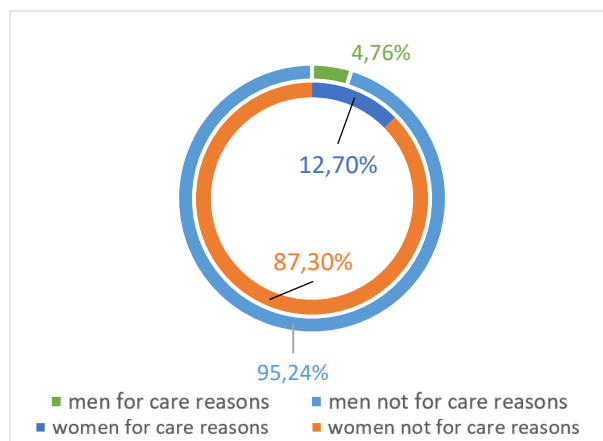


Asking for a working leave

It gives information about the individuals that had asked for a working leave due to the impossibility of outsourcing their dependents care needs after the first confinement (May 2020).

Out of all women that kept their jobs after May 2020, and also did not stop working voluntarily, 12.7% of women in the sample asked for a working leave in order to take care of their dependents, while just 4.76% of men in the sample did so (*see Figure 12*).

Figure 12 – *Distribution of men and women who asked for a working leave to take care of their dependents.*



4.2. Econometric Model

The data set previously described will be used to test the hypotheses that result from this dissertation's conceptual framework through the construction of the following econometric models.

4.2.1. Identification Strategy

This section describes the identification strategy used. The study is comprised of 3 regressions that I hereby describe and present.

The first model will be used to test whether prior to the pandemic outbreak, it was more likely for younger households to share housework and care responsibilities between both adult members in equal proportions. For this I estimate the following equation, which will serve me as baseline to test both care responsibilities and house chores independently:

$$(1) \quad y_{it} = \beta_0 + \beta_1 age_i + X_{it}B + \varepsilon_{it}$$

Being $t=0$ (i.e. before the lockdown), let y_i be either shared care responsibilities or shared housework for individual i . age_i is the respondent's age. X_{it} is the vector of other relevant individual characteristics among which sex, level of studies, income level, civil status, labor status or other job conditions such as whether individuals occupy a full-time vacancy or not, whether individuals have an indefinite contract or not, etc. are included. B is the vector of their correspondent parameters. β_0 is the constant and β_1 aims to capture the effect of age on the level at which couples share housework and care. Finally, ε_{it} is the idiosyncratic characteristics of i , normally distributed among society.

The second model will be used to test whether during the whole period that followed the first confinement that finished in May 2020, and in which restrictions have still been present in Spain for almost a year and a half, women took over a higher burden of extra housework and care responsibilities. With this purpose the following equation has been estimated:

$$(2) \quad g_{it} = \gamma_0 + \gamma_1 female_{it} + \gamma_2 after_{it} + \gamma_3 female_{it}after_{it} + Z_{it}C + u_i$$

In this econometric model g_{it} represents the level extra burden that was took up either of house chores or care responsibilities after May 2020. Z_{it} is the vector of other relevant individual characteristics among which sex, level of studies, income level, civil status, labor status or other job conditions such as whether they occupy a full-time vacancy or not, whether individuals have an indefinite contract or not, etc. are included. C is the

vector of their correspondent parameters. u_i is the idiosyncratic characteristics of i , normally distributed among society. γ_0 is the constant and the parameters γ_1 , γ_2 and γ_3 aim to capture the effect of gender on the burden of extra house chores and care duties that had to be faced after May 2020.

Finally, the third model will be used to test whether female gave up their jobs more often than male during covid-19 crisis. Giving up meaning that these women either completely stopped working or had to ask for a working leave, or alternatively changed their full-time jobs to partial time jobs for this reason. The following econometric model has been estimated for that means:

$$(3) \quad h_{it} = \alpha_0 + \alpha_1 female_{it} + \alpha_2 after_{it} + \alpha_3 female_{it}after_{it} + M_{it}A + v_{it}$$

Here h_{it} represents either working leaves, terminated contracts or full-time contracts switched into partial-time contracts. $female_{it}$ is a dummy variable denoting respondent's sex and $after_{it}$ is a dummy variable that denotes the time period in which the answer has been given. M_{it} is the vector of other relevant individual characteristics among which sex, level of studies, income level, civil status, labor status or other job conditions such as whether they occupy a full-time vacancy or not, whether individuals have an indefinite contract or not, etc. are included. A is the vector of their correspondent parameters. v_{it} is the idiosyncratic characteristics of i , normally distributed among society. α_0 is the constant and the parameters α_1 , α_2 and α_3 aim to capture the effect of gender on either working leaves, terminated contracts or full-time contracts switched into part-time ones, for the single reason of taking up care responsibilities for their dependents.

