Unpaid work and gender gap patterns in Colombia

Vanessa Ospina-Cartagena[♣]
Colombian National Planning Department

Andrés García-Suaza[♦]
School of economics and management, Universidad EIA

Abstract

Gender inequality is much more than wage gaps. Indeed, one interesting case is how individuals allocate time among different activities such as paid work, unpaid work and domestic work. This paper aims to quantify gender inequality in the time use in unpaid care and home activities and to investigate the main drivers of gender gaps in Colombia using the National Time Use Survey. Our results suggest that the gender gap in unpaid work depends on factors such as educational level, paid employment status, and family composition. Counterfactual exercises comparing individuals under different family contexts suggest that the gender gap varies importantly with the presence of children, marital status and individual's participation in the generation of household income.

JEL Codes: J16, J22, D13.
Keywords: unpaid work, care economy, time use, gender gaps.

[♣] E-mail: ciospina@dnp.gov.co.

[♦] E-mail: andres.garcia58@eia.edu.co. ORCID: 0000-0002-9617-6873.

We thank the comments of attendees at the seminars of the Economic Studies Department (National Planning Department) and the Workshop on Care Economy 2019, and comments and suggestions by Jesus Otero. Errors, opinions and omissions are ours and do not compromise the institutions.

1. Introduction

Gender inequality has a multidimensional nature that requires to be analyzed from different disciplines. From an economic perspective, although not exclusively, a great deal of effort has been devoted to the understanding of gender gaps in labor market outcomes such as labor participation and wages (see Mincer, 1962; Ribero and Meza 1997; Jaumotte, 2003; Katz, 1999; Altonji and Blank, 1999; Arulampalam et al., 2007, among others)[1]. Gender gaps are the consequence of a complex decision-making process taking place into the households that involves the time use in paid and unpaid activities and the bargaining between the household members (Chiappori, 1992; Agarwal, 1997, Beblo, 2001; Rapoport et al., 2011;Antman, 2014; Campaña et. al. 2018b).

In this context, it has been identified that the low participation of women in the labor market is related to the higher propensity of using their time in home activities such as domestic and care work (e.g., childcare, household food supply, household production activities, and so on). These activities are unpaid in general. Time use allocation is important to determine consumption, leisure, and savings of the household as the time dedicated to care and domestic unpaid tasks substitute the market acquisition of these goods and services. Therefore, the fact that women dedicate more time to these activities generates differences in labor market attachment and the opportunity cost of accepting a job. As a result, women have lower labor supply, which translates into a lower possibility of generating their own income.

In this sense, to understand the sources of gender inequality it is relevant to study the determinants of the time use in unpaid activities. This paper studies the case of Colombia, using data from the National Survey on the Time Use (ENUT for its acronym in Spanish) for 2016-2017. Following the National Administrative Department of Statistics (DANE), we define unpaid work as activities carried out without remuneration, which means that they are not included in the System of National Accounts (SNA), whose purpose is the production of services for the final consumption inside the households. Colombia is an interesting case since, in addition to the pronounced gender gaps reported in household surveys, there are other important aspects that make urgent to recognize the patterns in unpaid work in the policy-making design. The first salient feature has to do with the population aging trend. In the case of Colombia, DANE estimates that the population over 60 years of age will increase from 13.2% in 2018 to 24.7% in 2050 and 31.9% in 2070, which will raise the demand for care activities. Secondly, the high and persistent informality rate affects the coverage of social security mechanisms and leads old population to depend on the care and income of third parties. Finally, considering that households are typically self-provider of care services, women are exposed to high vulnerability as they traditionally are performing those duties.

Unpaid activities have been framed under the concept of care economy. However, care economy is a broader concept that covers both paid and unpaid activities associated with housework and care. An important challenge in this regard is how unpaid work can

[1] In this line, there are studies assessing the low participation of women in areas of science and technology (National Research Council, 2001; Ceci and Williams, 2007; Smith, 2011), CEO positions (Bertrand and Hallock, 2001) or political participation (Verba et. al., 1997).

be measured as these activities are not traded in the market. Since 1970, several countries have developed methodological approaches to quantify the magnitude of these activities (Aguirre and Ferrari, 2014). For instance, in Latin America and the Caribbean, pioneer exercises took place in Cuba for 1985, 1988, and 1997, Nicaragua for 1998, and Mexico for 1996, 1998, 2002[2]. From there, different countries have built satellite accounts within the framework of the SNA to measure the contribution of the care economy to the GDP. In the case of Colombia, Urdinola (1998) estimates that the care economy in Colombia was 17.2% of GDP[3]. Later, DANE estimates this contribution in 20.6% of GDP for 2017 (which is a magnitude comparable to the main economic industries of the Colombian economy) and reports that women contribute 76.7% of the total unpaid work (DANE, 2019). These values are within the range of contributions reported by other countries in the region, e.g., Mexico (23.3% in 2017), Peru (20.4% in 2010), Uruguay (22.9% in 2013), among others (see CEPAL, 2016).

The presence of gender gaps is not a particularity of developing countries, in fact, it is a global phenomenon. Estimates by ILO (2018) suggest that there is an unequal distribution of unpaid work (i.e., domestic work and unpaid care activities) among household members. In particular, women spend on average 3 times more time in unpaid activities, while men spend 2 times more on paid activities. This difference is particularly striking in the Arab countries, where women allocate 5 times more of their daily time to domestic and care work activities. In Latin American countries, the differences are also important since women work 1.7 times more than men in unpaid activities and men work for pay 1.5 times respect to women. Further discussion can be found in Amarante and Rosel (2017), Campaña et. al. (2018) and Rubiano-Matulevich and Viollaz (2019).

From the economic theory viewpoint, the interest of studying time use allocation comes from the seminal work by Becker (1965), who establishes the fundamentals of the so-called New Home Economics. According to this theory households are consumers, but also use the time as an input to produce goods and services (see also Gronau 1997; and Malathy, 1994, for further discussion). Hence, decisions regarding the time use determine the labor market status[4] of the members and such decisions response to relative prices of goods and labor (relative wages). As a consequence, the differences in the time allocation between men and women would be explained by differences in the relative marginal productivity. However, subsequent literature recognizes that household decisions, including those related to time use, crucially depend on non-economic factors, especially on the family composition (Folbre, 1986; Ilahi, 2000, Daunfeldt and Hellström, 2007).

Folbre (1986) points out the difficulties of studying household decisions in light of conventional economic theory, emphasizing the fact that household decisions do not follow the rationality of firm's cost minimization. Therefore, inequalities among household members are not only caused by differences in marginal productivities but are also related

[2] Governments of the region commit to implement these instruments at the CEPAL Regional Conference for Women in Quito in 2007.

[3] The Law 1413, 2010, created the time use surveys and the accounting of the care economy in the NAS in Colombia. It should be noted that Colombia, followed by Peru, is one of the two countries in Latin America to establish by law the periodicity of time use surveys.

[4]

to factors such as the gender and age hierarchies in the household decision-making. Hence, Folbre (1986) concludes that bargaining models are an important tool for the study of this kind of collective decisions. Along the same lines, Folbre (2004) argues that the specialization of women in unpaid activities does not obey to decision-making processes in competitive markets, conversely, it involves coordination problems, social norms, and institutional aspects.

There is a growing literature studying to what extent economic and demographic factors determine the gender gaps in both participation and hours devoted to unpaid activities (see e.g. Bell and Hart, 1999; Bianchi, 2001; Sousa-Poza et. al., 2001; Sayer, 2005; Folbre, 2006; Daunfeldt and Hellström, 2007; García-Mainar et. al., 2011; Lise and Yamada, 2018; Amarante and Rosel, 2017; and Rubiano-Matulevich and Viollaz, 2019). These studies, which the most consider data from time use surveys, show that differences in the participation of men and women in unpaid work are persistent and that family composition, household appliances, relative wages play a major role to explain gender gaps.

