

Time to care: Evidence on the Drivers for intra-household Care Responsibilities

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Abstract

This paper investigates the drivers of the intra-household distribution of unpaid care responsibilities for childcare and domestic housework within heterosexual households, by focusing on the impact of working hours, income, and gender. Leveraging representative panel data collected during and after the Covid-19 pandemic (2021-2022) in a northern Italian region, we employ an instrumental variable approach to examine these dynamics. Our findings reveal that increasing working hours are associated with reduced responsibilities for childcare and domestic housework. However, gender emerges as a key predictor with men significantly responding to changes in working hours and women responding to changes in income levels. These results highlight the importance of gender roles and social norms in the distribution of paid and unpaid labor.

Keywords: Unpaid care work, Childcare, Domestic housework, Gender equality, Care gap

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1 Introduction

An extensive body of research shows that gender gaps in employment and income are strongly influenced by women’s unpaid care work responsibilities over their life-course (Lundberg, 2022; Goldin, 2021; Blau and Kahn, 2016; Folbre, 2002). In this context, unpaid care work includes childcare,¹ domestic housework,² and caring for elderly or disabled persons. Frequently, these unpaid care work responsibilities prevent women from full labor market participation and reinforce their role as secondary wage earners within households (Bertrand, 2020; Sevilla, 2020; Andresen and Nix, 2021; Chiuri, 2000). Moreover, working women often perform “second shifts” between paid and unpaid work (Becker-Schmidt, 2008; Hochschild and Machung, 1989).

In this study, we investigate the effect of paid working hours on the provision of unpaid care work. We use an extensive household survey conducted in the the Autonomous Province of South Tyrol, a northern region in Italy, in 2021 and 2022, to examine the impact of an exogenous change in paid working hours on the responsibility for domestic housework and childcare. By using data on individuals’ experiences of job loss or interruption due to Covid-19, we isolate the exogenous variation in paid working hours caused by the pandemic. This instrumental variable approach allows us to address the endogeneity and reverse causality problems related to individuals’ choices of paid working hours and the provision of unpaid care work.

Our analysis reveals a negative correlation between the changes in paid working hours and the amount of domestic housework and childcare that individuals perform. Furthermore, our results highlight a strong gender gap as men show a remarkable responsiveness to the provision of domestic housework duties to changes in paid working hours. In contrast,

¹Childcare include tasks such as feeding and washing children, putting children to bed, transportation, entertainment, school and homework support of children,(EIGE, 2021; Calahorrano, Rebaudo and Stöwhase, 2019).

²Domestic housework includes tasks such as cooking, setting the table, washing dishes, cleaning, as well as grocery shopping, laundry, doing repairs, gardening, and bookkeeping (EIGE, 2021; Calahorrano, Rebaudo and Stöwhase, 2019).

women appear to exhibit inelastic behaviour, with minimal changes in their domestic housework and childcare responsibility in response to fluctuations in paid working time. Moreover, using the same approach, we look at the effect of hourly income on unpaid care work responsibilities. We find a negative correlation showing that higher-earning couples perform less unpaid care work. However, opposite to paid working hours, we find a strong responsiveness of women while men exhibit inelastic behavior.

With this study, we contribute to various strands of literature. First, we contribute to the literature studying the effect of employment on the provision of informal care. Carmichael, Charles and Hulme (2010) find that employment participation and earnings both negatively impact the willingness to supply care in the UK. Fischer, Haan and Sanchez (2022) use plant closures in Germany to show that unemployment increases the probability of providing care by 2.9 percentage points. For the US, He and McHenry (2016) find that increasing working hours by ten percent reduces the probability of providing informal care by about 2 percentage points among women of 40–64 years. We extend this literature by focusing on the effect of paid working hours and income on domestic housework and childcare, two important components of unpaid care work that so far have not been considered in this literature.

Second, we relate to the literature studying the dynamics between unpaid care work and employment. This topic has gained increased attention during the Covid-19 pandemic because of significantly altered realities for all households through nationally imposed lockdowns, institutional closures, the shutdown of economic activity including lay-offs, wage compensation and mandatory remote work (Cook and Grimshaw, 2020; Merla and Murru, 2022). Several studies have generated differentiated results: Some studies find a regression into a traditional task segregation of labor with women shouldering most additional care work and retreating from the labor market (Leap, Stalp and Kelly, 2023; Meraviglia and Dudka, 2021; Kohlrausch and Zucco, 2020; Hipp and Konrad, 2022; Collins

et al., 2020; Alon et al., 2021; Weißhaar et al., 2021).

Similarly, other studies observe a stagnation of the situation in which women and especially mothers remain the primary gatekeepers of care and provide most of the additional care that accrued particularly because of institutionalized childcare and school closures. In addition to their involvement in the labor market, "second shifts" increased women's total work load during the pandemic (Chatot, Landour and Pailhé, 2023; Boll, Müller and Schüller, 2023; Costoya et al., 2022; Xue and McMunn, 2021; Yerkes et al., 2020; Sevilla and Smith, 2020).

