Gender Specific Determinants of Household Production in Colombia

UNC Department of Economics Summer Research Project

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Abstract:

This paper attempts to understand what factors impact gendered expectations for in the home, particularly through the distribution of household responsibilities within heterosexual married couples with children in Colombia. I use the findings to predict the gendered impacts of the 2020 Coronavirus pandemic and subsequent recession. To do this, I break down the percentage of the total hours both spouses spend on household production per day, conditioning on factors such as employment status, children, and help with childcare. Further, I run a number of ordinary least squares regressions of hours of household production on gender, controlling for other variables. Consistent with existing literature on the topic, I find that women take on the majority of chores and childcare in the home. My findings suggest that women will be disproportionately impacted by the pandemic in a number of ways. Married women, who already take on a over 70% of household responsibilities, will likely see both their raw hours and overall share increase, and single parents, most of whom are single mothers, may be in the most volatile position of all.

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Section I: Introduction & Background:

There is much existing research suggesting that women often shoulder a disproportionate burden of household responsibilities. However, the effects of the 2020 Coronavirus pandemic have permeated not just the public health sphere, but most aspects of daily life. This begs the question of how the virus may or may not have impacted this distribution of household responsibilities. Though there is limited research on the impact of COVID-19 on household production changes in wealthier nations, there is little existing research on how this will play out in Latin America. In this paper, I use division of household chores to predict the impact of the 2020 Coronavirus pandemic on the level of gender equality in Colombia. In order to determine how quarantine and the subsequent recession affected women, I look at time use patterns when controlling for gender and employment status and predict how those might change based on increased childcare and household production needs. I will first show the breakdown of household types in Colombia, followed by an analysis of the distribution of time spent on household production broken down by employment type, in the hopes of understanding who might be most affected by increases in time spent on chores and childcare. I then examine how much the inability to outsource childcare will impact parents. This paper largely focuses on heterosexual, married or long-term couples with children, as its primary goal is to investigate whether women are taking on more of the household production duties as a result of quarantine and work-from-home orders.

COVID-19 first reached Colombia on March 6th of 2020. Eleven days later, a state of emergency was declared within the country, and a quarantine went into effect on March 25th. This quarantine was only lifted on the first of September, with a number of restrictions still in place (*Policy Responses to COVID19*, 2020). As of September 16, the WHO reports that Colombia has 728,590 confirmed cases of the virus, with a total of 23,288 deaths (*Colombia Country Overview | World Health Organization*, 2020).

After summarizing some of the existing research on gender and COVID-19 in Section II, I will describe the data I used in Section III. Section IV breaks down the composition of households in Colombia. In Sections V and VI, I discuss employment status and distribution of household responsibilities for couples with children. Section VII looks at how the virus-induced changes in ability to send children to school and outsource childcare might impact shares of household production. Output from a series of regressions is shown in section VIII. In Sections IX, X and XI, I discuss opportunities for further research, how these findings suggest that the pandemic may exacerbate gendered expectations for household responsibilities, and finally, briefly conclude the paper.

Section II: Existing Research

Several recent studies have found that the economic fallout from the virus will disproportionately impact women (Farre et al., 2020). There are a number of reasons why this may be the case. Firstly, many women work in sectors that are more heavily affected by the pandemic, such as hospitality and tourism, and thus are more likely to lose their jobs. Another important factor to consider is the division of household responsibilities, such as childcare and cleaning duties, that tend to disproportionately fall on women. One paper - on which I will base much of the methodology in this paper - found that in the United States, on average, wives take on about 60% of childcare duties, even in couples where both husband and wife work full time (Alon et al., 2020). The authors hypothesized that work-from-home orders and school closures

would lead to an increase of about 20 hours per week spent on childcare. So, given the aforementioned distribution of childcare responsibilities, wives would take on an additional twelve hours of childcare per week, while husbands would take on eight more hours (Alon et al., 2020).

Using a similar approach, Farre et al (2020) investigated changes in the share of household responsibilities in married couples during the pandemic in Spain similarly found that women shouldered about 60% of household responsibilities. However, unlike Alon et al., they looked at data from during the lockdown as well, and found that men took on a slightly higher share, dropping women's share of household chores and childcare down by two and four percentage points respectively (Farré et al., 2020). Women still took on the majority of responsibilities, but men's share increased slightly. In this paper, I will investigate similar phenomena in Colombia.