4.2.2. Estimation Method

Given that every independent variable in this study has been transformed into dummies as has been explained before, the best method to test my hypotheses is through the use of linear regression models (Angrist & Pischke, 2009).

Following the standard procedure, the previously presented models will be estimated using the Ordinary Least Squares (OLS) estimation method. This method minimizes the sum of the squared vertical distances between the observed responses of our individuals in the data set used and the responses predicted by the linear approximation.

5. EMPIRICAL RESULTS

In this section the three main hypotheses around which this study is constructed are examined. As has been mentioned before, in order to test the three econometric models that have been presented in the previous section, the Ordinary Least Squares (OLS) method has been applied.

5.1. Hypothesis 1: Prior to the pandemic, it was more likely for younger households to share housework and care responsibilities between both adult members.

5.1.1. Care responsibilities

First, in Table 2, the results obtained from testing whether younger households shared care responsibilities for their dependents between both adult members more often than older households are presented.

Table 2 – OLS estimation of hypothesis 1 regarding care responsibilities.

	(1) Is in charge of most care responsibilities for their dependents	(2) Is in charge of an important part of care responsibilities for their dependents, while sharing it	(3) Is in charge of a small part of care responsibilities for their dependents
Female	0.171 [0.106]	0.109 [0.127]	-0.280*** [0.098]
Age [18-25]	-0.651** [0.318]	0.701* [0.382]	-0.050 [0.295]
Age [25-35]	-0.038 [0.195]	0.259 [0.233]	-0.221 [0.180]
Single	-0.120 [0.187]	0.202 [0.225]	-0.082 [0.174]
Divorced	0.629*** [0.157]	-0.583*** [0.189]	-0.046 [0.146]
Tertiary level studies	0.293 [0.233]	0.189 [0.279]	-0.483** [0.216]
Secondary level studies	0.501** [0.240]	-0.036 [0.287]	-0.465** [0.222]
Part-time job	0.441** [0.201]	-0.376 [0.241]	-0.066 [0.186]
Student	-0.243 [0.362]	-0.482 [0.434]	0.725** [0.335]
Dedicated to home chores	-0.327 [0.257]	0.384* [0.308]	-0.057 [0.238]
Employed	-0.594* [0.308]	0.553* [0.369]	0.041 [0.285]
Flexible work	-0.066 [0.088]	0.051 [0.105]	0.016 [0.081]
Income [500€-1000€]	-0.598* [0.354]	0.314 [0.424]	0.284 [0.328]

Income [1000€-1500€]	-0.419 [0.363]	0.175 [0.435]	0.345 [0.336]
Income [1500€-2000€]	-0.592 [0.355]	0.356 [0.426]	0.236 [0.329]
Income [2000€-2500€]	-0.391 [0.374]	0.132 [0.448]	0.259 [0.346]
Income [2500€-3000€]	-0.449 [0.401]	0.255 [0.480]	0.195 [0.371]
Income [3000€-5000€]	-0.395 [0.369]	0.038 [0.443]	0.357 [0.342]
Income [5000€-7500€]	-0.240 [0.510]	0.248 [0.612]	-0.07 [0.473]
Indefinite contract	-0.472*** [0.169]	0.535*** [0.203]	-0.062 [0.157]
Permanent contract	-0.223 [0.205]	-0.016 [0.246]	0.239 [0.190]
Fulltime contract	0.132 [0.177]	-0.066 [0.213]	-0.066 [0.164]
In charge of other workers	-0.066 [0.091]	0.041 [0.109]	-0.025 [0.084]

Notes: In this table the dependent variable is care responsibilities before March 2020. Standard errors, presented in brackets, are for marginal effects. Statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The estimation employs the OLS method.

The first regression allows me to initiate with the analysis. From the results obtained, it can be seen how people that are between 18 and 25 years old were less likely to take up most of care responsibilities before lockdown than people who are over 35 years old, which is the control group, statistically significant at $p < 0.05$. However, it was more likely for such young group to take up an important part of care responsibilities while sharing it before March 2020 than people that are over 35 years old ($p < 0.1$). Nevertheless, the behavior of taking up just a small part of care responsibilities has not resulted to be statistically significant for this group age. This is, there is no statistical difference in the behavior of households that are between 18 and 25 years old, and the ones who are over 35 years old when taking up just a small part of care responsibilities.

The same happens when analyzing the group of people who are between 25 and 35 years old. The results have turned out to be not statistically significant for every category regarding care responsibilities. Therefore, it can be said that there are no statistical behavioral differences about care responsibilities between households that are between 25 and 35 years old, and households that are over 35 years old.