Sayer (2005) examines the inequality patterns in unpaid work in the U.S. and shows that the women's working hours in paid work have increased over time, while that decreased for men. However, the increase in women's paid hours coincides with a reduction in leisure time, which creates a sort of new leisure gap. In the same line, Gauthier et al. (2004) find that women's leisure has been importantly affected by the increasing demand for childcare. However, Cohen (1998) and Robinson and Godbey, (2010) state that time allocation of couples with young children, technological progress in home appliances, and the higher demand for food outside home, have implied more equal participation in unpaid work.

In the case of developing countries, Peña and Uribe (2013) study the differences in the time use between men and women for several countries in Latin America. The results provide evidence on three facts: first, women work more hours in total (paid and unpaid) than men; second, this difference is mainly due to unpaid activities; and third, the total number of working hours is higher among rural women compared with urban women. Duque (2015), using the ENUT 2012-2013 for Colombia, studies the determinants of unpaid work and concludes that socioeconomic factors are essential to understand the use of time in unpaid activities, especially the differences between men and women.

Our paper contributes to the previous literature in at least two dimensions. First, we present a detailed description of the stylized facts associated with the gender gap in unpaid work in Colombia. Second, and more importantly, we assess the impact of a broad set of factors on the time use in unpaid work using regression models for limited dependent variables. In the latter, our emphasis is on the role of family composition and labor market status as factors that could potentially amplify gender differences. In this sense, this paper is close to Bell et al. (1999), Sousa-Poza et. al. (2001), Fernández and Sevilla (2006), Daunfeldt and Hellström (2007), among others. Our results suggest that the presence of children and marital status increase the time use in unpaid work. While the availability of household appliances, domestic service, and the contribution to the household income reduce the gap.

In terms of the econometric modeling strategy that we follow, it is worth highlighting several novel issues. We include in the analysis an index measuring the level of sexism, which is built using information on the perception about gender stereotypes. This variable turns out to have a relatively small, but statistically significant, positive effect on gender gap. The adoption of a limited dependent variable framework allows us to perform inference on both the time spent on unpaid activities and the propensity to participate. This is important because factors such as the presence of children not only increases the demand for care activities, but also the probability that additional members of the household devote time to these tasks. The first effect can be interpreted as an intensive margin, while the second one refers to an extensive margin. Estimation of these margins reveals that the presence of a child increases the gender gap in unpaid work time in 19.5 percentage points (p.p.), but reduces the gap in terms of probability of participating in 9.6 p.p. This implies that a greater proportion of men are carrying out activities at home, but women considerably increase the supply (number of hours), resulting in an increase in the gap. Similarly, when studying the effect of the labor market status (employed vs unemployed), a drop of 17 p.p. is observed in the average time, while the gap in the probability of participating in unpaid work increases by 11.3 p.p. The latter indicates that the participation of women in the generation of household income may reduce the gap, but not as a result of an equitable distribution of domestic work, but maybe because the household obtains these services through the hiring of domestic service.

Understanding the time allocation in unpaid work is important from the policy-making point of view since it allows us to identify the factors equalizing employment opportunities and that rebound on the economic and social vulnerability of women and households. This opens a discussion on various edges of the social policy. For instance, this stresses the need to design a care system that supports the household demand and facilitates participation in paid work as well. Besides, it makes important thinking labor market equality beyond labor policy itself, and so considering flexible job schemes to facilitate the family-work balance.

The rest of the paper is organized as follows. Section 2 describes the data and presents some stylized facts. Section 3 briefly introduces the methodology and discusses the main results. Finally, section 4 contains the concluding remarks.

2. Unpaid work and gender gap in Colombia: An overview of the available data

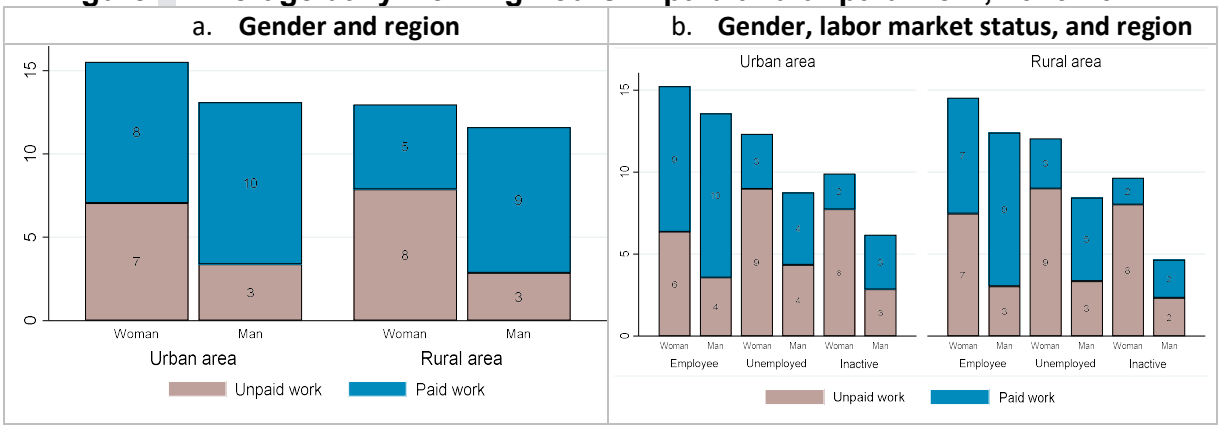
The absence of market prices for domestic and care activities makes difficult to quantify the magnitude of care unpaid work. Nevertheless, the implementation of time use surveys has become popular as an indirect measurement instrument. In the case of Colombia, the National Time Use Survey, ENUT, was designed to characterize the time allocation of individuals in unpaid activities and to estimate the economic value under the SNAs. ENUT has national coverage[5] and allows to make valid statistical analysis at the regional level (DANE, 2018). ENUT is a cross-sectional survey containing a wide range of questions about the activities of households' members in a 24-hours reference period. We use the latest available version of the survey for the period 2016-2017, which also

[5] This excludes some recent formed states located in the south of the country, which are known as the "new states".

collects information regarding the perception of individuals about time allocation balances and gender stereotypes, which is usually missing in similar studies.

There is no official definition of the activities being part of the care economy and so that for unpaid work. However, DANE measures unpaid work based on related activities that are not included in the SNA. This definition[6] encompasses 42 activities, that can be mapped in ENUT, summarized in four branches: i) unpaid domestic service activities, ii) unpaid care activities, iii) activities for other households and volunteer service, and iv) transfers related to unpaid care and domestic work (UCDW). The descriptive analysis reveals that in Colombia around 30 million people perform unpaid work, of which 18 million are women. It is also observed that women, in both urban and rural areas, have longer working days and use more time in unpaid work (see **¡Error! No se encuentra el origen de la referencia.**). In particular, men spend around 26% of their working day in unpaid activities, while women almost 50%, in urban areas. In turn, rural women work around 13 hours a day and 61% corresponds to unpaid work, while rural men work around 12 hours where 25% are unpaid. This result is consistent with the fact that the higher female labor participation in paid labor market has involved lower leisure time. **¡Error! No se encuentra el origen de la referencia.** shows that time spent in unpaid activities is largely determined by labor market status, but the magnitude varies by gender. While women significantly increase the time when they are unemployed or inactive, especially in urban areas, in the case of men the relation is weaker.