Section III: Data

I utilize time use data from the 2012-2013 Encuesta Nacional del Uso de Tiempo (ENUT). The ENUT survey collects data on demographic characteristics and usage of time across a sample of the Colombian population. The survey also includes many questions relevant to this paper, such as whether or not the households solicit outside help with childcare. The initial sample size of the survey was 797,877 observations.

For most of the analysis -- with the exception of Section IV--- households with same sex couples, one or more partner above retirement age or below eighteen years of age, and those who were married but did not live with their spouse were dropped from the data. Finally, because childcare is an important component of household production, and will likely be heavily

impacted by stay-at-home orders, I classified families with children as those with children under 18. This left me with a final sample of 12,725 households with two working age, married parents and children under 18. The average number of children in these households is 1.8, and the maximum number of children is nine.

ENUT data will also be used to compute shares of household production duties within married couples. On average, adults in the restricted sample did 5.87 hours of household chores and childcare duties per day, though when controlling for gender, we see that married women with children do 8.28 hours per day, while their husbands do 3.45 hours per day. Figure 1 shows a histogram of all values of the household production hours variable, restricted only for those who are eighteen or older.





Histogram of daily hours household responsibilities. Calculations based on data from the 2012-2013 Encuesta Nacional del Uso del Tiempo.

Section IV: Household Composition

Figure 2 shows the proportion of different household types in Colombia, using data from the Encuesta Nacional del Uso de Tiempo. The first row, which comprises nearly half of the households surveyed, is married or long-term couples who have children. Another 12.57% of households are married or long-term couples who do not have children. Single men and women without kids comprise about 9% of households each. Most notable, however, is that nearly 20% of households are single mothers, while only 2% are single fathers. Because they cannot rely on their spouse's income if they lose their job, and because they no longer have alternative options for childcare, single parents will likely be hit the hardest by stay-at-home orders (Alon et al.).

Of all single parent families, only 10% are single fathers; the other 90% are single mothers. Due to the pandemic, their children are no longer attending school in person, and they cannot hire outside childcare, so in most cases all of the household responsibilities will fall on the single parent. In these households, the parent will shoulder the entirety of the economic burden of the pandemic. This increased burden will disproportionately fall on women, as there are significantly more single mothers than fathers.





Bar graph of different household types in Colombia. Calculations based on data from the 2012-2013 Encuesta Nacional del Uso del Tiempo.

Clearly, single fathers make up only a small portion of the population, meaning that in terms of single parent households, men's household production hours will be affected far less severely by the pandemic and associated quarantine.

Section V: Two Parent Household Employment Status

In this section, I consider is the employment status of each partner in a married or longterm couple with children. To discern the distribution of employment statuses in these couples, I focus on two parent households with children under 18 in order to evaluate how stay at home orders will impact the share of childcare and other household responsibilities. In Table 1, unemployed respondents were classified as those who worked zero hours in the last week, but had attempted to obtain employment within the month. Nonparticipants were those who did not work and had not made any effort to acquire work in the past month.

For the purposes of this paper, full time workers are classified as those who reported working 35 or more hours in the average week. Part time workers are those who worked less than 35 hours per week on average.

As shown in Table 1, in the vast majority of households, the husband has full time employment. In nearly half of the households, the husband is employed full time, and the wife is not employed - either unemployed or labor force nonparticipants. Notably, in some 28% of households, both spouses work full time. This is significantly less than the 44% of spouses that both work full time in the United States (Alon et al., 2020). For these couples, it may be harder to adjust to the newly increased demand for childcare, unless one spouse reduces their working hours. This may encourage one spouse, likely the wife, to stop working for a period of time in order to accommodate for the jump in childcare needs (Alon et al., 2020).

Similar to single parent households, households in which only one partner is employed are in a more volatile position during the pandemic than those with both partners working, as there is no alternate source of income to insure against job losses. However, despite a higher degree of uncertainty, the parent who is not employed can help offset the additional childcare burden. Barring job losses for the husband, households with one full time worker may actually be in a better position to adjust to the pandemic. If the spouse who is not employed can take on the increase in household production, single-income households may be able to transition more smoothly to stay at home orders.