Furthermore, some studies identify a redistribution of unpaid care work towards more equally shared responsibilities, primarily enabled through men's remote work, short-time work and unemployment (Shafer, Scheibling and Milkie, 2020; Steinmetz et al., 2022; Alon et al., 2020; Naujoks, Kreyenfeld and Dummert, 2022; Berghammer, 2022; Dernerdorfer et al., 2021; Sevilla and Smith, 2020). These results seem however to be significant in the first months of the pandemic and particularly for what concerns childcare, but not for household chores (Craig and Churchill, 2021; Mangiavacchi, Piccoli and Pieroni, 2021; Del Boca et al., 2020; Lyttelton, Zang and Musick, 2022). Longitudinal studies have indeed documented little long-lasting changes in the distribution of unpaid care work in the aftermath of the pandemic (Jessen et al., 2022; Chatot, Landour and Pailhé, 2023; Boll, Müller and Schüller, 2023). Consistent with this literature, we find that the Covid-19 pandemic led to a slight reduction of the gender gap in domestic housework and childcare responsibility but increased again when life turned back to normalcy.

Third, we further relate to the literature that explains the relationship between unpaid care work and paid work. For instance, rational economic approaches have theorized that gender-specific comparative advantages lead to task specialization and the gendered distribution of care work and employment within heterosexual households (Becker, 1993; Hoffman, 2000). In this view, time allocation for paid work is negatively associated with time spent for unpaid care work (Bianchi et al., 2000; Presser, 1994; Raley, Bianchi and

Wang, 2012; Shelton, 1993), and the partner with higher earnings is expected to perform less unpaid care work (Buerkle, Blood and Wolfe, 1961).

However, recent research has shown that intra-household choices concerning employment and unpaid care work participation are endogenously shaped by gender roles and social norms that individuals have consciously and unconsciously internalized through socialization and culture (Lundberg, 2022; Gørges, 2021; Andresen and Nix, 2021; Bertrand, 2020; Sevilla, 2020; Giménez-Nadal, Mangiavacchi and Piccoli, 2019; Olivetti, Patacchini and Zenou, 2018; McCrate, 1988). For instance, (Bertrand, Kamenica and Pan, 2013) show how women with higher earnings than their male partners both tend to reduce their working hours and to perform more unpaid care work at home, in order to compensate nonconforming gender behavior based on societal expectations.

Finally, Nobel prize winner Claudia Goldin theorized that increasing time and workplace flexibility facilitates the compatibility of unpaid care work and employment, as flexibility dismantles employment structures that imply the need for gendered task segregation in heterosexual households (Goldin, 2022). In this regard, flexible working hours and remote work are considered instruments to promote women's full-time employment, on the one hand, and to offer incentives for men's participation in unpaid care work, on the other hand.

Our study reveals a strong relationship between paid working hours, income, and unpaid care work responsibility albeit with a significant gender effect. However, we do not find effects concerning remote work.

The remainder of the paper is structured as follows. Section 2 presents the survey and data. Section 3 presents the empirical specification and findings and Section 4 concludes.

2 A representative panel survey from the regional context of South Tyrol, Italy

2.1 Context-specific Gender Gaps

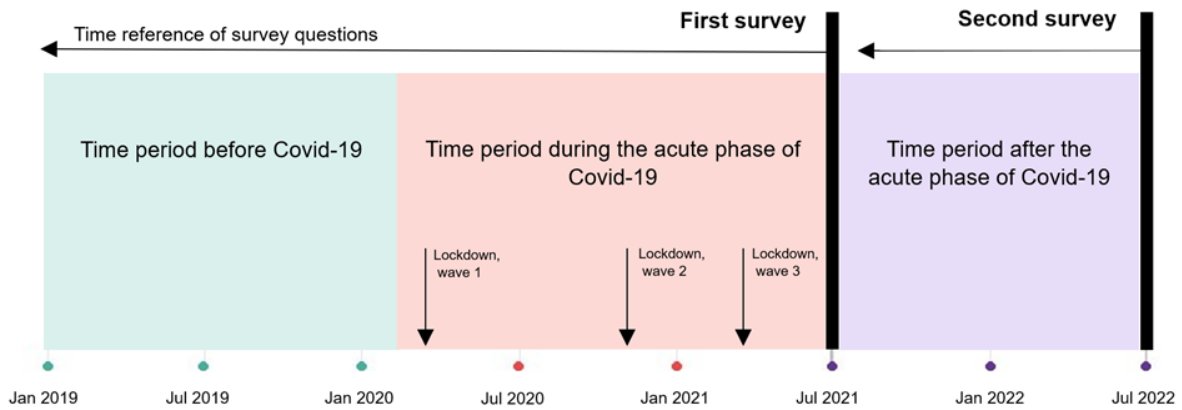
In Italy, an extensive gender gap in unpaid care work has been documented as women spend three hours per day more than men for unpaid work (ISTAT, 2014), whereby domestic housework is less equally shared than childcare (Menniti et al., 2015). On the other hand, the gender employment gap in Italy amounts to the highest in Europe (Bisello and Mascherini, 2017), with low female labor force participation, scarce State care facilities, and high shares of women’s part-time employment (Ren, Guglielmi and Maestripieri, 2023). In the Autonomous Province of South Tyrol, a northern and German-speaking region of our analysis, statistical data shows similar trends: Although female labor force participation counts with 69% amongst the highest in Italy, 44% of the 18-64 year-old women work part-time compared to only 6% of men. Among mothers with children under 13 years old, part-time work amounts to 70%. Indeed, two thirds of the women working part-time declare to do so in order to be able to care for their children, while it is nearly 100% for mothers (ASTAT, 2022; AK, AFI-IPL and AL, 2023).