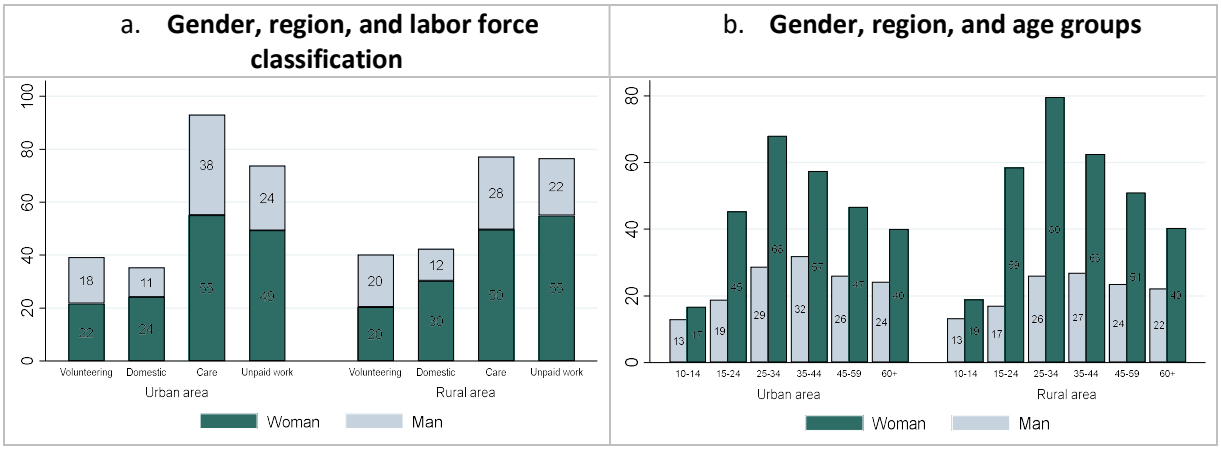
Figure 1. Average daily working hours in paid and unpaid work, 2016-2017.



Source: Author's estimation based on ENUT 2016-2017.
Note: The number of working hours is measure taking a typical weekday as reference (Monday to Friday).

[6] It is important to clarify that this definition excludes several unpaid activities that are already part of the SNA, mainly those related to household production and self-consumption. For example, unpaid time spent in agricultural activities, hauling water, collecting firewood, or preparing preserves, cheeses, or sausages inside home are excluded activities. This makes sense in studies that want to know the value of care activities in the SNA; however, in studies outside the SNA, excluding this type of activities underestimates the real hours of unpaid work performed by women and men in households, especially in rural areas, where there is a higher incidence of excluded activities .

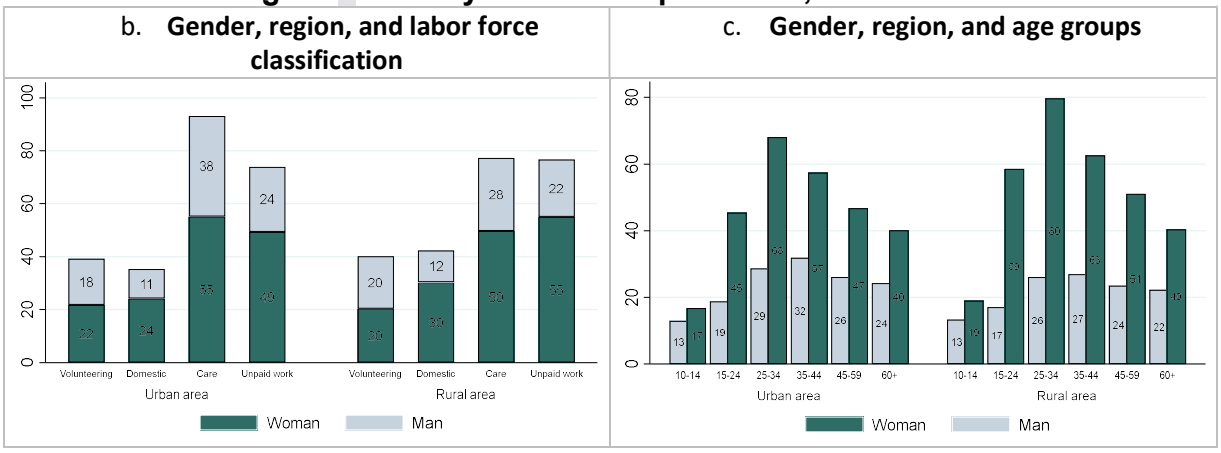
On the other hand, when unpaid work is decomposed in different types of activities (volunteering, domestic, care, and other unpaid work), there is evidence of a significant gender role division at home (see Figure 2. Weekly hours **in unpaid work, 2016-1017.**



Source: Author's estimation based on ENUT 2016-2017.

). Women perform most of the weekly hours of domestic work and care, while the men spend part of their time doing home care, especially passive care[7], and volunteering outside of the household. Another salient fact is that men who perform unpaid work do not usually carry out home duties (e.g., washing, ironing, cooking, among others). Additionally, women in the early working age (between 25 and 34 years old) are mainly devoted to unpaid work, especially in rural areas. This makes relevant to consider regional urban-rural differences in labor market conditions for women as a factor explaining this result.

Figure 2. Weekly hours in unpaid work, 2016-1017.



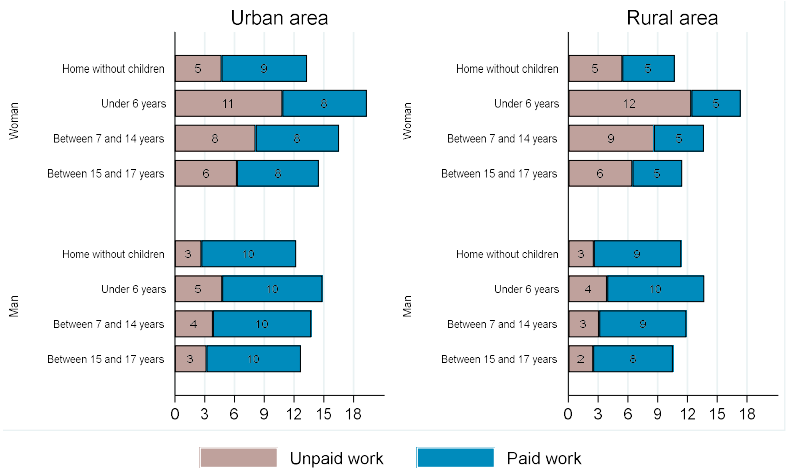
Source: Author's estimation based on ENUT 2016-2017.

[7] Passive care refers to being aware of someone, not necessarily in person.

Finally, our finding supports the idea that family composition is a crucial determinant of time use in unpaid work. Figure 1. ***Daily hours in unpaid work, children, gender, and region*** presents time allocation in paid and unpaid activities according to the presence of children. This reveals that women adjust their time, reducing the supply of paid hours, especially when children are under 6 years old. In the case of men, there is a slight increase in the hours of unpaid work in households with children under 14 years old. Regional patterns in this dimension of the analysis seem to be roughly similar.

In addition to the measurement of time allocation in paid and unpaid work, ENUT allows capturing the perception of individuals about the division of home tasks among household members. This provides evidence of the women's lack of time; in particular, **¡Error! No se encuentra el origen de la referencia.** shows that most individuals report doing a corresponding share of household chores. However, it should be noted that a higher percentage of women, both in urban and rural areas, considered that they do not have enough time to carry out all their activities (12.9% and 11.9% respectively). In this regard, Beaujot et al. (2007), using data from Canada, find that unpaid work has an impact on the lack of time perception of women; Fleche et al. (2020) show that women do not use less time in domestic work even if they work more than men, which affects the life satisfaction. The subjective measures of stress levels and the lack of time indicate that women face difficulties to cover all activities.

Figure 1. Daily hours in unpaid work, children, gender, and region



Source: Author's estimation based on ENUT 2016-2017.
Note: The number of working hours is measure taking a typical weekday as reference (Monday to Friday). Legal age of majority in Colombia is 18 years.

Table 1. Perception about time use, 2016-2017.

	Women	Men

	Urban	Rural	Urban	Rural
Regarding household chores, you think:				
You do much more than your share.	7,9%	7,7%	1,4%	2,1%
You do a little more than your share.	10,4%	11,3%	3,3%	4,7%
You do your share.	71,4%	72,9%	71,4%	74,9%
You do a little less than your share.	7,1%	5,8%	15,7%	12,0%
You do much less than your share.	3,2%	2,3%	8,2%	6,4%
Do you think that during the day?				
The time was more than enough to perform all your activities.	8,6%	9,4%	10,5%	10,3%
The time was enough to carry out all its activities.	78,5%	78,8%	81,4%	81,7%
You didn't have time to do all your activities.	12,9%	11,9%	8,1%	8,1%

Source: Author's estimation based on ENUT 2016-2017.

