ABSTRACT

This research aims to explore the medium-term impact of the Covid-19 pandemic on the care burden, particularly to understand the new challenges that women face to motivate policy work. The pandemic has highlighted the importance of care, however it also made evident the gender gap in care and the need to address it. The research question "to what extent did the Covid-19 pandemic increase the care burden and what factors influence this change?" is addressed using data from Colombia from 2019 till 2022 to show descriptive statistics and conduct a correlation analysis. The results show an increase in the care burden after the pandemic and a growing gender gap in this area. The correlation analysis shows that working and work hours are negatively correlated with care. Education is negatively correlated with dedicating most of the time to domestic work and hours dedicated to domestic, but positively correlated with doing care tasks. Subsidies are positively correlated with care, but mainly because they are targeted at the most vulnerable segments and do not influence a relief to the care burden.

This research sheds light on the importance of care and the need to recognize, revalue, and redistribute care in our societies. The findings underscore the need for policies that promote gender equality. This research provides a basis for future research on the care economy and its relationship with labor and poverty to create care policies that are effective.

Key Words: Care economy, Gender, Inequality, Covid-19, Public Policy, Quantitative Research.

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1. INTRODUCTION

"The current pandemic has highlighted in an unprecedented way the interdependence between the market economy and non-market processes and underscored the centrality of care to the functioning of our economies and our societies" (Stefanovic, Scuro, & Vaca-Trigo, 2022, p. 18)

For decades feminists have highlighted that paid and unpaid care work is essential to support economies and societies (Villegas-Plá, 2022). Care -as the work and relationships necessary for all people's health, welfare, maintenance, and protection - is a basic human need that sustains life (Peng, 2019). Regardless of its importance, the care burden has been disproportionally distributed across genders. Throughout history, women have developed a fundamental role in care work, and are the ones that anonymously, carry these tasks (Malaver-Fonseca., et al, 2021). Women around the world are responsible for an average of 75% of unpaid care and domestic work at home and in their communities (Moreira da Silva, 2019). Evidence has demonstrated that the inequality in the division of labor in unpaid care work generates a double workload, the so-called "second shift" (ESCAP & ASEAN, 2021) (Stefanovic, Scuro, & Vaca-Trigo, 2022), and a vicious circle between care, poverty, inequality, and precariousness (ECLAC, 2021). This has been widely recognized as one of the major gender inequalities, as it exacerbates socioeconomic disparities related to economic dependence and low labor participation and affects women's physical and mental wellness (Malaver-Fonseca., et al, 2021).

The Covid-19 pandemic made more visible than ever the importance of care for sustaining life, economic growth, and socio-economic development. However, it also deepened the existing care needs, increased the amount of unpaid care work, and transformed employment conditions (ECLAC, 2021). As Stefanovic, Scuro, & Vaca-Trigo (2022, p. 31) state, "the Covid-19 pandemic coupled with intermittent restrictive measures has had a devastating impact on the growing care crisis". Almost three years after the declaration of Covid-19 as a pandemic, we can see it produced structural changes to the economy, employment, and gender inequalities. For this reason, the present research aims to understand the impact of the pandemic on the care burden that women face in the medium term. The research question I will follow is: to what extent did the Covid-19 pandemic increase the care burden and what factors influence this change? To answer this question, I will use a quantitative analysis using the Colombian case.

The initial responses to the Covid-19 pandemic included school closures, workplace closures, stay-at-home requirements, and restrictions on internal movements, which immediately transformed the care burden. However, it also brought medium and long-term changes to education, employment, and social care systems (Stefanovic, Scuro, & Vaca-Trigo, 2022), which increased the demand for care. I will explore the changes brought by Covid-19 in the care burden in two ways: the overall increase in the medium term and the factors that influence this change. Firstly, the medium changes brought by the

pandemic are likely to exacerbate existing gender inequalities by raising the demand for care, leaving women with a higher responsibility for care. I will start by using quantitative evidence to infer an increase in the care burden that women face after the pandemic, compared to pre-pandemic levels. Secondly, I will focus on labor conditions, poverty, and access to government subsidies as factors that are related to this change. These three aspects are highly related to the care burden, and they are likely to exacerbate the gender gaps.

Given the relevance of the current distribution of care on gender equality, several authors have highlighted the need to do more research on the care economy, especially in developing countries (Dong & An, 2015) (Qi & Dong, 2016). Malaver (2021) conducts a comprehensive review of the academic literature on the care economy and found that most of the publications are from developed countries. This suggests an important space for analysis in developing countries, like the case of Colombia, where care has been gaining attention in academic and policy circles. Despite several studies that have investigated the initial impact of the pandemic on care (Ahmed, Buheji, & Fardan, 2020) (De Henau & Himmelweit, 2021), less research has been conducted to understand the medium- and long-term effects on care.

A deeper understanding of the gender gap in care is also policy-relevant for two main reasons. First, there is a need for feminist and care considerations in policy-making. This calls for new studies on the challenges that women face to guide evidence-based decision-making. This should motivate care policies that recognize, revalue, and redistribute care. The pandemic has emphasized the need to build care policies as a central axis of fairer and more egalitarian societies (Villegas-Plá, 2022). In Latin America (LA) a shift towards the implementation of more care policies was motivated by the pandemic. Before 2020 Uruguay was the only country with a developed care system, while from 2020 onwards, countries like Argentina, Mexico, Costa Rica, and Colombia started to implement care-related policies (Villegas-Plá, 2022). Second, care has become central to the regional and international development agenda. Regionally, the Montevideo Strategy guides the full implementation of the agreements of the Regional Conference on Women in LA and the Caribbean and the Sustainable Development Goals (SDGs) agenda from the perspective of gender equality and women´s autonomy. Globally, the SDGs target 5.4 recognizes and value unpaid care and domestic work, and it is key to eradicating poverty and implementing appropriate social protection systems for all (SDG 1); achieving food security and improved nutrition (SDG 2); promoting well-being (SDG 3); ensuring inclusive and equitable quality education (SDG 4); achieving gender equality and empower all women and girls (SDG 5); promoting sustained, inclusive and sustainable economic growth for all (SDG 8); reducing inequalities (SDG 10); and promoting peaceful societies (SDG 16) (ECLAC, 2021).

This thesis will be organized as follows. The first section starts with a conceptualization of care and then it presents the *primary* and *secondary* hypotheses. The *primary* hypothesis will explore the overall

change in the care burden, and the *secondary* explore the associated factors. The next section is data and methodology, which presents the rationale behind choosing Colombia as the study case, the data used, and the methodology used. Afterward, I present the analytical results with descriptive statistics and statistical methods. Finally, I close with the discussion and conclusion highlighting this study's policy-relevant findings and limitations.

2. THEORETICAL FRAMEWORK

2.1. Conceptualization of care

Tronto & Fisher (1990) define care as all activities undertaken to maintain, continue and repair the world we live in so that it can be lived in as well as possible. All human beings rely on care from another person at some point in their life, therefore it is considered a social function that involves recipients and providers. The person that provides care takes on responsibilities that include physical, mental, and emotional effort (ECLAC, 2019). Care can be paid or unpaid. In this research I will focus on unpaid care, defined as the tasks that are developed in the household, that involve time, dedication, and mental and physical efforts, without a direct economic contribution (Malaver-Fonseca., et al, 2021). This includes activities like daily sustenance of the family, cooking, cleaning, the collection of water, food provisioning, and household maintenance (Stefanovic, Scuro, & Vaca-Trigo, 2022).

Theorists of care economy refer to the social organization of care as how the society organizes families, state, market, and community to produce and distribute care (Rodriquez-Enriquez & Marzonetto, 2015). Considering the importance of care, it must be understood as an exercise of co-responsibility between these actors (Batthyany & Scavino, 2918). According to Malaver (2021), when the four actors assume their care responsibilities there is an equilibrium. However, when one of the actors stops giving its support the care burden falls to the other actors, specifically women within the households. This happens thanks to the sexual division of labor that persists around the globe despite cultural variations.