2.2. The Survey

We use data from a representative household survey conducted in the Autonomous Province of South Tyrol, Italy in 2021 and 2022. The survey sample mirrors the 18-to-89-year-old population with respect to gender, age, nationality, and municipality of residence. The overall sample size amounted to 7750 individuals of different households. Participants were randomly selected, while an oversampling of the age groups 30-39 and 40-49 was chosen to shed particular light on the experiences of families with children.

As depicted in Figure 1, the panel survey was conducted in two waves. The first wave in summer 2021 and the second wave in summer 2022. The panel survey intended to cover

Figure 1: Panel survey timeline



individual experiences before Covid-19, during, and after the the Covid-19 pandemic. Survey participants received an invitation letter via mail from the local governmental family agency (Familienagentur - Agenzia per la famiglia) of South Tyrol. The letter invited participants to either participate online or to answer the questionnaire via telephone, either in Italian or German language. In the first wave, invitations were sent out on July 1st 2021. Non-participating persons received a reminder on August 1st, 2021. Answers were accepted until August 31st, 2021. In the second wave, the same procedure was repeated, respecting the same periods of time. Valid survey answers amounted to 2222 in 2021 and 1736 in 2022 corresponding to response rates of 29% and 23% respectively, while the pooled sample is composed of 2665 unique answers, of which 1080 responded both in 2021 and 2022.

The survey questions contained detailed socio-demographic information about the respondents and their household members, with specific questions for individuals with children, with children at school and/or with caring responsibility for other persons such as elderly or disabled individuals. In addition, the survey comprises question on domestic housework, employment, income, health, and psychological factors.

2.3 Variables and descriptive statistics

The dependent variables analyzed in the context of this paper will be briefly described. First, the survey asked participants to state what percentage of the total domestic housework they provided before the Covid 19 pandemic (in 2019). Similarly, participants were asked to state the percentage of the total domestic housework they provided during the acute phase of the Covid 19 pandemic (in 2020). In the second wave, we asked the same question with regard to the post-pandemic situation (in 2021). Additionally, participants were asked to state the amount of hours per day dedicated to domestic housework in 2021. Second, we asked participants to state the percentage of the total care and provision for children, adolescents or/and young adults in the household (0-18) they personally provided prior to the Covid-19 pandemic (in 2019). Similarly, participants were asked to state this percentage during the acute phase of the Covid-19 pandemic (in 2020) and when life returned to normalcy (in 2021). In the second wave, we additionally asked the amount of hours per day dedicated to childcare in 2021.

Table 1 and Table 2 provide an overview of the selected variables. As these are self-reported numbers, averages sum up above 100%. Self-declaration also implies that the measures are subjective. During the year 2020, both women and men report an increase in the share of domestic housework they conducted. However, the increase for men is relatively stronger, leading to a decrease in gender differences. In 2021, the gap widens again. The independent variables, on the other hand, represent labor market and socio-demographic variables including respondents' age, language (German vs. Italian), educational attainment. The remote work variable includes persons who worked at home always, mostly or for several weeks in the respective year. Moreover, we include household related variables such as the number of children living in the household and whether respondents received informal help with childcare from extended family members, neighbours or friends or were eligible for adhesion to a public emergency child care program. Additionally, we include aspects describing the housing situation such as the flat size and the presence of a garden.

Table 1: Distribution of dependent variables in the sample

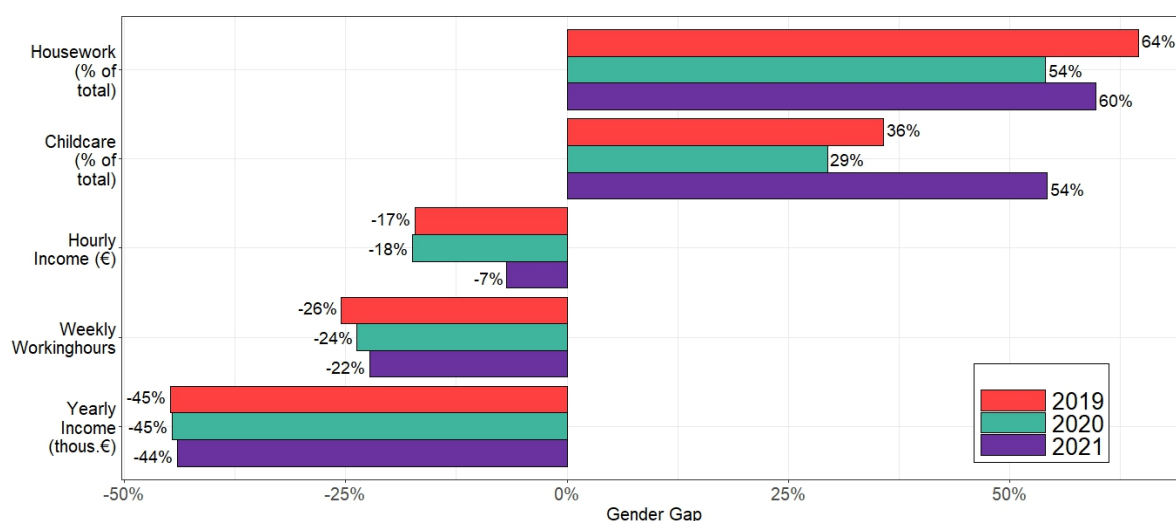
	Mean			Median			n
	Women	Men	Gap	Women	Men	Gap	
Domestic Housework (in %) 2019	78.7	37.8	40.9	81.5	34	47.5	1198
Domestic Housework (in %) 2020	81.3	44.1	37.2	88	45	43	1203
Domestic Housework (in %) 2021	78.6	40.1	38.5	80.5	40	40.5	738
Childcare (in %) 2019	76.9	52.0	24.9	80	50	30	649
Childcare (in %) 2020	82.7	60.6	22.1	90	51	39	665
Childcare (in %) 2021	74.9	46.0	28.9	80	41	39	427
Domestic Housework (in hours) 2021	20.3	9.9	10.4	15	8	7	734
Childcare (in hours) 2021	52.1	25.6	26.5	40	20	20	403