3. Unpaid work gender gap influencing factors

For the proposes of our empirical analysis, the variable of interest is the number of hours that individuals spent in unpaid care and domestic work. Given that some individuals do not report time in these activities, an important proportion of zeros (22.3%) is observed. As is well-known, this means that the number of hours in unpaid work has a limited range, and as a result of this an analysis based on linear regression models results in biased estimates. The statistical inference of this type of variables is based on limited dependent variable models, which have as a starting point that the observed variable (y) is available under an observation rule depending on a latent variable y^*. In the context of a model of working hours supply, y^* represents the desired number of hours (or the perceived utility), so that an individual decides to perform unpaid activities if $y^* > 0$. That is, without loss of generality, individuals allocate time in the activity of interest whenever $y^* > 0$, otherwise is zero.

The modeling strategy, in this case, consists of estimating the effect of a set of factors associated with the socioeconomic characteristics, household characteristics, and the opportunity cost of performing home production, measured in terms of wages. The Tobit model is an interesting alternative for this analysis as it specifies a mixed conditional distribution allowing to quantify the marginal effects of each factor (e.g., number of children) on the time use and also to what extent these factors affect the probability that an individual participates in these unpaid tasks. In other words, it allows estimating the intensive and extensive margins.

The proposed model considers four groups of factors. First, socioeconomic factors such as gender, age, educational levels, and region are taken into account. The second encompasses variables that characterize the household such as the number and age of children, and the type of family group (couple, couple with children, and so on). This group of variables includes an interaction between the number of children and the presence of

older adults to capture the fact that these members tend to supply care for their grandchildren. The third group measures characteristics of the couple relationship. For this, marital status, labor market status (employed, unemployed or inactive), participation in household income, and a sexism index are included. The construction of the sexism index follows Plaza-Rojas (2005) and allows controlling for cultural factors that influence the way home duties are allocated. This index is a standardization (z-score) of a count between 0 and 6 according to the approval of the individuals of 6 statements related to social stereotypes of gender roles and sexist attitudes. For instance, respondents report whether or not they agree with statements such as "The husband must take the decisions related to the wife's life" (see Table 5 in the Appendix). We include an interaction of this variable with gender to capture the direct impact on the gender gap.

The last group of factors is related to the facilities to perform UCDW. This includes the presence of domestic service and a household appliances index consisting of a standardization of the number of household appliances available in the household (see Table 6 in the Appendix). While domestic service measures the substitution between home and market provision of home chores, household appliances availability index measures the time demand intensity of these duties. The home appliances index is built based on typical machines use for home chores such as clothes washing machine or microwave oven but also includes three less common ones like clothes dryer machine, dishwasher machine, and vacuum cleaner (or gloss). We expect these variables negatively affect the gender gap because of social stereotypes that women tend to be in charge of the most of home activities.

Tables 7 and 8 (see Appendix) show a set of characteristics for groups of individuals with different levels of time use in unpaid work defined according to the terciles of the number of hours. An additional column including the characteristics of individuals that did not participate in unpaid work is also included. We observe strong patterns related to gender. In particular, the ratio of women to men increases across terciles, e.g., this ratio is 4 for the upper tercile. Regarding participation in unpaid work activities, 8.8% of women do not use time in unpaid work, while in the case of men this percentage is 37.9%. In turn, results related to age and education reveal the positive relationship between these variables and the proportion of individuals participating in unpaid activities. For instance, in the case of educational level, the proportion of individuals with higher education who dedicate time to UCDW is 9 p.p. higher than that for individuals with no education. Regarding age, the difference is more significant, 18 p.p., when compare the group 10 to 14 years old to the group 45 to 59 years old. Finally, this analysis shows important differences across labor market status in both the participation in UCDW and the number of hours.

Family group characteristics are also important to explain the variation of unpaid work. Individuals who live in couple tend to dedicate more time to unpaid activities. The same is true for those belonging to a household with children, which is consistent with the increasing need for children's care. Besides, the number of elderlies is positively related

to participation in unpaid work. Domestic service and household appliances seem to reduce the time devoted to these activities. For cultural factors, capture through the sexism index, it is observed an increase in the proportion of individuals that do not participate in unpaid work, which can be explained by a lower proportion of men involved in UCDW.

To confirm these findings, we use Tobit models that allow us to estimate the average marginal effects for the number of hours dedicated to unpaid work. The values reported in Table 2 correspond to the effect on the number of hours (in logarithms) of a change of each factor, and so can be interpreted as elasticities. Column 1 in Table 2 provides evidence of the magnitude of the gender gap, indicating that women use 65.8% more time in unpaid work than men. From the socio-demographic characteristics, it is also observed that the educational level and the region have significant impacts on time use. In particular, education level increases the time in unpaid work by 17.6% comparing individuals with higher education respect to individuals with no education.

Table 2. Marginal effects Tobit model, ENUT 2016-2017

Variables	Unpaid work hours	Unpaid work likelihood
Gender (1=Woman)	0,6589***	0,2316***
Age	-0,0032***	-0,0012***
Urban	0,0013***	0,0005***
Free union/Married	0,3393***	0,1306***
Divorced/Widow(er)	0,2231***	0,0859***
Primary	0,0819***	0,0315***
High school	0,1238***	0,0476***
Higher education	0,1757***	0,0676***
Quintile 4 and 5	-0,0194***	-0,0075***
Unemployed	0,3362***	0,1294***
Inactive	0,1933***	0,0744***
Home with children under 6 years	0,3247***	0,1250***
Home with children between 7 and 14	0,1816***	0,0699***
Home with children between 15 and 17	0,0885***	0,0341***
Elderly at home	-0,0041***	-0,0022***
Number of children at home	-0,0350***	-0,0153***
Nuclear family without children	-0,0255***	-0,0098***
Single Parent Family	0,1634***	0,0629***
Extended Family	-0,0426***	-0,0164***
One-person household	0,3163***	0,1217***
Home appliances index	-0,0283***	-0,0109***
Home with domestic service	-0,0213***	-0,0082***
Percentage of household income	-0,0784***	-0,0302***
Central region	0,0576***	0,0222***
Eastern Region	0,2854***	0,1098***
Pacific Region	0,1952***	0,0751***
Bogotá (Urban)	0,0054***	0,0021***
San Andrés Island (Urban)	0,0400***	0,0154***

Sexism Index	0,0057***	-0,0045***
Observations	69,388	69,388

*** p<0.01, ** p<0.05, * p<0.1. Marginal effects for truncated variable and likelihood of participating in unpaid work.
Source: Author's estimation based on ENUT 2016-2017.
Note: reference categories are in their order: rural area, single, no educational level, 1st-3rd quintiles of per capita labor income of the household, employed, household without children, nuclear family with children, and Atlantic region. The percentage of household income is the individual income over the total household income.

Regarding family group composition, the number and age of children are important determinants of unpaid work. The presence of children under 6 increase time dedicated by 32.5%. This effect remains positive but lower for children between 15 and 17 years old (8.9% additional time use in comparison to a household without children). This decreasing in the childcare demand with age has been previously documented (see c.f. Gustafsson and Kjulin, 1994). Noticeably, the presence of elderly members and the number of children reduce the time in unpaid work, which might be explained by the allocation of care work activities among grandparents and older children. We include five categories of family group types: single-parent family, nuclear family without children, nuclear with children (reference category), extended family (couple, children, and other members including other non-relatives), and one-person household. Results show that one-person household and single-parent families are observed to have greater intensity in time use in unpaid work (31.6% and 16.3%, respectively, compared to nuclear families, i.e., couples with children, which is the reference category).

The results also show that unemployed and people outside of labor force (inactive) have higher participation in unpaid work (33.6% and 19.3%, respectively, compared to employed), and also dedicate more hours. The sexism index shows a small effect to explain UCDW but interestingly the interaction coefficient with gender is positive and statistically significant effect[8], indicating that women with greater stereotypes approval tend to have a higher proportion of time in unpaid work (similar results are documented in Campaña et al., 2018; and Amarante and Rossel, 2018). Similarly, the marginal effects of household appliances and domestic service are negative and significant, implying that these reduce time unpaid work.