Social roles are assigned to men as the source of economic income and women as the caregivers, even with women´s progressive entry into the formal labor market this division persists (UNECE & UN Women, 2021). This sexual division of labor starts from an early age, in which girls are more involved in domestic and care activities than boys, in some contexts affecting the possibility of girls attending school. As girls grow, the unequal distribution of care persists, and it negatively impacts various dimensions of gender equality. One of the most visible dimensions that are affected is women´s labor market participation because they face greater limits in terms of time and effort to access paid employment and must give up time for leisure, self-care, and education. All these exacerbate gender gaps in employment access, wages, and access to social security like pensions (Stefanovic, Scuro, & Vaca-Trigo, 2022).

2.2. Covid-19 and the care burden

On March 11, 2020, the World Health Organization declared Covid-19 as a pandemic (WHO, 2020). As a response to the propagation of the virus, several restrictive measures were implemented around the world, with various degrees of hardness and duration. Most of these measures had a direct impact on the care burden. For instance, the closure of schools and confinement at home took the care of the kids from the paid sphere to the unpaid sphere (Lewis, 2020); the reduced medical care for non-Covid cases increased the care burden at home; and the need to further protect the elders created additional responsibilities in the households (Casale & Posel, 2020). All these measures forced a shift of care from the public to the private sphere, which ultimately fell on women.

In this research, I will focus on changes in the care burden in the medium term. The medium-term will be considered from 2021 when strict quarantines were no longer in place and all economic sectors had reopened operations. In this period, we can identify a more long-lasting effect of the pandemic and identify the existence of novel challenges taking place. Despite most of the measures being temporary, the Covid-19 crisis had medium-term impacts when referring to economic output (Barrett., et al, 2021), consumer behavior (Deloitte, 2021), extreme poverty, education, vaccination rates (Bill & Melinda Gates Foundation, 2021), and population dynamics (Alaimo, et al, 2022).

The effect of the measures to contain the virus accentuated gender inequalities. Evidence showed that in Colombia by June 2020 the number of women that did unpaid care tasks had increased by 1.6 million, compared to 2019 (Fundacion WWB & Observatorio para la Equidad de las Mujeres, 2020). Power (2020) argues that "it is likely that the negative impacts on the care burden for women and families will last for years without proactive interventions". This indicates an increase in the short term. In the medium term, it has been identified a growing gap in women´s employment, with an expected 13 million jobs below the 2019 level globally (Bill & Melinda Gates Foundation, 2021). In Central Asia, Tleubayev & Kozhakhmet (2022) find evidence of a decrease in women´s productivity in the medium term, which negatively influences employment levels. Another persistent impact includes a rise in gender-based violence, increasing poverty, and loss of opportunities for young women (IMF, UNDP & UNWomen, 2021). Despite evidence of the impact of the pandemic on the care burden in the short-term and medium-term evidence of increasing gender inequalities, it remains unaddressed if the increase in the care burden persisted in the medium term. For that reason, the primary hypothesis is:

Primary Hypothesis

> The changes brought by the pandemic are associated with a change in the mean levels of care burden of women in the medium term.

Confirming the existence of medium-term changes in the pandemic leads to the question of the factors that influence this change. Due to their importance, relevance for care, and changes during the pandemic, I will focus on three factors: labor conditions, poverty, and access to government subsidies.

A) Paid Labor And Care

Initially, paid labor and unpaid care work could be considered substitutes due to the time constraint. However, this is not the case. Women´s entry into the labor market has led to the persistence of a second shift. Feminist theorists defined the second shift as the dual burden of paid and unpaid work experienced by women (Hochschild & Machung, 1989). According to Van Gorp (2013, pág. 33), "the arising of the second shift was an inevitable consequence of women joining the paid workforce with an uncooperative workplace and unchanging gender norms". In other words, women have entered the paid labor market, but there have not been changes in the support they receive for care and care is still considered ´women´s work´. The persistence of these gender roles supports the fact that female labor participation is negatively correlated with unpaid care work (Ferrant, Pesando, & Nowacka, 2014). In line with this, care also constrains women´s capacity to enter the labor markets and the conditions in which they do it. Hegewisch & Gornick (2011) argue that the obstacles for women to reconcile care work with paid employment can lead to an "occupational downgrading" where they choose employment below their skills and access fewer conditions. In this sense, we can still identify a competing interest between the two tasks.

The sectors hardest hit by the pandemic tend to employ a high proportion of women, many of whom work informally. Global estimates show that between 2019 and 2020, women´s employment declined by 4.2%, while men´s employment declined by 3% (ILO, 2021). In fact, "women´s over-representation in hard-hit sectors explains their relatively greater employment losses as compared to men´s" (ILO, 2021), and evidence showed that women new care responsibilities constrained their labor force participation and even forced many to quit. Moreover, it has been recognized an unequal recovery from Covid-19, where young women are shouldering the worst of the employment crisis (ILO, 2021). Referring to medium-term changes, the Gender Gap Index for 2022 showed that the pandemic reversed progress on gender parity in access to the labor market (World Economic Forum, 2022). Finally, studies have shown that the Covid-19 crisis caused a negative impact on the work and income of informal workers, with a very slow recovery (Chen, 2022). As labor conditions worsened in the afterward of the pandemic, women absorb the increase in care. Jointly, the increase in care responsibilities limits women's ability to enter the labor market and the conditions in which they do it. Considering this I formulate the following hypothesis:

> The worsening labor conditions are associated with an increase in the mean levels of care burden of women.

B) Poverty And Care

The Covid-19 pandemic and the measures to contain the virus caused an increase in poverty levels across the world. Estimates projected that Covid-19 added 198 million people to extreme poverty in 2022, reversing almost 20 years of progress (OXFAM, 2022). Moyer & et al (2022) study the long-term effect of Covid-19 on poverty across 186 countries using alternative scenarios. The authors find that under a Covid-19 scenario global extreme poverty rises by 73.9 million in 2020 and that 7 countries would not meet SDG 1 by 2030 which would have been met in a non-Covid-19 scenario. Moreover, the negative impact of poverty is higher on the most vulnerable groups, like women with low education levels and informally employed (Sánchez-Páramo, et al., 2021). The rising levels of poverty worsened the situation of women regarding the care burden, as public services are not widely available and loss in income makes it harder to access private services.

Women´s unequal access to education, productive resources, asset control, and unequal rights contribute to their higher incidence of poverty. Despite women having more sources of income generation, the lack of property rights and the persisting gender roles, affect their chances to lift themselves out of poverty (UNDP, n.d.). The most direct channel between poverty and care is the lack of access to care services that reduce the burden. Currently, the provision of care services is mainly private and costly, as it responds to a market opportunity rather than recognizing and valuing the importance of care to society. In this sense, the lack of accessible, affordable, and quality services translates into a higher responsibility for women who face poverty (Sallé & Molpeceres, 2019). Despite the importance of these services, in LA care policies and protection systems have been traditionally weak and precarious (Villegas-Plá, 2022). The most relevant measures of poverty are monetary and multidimensional. On the one hand, monetary poverty captures a household´s ability to meet critical basic needs in food, housing, clothing, and other goods that are obtained through the market (Gerszon-Mahler, Friedman, Lugo, & Sharma, 2018). On the other hand, multidimensional poverty considers monetary conditions, but also education and access to infrastructure and social services to have a more complete assessment of poverty (World Bank, 2022).

Considering this dual relation between poverty and the care burden, I formulate the following hypothesis:

Secondary Hypothesis 2

> The worsening of poverty-related variables is associated with an increase in the mean levels of care burden of women.