Table 2: Distribution of independent variables in the sample

	Mean			Median			n
	Women	Men	Gap	Women	Men	Gap	
Age (in years)	45.3	47.4	-2.1	43	46	3	1256
Language: Italian	26.8	28.2	-2.0	0	0	0	1256
Edu: Middle School or below	14.9	15.0	-0.1	0	0	0	1256
Edu: Vocational	24.6	39.3	-14.7	0	0	0	1256
Edu: High School	29.6	26.7	2.9	0	0	0	1256
Edu: University	30.9	18.9	12.0	0	0	0	1256
Children per household	1.0	1.0	0.0	1	1	0	1256
Flat size (in m ²)	106.8	105.5	1.3	100	100	0	1256
Garden (in %)	58.2	60.8	2.6	100	100	0	1256
Remote work 2020 (in %)	30.4	30.2	0.2	0	0	0	1256
Labor Market Participation 2019 (in%)	75.7	81.8	-6.1	100	100	0	1256
Full-Time Employed 2019 (in%)	45.7	91.7	-46.0	0	100	-100	1256
Weekly Working Hours 2019	23.8	33.4	-9.6	27.0	40.0	-13.0	1256
Weekly Working Hours 2020	23.4	31.9	-8.5	23.0	39.0	-16.0	1256
Weekly Working Hours 2021	22.5	29.6	-7.1	23.0	38.0	-15.0	1256
Hourly income 2019	15.0	18.3	-3.3	10.8	17.7	-6.9	514
Hourly income 2020	14.3	17.9	-3.6	11.0	17.7	-6.7	512
Hourly income 2021	17.7	18.9	-1.2	13.6	17.7	-4.1	296
Yearly Income 2019 (thous. €)	20.5	37.5	-17.0	21.5	41.5	-20.0	1256
Yearly Income 2020 (thous. €)	19.2	34.4	-15.2	21.5	27.0	-6.5	1256
Yearly Income 2021 (thous. €)	21.7	36.7	-15.0	21.5	34.2	-12.7	736

Moreover, figure 2 depicts the average gender care gap relative to the mean considering domestic housework and childcare, as well as the gendered gaps in working hours and income throughout the three periods of study. In the graph, one can observe that over

Figure 2: Gender Gap in Employment and Unpaid Care: Differences in domestic housework, childcare, income and working hours between women and men (expressed in percentage differences relative to mean)



the years 2019, 2020 and 2021 women carried out between 64%, 54% and 60% more domestic housework than their male partners as well as 36%, 29% and 54% more childcare respectively. Similarly, the graph shows that women work about 25% fewer hours per week and earn about 45% less compared to men.

3 Empirical Strategy and Results

In a first step, we aim to investigate the determinants of perceived domestic housework and childcare for the three time periods (2019-2021). This will be done by conducting a regression analysis of several potential explanatory variables on the reported distribution of domestic work and childcare. The aim of this first analysis is to assess the impact of factors such as gender, time availability, income, remote work or education on the division of unpaid care work within households. In a second step, we will assess how changes in working hours induced by the Covid-19 pandemic changed the percentage of domestic housework and childcare reported by respondents. This second part allows us to examine the extent to which an exogenous change in paid working hours changes the

reported percentage of domestic housework or childcare.

In order to address the first part, we estimate the following regression

$$y_i^t = \beta_0 + \beta_1 g_i + \beta_2 h_i^t + \beta_3 s_i^t + \kappa X_i + \epsilon_i, \quad (1)$$

where y_i^t represents person's i reported share of conducted domestic housework or childcare for period t . β_0 represents a constant. g_i represents the gender of participant i . h_i^t denotes the number of paid weekly hours worked of person i in year t and s_i^t represents person's i yearly income in t . The matrix X_i comprises additional individual characteristics including, among others, age, language, and education. We also include year dummies as well as dummies for municipalities and the individual's work situation.

We examine the reported percentage of domestic housework and childcare for the year 2019 (before the Covid-19 pandemic), 2020 (during the acute phase of the pandemic) and 2021 (when life returned to normalcy). Table 3 reports the estimation results. Column 1 to 3 report the results for domestic housework and column 4 to 6 present the results for childcare. We find a positive and statistically significant effect for female participants. On average, women report to perform 33 percentage points more domestic housework and 17 percentage points more childcare than men. We find the expected negative relationship between the reported percentage of domestic housework and childcare and working hours and income. More working hours and higher income are negatively associated with the reported percentage of domestic housework and childcare. Higher working hours of the partner are associated with more domestic housework work for the participant.

Having identified the gender care gap and its determinants for the region of South Tyrol, we will now examine the effect of an exogenous change in working hours on the reported percentage of conducted domestic housework and childcare.