We also study the marginal effect on the likelihood of participating in UCDW, finding qualitatively similar results (see Table 2, column 2). Gender has an important effect on the probability of performing unpaid work, i.e., women have a probability of 23 p.p. higher to men. Educational level and marital status (married and free union) increase the probability. Among the other factors, it stands out that a unemployed has 12.9 p.p. additional probability of participating in UCDW, and a similar magnitude is observed between households with children (12.5 p.p., compared to nuclear family without children) and single-person households (12.2 p.p. compared to nuclear family with children).

[8] The estimated coefficients are available upon request.

Although the coefficient on region reveals that time use in unpaid work does not differ significantly between urban and rural areas (0.1% higher in urban areas), it is relevant to explore possible heterogeneities associated to other factors for each region. Thus, one could analyze whether a woman in rural areas works in unpaid activities relatively more than a woman in urban areas, which is of interest given that there are greater persistent gender gaps in labor participation and employment rates in rural areas are well as prevalent gender stereotypes. For instance, on average the sexism index in rural areas for men and women is positive (0.459 and 0.251 respectively), while in urban areas the corresponding average values for the index in men and women are zero and -0.174, respectively. Indeed, estimating the regression models for urban and rural areas separately, it is observed that, on average, women in rural areas work 81.8% more than men in unpaid activities. Other important differences between urban and rural areas are observed for the presence of children (34.8% and 23.4%, respectively, in the case of children under 6) and labor market status (36.1% and 18.1%, respectively). The detailed results are presented in Table 3.

Table 3. Marginal effects Tobit model for rural and urban areas, ENUT 2016-2017

Variables	Rural Area		Urban Area	
	Unpaid work hours	Unpaid work likelihood	Unpaid work hours	Unpaid work likelihood
Gender (1=Woman)	0,8184***	0,2675***	0,6283***	0,2229***
Age	-0,0051***	-0,0022***	-0,0028***	-0,0011***
Free union/Married	0,3225***	0,1386***	0,3378***	0,1260***
Divorced/Widow(er)	0,1714***	0,0737***	0,2344***	0,0875***
Primary	0,0411***	0,0177***	0,1093***	0,0408***
High school	0,0565***	0,0243***	0,1543***	0,0576***
Higher education	0,0479***	0,0206***	0,2114***	0,0789***
Quintile 4 and 5	0,0210***	0,0090***	-0,0285***	-0,0106***
Unemployed	0,1811***	0,0778***	0,3610***	0,1347***
Inactive	0,0988***	0,0425***	0,2178***	0,0813***
Home with children under 6 years	0,2339***	0,1005***	0,3482***	0,1299***
Home with children between 7 and 14	0,1118***	0,0480***	0,2000***	0,0746***
Home with children between 15 and 17	0,0213***	0,0091***	0,1077***	0,0402***
Elderly at home	0,0287***	0,0105***	-0,0106***	-0,0042***
Number of children at home	-0,0359***	-0,0162***	-0,0343***	-0,0149***
Nuclear family without children	-0,0459***	-0,0197***	-0,0233***	-0,0087***
Single Parent Family	0,2086***	0,0896***	0,1443***	0,0539***
Extended Family	0,0066***	0,0028***	-0,0569***	-0,0212***
One-person household	0,4809***	0,2067***	0,2420***	0,0903***
Home appliances index	-0,0184***	-0,0079***	-0,0280***	-0,0105***
Home with domestic service	-0,1098***	-0,0472***	-0,0122***	-0,0045***
Percentage of household income	-0,0834***	-0,0358***	-0,0663***	-0,0247***
Central region	0,0113***	0,0049***	0,0733***	0,0274***
Eastern Region	0,1013***	0,0435***	0,3507***	0,1309***
Pacific Region	0,1007***	0,0433***	0,2261***	0,0844***
Bogotá (Urban)			0,0289***	0,0108***

San Andrés Island (Urban)			0,0690***	0,0257***
Sexism Index	0,0013***	0,0006***	0,0044***	-0,0055***
Observations	69,388	69,388	69,388	69,388

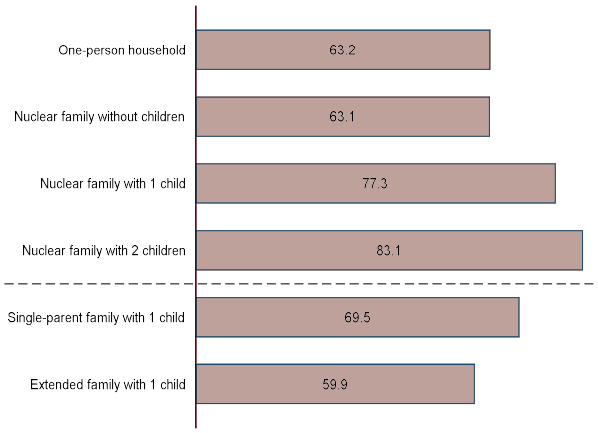
*** p<0.01, ** p<0.05, * p<0.1. Marginal effects for truncated variable and likelihood of participating in unpaid work.
Source: Author's estimation based on ENUT 2016-2017.
Note: reference categories are in their order: rural area, single, no educational level, quintiles of per capita labor income of the household from 1 to 3, employed, household without children, nuclear family with children, and Atlantic region. The percentage of household income is the individual income over the total household income.

Taking the result for the total sample as a reference, we perform a comparative analysis to measure the change in the gender gap for different family contexts. To do so, we fixed some household characteristics such as family composition, labor market status, and the contribution in household income, and compute the variation in marginal effect of changing one of these features, keeping all other control variables at the average. For example, we compare how average time use varies between men and women in a nuclear family with no children concerning a nuclear family with children. This exercise allows us to analyze whether the presence of children increases the gender inequality, or whether the gap decreases under this situation. Figure 4 presents the estimated marginal effect of gender under different family contexts. It is observed that a single woman spends 63.2% more time than a man. The result is similar to the case of a nuclear household without children.

Nevertheless, this situation changes significantly when one examines a family with one child under 6 since in this case the gender gap increases by 14.1 p.p. Similarly, the magnitude of the gap increases importantly (about 20 p.p.) when comparing a nuclear family without children with the case of two children (one under 6 and one under 14). This demonstrates the additional burden faced by women in a household with children. Disparities between men and women in childcare, also reported for European and developing countries, could be related to the fact that women look for work-family balance when children are present (see c.f. García-Mainar et al, 2011; Kizilirmak and Memis, 2019; and Campaña et al., 2020).

An interesting finding is that the gender gap in a nuclear household with a child is greater than the case of a single mother household, implying that the time in unpaid work for women is affected by both children and marital status. This is consistent with the results in Sousa-Poza et al. (2001) who argue that women's time use in childcare and home chores is largely variant with social and economic factors compare to men's. On the other hand, when considering an extended family group with a child under 6, it is observed that the gender gap is reduced by 17.4 p.p. which might indicate that home duties are allocated among a broader number of members, in which elderly play a key role in the caring task of children.

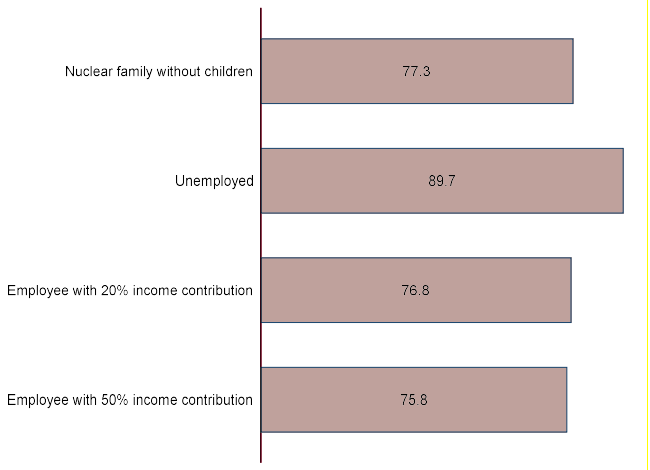
Figure 4. Marginal effect of gender and family composition



Source: Author's estimation based on ENUT 2016-2017.