C) Care Policies And Care

Villegas-Plá (2022, pág. 2) states "the pandemic catalyzed that feminist discourse that for several decades has emphasized the need to build care policies as a central axis of fairer and more egalitarian societies". In LA this shift was especially visible, as Uruguay was the only country in the region with a developed care system, and after the pandemic, Colombia, Argentina, Costa Rica, and Mexico had implemented national or local care systems. The implementation of care policies is central to alleviating the burden of care faced by women. It means an exercise of co-responsibility of care between the families, the state, the community, and the market. This co-responsibility has two dimensions. In the first place, care should be a combination of efforts from the 4 actors, where the state must be a service provider, decision-maker, and regulator when it comes to establishing the role of all the actors (Stefanovic, Scuro, & Vaca-Trigo, 2022). Second place, it also involves a gender co-responsibility in which the sexual division of labor should be transformed to incorporate men into the caregiving (ECLAC/UN Women, 2020). Considering this, care policies are defined as the measures that the state takes to generate co-responsibility in care, and social co-responsibility between the state, families, and the market (Villegas-Plá, 2022).

After the pandemic, there was a rise in care policies, with great heterogeneity in the response across countries. Stefanovic, Scuro, & Vaca-Trigo (2022) studies the care policy response in LA and establishes three types of response: care services and support for carers, income generation and employment, and social protection relating to the care economy. In the medium term, the most significant measures to alleviate caregivers were cash transfers and in-kind transfers, which aim indirectly to alleviate women´s care situation. Cash transfers are expected to alleviate the care burden by giving access to private services or alternatives to reduce care. However, they are also provided to the most vulnerable population, and it is not clear in this increase in income is going to be directed towards care relief or going to cover other basic needs. In this sense, the next *secondary* hypothesis intends to see if cash transfer programs are associated with a decrease in the mean levels of care as initially expected.

The increase in access to cash-transfer programs brought is associated with a decrease in the mean levels of care burden of women.

3. DATA AND METHODOLOGY

3.1. Study case

This study intends to find variations *before* and *after* the pandemic in care and related factors. In consequence, choosing one country helps to eliminate exogenous variation. The choice of the study case was based on the relevance of care studies for the country, a case that is regionally representative, and methodological feasibility. Considering these criteria, I choose Colombia as the main subject of study.

First, Colombia poses' great challenges in terms of inequality. Despite an outstanding economic performance, it is the second most unequal country in LA and the most unequal among the OECD countries. The Gini Index for Colombia stood at 0.54 in 2020, while the average for the region was 0.46 (Morales, 2022). Moreover, inequality highly persists between generations, as shown by the high *rates of persistent inequality* in the country. This means that the income, education, and subjective well-being of the parents severely determine the access that children will have to these (World Bank, 2021). In addition to these challenges, gender inequalities are profound. One woman in Colombia has 1.7 times more probability of being unemployed than a man (World Bank, 2021). According to UNICEF (2021), gender inequalities for Colombian women are seen in contexts of vulnerability, "where girls, adolescents, and women do not have the tools to stop depending on a providing man".

When referring to gender inequalities in care, in 2019 77% of the domestic work and unpaid care was done by women and they dedicate double their time to these activities as men. Despite advances in women´s equality, data shows that 38.5% of the population agrees with the statement that "the duty of a man is to earn money and the duty of the women is to take care of the house and the family", social role that reinforces the unfair division of domestic work. All this sums to the increasing participation of women in the labor market taking place in a context of deep inequalities in terms of the responsibility of care (DANE, CPEM & UN Women, 2020).

Second, from a policy perspective, Colombia is a representative and key actor in LA and globally. To start, it is the third most populated country in LA, with over 51 million inhabitants (Romero, 2022), and it is the third most important economy of the region (Becerra, 2022). In a regional scenario, it is part of 12 dialogue and agreement mechanisms that include its full membership in the Pacific Alliance and the Andean Community, and its associate status in MERCOSUR (Ministry of Foreign Affairs, 2023). On a

global scale, since 2020 Colombia is a member of the OECD. Regarding gender, Colombia has ratified all current international treaties on women´s rights and has made significant progress in developing laws to promote gender equality and guarantee women´s rights. While these standards provide a solid foundation for advancing gender equality and in the design of policies, challenges remain for the implementation of new programs (UN Women, 2022). With care in particular, Colombia was one of the first countries in the region to regulate the inclusion of the care economy in the national accounts system (DANE, CPEM & UN Women, 2020). This represents an important step, as measuring the contribution of women to social and economic development recognizes the value of care and the need for a redistribution of the social organization of care. Moreover, as a member of the CEPAL, Colombia also accepted the political compromises of the Montevideo Strategy whose goal is to guide the implementation of the Regional Agenda of Gender (CEPAL, 2017).

Third, from a methodological point of view, there is good availability of quality data and few seasonal variations. The effort of Colombian institutions to include care in the national accounts has led to the creation of surveys focused solely on the use of time and to include care-related questions in recurrent surveys. In consequence, there is public information on general characteristics, work conditions, and care-related questions. Moreover, the geographical position of Colombia, where they are no significant changes in the temperature of the year, decreases seasonal variations which facilitates the implementation of the methodology.

3.2. Data

The data used is from the *Gran Encuesta Integrada de Hogares* (GEIH). This survey is the main source of information on official statistics in the labor market in Colombia (Hermida & Pulido-Mahecha, 2022). It is taken monthly by the National Administrative Department of Statistics (DANE) and requests information on the employment conditions of the people, along with the general characteristics of the population (DANE, 2023). It collects information on sex, education, main activities performed, work conditions, income, civil status, and access to government subsidies. Despite not being focused on care, this survey includes questions on the use of time beyond work, including questions related to the time that people dedicate to care activities. In this sense, it allows the collection of data on care-related activities for a large sample and periodically. In 2022, the GEIH had a methodological update, under which some of the care questions were modified.

Regarding care-related activities, the survey asks questions about domestic work (mainly related to cleaning duties), care of children, and care of elderly and disabled people. The survey has two types of questions related to care. The first type of question is associated with the *extensive margin*, and they ask if the person does (or does not) do the activity. The second type of question is associated with the *intensive margin,* and they ask how many hours the person dedicates to each activity in the last week.

For the methodology adopted in 2022, there are more specific questions related to care, however, the questions related to the intensive margin are not comparable with the ones of the previous years.

The dataset for this thesis was built from January 2019 to December 2022, covering all months in this period except for March to July 2020 when the Covid-19 pandemic forced the DANE to change the data collection process and include fewer questions. This resulted in over 3.5 million observations. The processing and cleaning were done by me using the software Stata, and the corresponding do-files can be requested to replicate the results.

3.3. Variables

The methodology will consist of the use of statistical and econometric tools to analyze differences between two samples, and the correlation with care variables.

A) Care Variables

The main object of the study is to compare the care burden that women faced before and after the pandemic. The concept of care burden is defined as the extent to which individuals report dedicating time to domestic work and/or unpaid care activities. Considering the data available, this care burden is going to be operationalized in three ways:

1. <u>Care as main activity</u>: The concept of care burden is operationalized as the response of "domestic work" which individual citizens of working age choose to the question "in which activity did you spend most of your time last week". For this question, respondents can choose between working, searching for a job, studying, domestic work, being permanently disabled from work, or other activities. This variable will allow us to identify the probability of a person dedicating most of their time to domestic work.

2. <u>Carrying out of care activities</u>: The concept of care burden is operationalized as the response of "yes" which individuals choose to the question "which of the following unpaid tasks did you do last week?". The tasks that will be considered in this study are domestic work and taking care of children. With this variable, I will analyze the probability of a person performing care-related activities.

3. <u>Time dedicated to care activities</u>: The concept of care burden is operationalized as the number of hours that individuals report to the question "during how many hours in the past week did you do that activity?". This is asked for both domestic works and taking care of children separately.