Table 3

	Perceived Domestic Housework (in %)			Perceived Childcare (in %)		
	(1)	(2)	(3)	(4)	(5)	(6)
Gender	33.26*** (0.97)	34.96*** (0.93)	34.81*** (0.92)	17.00*** (1.90)	18.58*** (1.83)	19.55*** (0.92)
Weekly Working Hours	-0.10*** (0.03)	-0.17*** (0.03)		-0.16*** (0.06)	-0.24*** (0.05)	
Weekly Working Hours (Partner, 2019)	0.12*** (0.03)	0.13*** (0.03)		0.05 (0.06)	0.07 (0.06)	
Income (in thousand)	-0.13*** (0.02)			-0.19*** (0.04)		
Income (Partner, 2019, in thousand)	0.06*** (0.02)			0.05 (0.03)		
Hourly Wage		-0.05 (0.05)			-0.28*** (0.07)	
Hourly Wage (Partner, 2019)		0.05* (0.03)			0.04 (0.06)	
Difference Hourly Wage (2019)			-0.10*** (0.03)			-0.16*** (0.03)
Difference Working Hours (2019)			-0.14*** (0.02)			-0.12*** (0.02)
Children per household	0.03 (0.43)	0.05 (0.44)	0.08 (0.43)	-0.76 (0.90)	-0.67 (0.90)	-0.44 (0.43)
Help with childcare	-0.97 (1.04)	-0.90 (1.04)	-0.89 (1.04)	-2.96** (1.24)	-2.88** (1.24)	-2.80*** (1.04)
Flat size	0.02* (0.01)	0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Garden	-2.32*** (0.89)	-2.38*** (0.90)	-2.41*** (0.90)	1.14 (1.45)	1.11 (1.47)	0.87 (0.90)
Age	-0.03 (0.05)	-0.04 (0.05)	-0.03 (0.05)	-0.18* (0.09)	-0.19** (0.09)	-0.24*** (0.05)
Language: Italian	2.82** (1.19)	2.64** (1.22)	2.73** (1.21)	-2.39 (2.00)	-2.90 (2.02)	-2.23* (1.21)
Edu: Vocational	-0.85 (1.41)	-1.27 (1.41)	-1.38 (1.41)	0.60 (2.53)	0.02 (2.53)	-0.03 (1.41)
Edu: High School	0.68 (1.47)	-0.24 (1.48)	-0.47 (1.47)	2.00 (2.54)	1.37 (2.53)	0.07 (1.47)
Edu: University	-2.60 (1.61)	-4.13** (1.61)	-4.36*** (1.58)	1.26 (2.67)	0.04 (2.64)	-1.85 (1.58)
Remote work	-1.05 (0.88)	-1.40 (0.90)	-1.24 (0.88)	-2.57* (1.35)	-2.54* (1.36)	-2.50*** (0.88)
Year: 2020	3.95*** (0.80)	4.12*** (0.81)	4.32*** (0.81)	6.37*** (1.29)	6.51*** (1.29)	6.93*** (0.81)
Year: 2021	0.93 (0.96)	1.03 (0.96)	1.05 (0.96)	-2.84* (1.49)	-2.70* (1.49)	-2.64*** (0.96)
Municipalities Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Work Situation Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,087	3,087	3,087	1,710	1,710	1,710
R ²	0.54	0.53	0.53	0.35	0.35	0.34

We report robust standard errors.

*p<0.1; **p<0.05; ***p<0.01

In order to address the second part, we estimate the following regression

$$\Delta y_i^t = \beta_0 + \beta_1 g_i + \beta_2 h_i^t + \beta_3 \Delta h_i^t + \beta_4 \Delta s_i^t + \kappa X_i + \epsilon_i, \quad (2)$$

where Δy_i^t represents the change of person's i reported share of conducted domestic housework or childcare for the period t with respect to period $t - 1$. We define $\Delta y_i^t = y_i^t - y_i^{t-1}$. β_0 represents a constant. g_i represents the gender of participants i . h_i^t denotes the number of weekly hours worked of person i in year t and s_i^t represents person's i income for the year t . Δh_i^t denotes the change in number of weekly hours worked of person i in year t with respect to $t - 1$. The matrix X_i includes additional individual characteristics including age, number of children per household, dummy indicating if a household has help with childcare or was eligible to a public emergency child care program, a dummy indicating if the respondent was working from home, language, and age. We again use dummies for municipalities and individual's work situation.

Equation 2 might suffer from endogeneity issue. While changes in working hours can influence the amount of domestic housework and childcare, it could also be the case that an increase of domestic housework and childcare because of Covid-19 leads to a decrease in working hours. This issue requires to resort to an IV approach. We use a two stage approach. In the first stage, we use different instruments. We know for each person if they lost their job because of Covid-19, were transferred to the Covid-19 wage compensation program or had to change job because of Covid-19. We will estimate the change in paid working hours because of these factors and interpret it as an exogenous variation in paid working hours.

$$\Delta h_i^t = \beta_0 + \beta_1 \text{lost job}_i + \beta_2 \text{work compensation scheme}_i + \beta_3 \text{changed job}_i + \epsilon_i, \quad (3)$$

We estimate 3 and plug the fitted values \hat{h}_i^t into Equation 2. This leads us to the following

equation:

$$\Delta y_i^t = \beta_0 + \beta_1 g_i + \beta_2 h_i^t + \beta_3 \Delta \hat{h}_i^t + \beta_4 \Delta \hat{s}_i^t + \kappa X_i + \epsilon_i, \quad (4)$$

We report the first stage estimates of Equation 3 in Table 5 in the Appendix. Survey participants who lost their job because of Covid-19 reported on average a 19 pp stronger reduction in working hours compared to others. Persons sent to the wage compensation program also experienced a strong decrease in working hours. Individuals that changed their job because of Covid-19 experienced, if anything, a slight increase in paid working hours. Overall, the first stage fits the data well. The F-Statistic of the first stage is above 10 and the three variables, i.e. job loss, wage compensation scheme, and job change, explain 16% of the variation in paid working hours.