An interesting insight for the matter of this research can also be found in table 1. Women appear to be less likely to take up just a small part of care responsibilities for their dependents than men, statistically significant at $p < 0.01$.

Regarding civil status, divorced individuals happened to be more likely than married ones, which is the control group, in taking up most care responsibilities for their dependents before the confinement ($p < 0.01$). While this same group appears to have been less likely to share care responsibilities than married individuals, statistically significant at $p < 0.01$. Nonetheless, the results obtained for whether divorced individuals were more likely to take up just a small part of care obligations or not is not statistically significant, this is why no conclusions can be drawn from it.

In what follows, those individuals who finished tertiary studies, this is, they got a university degree, were less likely to just take up a small portion of care duties for their dependents than individuals who only finished compulsory studies, which is the control group ($p < 0.01$). Furthermore, those who finished secondary level studies were before lockdown more likely to take up most care responsibilities ($p < 0.05$) and less likely to take up just a small part of these duties ($p < 0.05$) than the individuals that only finished compulsory studies.

Additionally, individuals who have a part-time job are more likely to take up most care responsibilities for their dependents than those who have a full-time job, the control group, statistically significant at $p < 0.05$. Moreover, it is also statistically significant at 0.05 that students have been more likely than people with a full time job to take up a small part of care obligations. Whether individuals were employed or not before March 2020 is also determinant to answer this question. Employed individuals happened to be less likely than unemployed ones to take up most care responsibilities ($p < 0.1$).

Regarding income levels before the full lockdown that took place in Spain in March 2020, those individuals making between 500€ and 1000€ per month were less likely to take up most care duties for their dependents than those making less than 500€ per month, which is the control group ($p < 0.1$).

Undoubtedly, those who have an indefinite contract were less likely than those individuals who had a temporal job contract to take up most care responsibilities for their dependents before March 2020, statistically significant at $p < 0.01$. However, statistically significant at $p < 0.01$ as well, they were more likely to take up an important part of care obligations while sharing it than those with an indefinite contract.

The rest of the results obtained from this regression have not been statistically significant.

5.1.2. Housework

In Table 3, the results to whether younger households were more likely to share housework before the confinement than older households are presented.

Table 3 – OLS estimation of hypothesis 1 regarding housework.

	(1) Is in charge of most house work	(2) Is in charge of an important part of house work, while sharing it	(3) Is in charge of a small part of house work
Female	0.191 [0.122]	0.148 [0.134]	-0.339*** [0.089]
Age [18-25y.o.]	-0.198 [0.366]	0.196 [0.401]	0.003 [0.268]
Age [25-35y.o.]	0.113 [0.224]	0.048 [0.245]	-0.160 [0.164]
Single	-0.110 [0.215]	0.053 [0.236]	0.057 [0.158]
Divorced	0.417** [0.181]	-0.375* [0.198]	-0.042 [0.132]
Tertiary level studies	-0.159 [0.268]	-0.027 [0.293]	0.186 [0.196]
Secondary level studies	0.116 [0.275]	-0.342 [0.302]	0.226 [0.201]
Part-time job	0.298 [0.231]	-0.374 [0.253]	0.076 [0.169]
Student	0.523 [0.416]	-0.660 [0.456]	0.137 [0.304]
Dedicated to home chores	-0.061 [0.296]	0.082 [0.324]	-0.021 [0.216]
Employed	0.112 [0.354]	-0.184 [0.387]	0.073 [0.259]
Flexible work	-0.029 [0.101]	0.065 [0.110]	-0.036 [0.074]
Income [500€- 1000€]	-0.579 [0.407]	0.314 [0.445]	0.265 [0.297]
Income [1000€- 1500€]	-0.383 [0.417]	0.188 [0.457]	0.195 [0.305]
Income [1500€- 2000€]	-0.482 [0.408]	0.390 [0.447]	0.091 [0.299]
Income [2000€- 2500€]	-0.423 [0.430]	0.147 [0.471]	0.276 [0.314]
Income [2500€- 3000€]	-0.348 [0.460]	0.203 [0.504]	0.145 [0.337]
Income [3000€- 5000€]	-0.327 [0.425]	0.244 [0.465]	0.084 [0.311]
Income [5000€- 7500€]	-0.202 [0.587]	0.471 [0.642]	-0.270 [0.429]
Indefinite contract	-0.271 [0.194]	0.324 [0.213]	-0.053 [0.142]
Permanent contract	-0.064 [0.235]	-0.108 [0.258]	0.044 [0.172]
Fulltime contract	-0.080	0.050	0.030

	[0.204]	[0.223]	[0.149]
In charge of other workers	-0.036 [0.105]	-0.006 [0.115]	0.042 [0.077]

Notes: In this table the dependent variable is housework before March 2020. Standard errors, presented in brackets, are for marginal effects. Statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The estimation employs the OLS method.