B) Associated Variables

To study the associated factors with the increase in the care burden I have chosen variables related to labor conditions, poverty, and access to government subsidies. For labor, I choose work, unemployed, informality, and number of hours worked. For poverty, I´ve chosen income as a proxy for monetary poverty and, health access and education level related to multidimensional poverty. In this sense, the variables of interest are the following:

1. Work: Takes the value of 1 if the survey classifies the person as an occupied population and the value of 0 if the person is classified as inactive or unemployed.
2. Unemployment: This takes the value of 1 if the survey classifies the person as unemployed and the value of 0 if the person is classified as occupied or inactive.
3. Informality: This takes the value of 1 if the person works but doesn´t have a contract, and the value of 0 if the person works and has a contract.
4. Number of hours worked: Report the worked hours in the last week.
5. Income: Report the income received by paid labor activities, or other sources of income.
6. Health Access: This takes the value of 1 if the person reports having access to health services, and 0 if the person doesn´t has access to health services or is not aware of them.
7. Education Level: Ordinal variable taking values from 1 to 6 referring to the education level obtained. 1 takes the value of none, 2 of preschool, 3 of basic primary, 4 of basic secondary, 5 middle education, and 6 superior or college.
8. Access to government subsidies: Takes the value of 1 if the person reports receiving monetary government aid in the last month, and the value of 0 if the person doesn´t report receiving this aid.

3.4. Methodology

The methodology will consist of descriptive statistics to analyze the evolution of the care burden and a correlation analysis to answer the research question: to what extent did the Covid-19 pandemic increase the care burden and what factors influence this change?

a) Primary Hypothesis

For testing the first hypothesis I will start with a descriptive analysis of the data to identify gender gaps in the dependent variables and trends over time. In this section, I will compare data from 2019 until 2022 over the three measurements for the care burden. Then, I will conduct a test of comparison of means. This procedure starts by taking a sub-sample for the period *before* the pandemic, and another one *after*. In this sense, the sub-sample for *before* is going to be the observations from 2019, and the

sub-sample for *after* is going to be the observations from 2021. I´ve chosen 2021 over 2022 because it is far enough to identify a medium-term change, but without experiencing so many changes due to exogenous factors like 2022.

For the first two measurements of the dependent variables, which are binary, I will conduct a Chi-square Test. As Agresti (2007) says, the Chi-Square Test is used to test the null hypothesis of independence between two categorical variables. Based on the frequencies of contingency tables it assesses whether there is a significant association between the two variables we are analyzing. Furthermore, I use logistic regression to find the odds ratio of the relationship between the two variables. The odds ratios allow us to identify also the direction of the relationship as they provide an estimate for the association between the two binary variables (Bland & Altman, 2000). Both tests throw a p-value, which provides a measure of the strength of evidence against the null hypothesis. For both cases, the null hypothesis is the no association between the predictor and outcome variables (Agresti, 2007).

For the third measurement of the dependent variable, which is continuous, I start by testing the normality of the data to determine the test that is appropriate to compare the means. I begin by visually observing the distribution of the data using a histogram and the Kolmogorov-Smirnov test. This test is used to identify if a sample comes from a population with specific distribution, in this case, the normal distribution (NIST, n.d.). In this case, where the data is not distributed under the normal distribution and considering the size of the sample the most appropriate option is the Mann-Whitney U test. This test is used to test a null hypothesis that two samples of an orderable variable were obtained from the same population. It is used as a substitute for the t-test when this is not suitable due to the normality assumption (Wiesen, 2019).

b) Secondary hypothesis

For testing the *secondary* hypothesis, I conduct a correlation analysis between the care-related variables and the associated variables. This type of analysis allows us to see the direction and magnitude of the relationship between two variables. According to Bhandari (2021), the purpose of correlational designs in quantitative methods is to test the strength of association between variables and it is a method with high external validity. This methodology helps to provide insights into complex real-world relationships. Correlation analysis has been used in international development in the context of poverty dimensions (Alkire & Santos, 2010); urban education (Boucaud, 2017); gender roles in economic sectors (Eisend, 2009), among others.

I perform the tests for the sample of 2021 and present a matrix with the correlation coefficients between the variables. In de this dataset I deal with different types of variables, which include continuous, ordinal, and binary. For each pair of variables, I must conduct a different test of correlation, as presented in Table

1 to identify the magnitude of the relationship in each of the periods. In annex 1, I present the type of correlation used for each pair of variables and the method to color code the magnitude of the correlation based on the interpretation of Patrick, Christa, & Lothar (2018).

Table .3-1. Type of correlation test for each combination of variables

Type 1	Type 2	Type of correlation
Continuous	Continuous	Pearson
Continuous	Binary	Point-biserial
Continuous	Ordinal	Spearman´s
Binary	Binary	Tetrachoric
Binary	Ordinal	Polychoric

Note: Based on Bhandari (2021) and Patrick, Christa & Lothar (2018).

For the variables I am taking into consideration a regression analysis is not adequate. As the literature suggested, there is a double causation between care and labor, poverty, and government subsidies. The theory of care has shown that labor conditions affect care but care also determines access to the labor market and the conditions where this is done. This also happens with the other two variables I am considering. In consequence, the presence of reverse causality among the dependent and independent variables will bring biased coefficients. The use of Instrumental Variables would be an alternative, however, after an evaluation of the possible instruments, no variable complies with the exclusion restriction and validity at the same time. Despite this limitation, the use of correlation analysis and the comparison between the two samples provides a solid foundation to understand the risk factors that influence care after the Covid-19 pandemic.

4. EMPIRICAL ANALYSIS

In this section, I will test the two hypotheses to identify the changes in care *before* and *after* the pandemic, and how labor, poverty, and subsidies interact with care.

4.1. Hypothesis 1: Changes in care with Covid-19

a) Domestic work as main activity

The first measurement of care burden is the percentage of the population that dedicates most of its time to domestic work. Figure 1 shows that in 2019 39.65% of the women surveyed reported dedicating most of their time to domestic work, while only 4.85% of men did. This shows a significant gender gap that stood at 34.8% in 2019. In comparison, in 2019 34.36% of women spent most of their time working, while 58.67% of the man did. Despite a gender difference being persistent in both categories, it is smaller

in paid work than in domestic work. We can see that the social role of "men as income providers and women as unpaid care providers" still describes the care-work dynamics in Colombia.

Between 2019 and 2022, we can see a significant change in the percentage of the population dedicated to working *before* and *after* the pandemic. For the case of domestic work, in the months following the strictest measures to contain Covid-19 – between August and December of 2020- the percentage of women dedicated to this activity was 45.98%. For the male population, this figure rose significantly to 8.09%. While there was an increase in the percentage of men that dedicate most of their time to domestic work, the gender gap also increased. In the years afterward, 2021 and 2022, the percentage of both women and men that dedicate most of their time to domestic work increased in comparison with 2019 and 2020 *before* the pandemic. A complementary trend can be observed with paid work. In 2020 *after the* pandemic the percentage of men working decreased to 54.92% and of women to 28.57%. For 2021 and 2022, both women and men labor increased, but the increase was higher in the men's population. In fact, for 2022 we can identify the higher gender gap, standing at 26.93%. These results confirm the high gender inequalities in terms of care and even for work that Colombia experiences, and the accentuation of these inequalities after the pandemic.