Table 4 presents the estimation results of Equation 4. Column 1 and 4 report the main specification. We find that an exogenous increase in working hours leads to a decrease in the amount of domestic housework and childcare provided. The increase in domestic housework and childcare was stronger for respondents with more paid working hours in 2019. Respondents with higher paid working hours in 2019 experienced a stronger increase in domestic housework. Moreover, an increase in the difference of paid working hours between the respondent and the partner decreased the amount of domestic housework provided. We also find that respondents were differently affected by gender: women experienced on average a relative decrease of perceived domestic housework compared to men, i.e. the female share of provided domestic housework decreases between 2019 and 2020. We find no statistical significant difference of gender for childcare. Similarly, the amount of domestic housework increases relatively more for the main earner of the household. Again, we find no effect for the share of childcare provided.

In column 2-4 and 5-8 of Table 4, we interact the change in paid working hours with gender and main earner. For better interpretation, we visualize the results in Figure 3.

Table 4: Effect of Labor Supply on the Provision of Unpaid Care Work

	Δ Domestic Housework				Δ Childcare			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Δ Working Hours 2019/2020	-0.822*	-2.112**	-0.660*	1.644	-1.156**	-1.668**	-1.205**	-6.557
Δ Working Hours 2019/2020 × Gender: Female	(0.472)	(0.873)	(0.390)	(2.291)	(0.538)	(0.834)	(0.485)	(4.014)
Δ Working Hours 2019/2020 × Main Earner		1.970***		-2.639		0.786		6.005
Gender: Female × Main Earner		(0.705)		(2.480)		(0.707)		(3.968)
Δ Working Hours 2019/2020 × Gender: Female Main Earner			-0.901	-5.511*			0.398	6.497
			(0.792)	(2.943)			(0.719)	(4.016)
				1.909**				-2.388
				(0.947)				(1.786)
				13.74**				-22.24
				(5.670)				(14.71)
Weekly Working Hours (2019)	0.00677**	0.00579*	0.00677**	-0.000654	0.00926*	0.00953*	0.00945*	0.0252
	(0.00294)	(0.00328)	(0.00294)	(0.00517)	(0.00518)	(0.00543)	(0.00527)	(0.0153)
Weekly Working Hours Difference with Partner (2019)	-0.00310*	-0.00311*	-0.00316*	-0.000986	-0.00659*	-0.00696*	-0.00658*	-0.0162*
	(0.00159)	(0.00174)	(0.00164)	(0.00276)	(0.00388)	(0.00396)	(0.00384)	(0.00837)
Gender: Female	-0.112**	-0.0731	-0.102*	-0.785**	-0.154	-0.149	-0.148	0.603
	(0.0531)	(0.0566)	(0.0537)	(0.324)	(0.0971)	(0.0985)	(0.0946)	(0.502)
Main Earner	0.184**	0.166**	0.163*	-0.621*	0.157	0.150	0.170	0.952*
	(0.0783)	(0.0807)	(0.0886)	(0.364)	(0.116)	(0.121)	(0.120)	(0.518)
Children per household	0.0162	0.00993	0.0114	0.0482	0.0249	0.0218	0.0238	0.0267
	(0.0286)	(0.0293)	(0.0284)	(0.0387)	(0.0411)	(0.0422)	(0.0411)	(0.0625)
Help with childcare	-0.0249	-0.0337	-0.0279	0.0464	0.0570	0.0518	0.0560	-0.0526
	(0.0549)	(0.0558)	(0.0547)	(0.0832)	(0.0620)	(0.0626)	(0.0617)	(0.113)
Flat size	0.000233	0.000289	0.000264	0.000224	0.00104	0.00109	0.00104	0.00119
	(0.000562)	(0.000541)	(0.000556)	(0.000754)	(0.00101)	(0.00101)	(0.00102)	(0.00140)
Garden	0.00263	-0.00752	-0.00694	-0.00733	0.0860	0.0904*	0.0848	0.0431
	(0.0531)	(0.0532)	(0.0561)	(0.0726)	(0.0538)	(0.0544)	(0.0536)	(0.107)
Age	-0.000884	-0.00172	-0.000669	0.000533	-0.00188	-0.00329	-0.00164	-0.0105
	(0.00347)	(0.00351)	(0.00359)	(0.00381)	(0.00518)	(0.00527)	(0.00514)	(0.00858)
Language: Italian	0.126*	0.108	0.123*	0.140*	-0.0324	-0.0337	-0.0310	-0.0729
	(0.0692)	(0.0689)	(0.0717)	(0.0837)	(0.0761)	(0.0777)	(0.0763)	(0.138)
Edu: Vocational	0.00349	0.0586	0.0135	0.140	-0.0999	-0.0716	-0.111	-0.201
	(0.0532)	(0.0626)	(0.0564)	(0.0958)	(0.0706)	(0.0774)	(0.0719)	(0.131)
Edu: High School	0.0725	0.131	0.0837	0.155	0.149	0.199	0.139	0.275
	(0.0804)	(0.0815)	(0.0794)	(0.102)	(0.203)	(0.200)	(0.200)	(0.234)
Edu: University	0.0478	0.00903	0.0937	0.0107	0.0406	-0.000536	-0.0664	
	(0.0582)	(0.0663)	(0.0611)	(0.0976)	(0.0741)	(0.0804)	(0.0742)	(0.130)
Difference Hourly Wage	0.00152	0.00160	0.00178	-0.000503	0.000773	0.00132	0.000538	0.00785
	(0.00149)	(0.00166)	(0.00156)	(0.00230)	(0.00245)	(0.00279)	(0.00255)	(0.00741)
Remote work	0.0336	0.0405	0.0371	0.0265	0.112*	0.113*	0.112*	0.157*
	(0.0465)	(0.0477)	(0.0475)	(0.0670)	(0.0594)	(0.0601)	(0.0595)	(0.0907)
Income 2019 (in thousand)	7.92e-07	1.43e-06	1.21e-06	6.70e-07	-1.97e-08	6.48e-08	-1.01e-07	1.15e-06
	(1.28e-06)	(1.42e-06)	(1.43e-06)	(2.07e-06)	(1.60e-06)	(1.66e-06)	(1.61e-06)	(2.51e-06)
Δ Income 2019/2020 (in thousand)	4.51e-06	7.38e-06	7.05e-06	6.42e-06	1.04e-05	1.29e-05	7.96e-06	1.86e-05
	(5.33e-06)	(6.56e-06)	(6.41e-06)	(9.52e-06)	(1.02e-05)	(1.13e-05)	(1.13e-05)	(1.94e-05)
Municipalities Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Work Situation Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,075	1,075	1,075	1,075	545	545	545	545