Unfortunately, no statistically significant results have been obtained for testing whether age influenced or not in how much housework was shared between both adult members of a household. In other words, before the covid-19 pandemic outbreak, the housework division in the sample used for the research was similar for every group age. It cannot be said that before March 2020 younger households were sharing housework more equally between both adult members than older ones.

However, it can undoubtedly be seen how female were before the full lockdown period less likely to only take up an small portion of house duties than men, being this statistically significant at $p < 0.01$.

Regarding civil status, divorced individuals were more likely to take up most housework ($p < 0.05$) and less likely to take up an important part of it while sharing it ($p < 0.05$) than married people before March 2020.

The rest of the results obtained from this regression have not been statistically significant.

5.2. Hypothesis 2: In the period following the first lockdown, after May 2020, women have been more likely than men to take over a bigger burden of housework and care responsibilities.

Here, the research faces its main problem. Given the small size of the sample used, it has not been possible to estimate the model that was constructed in order to test this hypothesis with the data obtained in the survey. For this reason, I offer some intuitions through the use of a non-conditional mean analysis between the main variables, this is correlations, analyzed in tables 4 and 5.

5.2.1. Care responsibilities

In Table 4, I present the correlations between the variables for gender and the different categories in which care responsibilities have been divided.

The gender variable, which indicates the female gender, is negatively correlated for the sample used with being in charge of just a small part of care responsibilities for their dependents before the covid-19 outbreak, statistically significant at $p < 0.01$.

Table 4 – *Correlations estimation of hypothesis 2 regarding care responsibilities.*

	(1) Is in charge of most care responsibilities for their dependents	(2) Is in charge of an important part of care responsibilities, while sharing it	(3) Is in charge of a small part of care duties
Female before covid (after = 0)	0.143	0.090	-0.314***
Female after covid (after = 1)	0.155	0.050	-0.297***

Notes: In this table statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Null hypothesis is that there exist no correlation between two variables. If $p < 0.1$ the null hypothesis is rejected at 90% confidence.

Furthermore, it can be said at 99% certainty that for the survey sample, this gender variable is negatively correlated with just taking up a small part of care responsibilities after March 2020, as well. Therefore, it seems that women both, before and after the pandemic outbreak, have been less likely than men to be in charge of only a small part of the care duties for their dependent. Moreover, it can be observed in table 4 how, for the sample used, this correlation becomes weaker after March 2020.

Furthermore, this non-causal analysis does not show any correlation between being female and taking up an important part of the care responsibilities while sharing it, for the sample used for any of the two periods analyzed. As well as it does not show any correlation for the sample used between being female and taking up most care duties, regardless of the period analyzed.

5.2.2. *Housework*

In Table 5, the correlations between the variables for gender, the different categories in which housework has been divided, and the interaction of the variables of gender and the shock of the covid-19 pandemic are presented.

Table 5 – *Correlations estimation of hypothesis 2 regarding housework.*

	(1) Is in charge of most house work	(2) Is in charge of an important part of house work, while sharing it	(3) Is in charge of a small part of house work
Female before covid-19 (after = 0)	0.213**	0.103	-0.460***
Female after covid-19 (after = 1)	0.213**	0.076	-0.461***

Notes: In this table statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Null hypothesis is that there exist no correlation between two variables. If $p < 0.1$ the null hypothesis is rejected at 90% confidence.

The correlations between the gender variable and the different levels of housework have shown some differences with respect to the results obtained in Table 4 for care responsibilities. First, at a 95% confidence level, being female and taking up most housework is positively correlated for the sample used, both before and after the covid-19 outbreak. It looks like women are more likely than men, in the sample used, to take up most housework, with no different effect for the two periods analyzed.

Moreover, being female and just taking up a small part of house chores is negatively correlated with being female for the sample used, statistically significant at $p < 0.01$, for the two periods of the analysis. Nevertheless, the correlation between both variables is slightly stronger after March 2020. Therefore, it seems like women are less likely than men to just be in charge of a small part of home chores.

Finally, it can be said that there is no correlation between being female and taking up an important part of home duties while sharing them for the sample, as no statistical significance has been found for any of the periods under analysis.

5.3. Hypothesis 3: Due to the covid-19 pandemic related restrictions, women have been more likely to completely stop working, asking for working leaves and reducing their number of working hours than men, in order to face their care responsibilities for their dependents.