Figure 4-1. Gender Distribution of main activity

(a) Domestic Work   *(b) Paid labor*
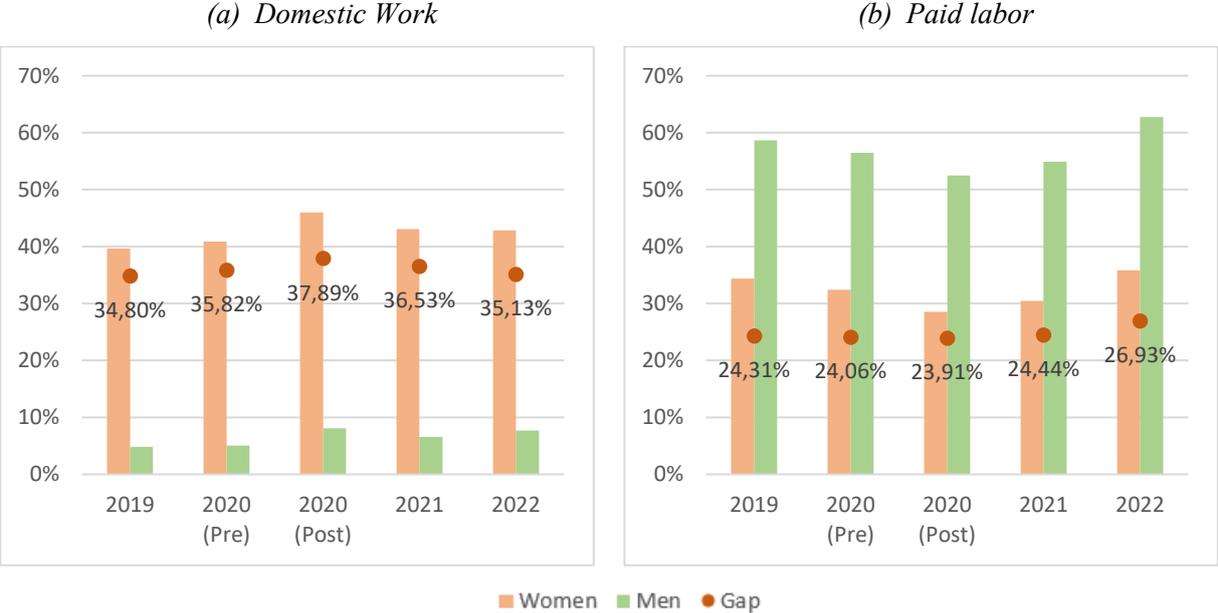
Note: Own calculations using Stata, and data from the GEIH.

To determine if the observed differences are statistically significant, I use a chi-square test and calculate the odds ratio of the samples of interest. From Table 2, we can see the results of the chi-square test between the percentage of the female population that dedicates most of their time to domestic work in 2019 and 2021. In this case, the p-value associated with the Chi-square test statistic turns out to be 0.000. Since this is less than the significance level of 0.05, we fail to reject the null hypothesis that the two

variables are independent. In consequence, we have sufficient evidence to conclude that there is a statistically significant association between being *before* or *after* the pandemic, and the probability of dedicating to domestic work as the main activity.

For completing this analysis, I proceed to analyze a logistic regression to determine the odds ratio, including the variable of gender in the analysis. Results are presented in Annex 2 and show a consistency with the Chi-square test with a p-value <0.010. This test adds to the analysis by showing a value of the odds ratio of 1.08. As the odds ratio is greater than 1, we can conclude there is a positive association between the predictor variables and the outcome variable. In this sense, we can conclude that being *after* the pandemic increases the probability of dedicating most of their time to domestic work. In the case of the variable of gender, there is a consistency with the descriptive results and there is statistical evidence that supports that women have a higher probability of dedicating most of their time to domestic work.

Table 4-1. Contingency table to domestic work as the main activity for women

	Year		
Domestic Work	**2019**	**2021**	**Total**
No	301,341	250,161	571,502
	(60.35%)	(56.93%)	(58.69%)
Yes	197,962	204,352	402,314
	(39.65%)	(43.07%)	(41.31%)
Total	499,303	474,513	973,816
	(100%)	(100%)	(100%)
			P-value= 0.000

Note: Own calculations using Stata, and data from the GEIH.

b) Domestic work and taking care of children

The second measure of care shows the participation of women and men in different care activities. I consider domestic work and taking care of children because they are the most significant in the survey. For this measure, I don´t consider 2022 because the methodological changes in the GEIH generate a difference in the responses that affect the analysis. In Figure 2, the values for this measure are disaggregated by activity, gender, and year. Results showed that from the total of women that answered the survey in 2019, 90.26% reported doing domestic work in the last week, while 59.25% of the men did. In the case of taking care of children, 29.24% of women report doing the activity, while 12.60% of men did. For both activities, there is a significant gender gap. In the case of domestic work, the average gap from 2019 to 2021 was 28.77%, while for taking care of children it was 15.98%. It is worth highlighting that there is an increase in the percentage of the population that does domestic work, both

women and men, *after* the pandemic. For the case of women, there is a slight increase from 89.78% in 2020 to 91.32% in 2020 *after*. For men, this increase is more pronounced from 60.63% in 2020 *before* to 63.70% in 2020 *after*.

Figure 4-2. Gender distribution of % of the population that does care activities.

(a) Domestic Work	*(b) Taking care of children*
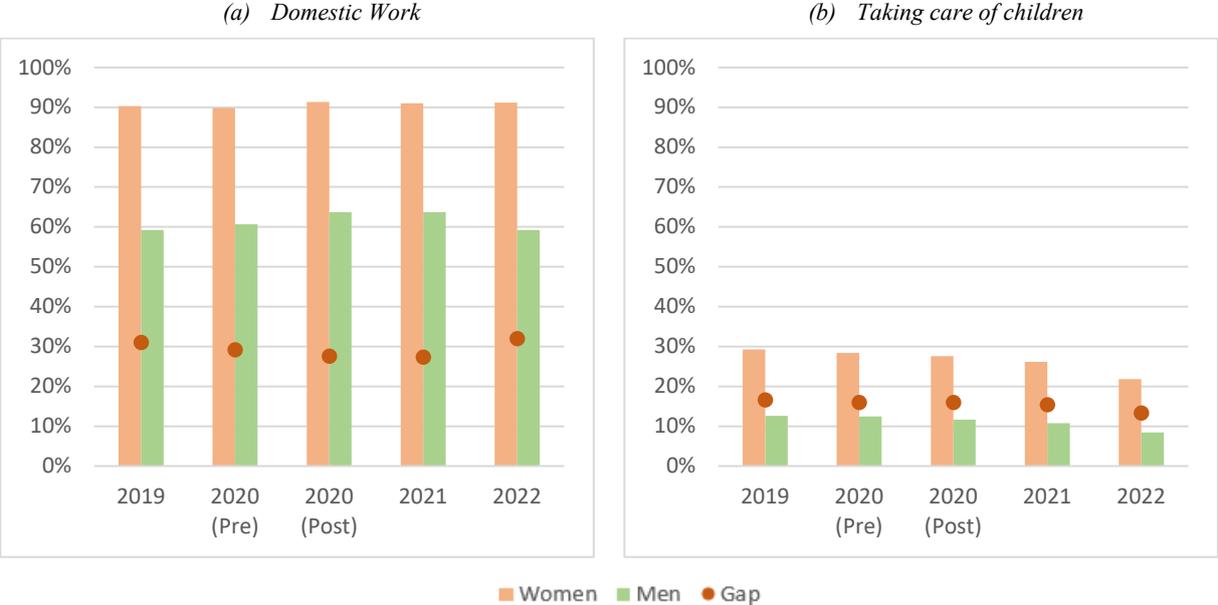
Note: Own calculations using Stata, and data from the GEIH.

To test the statistical significance of the difference *before* and *after* the pandemic in the percentage of the population that does care-related activities, I start by conducting a chi-square test for both activities. I conduct the test only for the sample of women, as it is the main interest. Results shown in Table 4, throw a p-value smaller than the significance level. In this sense, we fail to reject the null hypothesis that the two variables are independent. In other words, we have sufficient evidence to conclude that there is a statistically significant association between being *before* or *after* the pandemic, and the probability of doing domestic work and taking care of children. To look further into the nature of this regression I calculate the odds ratio, results are shown in annex 2. For both cases, the p-value was consistent with the results of the chi-square test, with a value smaller than the significance level. For the case of the odds ratio, for taking domestic work it is 1.08, and for taking care of children 0.92. With these results, it is possible to see that being *after* the pandemic is positively associated with an increase in domestic work while being *after* the pandemic is negatively associated with taking care of children. This last result can be associated with the social distancing established thanks to the pandemic, in which there was a behavioral change and fewer people relied on their community for this task.