Robust standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

Figure 3 plots the marginal effects of changes in paid working hours on the change in domestic housework and the change in childcare responsibility. The two figures in the top row show the marginal effect of change in paid working hours on domestic housework and childcare separately for men and women. They show highly different effects on domestic housework and child care: In the case of domestic housework, women do not react, i.e. a change in working hours does not change their share in domestic housework. Men on the other hand, react strongly. An increase in paid working hours leads to a decrease in the amount of housework provided. In the case of childcare, on the other hand, we find that an increase of paid working hours leads to a decrease in childcare for both women and men. The elasticity appears to be slightly stronger for men than for women, even though no statistically significant different effect can be observed.

The graphs in the second row show the marginal effects for the main earner and the second earner. The response of the main earner is not statistically significantly different from the response of the second earner. However, if we interact main earner with gender and compare the marginal effect of men and women within the main earner group, we find strong differences between women and men. These marginal effects are shown in the last row of Figure 3. First, look at the left graph in the last row. This graph shows the marginal effects of changes in paid working hours on domestic housework for main earners, separately for women and men. We document strong gender differences. While men reduce the amount of domestic housework when the number of paid working hours increases, women who are the main earners do the opposite: they increase the amount of domestic housework when the number of paid hours increases. This result is in line with the findings in Bertrand, Kamenica and Pan (2013). Bertrand, Kamenica and Pan (2013) shows that main-earner women increase the amount of time they spend on domestic housework as their income increases. We now move to the graph on the right in the last row. This graph shows the same marginal effects for childcare. Here we find the exact opposite. While men show no response to changes in paid working hours,