5.3.1. Completely stop working

Whether women have been more likely than men to completely stop working during the period along which covid-19 restrictions have lasted in order to face their care responsibilities is examined through an analysis of the main variables' correlation, which will allow me to present some intuitions.

This is, in table 6 the correlation between the variables for gender and stopping to work in order to look after one's dependents is presented.

Now the desired analysis can be run by mentioning that, with a 90% certainty, there exists a positive correlation between being female and stopping to work in order to take care of one's dependents in the sample used, statistically significant at $p < 0.1$. From this result, it seems that women have been more likely than men to leave the labor market in order to attend these responsibilities.

Table 6 – Correlations estimation of hypothesis 2 regarding stopping to work.

	(1)	(2)
	Female	Stop working in order to face care responsibilities
Female	1	0.488*
Stop working in order to face care responsibilities	0.488*	1

Notes: In this table statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Null hypothesis is that there exist no correlation between two variables. If $p < 0.1$ the null hypothesis is rejected at 90% confidence.

5.3.2. Asking for a working leave

In order to answer this question, due to the small size of the sample two variables have been excluded from the model when running the OLS method for estimating the regression. These variables are gender and income level between 3,000€ and 5,000€. Nevertheless, the majority of the data has been able to be statistically estimated. This is presented in Table 7.

Table 7 - OLS estimation of hypothesis 3 regarding working leaves.

	Asking for a working leave in order to take care of their dependents due to the difficulty of finding resources to do this during the covid-19 related restrictions period
Transitoriness before and after the covid-19 outbreak	0.000 [0.218]
Interaction of the transitoriness of the covid-19 outbreak and gender	0.133 [0.234]
Age [18-25y.o.]	1.024** [0.443]
Single	-0.030 [0.206]
Divorced	0.144** [0.148]
Tertiary level studies	0.421 [0.335]
Secondary level studies	0.249 [0.331]
Part-time job	-0.038 [0.153]
Student	-0.404 [0.336]
Employed	0.036 [0.332]
Flexible work	0.079 [0.094]
Income [500€-1000€]	-0.079 [0.280]

Income [1000€-1500€]	0.214 [0.279]
Income [1500€-2000€]	-0.048 [0.294]
Income [2000€-2500€]	0.050 [0.504]
Income [5000€-7500€]	0.000 [0.221]
Takes up most housework	0.148 [0.196]
Takes up an important part of housework while sharing	0.059 [0.182]
Takes up most care responsibilities	-0.175 [0.222]
Takes up an important part of care responsibilities while sharing it	0.112 [0.230]
Indefinite contract	-0.447*** [0.136]
Permanent contract	-0.014 [0.226]
Fulltime contract	-0.238 [0.171]
The reason for having a partial contract was to take care of dependents	-0.110 [0.101]
In charge of other workers	0.212 [0.177]
After May 2020, the return to work was fully in person	0.232** [0.103]
After May 2020, the return to work was fully remote	-0.031 [0.347]

Notes: In this table the dependent variable is whether individuals asked for a working leave after May 2020. Standard errors, presented in brackets, are for marginal effects. Statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

To begin with, it is worth mentioning how the variable that represents the interaction between gender and the time transitoriness between before and after the pandemic outbreak has not turned out to be statistically significant. This means that there has not been a change in between before and after the full lockdown period for women when having to ask for a working leave in order to take care of their dependents.

As has been mentioned before, gender has been excluded from the OLS estimation method, which means that every men has behaved in the same way. Due to its importance, as it is the main question that this paper attempts to answer, whether female were more likely than men to ask for a working leave in order to be able to take care of their dependents is examined in a descriptive non-causal manner through the use of correlations. In table 8, the correlation between the variables for gender and asking for a working leave to attend one's dependents is presented.

Table 8 - Correlations estimation of hypothesis 3 regarding asking for a working leave.

	(1) Female	(2) Ask for a working leave in order to face care responsibilities
Female	1	0.097
Ask for a working leave in order to face care responsibilities	0.097	1

Notes: In this table statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Null hypothesis is that there exist no correlation between two variables. If $p < 0.1$ the null hypothesis is rejected at 90% confidence.

In Table 8, it can be seen how the correlation between asking for a working leave and being female is not statistically significant. In other words, the null hypothesis that there exists no correlation between both variables cannot be rejected for the sample used. It seems like women have not been more likely than men to ask for a working leave in order to attend these increased responsibilities.

Coming back to the results obtained from running the regression in table 7, an interesting insight that can be obtained. Individuals between 18 and 25 years old were more likely to ask for a working leave in order to take care of their dependents than those who were older than 35 years old, as after May 2020, due to the ongoing covid-19 related restrictions that made it difficult to offshore such care needs ($p < 0.05$).