Table 4-2. Chi-square test for dependent variable 2, women

	Domestic Work			Taking care of children		
	Year			Year		
Domestic Work	**2019**	**2021**	**Total**	**2019**	**2021**	**Total**
No	450,672 (90.26%)	431,825 (91.00%)	882,497 (90.62%)	145,985 (29.24%)	123,954 (26.12%)	269,939% (27.72%)
Yes	48,631 (9.74%)	42,688 (9.00%)	91,319 (9.38%)	353,318 (70.76%)	350,559 (73.88%)	703,877 72.28%)
Total	499,303 (100%)	474,513 (100%)	973,816 (100%)	499,303 (100%)	474,513 (100%)	973,816 100%)
			P-value= 0.000			P-value=0.000

Note: Own calculations using Stata and data from GEIH.

c) Hours dedicated to domestic work and taking care of children.

The third measure of care, the intensive margin, looks at the hours that women and men dedicated to care activities in the last week. In Figure 3, I present the average hours that women and men reported doing each activity dedicate in the last week. In the case of domestic work, in 2019 women dedicated an average of 19.87 hours per week. In contrast, for the same year, men dedicated an average of 8.10 hours to domestic work. Women dedicated 11.77 more hours per week to domestic work than men in 2019. In the case of taking care of children, women that do this activity dedicate an average of 22.17 hours each week, while men dedicate 12.39 hours.

Figure 4-3. An average number of hours dedicated to care-related activities.

(a) Domestic Work	(b) Taking care of children

■ Women ■ Men ● Gap

Note: Own calculations using Stata, and data from the GEIH.

For calculating the statistical difference in the number of hours spend on care activities, I start by testing the normality of the distribution of the variables. The four samples of interest are: *before* and *after* of the average hours dedicated to domestic work, and *before* and *after* of the average hours dedicated to taking care of children. When applying the Shapiro-Wilk test for the 4 samples of interest, the p—value in all the cases is less than the significance level of 95%. I reject the null hypothesis and conclude that there is sufficient statistical evidence to say that the variables are not normally distributed. Being this the case, I conduct the Mann-Whitney U test. The results from this test throw a z value of -24.072 for the comparison of the mean hours dedicated to domestic work, and a z value of 0.437 for the mean hours dedicated to taking care of children. Results from the number of hours dedicated to domestic work have a P-value smaller than the significance level (p-value = 0.0000). In this sense, we reject the null hypothesis in favor of a conclusion that the mean hours dedicated to domestic work differ between 2019 and 2021. In contrast, for the test conducted on the hours dedicated to taking care of children, the p-value is bigger than the significance level (p-value=0.6619). The results from the normality test and the Mann-Whitney U test are in annex 3. In consequence, we don't have sufficient evidence to say that the true mean of hours dedicated to taking care of children is different between 2019 and 2021.

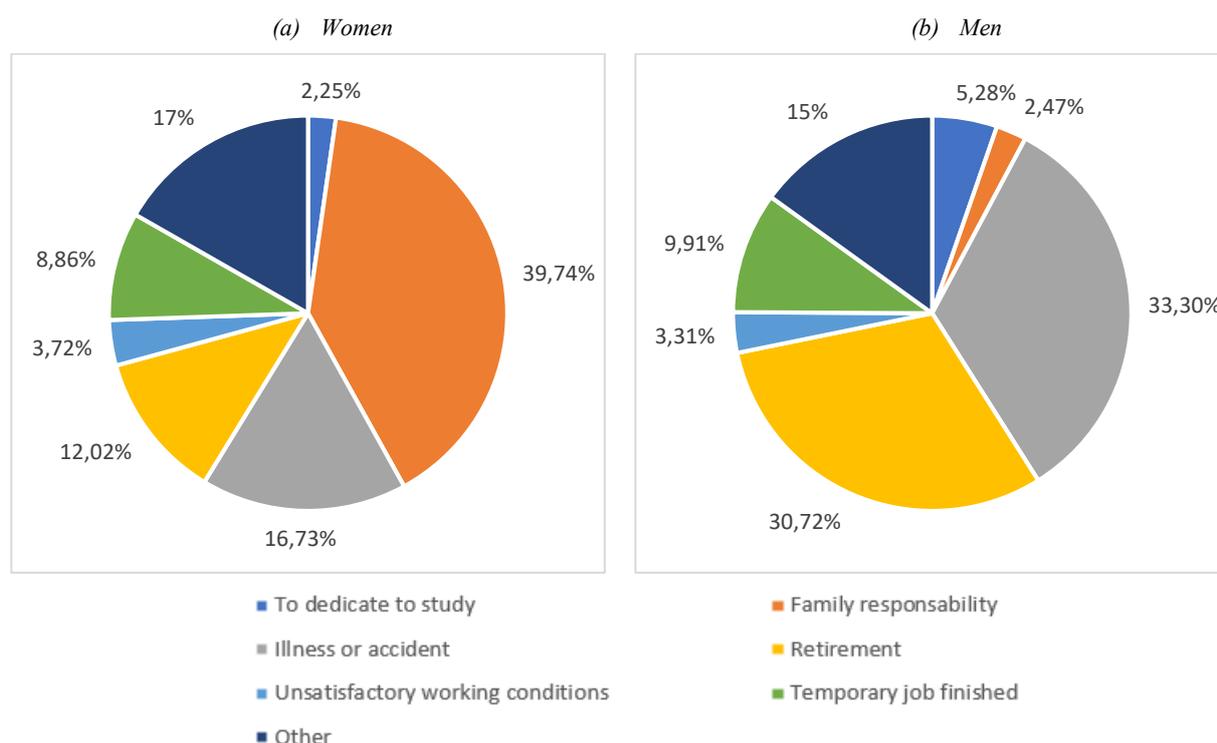## 4.2. Hypothesis 2: Labor, poverty, subsidies, and care

The close relationship between labor, poverty, and subsidies with care was evident in the literature review. All these three factors closely influence the care burden, and the care burden also affects them. When thinking about care – and policies in this aspect – it is necessary to understand them by the factors

that influence them. For instance, a care policy to redistribute care between the other actors of society must consider what are the labor conditions that women face and how this redistribution is realistic. Also, subsidies in the form of cash transfers aim to indirectly affect care, however, the income constraint faced by women may limit the distribution they give to this aid.

All these three factors have an important gender dimension. In this section, I present some data on labor, poverty, and access to subsidies with a focus on gender disparity. As shown in section 4.1.1, when looking at the percentage of the population that dedicate most of their time to work, in 2021 30.48% of women do in comparison with 54.92% of men. Comparatively, when looking at the unemployment rate, the DANE (2022) reported that in the last trimester of 2021, it stood at 8.4% for men and 15.1% for women. One of the main challenges of Colombia in terms of labor conditions is the high rates of informality. In the second trimester of 2021, informality stood at 47.6% for women and 45.4% for men (DANE, 2021). This remains to be a policy priority, as almost half of the workers lack social protection and pension rights (OECD, 2022).

An interesting result from the data is the differences in the motives for inactivity between women and men. The inactive population considers people of 16 and older that are not classified as occupied/working or unemployed (INE, n.d.). Figure 4 shows the motives for the inactivity of women and men in 2021. 39.74% of women state that their main motive for being inactive is family responsibilities, while only 2.47% of men report this motivation. In contrast, the main motivation for inactive men is illness or accident. Jointly, 30.72% of inactive men reported retirement as their main motivation, while only 12.02% of women did. This reflects an additional gender inequality related to access to social security, in specific pensions.