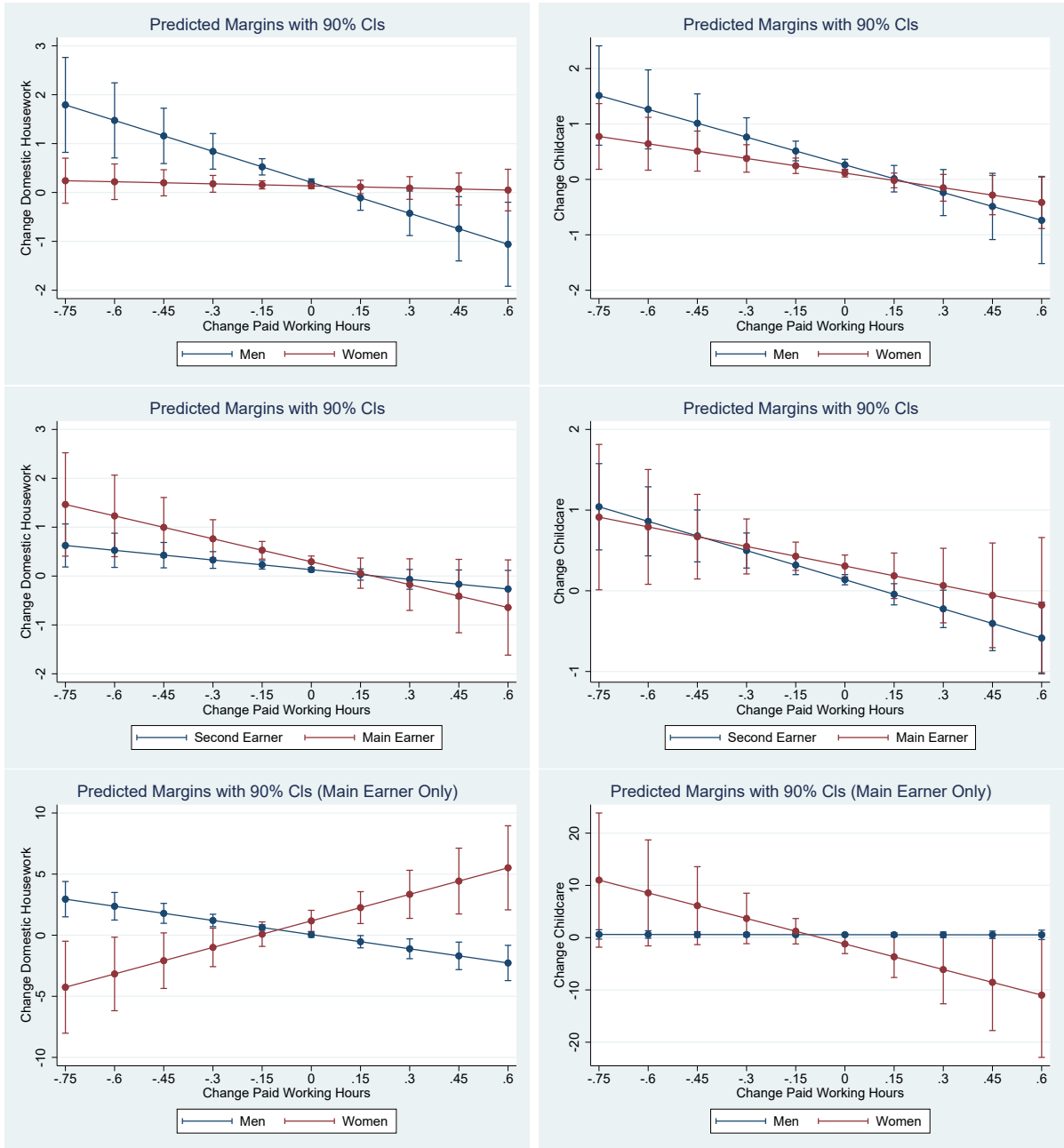


Figure 3: Difference in Marginal Effects

women reduce the amount of childcare provided as the number of paid hours increases. In other words, we find that the response of main-earner women is exactly the opposite when it comes to domestic housework and childcare. This result is consistent with the different separability of the tasks. While domestic work is easily separable, i.e. one can do the laundry before leaving the house and clean the kitchen late at night before going to bed, childcare is much less divisible. Thus, while an increase in paid working hours is still compatible with “second shifts” in domestic housework, these second shifts are no longer possible for childcare.

4 Conclusion

In this paper, we examine the drivers that determine intra-household responsibility gaps in unpaid care work. Using an extensive survey conducted in South Tyrol, a Northern Italian region, in 2021 and 2022, we examine the impact of an exogenous change in paid working hours on the responsibility for domestic housework and childcare. By using data on individuals’ experiences of job loss or interruption due to Covid-19, we isolate the exogenous variation in paid working hours caused by the pandemic. This instrumental variable approach allows us to address endogeneity and reverse causality problems.

Our analysis reveals a negative correlation between changes in paid working hours and the amount of domestic housework and childcare that individuals provide. However, in response to fluctuations in paid working time, men show a remarkable responsiveness to the provision of domestic housework, while women appear to exhibit inelastic behaviour with minimal changes in their domestic housework and childcare responsibility. Men’s domestic housework participation is therefore conditional on additional available time, while women perform “second shifts” between domestic housework and formal employment (Bertrand, 2020; Hochschild and Machung, 1989). In fact, the gendered effect is significantly stronger for what concerns domestic housework, because the tasks and duties

can be performed flexibly on weekends and after-work-hours while childcare is considerably less flexible.

Moreover, when looking at the effect of income on unpaid care work responsibility, we find a negative correlation showing that higher-earning individuals perform less unpaid care work. However, opposite to paid working hours, we find a stronger responsiveness of women. This finding hints to the theory of care chains according to which unpaid labor is externalized by upper-income women towards lower-income women or machines (Hochschild, 2015; Chatot, Landour and Pailhé, 2023). In this case, the mental and organizational responsibility for care remains however among women - which might explain why men do not significantly react to changes in income. Finally, we observe a positive correlation among female main earners who assume more domestic housework responsibility with increasing paid working time. This finding is consistent with earlier research suggesting that women with higher earnings than their male partners tend to perform more unpaid care work at home, in order to compensate nonconforming gender behavior in response to societal gender role expectations (Bertrand, Kamenica and Pan, 2013).

In conclusion, our study reveals that individual's employment participation heterogeneously impacts women's and men's involvement in domestic housework and childcare, as societal gender roles significantly steer the distribution of unpaid care work responsibilities in heterosexual households.

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A Data

Table 5: First-Stage Estimations

VARIABLES	(1) First-Stage
Job Loss	-0.189*** (0.0653)
Job Interruption	-0.111*** (0.0211)
Job Change	0.0348 (0.0446)
Gender: Female	0.0156 (0.0165)
Garden	0.0120 (0.0153)
Language: Italian	0.00897 (0.0213)
Children per household	0.00352 (0.00811)
Flat size	0.000191 (0.000138)
Edu: Vocational	0.0161 (0.0174)
Edu: High School	0.00218 (0.0176)
Edu: University	0.0283 (0.0212)
Help with childcare	0.00717 (0.0182)
Main Earner	-0.00480 (0.0167)
Difference Hourly Wage with Partner (2019)	0.000902* (0.000513)
Difference Weekly Working Hours with Partner (2019)	-0.000304 (0.000504)
Age	0.000163 (0.000722)
Remote work	-0.00293 (0.0151)
Weekly Working Hours (2019)	0.000710 (0.00133)
Income 2019 (in thousand)	9.31e-07*** (3.33e-07)
Δ Income 2019/2020 (in thousand)	8.72e-06*** (2.52e-06)
Observations	1,075
F-Statistic	11.34
Robust standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	