Using the same comparative analysis, we study how the gender gap varies with labor market status and with the contribution to the household income. In this case, the estimated gap in a nuclear family without children is taken as a benchmark. When the individual is unemployed, the gender gap increases to about 90%, while for an individual who is employed it falls between 12.9 p.p. and 13.9 p.p. (see Figure 5). This is aligned with the finding in Solaz (2005) who argues that unemployment increases the time in domestic activities and that the increase seems more important among women. Importantly, although the contribution to household income has a statistically significant effect, the magnitude is not relevant to explain the total gap. As shown in Figure 5, an increase in income share from 20% to 50% does not represent important changes in the gender gap. Similar results are discussed by Anxo and Carlin (2004) for the case of France and Fernandez and Sevilla-Sanz (2006) for Spain.

Figure 5. Marginal effect of gender, occupation status and contribution to household income



Source: Author's estimation based on ENUT 2016-2017.

Although these marginal effects account for the changes in the average time use, the total effect of a factor is not only explained by variations in the average time that an individual allocates in domestic and care work, but also by the propensity of participating. For instance, the presence of a child might increase the average hours and generate greater participation in unpaid activities. The first component refers to an intensive margin, while the second component can be interpreted as an extensive margin. Therefore, to deeply understand the patterns behind the total effect, it is necessary to consider the variation in the average time as well as the higher or lower propensity of performing home duties. Accordingly, Figure 6 (see Appendix) presents a decomposition of the marginal effect between intensive and extensive margin. First, it is observed that the extensive margin decreases with the number of children. Hence, the presence of children makes more equal the participation of men and women in domestic and care activities. However, an increase in the intensive margin is also observed, which is explained by a rise in the difference of the number of hours, and so resulting in a higher gender gap. Besides, the participation of men is reduced in an extensive family.

The decomposition of the marginal effect for variations in the contribution in household income and labor market status also shows significant changes in the gender gap (see Figure 7 in Appendix). On the one hand, changing from unemployed to employed reduces the intensive margin by 18.4 p.p. (having as reference participation in the household income of 50%). That is, the average time of unpaid work among those who participate decreases; but the change in the gap is low due to a significant increase in the extensive margin by almost 13 p.p. Adding this evidence, it can be argued that the reduction in the gender gap could not be explained by a more equitable allocation of unpaid work, but through the substitution of the home production by demanding either domestic services or household appliances.

4. Concluding remarks

To study the labor market gender inequality is important to analyze the time allocation between paid and unpaid work, where the latter is closely related to the measure of care economy. In Colombia, the care economy is equivalent to 20.6% of GDP, a magnitude comparable with the contribution of the most important economic activities. This paper aims to quantify gender inequality in the time use in unpaid work and assess to what extent family composition and labor market status matter to explain the size of the gap. For this propose we use the National Time Use Survey (ENUT) for 2016-2017 and Tobit-type regression specifications to estimate the marginal effects associated to individual and household characteristics.

We provide evidence supporting the view that there is a large gender gap in unpaid work and that factors such as education and family composition are crucial determinants of the difference in time allocation. Besides, when studying the availability of domestic

service and household appliances, findings suggest that these factors reduce time use in unpaid activities, indicating the importance of access to technology to reduce hours in domestic work. However, this needs to be further discussed as it might not necessarily equity in unpaid work. In fact, Bittman et al. (2004) and Vu (2019) argue that household appliances could increase gender gap due to the lower participation of men in tasks associated with the use of these technologies. Cultural factors, e.g., gender stereotypes, which are captured through the level of approval of individuals on a set of statements, have a positive and significant effect on the gender gap, although the magnitude is small. This remark the importance of implementing public policies focused on education and culture, that remove gender stereotypes and teach about co-responsibility for care, especially in rural areas where the gender gaps are more pronounced.

Using counterfactual exercises that compare the gender differences in time use under similar household and occupation context, we find that the gender gap changes significantly with family composition and the contribution in household income. For instance, in nuclear families, the presence of a child increases the gender gap by 14 p.p. While, if women are employed, the gender gap decrease by 13 p.p. We think these results are important to open a policy-making discussion from different perspectives. On the one hand, regarding policies fostering equality in job access and providing flexible employment schemes. On the other hand, there is a need to re-think the social security system in a way to reduce the unpaid time of caregivers.

These results might motivate policy discussions. For instance, institutional and regulatory changes that promote the active role of men in the care of their children, e.g. paternity leave and working hours flexibility, are required. Additionally, it is important to strengthen the public offer of early and middle-age childhood care, so that parents are able to achieve a family-working balance. For instance, Gutiérrez-Domènech (2010) provide evidence suggesting if the paid working day ends earlier, significantly raise the time allocated to childcare. Likewise, because of the rapid aging of the Colombian population, coupled with the absence of coverage mechanisms of elderly people, an expansion of such component of care is also important. Recent work shows that subsidize childcare benefits women's labor market attachment and employment rates (see c.f. Michalopoulos and Robins, 2002; Blau and Tekin, 2007; Clark et al., 2019). These elements lead to building a care system in the country that would help to reduce the deficit of care provision services and gender inequality.

For this discussion, an official definition of domestic and care activities that are part of the unpaid work is needed. The DANE definition is suitable in SNA related measurements; however, in order to measure the total unpaid work hours, outside the SNA, excluding these activities underestimates the real hours, especially in rural areas, where there is a higher incidence of excluded activities performed as part of agricultural activities.

Referencias

Addati L, Cattaneo U, Esquivel V, Valarino I (2018) Care work and care jobs for the future of decent work. *Retrieved from* https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_633135.Pdf

Agarwal B (1997) Bargaining' and gender relations: Within and beyond the household. *Feminist economics*, 3(1), 1-51.

Aguirre R, Ferrari F (2014). Las encuestas sobre uso del tiempo y trabajo no remunerado en América Latina y el Caribe. *Caminos recorridos y desafíos hacia el futuro.*

Altonji J, Blank R (1999) Race and gender in the labor market. *Handbook of labor economics*, 3, 3143-3259.

Amarante V, Rossel C (2018) Unfolding patterns of unpaid household work in Latin America. *Feminist Economics*, 24(1), 1-34.

Antman F (2014) Spousal employment and intra-household bargaining power. *Applied economics letters*, 21(8), 560-563.

Anxo D, Carlin P (2004) Intra-family time allocation to housework: French evidence. International Journal of Time Use Research, 1(1).

Arendell T (2001) The new care work of middle class mothers: Managing childrearing, employment, and time. Minding the time in family experience: *Emerging perspectives and issues*, 3, 163-204.

Arulampalam W, Booth A, Bryan M (2007) Is there a glass ceiling over Europe? Exploring the gender pay gap across the wage distribution. *ILR Review*, 60(2), 163-186.

Beaujot R, Andersen R (2007) Time-crunch: Impact of time spent in paid and unpaid work, and its division in families. The Canadian *Journal of Sociology*, 32(3), 295-315.

Beblo M (2001) Bargaining over time allocation: Economic modeling and econometric investigation of time use within families. *Springer Science & Business Media*.

Bell D, Hart R (1999) Unpaid work. *Economica*, 66(262), 271-290.

Bertrand M, Hallock K (2001) The gender gap in top corporate jobs. *ILR Review*, 55(1), 3-21.

Bianchi S (1995) *Changing economic roles of women and men. State of the Union: America in the 1990s*, 107-54.

Bianchi S, Robinson J, Sayer L (2001) Family interaction, social capital, and trends in time use study. *University of Maryland, Survey Research Center*.

Bittman M, Rice J, Wajcman J (2004) Appliances and their impact: the ownership of domestic technology and time spent on household work. The British Journal of Sociology, 55(3), 401-423.

Blau D, Tekin E (2007) The determinants and consequences of child care subsidies for single mothers in the USA. *Journal of Population Economics*, 20(4), 719-741.