Figure 4-4. Motives of inactivity by gender in 2021

(a) Women   *(b) Men*

Women: 2,25% | 17% | 8,86% | 3,72% | 12,02% | 16,73% | 39,74%

Men: 5,28% | 2,47% | 15% | 9,91% | 3,31% | 30,72% | 33,30%

Legend:
- To dedicate to study
- Family responsability
- Illness or accident
- Retirement
- Unsatisfactory working conditions
- Temporary job finished
- Other

Note: Own calculations using Stata, and data from the GEIH.

When referring to poverty, the assessment can be done from several variables. The most classical approximation is income. For 2021, in Colombia, the monetary poverty stood at 39,3%. The characterization of the households with monetary poverty showed that when women are the head of the household there is a higher poverty incidence. Jointly there is a higher poverty incidence in households where the head has low education levels and is not affiliated with the pensions system (DANE, 2022). Taking a more holistic approach towards poverty leads to considering health, education, and living standards. When looking at these factors at an individual level, affiliation to health services represents a proxy for social protection. Colombia has reached a coverage of health services of 95.07%, a factor that has contributed to the reduction of multidimensional poverty (Ministry of Health and Social Protection, 2020). When referring to education, national surveys showed that 70% of young people between 15 and 16 that did not assist to school were in monetary poor households. Jointly, in 2021 54% of the young people that did not assist school were working or doing domestic work (Portafolio, 2022).

Cash transfers have been positively associated with a reduction in the severity of poverty, and with improved access to and use of health services. Jointly, evidence has found a relationship between subsidies and attendance rates in schools (Simon, 2019). This type of measure is gender sensitive because women usually face more vulnerable conditions that make them a target of these programs. For

instance, from the sample collected in 2021, 11.61% of women reported receiving government aid, in contrast to 4.93% of men. This represented an increase in the reach of government aid compared to 2019 where only 6.46% of women and 2.42% of men report receiving it. This increase is evidence of the efforts of government to alleviate the income restraints faced after Covid-19.

To understand how care interacts with labor, poverty, and subsidies, I present the results from the correlation analysis in Table 6. In the first row, I present the care-related variables, and in the first column, the different variables related to labor, poverty, and subsidies. The values inside the matrix represent the correlation coefficient between the two corresponding variables. The sign of the coefficients reflects the direction of the relationship, and the color reflects the magnitude of the effect. In this sense, a lighter color is associated with a lower magnitude and darker colors represent a higher correlation between the two variables. The first variable present is gender, these values allow us to see how gender interacts with the care-related variables and the associated factors. Results show a high association between being women and all the care-related variables as shown in the earlier section. Additionally, we can see that being a woman is negatively correlated with the probability of working and with the number of hours worked. Other variables like education level and income don´t show high gender disparities. On the contrary, access to subsidies is highly associated with the probability of being a woman, reflecting the gender-sensitive character of these measures.

Looking at labor conditions the results show that the probability of working is negatively associated with the probability of doing domestic work and the hours dedicated to care-related activities. These results confirm the strong relationship between both activities and indirectly the constraints that women face to perform both activities. Jointly, the probability of being unemployed is positively associated with the probability of doing domestic work and taking care of children. Despite this relationship, the magnitude of the relationship between unemployment and the hours dedicated to care is small. For its part, informality is very weakly related to most of the care-related variables. This reflects that for both formal and informal workers the care burden is similar. One of the causes for this could be the lack of public care services, which formal workers are also unable to access. Finally, the number of hours worked is negatively associated with all the care variables, especially with taking care of children. A higher number of hours worked is strongly correlated with the probability of not taking care of children. Despite a smaller proportion of the population "takes care of children", for the one that does it is the most time-consuming task.

Table 6 also shows the results from the correlation of care with the proxies of poverty. For instance, income is negatively associated with all the measures of poverty. These results relate to the fact that most care services are private. However, the magnitude of this correlation is very weak. One of the explanations for this relates to the fact that there is a very high-income inequality where only a small portion of the population has access to private care services. When looking at access to health services

it is worth noticing that it is negatively correlated with the probability of taking care of children and the hours dedicated to this activity. These results could indicate an association between the presence of children in the household and not having access to health services. This dimension is key in the assessment of multidimensional poverty. Finally, despite education not being strongly correlated with gender, it does have a higher correlation with care-related factors. Higher education levels are negatively associated with the probability of dedicating most of the time to domestic work. These results are consistent with the higher association between education and labor market opportunities. Jointly, education is positively associated with dedicating time to care activities. This effect could be driven by a higher proportion of men with higher education levels performing care tasks, answering to the changing gender social roles. However, education is negatively related to the number of hours dedicated to care tasks. These results could be driven by the higher access to care services, with more education levels and higher labor opportunities.

Finally, access to subsidies is positively associated with all the care-related variables. These results shouldn´t be interpreted as causality, but rather an association between risk factors and a higher care burden. In this sense, the population that has access to government aid represents the most vulnerable sectors in terms of income and access to services. For this population, there is a higher association with the probability of dedicating most of the time to domestic work, which may represent the limited paid opportunities. Jointly, there is a higher care burden in terms of hours that reflects the lack of access to private care services and other types of aids to alleviate care. In this sense, we can conclude that general subsidies do not affect the alleviation of the care burden.

Table 4-3. Correlation Matrix

	Gender	Domestic work as main activity	Does domestic work	Taking care of children	Number of hours: Domestic work	Number of hours: Takes care of children
Gender (0: Men, 1: Women)	1	0.6892*	0.5589*	0.3589*	0.4747*	0.3275*
Work (0: Don´t work, 1: Work)	-0.3101*	-	-0.1523*	0.064*	-0.2229*	-0.2332*
Unemployed (0: Not unemployed, 1: Unemployed)	0.0144*	-	0.2276*	0.1413*	0.069*	0.0991*
Informal (0: Formal, 1: Informal)	-0.0878*	-	0.0406*	-0.008*	0.1761*	0.0761*
Number of hours: Work	-0.2323*	-0.4461*	-0.1815*	-0.7*	-0.3141*	-0.2149*
Income	-0.0161*	-0.1225*	-0.0081*	-0.0283*	-0.0858*	-0.0298*
Health access (0: Not access to health; 1: Access to health)	0.0935*	0.0017	-0.0109*	-0.1031*	0.013*	-0.0338*
Education level	0.0459*	-0.2073*	0.120572*	0.131914*	-0.1123*	0.0559*
Subsidies (0: Doesn´t receive subsidies,	0.2780*	0.3296*	0.1315*	0.1887*	0.1578*	0.0587*

Note. Source of information GEIH, and own calculations using different types of correlations test.

5. CONCLUSION AND DISCUSSION

The world suffered a profound transformation due to the Covid-19 pandemic, prompting society to become more aware of the potential dangers of global-scale issues such as pandemics or climate change catastrophes. Along with this, it brought to the surface a new range of issues that were not on the radar of policymakers, one of the clearest examples being the importance of recognizing, revaluing, and redistributing care. Feminists have studied care for decades, showing the existence of a huge gender disparity in the care burden inside the households and with the other actors of society. Despite women massively entering the labor market in the last century, the social roles around care haven´t changed around the world. For most societies, the general thought still is that "men are the income providers, and women the caregivers", especially in regions like Latin America. This belief has generated a double workload for women and a vicious circle between care, poverty, inequality, and precariousness.

In this research, I expanded the literature on the care economy with a novel approach to the medium-term impact of the Covid-19 pandemic. Answering the research question "to what extent did the Covid-19 pandemic increase the care burden and what factors influence this change?" I was able to add insights into the importance of studying care and how they disproportionally affect women. Using quantitative evidence from Colombia I was able to determine an increase in the proportion of women that dedicate most of their time to domestic work after the pandemic. In 2021 43% of women reported dedicating most of their time to domestic work, while only 6.5% of men did. Also, the evidence showed that the proportion of the population that did domestic work and the hours they dedicated to it increased in 2021 compared to 2019. For instance, in 2021 women dedicated an average of 20 hours to domestic work each week while men dedicated an average of 8.8 hours. This means that each week women dedicate an average of 11.2 more hours to domestic work than men.