Surprisingly, statistically significant at $p < 0.01$, people with an indefinite work contract were less likely to ask for a working leave to face their care responsibilities than people with a definite contract.

Moreover, it has been proved, statistically significant at $p < 0.05$, that divorced people has been more likely to ask for a working leave than the married individuals for the sample used.

Finally, it has as well be seen in the model how the way in which the return to work after May 2020 was is determinant for whether respondents asked for a working leave. This is, from table 7, it can be said how those individuals whose return to work was compulsory in person have been more likely to ask for working leaves than those individuals whose return to work took a hybrid format, which is the control group ($p < 0.05$).

5.3.3. Reduction in the number of working hours

As it is known, another way of avoid to exit the labor market, but free hours to dedicate them to other terms is to ask for a reduction in working hours. This is why, as a complement to the two previous analyses I wanted to check as well whether women have been more likely to ask for a reduction in their working hours in order to take care of their dependents. The results of this analysis are shown in table 9.

Table 9 – Correlations estimation regarding asking for a reduction in the working hours.

	Having a part-time job in order to take care of one's dependents
Female before covid (after = 0)	0.299*
Female after covid (after = 1)	0.372*

Notes: In this table statistical significance is indicated by * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Null hypothesis is that there exist no correlation between two variables. If $p < 0.1$ the null hypothesis is rejected at 90% confidence.

Through the analysis run, it can be seen in table 9 how being female and having a part-time job for the only reason to face care responsibilities for one's dependents is correlated, statistically significant at $p < 0.1$. Moreover, it is worth mentioning how the strength of the correlation has increased since the pandemic arrived. This can offer an initial picture of how women are more likely than men to have a part-time job in order to take care of their dependents, having this likelihood increased since the possibility to outsource these duties has been reduced due to the covid-19 driven restrictions.

6. DISCUSSION AND CONCLUDING REMARKS

To start with, this paper's main aim is to prove how has the impossibility to outsource any type of care for one's dependents due to the covid-19 driven restrictions affected the labor market, differencing by gender. Who has stopped working in order to face these increased responsibilities? Who has had to ask for a working leave as long as care services remained closed? Who has reduced the number of working hours? In order to test all this, the [third hypothesis](#) was constructed. Nonetheless, here is where the study has faced its main limitation. Due to the small size of the sample used and the lack of certain groups of responses, which could not provide any representativeness, I have not been able to run the regression model designed for this matter. This is why I have conducted a non-causal correlation analysis. As I was expecting, I have found that women seem to have been

more likely than men to reduce their number of working hours in order to be able to take care of their dependents, changing from a full-time to a partial-time job. What is more, in this study I provide the first insights on how women seem to have been more likely to give up their paid jobs in Spain than men for this same reason. This finding is in line with previous literature, such as Andrew et al. (2020), who finds that since the pandemic outbreak women have been more likely to be interrupted during working hours by the care needs of their children. In this study, women have not shown to be more likely than men to ask for a working leave in order to face the increased care responsibilities, which may imply that those consistent interruptions made them take such a radical decision as giving up on their careers.

Not being able to prove these theories with the regression models designed due to the lack of data is a big limitation of the study. However, I have been able to provide the first insights on how women and their employment status seem to be the ones losing when a shock such as the covid-19 virus appears. This first picture on gender labor decisions should be of motivation to further studies with better access to larger data bases. Furthermore, understanding the roots of this happening is of major importance. Researches have been conducted on the differences in the job positions that women and men occupy, as well as even on women psychology. “Women may be reluctant to pursue gender equality if they fear for the well-being of children and other dependents” (Folbre, 2006, p. 184).

Consistent with a numerous amount of studies that have concluded that even though men have increased their participation in home chores during the confinement, women have been the ones absorbing the largest share of these increased responsibilities since March 2020 (Farré et al., 2020 and Sevilla et al., 2020), I formulated my [second hypothesis](#). I wanted to test, for Spain, if women had been in charge of more care for their dependents and housework than before the pandemic. This is why I constructed the second regression model. Nonetheless, my study faced here, once again, the limitation of the small amount of responses gotten for every group. Due to this, I have not been able to run the econometric models. Instead, I have analyzed the correlations between gender and the level to which one is in charge of housework and care duties, for both periods, before and after March 2020.

From running such analysis, I have found that women seem to be less likely than men to be in charge of only a small part of care duties, both before and after the pandemic

outbreak. Although this correlation was stronger before the first lockdown. Besides, I have found that women have been more likely than men to take up most housework and less likely than men to be in charge of only a small share of housework, for both periods, before and after the first full lockdown period. Additionally, while the strength of correlation between being female and being in charge of most of housework did not change for the two periods analyzed, it increased for taking up only a small proportion of housekeeping after the covid-19 virus arrival to Spain. Nevertheless, it would be of great general interest to be able to statistically prove these theories in further studies with greater data bases for the case of Spain, as there is a lack of studies in this matter for the country.