Campaña J, Giménez-Nadal J, Molina J (2018) Gender norms and the gendered distribution of total work in Latin American households. *Feminist Economics*, 24(1), 35-62.

Campaña J, Giménez-Nadal J, Molina J (2018b) Efficient Labor Supply for Latin Families: Is the Intra-Household Bargaining Power Relevant?. IZA DP No. 11695.

Campaña J, Giménez-Nadal J, Molina J (2020). Self-employed and Employed Mothers in Latin American Families: Are There Differences in Paid Work, Unpaid Work, and Child Care?. Journal of Family and Economic Issues, 41(1), 52-69.

Ceci S, Williams W (2007) *Why aren't more women in science. Top researchers debate the evidence*. Washington, DC: American Psychological Association.

CEPAL (2016) Observatorio de Igualdad de Género de América Latina y el Caribe. *Retrieved from* https://oig.cepal.org/es.

Clark S, Kabiru C, Laszlo S, Muthuri S (2019) The impact of childcare on poor urban women's economic empowerment in Africa. Demography, 56(4), 1247-1272.

Cohen P (1998) Replacing housework in the service economy: Gender, class, and race-ethnicity in service spending. *Gender & Society*, 12(2), 219-231.

Chiappori P (1992) Collective labor supply and welfare. *Journal of Political Economy*, 100(3), 437-467

DANE (2019) Cuenta Satélite de Economía del Cuidado. *Retrieved from* https://www.dane.gov.co/files/investigaciones/boletines/cuentas/ec/Bol_CS_Econo_cuidado_CPEC_2017_prov.pdf

Daunfeldt S, Hellström J (2007) Intra-household allocation of time to household production activities: Evidence from Swedish household data. *Labour*, 21(2), 189-207.

Departamento Nacional de Planeación (2015) Tipologías de familias en Colombia: evolución 1993-2014. Observatorio de Políticas de las Familias. *Retrieved from* https://observatoriodefamilia.dnp.gov.co/Portals/0/Tipologias%20evolucion_dic3

Duque C (2015) Hogares y Cuidado Doméstico no Remunerado en Colombia. *Ensayos de Economía*, 25(47), 101-126.

Fernandez, Sevilla-Sanz A (2006) Social norms and household time allocation.

Fleche, Lepinteur A, Powdthavee N (2020) Gender Norms, Fairness and Relative Working Hours Within Households. Labour Economics, 101866.

Folbre N (2004) A theory of the misallocation. *Family time: the social organization of care*, 2, 7.

Folbre N (1986) Hearts and spades: Paradigms of household economics. *World Development*, 14(2), 245-255.

Folbre N (2006) Measuring care: Gender, empowerment, and the care economy. *Journal of human development*, 7(2), 183-199.

Fedesarrollo, Fundación Saldarriaga Concha (2015) Misión Colombia Envejece: cifras, retos y recomendaciones. *Editorial Fundación Saldarriaga Concha*. Bogotá, D.C. Colombia. 706p.

García-Mainar I, Molina J, Montuenga V (2011) Gender differences in childcare: time allocation in five European countries. *Feminist Economics*, 17(1), 119-150.

Gauthier A, Smeeding T, Furstenberg F (2004) Are parents investing less time in children? Trends in selected industrialized countries. *Population and development review*, 30(4), 647-672.

Gronau R (1997) The theory of home production: the past ten years. *Journal of Labor Economics*, 15(2), 197-205.

Gustafsson B, Kjulin U (1994) Time use in child care and housework and the total cost of children. *Journal of Population Economics*, 7(3), 287-306.

Gutiérrez-Domènech M (2010) Parental employment and time with children in Spain. Review of Economics of the Household, 8(3), 371-391.

Ilahi N (2000) *The intra-household allocation of time and tasks: what have we learnt from the empirical literature?* Washington, DC: World Bank, Development Research Group/Poverty Reduction and Economic Management Network.

Jaumotte F (2003) Female labour force participation: past trends and main determinants in OECD countries.

Katz L (1999) Changes in the wage structure and earnings inequality. In *Handbook of labor economics* (Vol. 3, pp. 1463-1555). Elsevier.

Kizilirmak B, Memis E (2019) The Unequal Burden of Poverty on Time Use in South Africa. World Journal of Applied Economics, 5(2), 31-51.

Ley 1413 (2010). Diario Oficial, Bogotá, Colombia, 11 de noviembre de 2010.

Lise J, Yamada K (2019) Household sharing and commitment: Evidence from panel data on individual expenditures and time use. *The Review of Economic Studies*, 86(5), 2184-2219.

Malathy R (1994) Education and women's time allocation to nonmarket work in an urban setting in India. *Economic Development and Cultural Change*, 42(4), 743-760.

Michalopoulos C, Robins P (2002) Employment and child-care choices of single-parent families in Canada and the United States. *Journal of population Economics*, 15(3), 465-493.

Mincer J (1962) Labor force participation of married women: A study of labor supply. In Aspects of labor economics (pp. 63-105). *Princeton University Press.* National Research

National Research Council (2001) From scarcity to visibility: Gender differences in the careers of doctoral scientists and engineers. National Academies Press.

Plaza-Rojas G (2005) Participación femenina en el mercado laboral chileno ¿Cuánto importan los factores culturales? *Disponible en:* http://repositorio.uchile.cl/handle/2250/144700

Peña X, Uribe C (2013*) Economía del cuidado: valoración y visibilización del trabajo no remunerado*. Lima.

Rapoport B, Sofer C, Solaz A (2011) Household production in a collective model: some new results. *Journal of Population Economics*, 24(1), 23-45.

Ribero R, Meza C (1997) Determinantes de la participación laboral de hombres y mujeres en Colombia: 1976-1995. *Archivos de Macroeconomía*, 63.

Robinson J, Bianchi S, Presser S (2001) *Family Interaction, Social Capital, and Trends in Time Use (FISCT), 1998–1999: United States*. Inter-university Consortium for Political and Social Research, ICPSR 3191.

Robinson J, Godbey G (2010) *Time for life: The surprising ways Americans use their time.* Penn State Press.

Rubiano-Matulevich E, Viollaz M (2019) *Gender Differences in Time Use: Allocating Time between the Market and the Household.* The World Bank.

Sayer L (2005) Gender, time and inequality: Trends in women's and men's paid work, unpaid work and free time. *Social forces*, 84(1), 285-303.

Smith E (2011) Women into science and engineering? Gendered participation in higher education STEM subjects. *British Educational Research Journal*, 37(6), 993-1014.

Solaz A (2005) Division of domestic work: Is there adjustment between partners when one is unemployed?. Review of Economics of the Household, 3(4), 387-413.

Sousa-Poza A, Schmid H, Widmer R (2001) The allocation and value of time assigned to housework and child-care: An analysis for Switzerland. *Journal of Population Economics*, 14(4), 599-618.

Urdinola P (1998) Empleo doméstico femenino no remunerado. *Archivos de Macroeconomía – Documento 095*. Departamento Nacional de Planeación – DNP.

Verba S, Burns N, Schlozman K (1997) Knowing and caring about politics: Gender and political engagement. *The Journal of Politics*, 59(4), 1051-1072.

Vu T (2019) Home Appliances And Gender Gap Of Time Spent On Unpaid Housework: Evidence Using Household Data From Vietnam. The Singapore Economic Review, 64(01), 97-114.