When looking at the factors that influenced the care burden in 2021 the correlation analysis showed important insights. For instance, work is negatively correlated across all care variables, which is consistent with the trade-off between dedicating time to work and to care. However, there is still a gender gap in the labor market which influences women´s ability to overcome poverty-related vulnerabilities. Surprisingly, informality is not strongly related to the care variables. This can be explained by the lack of care services for all workers, which highlights, even more, the importance of this. When looking at education, it is negatively correlated with dedicating most of the time to domestic work, positively correlated with doing care tasks, and negatively correlated with the hours dedicated to domestic work. In other words, the higher level of education obtained, the less probability of dedicating to domestic work which may lead to financial independence. But also, more education is related to doing care tasks which may be a

sign of changing social roles. Finally, subsidies were positively related to the care variables. These results make sense considering the subsidies are targeted toward the most vulnerable population, and the magnitude of these vulnerabilities causes there to be no effect relieving the care burden.

The findings of this research, especially the result that the pandemic increased the care burden, has important policy implications. Firstly, with this research, I aim to highlight that the impact of the Covid-19 pandemic and the measures to contain the virus had a long-lasting effect on gender inequalities related to care. This requires policy attention, especially in Latin America where care services are still scarce. Secondly, there is a need to understand the care in conjunction with other variables such as labor and poverty. We cannot isolate care from this and understanding how they interact with one another is key for policy formulation. Thirdly, results from the relation between care and subsidies show the need of specific care policies to alleviate the care and to recognize, revalue, and redistribute care in our society.

In summary, this quantitative analysis aims to shed light on a representative case of the Latin American region on the challenges our societies face in terms of the care economy and gender inequality. There is still much to be explored, and further research must be conducted in other countries of the region. Also, a qualitative analysis to understand how work, poverty, and care interact is key for policy formulation. Further studies can address the limitation of this study. For instance, despite focusing only on one country, Colombia faces a lot of inequality within its territory, and care dynamics are likely different across regions. Also, more detailed studies could understand greatly the importance of social roles in the care-work dynamics. Finally, a causal study could bring lighter on how to address care issues from a policy perspective. However, this could require more sophisticated methods and another type of data.

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A. ANNEXES

Annex 1: Correlation test used and color coding of correlations magnitude.

Table A-1. Correlation test used per pair of variables

	Gender	Domestic as main activity	Does domestic work	Taking care of children	Number of hours: Domestic work	Number of hours: Takes care of children
Gender	1	(T)	(T)	(T)	(PB)	(PB)
Work	(T)	-	(T)	(T)	(PB)	(PB)
Unemployed	(T)	-	(T)	(T)	(PB)	(PB)
Informal	(T)	-	(T)	(T)	(PB)	(PB)
Worked Hours	(PB)	-	(PB)	(PB)	(P)	(P)
Income	(PB)	(PB)	(PB)	(PB)	(P)	(P)
Health access	(T)	(T)	(T)	(T)	(PB)	(PB)
Education level	(PC)	(PC)	(PC)	(PC)	(S)	(S)
Subsidies	(T)	(T)	(T)	(T)	(PB)	(PB)

Note: Based on Bhandari (2021) and Patrick, Christa & Lothar (2018).

T: Tetrachoric (Binary to binary); P: Pearson (Continuous to continuous); S: Spearman's (Ordinal to continuous); PB: Point biserial (Continuous to binary); PC: Polychoric (Ordinal to binary).

Table A-2. Color Coding of Coefficient Magnitude

Absolute magnitude of correlation coefficient	Interpretation	Color
0.00-0.10	Negligible	
0.10-0.39	Weak	
0.40-0.69	Moderate	
0.70-0.89	Strong	-
0.90-1.00	Very Strong	

Note: Patrick, Christa & Lothar (2018)

Annex 2. Results from logistic regression

Table A-3. Results from Logistic Regression for 1st measurement of dependent variable

			Num of obs	1,806,171
			Pseudo-r2	0.1706
Domestic Work	**Odds Ratio**	**P- Value**	**95% Confidence Interval**	
Year	1.08807	0.000	1.0839384	1.092043
Gender	11.73978	0.000	11.62142	11.85935
Constant	1.01e-62	0.000	2.90e-66	3.50e-59

Note: Own calculations, results using Stata and data from the GEIH.

Table A-4. Results from logistic regression for 2nd measurement of dependent variable

			Obs	1,806,171				**Obs**	1,806,171
			Pseudo-r2	0.1168				**Pseudo-r2**	0.0416
		Domestic Work					**Taking care of children**		
Domestic Work	**Odds Ratio**	**P-Value**	**95% CI**		**Odds Ratio**	**P-Value**	**95% CI**		
Year	1.0823	0.000	1.0782	1.08633	0.92148	0.000	0.91807	0.924911
Gender	6.0841	0.000	6.0349	6.1338	2.90006	0.000	2.876875	2.92344
Constant	1.07e-70	0.000	5.91e-74	1.94e-67	2.45e+70	0.000	1.37e+67	4.39e+73

Note: Own calculations, results using Stata and data from the GEIH.

Annex 3. Results from Shapiro Wilk Tests and Mann-Whitney Test

Table A-5. Results from Shapiro-Wilk Tests

```
. swilk horas_oficio if YEAR==2019 & sexo==2

            Shapiro-Wilk W test for normal data

    Variable |      Obs         W         V         z      Prob>z
-------------+--------------------------------------------------
horas_oficio |  450,672   0.96109  2963.456    22.686     0.00000

Note: The normal approximation to the sampling distribution of W'
      is valid for 4<=n<=2000.


. swilk horas_oficio if YEAR==2021 & sexo==2

            Shapiro-Wilk W test for normal data

    Variable |      Obs         W         V         z      Prob>z
-------------+--------------------------------------------------
horas_oficio |  431,825   0.96179  2846.432    22.568     0.00000

Note: The normal approximation to the sampling distribution of W'
      is valid for 4<=n<=2000.
```

Note: Data fron GEIH, calculations in Stata.

Table A-6. Results from Mann-Whitney Test

```
. ranksum horas_oficio, by(YEAR) porder

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

        YEAR |      Obs    Rank sum     Expected
-------------+---------------------------------
        2019 |  7.0e+05   4.851e+11    4.908e+11
        2021 |  6.9e+05   4.859e+11    4.802e+11
-------------+---------------------------------
    Combined |  1.4e+06   9.710e+11    9.710e+11

Unadjusted variance     5.638e+16
Adjustment for ties    -1.704e+14
                       ----------
Adjusted variance       5.621e+16

H0: horas_~o(YEAR==2019) = horas_~o(YEAR==2021)
         z =  -24.072
Prob > |z| =   0.0000

P{horas_~o(YEAR==2019) > horas_~o(YEAR==2021)} = 0.488
```

Note: Data from GEIH, calculations in Stata.

Table A-7. Results from Mann-Whitney Test

```
. ranksum horas_ninos, by(YEAR) porder

Two-sample Wilcoxon rank-sum (Mann-Whitney) test

        YEAR |       Obs     Rank sum     Expected
-------------+------------------------------------
        2019 |   2.0e+05    3.673e+10    3.672e+10
        2021 |   1.7e+05    3.071e+10    3.073e+10
-------------+------------------------------------
    Combined |   3.7e+05    6.744e+10    6.744e+10

Unadjusted variance   1.024e+15
Adjustment for ties  -3.843e+12
                     ----------
Adjusted variance     1.020e+15

H0: hora~ños(YEAR==2019) = hora~ños(YEAR==2021)
         z =   0.437
Prob > |z| =  0.6619

P{hora~ños(YEAR==2019) > hora~ños(YEAR==2021)} =  0.500
```

Note: Data from GEIH, calculations in Stata.