Finally, many have claimed how, a key factor in the reduction of house chores in which women have been in charge in the recent decades is the appearance of a *new type of man* (Fernández et al., 2004). This *new type of man* is the one who has been brought up by a working mother, which made him have greater household productivity, due to a different perspective on traditional roles (Fernández et al., 2004). This is why I wanted to test whether this was already being true before the pandemic in Spain, through the proposal of the [first hypothesis](#). For this purpose I constructed the first regression model and ran it for both care duties and house chores. For these econometric models, the data available was enough to be able to run the regressions. I found how households who are between 18 and 25 years old are more likely to share care responsibilities than the ones which are over 35 years old. However, no statistical differences can be found, for the sample used, between those households that are between 25 and 35 years old, and the ones that are over 35 years old. Lastly, given the information in the sample, I have also not been able to find statistical differences on the share of housework absorbed between both adult members in the couple regarding their age. Nevertheless, the size of sample used is still small for being able to extrapolate the results found to the Navarre population, and even more to the Spanish one. But my research will serve to get the first insights and conclusions for the topic, serving as motivation for further studies.

Hence, with this study I hope to encourage future considerations in gender research and how shocks affect gender equality. Many times, unexpected shocks prove us wrong to be as advanced as we thought we were. This is what I ultimately wanted to confirm in my research. How even though male are increasing their participation on home tasks, when there is a shock, it is really women who are still absorbing the higher burden. Not only

this, but also that women are the ones who lose more, in this case as giving up their paid jobs and careers. Further research is needed with Spanish data to truly see which has been the effect of the covid-19 pandemic on gender equality understood as equal responsibilities in the household, as there is no much existing literature about it in the country yet. Moreover, I wish this dissertation serves as motivation to study as well the underlying cultural, educational and psychological reasons for these behaviors, which ultimately influence on the evolution of the economy.

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8. APPENDIX

Here I present the exact survey with which data has been gathered for this dissertation. It is in Spanish as it is the language with which the questions were asked to the Spanish population. Every question was compulsory to be answered.

EL COVID-19 Y LA DESIGUALDAD DE GÉNERO

Datos demográficos

1. Sexo
 - Hombre
 - Mujer
2. Edad
 - Menor de 18 años
 - Entre 18 y 25 años
 - Entre 25 y 35 años
 - Mayor de 35 años
3. Nacionalidad Española
 - Si
 - No
4. Estado civil legal
 - Soltero/a
 - Casado/a
 - Viudo/a
 - Divorciado/a
5. ¿Tiene usted personas dependientes (incluyendo menores, mayores u cualquier otro tipo de dependencia) a su cargo?
 - Si
 - No (Fin de la encuesta)
6. ¿Cuál es el mayor nivel de estudios que ha alcanzado?
 - EGB/ESO
 - BUP/Bachillerato
 - Ciclo FP
 - Estudios Universitarios

7. ¿Cuál ha sido su situación laboral principal durante la última semana?

- Ocupado/a – A tiempo completo
- Ocupado/a – A tiempo parcial
- Estudiante
- Desempleado
- Jubilado/a o prejubilado/a
- Dedicado/a a las tareas del hogar

Si usted estaba trabajando antes de la pandemia, ¿cuál era su situación laboral?

8. ¿Tenía usted empleo antes del comienzo de la pandemia (Febrero del 2020)?

- Sí
- No

9. Flexibilidad horaria. ¿Podía usted flexibilizar/acomodar/adaptar su jornada laboral para atender a sus hijos o personas mayores a su cargo previamente a la pandemia?

- Sí
- No

10. ¿Cuáles fue su salario mensual neto (es decir, después de deducir las retenciones, cotizaciones sociales y otros pagos) en el mes anterior al confinamiento (Febrero del 2020)?

- Menos de 500 euros
- De 500 a 1000 euros
- De 1000 a 1500 euros
- De 1500 a 2000 euros
- De 2000 a 2500 euros
- De 2500 a 3000 euros
- De 3000 a 5000 euros
- 7500 euros o más

11. De forma habitual, ¿cuál era su grado de participación en las tareas domésticas de su hogar previamente a la pandemia?