Appendix

Table 4. Perception about time use, 2016-2017

	Women				Men			
	Urban		Rural		Urban		Rural	
	People agree	*%*	*People agree*	*%*	*People agree*	*%*	*People agree*	*%*
Regarding to household chores at home, you think:								
You do much more than your share	1.265.868	7,9%	309.788	7,7%	209.529	1,4%	94.645	2,1%
You do a little more than your share	1.674.391	10,4%	452.355	11,3%	483.139	3,3%	212.907	4,7%
You do your share	11.479.027	71,4%	2.928.608	72,9%	10.492.536	71,4%	3.421.726	74,9%
You do a little less than your share	1.142.851	7,1%	233.663	5,8%	2.307.253	15,7%	546.542	12,0%
You do much less than your share	506.685	3,2%	90.704	2,3%	1.204.212	8,2%	293.162	6,4%
Do you think that during the day:								
The time was more than enough to perform all your activities	1.388.395	8,6%	375.643	9,4%	1.543.380	10,5%	470.091	10,3%
The time was enough to carry out all its activities	12.608.718	78,5%	3.162.849	78,8%	11.958.050	81,4%	3.730.987	81,7%
You didn't have time to do all your activities	2.071.709	12,9%	476.626	11,9%	1.195.239	8,1%	367.902	8,1%

Source: Author's estimation based on ENUT 2016-2017.

Table 5. Sexism Index

Index Variables	(1)Strongly disagree (2) Disagree	(3) Agree (4) Strongly agree
A mother working can form a relationship as warm and safe with her kids as a mother who does not work	(+) 1	
Both men and women should contribute to household income	(+) 1	
Man's duty is earning money, woman's duty is taking care of home and family		(+) 1
Women are better for domestic work than men		(+) 1
The husband must make decisions related to the wife's life		(+) 1
The head of the home must be the man		(+) 1

Source: Author's estimation based on ENUT 2016-2017.
Note: Sexism Index takes values between 0 and 6 (in standard deviations)

Table 6. Home appliances index

Index Variables	Home has the following appliances
Washing machine	(+) 1
Clothes dryer	(+) 1
Electric, gas, or microwave oven	(+) 1
Dishwasher machine	(+) 1
Vacuum Cleaner/polishing machine	(+) 1

Source: Author's estimation based on ENUT 2016-2017.
Note: Home appliances index takes values between 1 and 5 (in standard deviations)

Table 7. Descriptive variables related to economic and demographic factors

Economic and demographic factors		Zero (hours)	Lower third	Middle third	Upper third
Gender	Women	8,8	6,1	37,1	48,1
	Men	37,9	17,3	32,4	12,4
Area	Urban area	21,9	11,7	35,6	30,8
	Rural area	24,1	9,1	31,9	34,9
Region	Atlantic Region	24,4	11,5	35,7	28,4
	Central Region	24,8	9,1	34,0	32,2
	Eastern Region	19,2	9,3	30,4	41,1
	Pacific Region	18,3	10,2	35,3	36,2
	Bogotá (Urban)	22,6	16,4	37,3	23,6
	San Andrés Island (Urban)	20,6	14,3	48,0	17,2
Educational levels	None	27,9	10,3	33,9	28,0
	Primary	22,5	10,4	34,3	32,8
	High school	20,6	11,5	34,2	33,8
	Higher education	19,2	13,0	37,9	29,9
Age groups	10-14	38,8	21,0	30,6	9,6
	15-24	25,4	15,5	30,7	28,4
	25-34	20,8	11,2	30,1	37,9
	35-44	20,0	10,1	34,5	35,4
	45-59	20,6	10,8	37,5	31,2
	60+	25,5	10,1	39,3	25,1
Paid employment status	Working	26,6	14,0	36,2	23,2
	Unemployed	13,6	11,3	36,8	38,3
	Inactive	15,6	6,0	32,1	46,3
Household income quintiles	Quintile 1	22,0	9,3	30,4	38,3
	Quintile 2	22,6	9,4	31,0	37,1
	Quintile 3	23,3	10,8	32,9	33,1
	Quintile 4	22,7	11,6	36,1	29,6
	Quintile 5	21,2	14,0	40,7	24,1

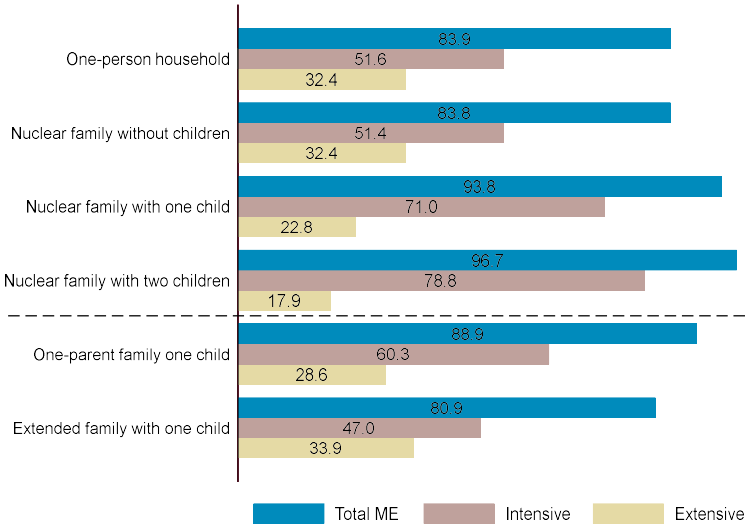
Source: Author's estimation based on ENUT 2016-2017.

Table 8. Descriptive variables related to family group characteristics

Family group characteristics		Zero (hours)	Lower third	Middle third	Upper third
Marital status	Single	30,37	17,41	35,53	16,7
	Free union/Married	20,82	9,3	32,63	37,26
	Divorced/Widow(er)	16,74	9,57	41,01	32,68
Family Structures	Nuclear family with children	22,69	10,45	30,45	36,41
	Nuclear family without children	22,84	11,54	41,53	24,09
	Single Parent Family	17,61	10,83	39,67	31,88
	Extended Family	24,59	11,23	32,23	31,95
	One-person household	11,75	15,93	58,57	13,74
Home with children	6 years or less	14,97	7,89	26,52	50,62
	Between 7 and 14 years	20,83	9,34	29,85	39,98
	Between 15 and 17 years	24,18	11,27	33,62	30,93
Number of children in the household	Home without children	21,94	11,13	35,12	31,81
	1 Child	27,1	12,76	32,02	28,12
	2+	28,32	14,56	33,54	23,58
Number of elderlies at home	0	20,61	11,38	34,64	33,38
	1	24,99	11,08	36,91	27,02
	2	30,08	10,67	32,74	26,5
	3+	37,2	6,69	32,48	23,62
Home with domestic service	Domestic service	28,05	12,93	35,14	23,88
Home appliances index	Below average	21,82	11,04	34,24	32,9
	Above average	23,52	11,99	36,71	27,78
Sexism Index	Below average	24,81	10,77	33,62	30,8
	Above average	19,86	11,55	35,99	32,6

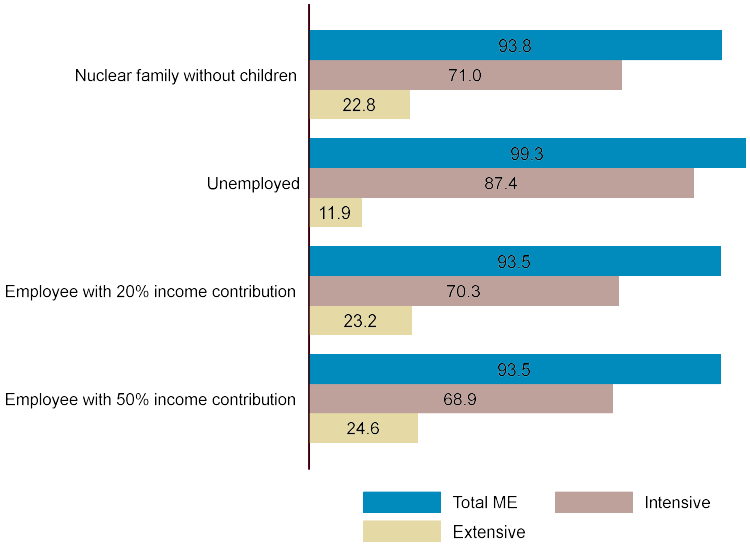
Source: Author's estimation based on ENUT 2016-2017.

Figure 6. Marginal effect Decomposition of unpaid work time overall population



Source: Author's estimation based on ENUT 2016-2017.

Figure 7. Marginal effect decomposition of unpaid work time overall population



Source: Author's estimation based on ENUT 2016-2017.