- Me encargaba de la mayor parte de las tareas domésticas
- Me encargaba de una parte importante de las tareas domésticas, compartiéndolas con otras personas más o menos a partes iguales.
- Me encargaba de una parte pequeña de las tareas domésticas
- No participaba habitualmente en las tareas domésticas

12. ¿Cuál fue su grado de participación en los cuidados a personas dependientes en el mes anterior al confinamiento (febrero del 2020)?
- Me encargaba de la mayor parte de los cuidados
 - Me encargaba de una parte importante de los cuidados, compartiéndolas con otras personas más o menos a partes iguales.
 - Me encargaba de una parte pequeña de los cuidados
 - No participaba habitualmente en los cuidados
13. Su contrato o relación laboral ¿era de duración indefinida o temporal previamente al confinamiento?
- Duración indefinida
 - Temporal
14. ¿Era permanente a lo largo del tiempo o discontinuo?
- Permanente a lo largo del tiempo
 - Discontinuo
15. ¿Qué tipo de jornada tenía en su trabajo previamente al confinamiento?
- Completa
 - Parcial
16. Más concretamente, ¿era el motivo de tener una jornada parcial la falta de servicios adecuados para el cuidado de personas dependientes a su cargo antes de que llegase la pandemia del COVID-19?
- Sí
 - No
 - No corresponde, tenía jornada completa
17. ¿Ocupaba usted un puesto de control antes de la llegada de la pandemia? Es decir, ¿tenía a su cargo a otras personas?
- Sí
 - No
18. Su puesto o categoría profesional, ¿requería entonces menos estudios de los que usted tiene?
- Sí
 - No

¿Cómo ha sido su situación laboral tras el confinamiento (Mayo del 2020)?

19. ¿Ha continuado usted trabajando desde que comenzó la pandemia (Marzo del 2020)?

- Sí
- No

20. ¿Ha podido usted flexibilizar/adaptar/acomodar su jornada laboral para atender a sus hijos o personas mayores a su cargo después del confinamiento?

- Sí
- No

21. ¿Cuáles han sido sus ingresos netos mensuales en el último mes?

- Menos de 500 euros
- De 500 a 1000 euros
- De 1000 a 1500 euros
- De 1500 a 2000 euros
- De 2000 a 2500 euros
- De 2500 a 3000 euros
- De 3000 a 5000 euros
- 7500 euros o más

22. De forma habitual, ¿cuál es su grado de participación en las tareas domésticas de su hogar actualmente desde que finalizó el confinamiento?

- Me encargo de la mayor parte de las tareas domésticas
- Me encargo de una parte importante de las tareas domésticas, compartiéndolas con otras personas más o menos a partes iguales.
- Me encargo de una parte pequeña de las tareas domésticas
- No participo habitualmente en las tareas domésticas

23. De forma habitual, ¿cuál es su grado de participación en los cuidados a personas dependientes del hogar desde que finalizó el confinamiento?

- Me encargo de la mayor parte de los cuidados
- Me encargo de una parte importante de los cuidados, compartiéndolas con otras personas más o menos a partes iguales.
- Me encargo de una parte pequeña de los cuidados
- No participo habitualmente en los cuidados

24. Su contrato o relación laboral, ¿ha sido de duración indefinida o temporal desde que finalizó el confinamiento?
- Indefinida
 - Temporal
25. Tras la finalización del confinamiento, ¿retornó su trabajo a ser presencial o una parte importante la ha estado realizando desde su hogar?
- Totalmente presencial
 - Combinación tanto presencial como a distancia desde mi hogar
 - Totalmente a distancia desde mi hogar
26. ¿Es su contrato permanente a lo largo del tiempo o discontinuo?
- Permanente
 - Discontinuo
27. ¿Qué tipo de jornada ha tenido en su trabajo desde que finalizó el confinamiento?
- Completa
 - Parcial
28. Más concretamente, ¿es el motivo de tener una jornada parcial tener que hacer frente al cuidado de personas dependientes a su cargo desde entonces?
- Sí
 - No
 - No corresponde, no tenía jornada completa
29. ¿Es la ocupación o tipo de trabajo que desempeña un puesto de control? Es decir; ¿ha tenido personas a su cargo desde que finalizó el confinamiento?
- Sí
 - No
30. Su puesto o categoría profesional, ¿ha requerido menos estudios de los que usted tiene desde la finalización del confinamiento?
- Sí
 - No

¿Cómo ha afectado el confinamiento a su situación laboral?

31. En caso de haber dejado de trabajar desde el comienzo de la pandemia (Marzo del 2020),¿es el motivo principal por el que dejó de trabajar hacer frente al cuidado de personas dependientes a su cargo?

- Sí
- No
- No corresponde (en caso de no haber dejado de trabajar)

32. ¿Se ha visto en la necesidad de solicitar una excedencia o reducción de jornada para dedicarse al cuidado de personas dependientes a su cargo desde el comienzo de la pandemia?

- Sí
- No