Table 1: Dis	stribution of	Employment	Status for	Husbands a	nd Wives
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Husband's Employment Wife's Employment						
	I	Full Time	Part Time	Unemployed	Nonparticipa	nt Total
Full Time		28.13%	11.72%	3.16%	44.06%	87.06%
Part Time		2.02%	1.80%	0.27%	3.75%	7.83%
Unemployed		1.19%	.39%	0.19%	.79%	2.55%
Nonparticipant		1.01%	0.28%	0.06%	1.21%	2.55%
Total		32.34%	14.18%	3.67%	49.81%	100.00%

Percent of households by employment status of each spouse. Calculations based on data from the 2012-2013 Encuesta Nacional del Uso del Tiempo.

Section VI: Difference in HH prod by Household Employment Status

Because one's employment status impacts their daily time use, I hypothesized that those who spent more time working would in turn spend less time on household responsibilities, though I did anticipate a slight gender disparity in the share of these responsibilities. Table 2 shows the percentage of household responsibilities taken on by the wife as compared to her husband. Consistent with my prediction, in most cases the wife has a higher share of household responsibilities, including chores and childcare. The exact proportion of these responsibilities varies based on the employment distribution in the household. Yet, even when the wife works full time and the husband is a labor force nonparticipant, she still does slightly more than half of the household work, including chores and childcare. Averaged across all households with married or long-term partners who have children, wives take on about 71.43% of household responsibilities, notably larger than the 60% Alon et al. finds for wives in the United states. This translates to almost a five-hour per-day average disparity in unpaid household labor between husbands and wives in Colombia.

Assuming these distributions continue during the quarantine, in every arrangement, with the exception of households where the wife works full time and the husband is unemployed, the wife will be taking on a greater share of the increase in household responsibilities. This is significant because the stay at home orders that came as a result of COVID-19 mean that in many cases, both husband and wife will be spending more time at home, as will their children. This will increase the number of hours per day spent on household responsibilities, particularly childcare. Alon et. al predict that childcare needs specifically will increase by about 20 hours per week in the United States. If that is true of Colombia, not accounting for increases in other household production duties, women will be taking on slightly more than 14 additional hours of childcare per week, and their husbands will take on a bit less than six additional hours.

Husband's Employment	Wife's Employment					
	I	Full Time	Part Time	Unemployed	Nonparticipant	
Full Time		65.61%	72.74%	72.86%	77.44%	
Part Time		55.07%	66.44%	68.06%	71.17%	
Unemployed		49.51%	57.42%	67.91%	62.78%	
Nonparticipant		50.54%	55.24%	70.66%	67.31%	

Table 2: Distribution of Household Production Taken on by Wife, by Employment Status

Percent of total daily household responsibilities taken on by the wife, broken down by employment status of each spouse. Calculations based on data from the 2012-2013 Encuesta Nacional del Uso del Tiempo.

Section VII: Childcare and Division of Labor

One of the most distinct and unusual features of this recession is that people are forced to work from home and cannot outsource childcare. Thus, it is important to discern what effect school closures might have on division of labor, particularly for parents of younger children, who may now have to care for their children during work hours. By examining households who did not outsource childcare prior to the virus outbreak, I can predict what might happen to division of labor within two-parent households during the pandemic. About 15% of families with children under five outsourced childcare in some capacity. In Figure 3, we see that in families with children under five who indicated that they either paid for help with childcare or had unpaid outside help, the wife did about 63% of the housework. In those who neither paid for help with childcare nor had unpaid outside help, the wife did 71% of the housework - a 12.7% jump in share of household responsibilities taken on by wives.





Bar graph representing the percent of daily household production taken on by married women with children under five, contingent on whether or not they have help with childcare. Calculations based on data from the 2012-2013 Encuesta Nacional del Uso del Tiempo.

In order to see how much help with childcare might reduce the burden of household responsibilities on the parents, I ran on ordinary least-squares regression of daily hours spent doing household responsibilities on whether or not respondents had children under five, were women, and had outside help with childcare. The sample was restricted to those who were married and had children, and I included an interaction term for children under five and outside assistance. Results of this regression may be found in Section VIII, Table 4. Being a woman is estimated to increase average daily household production hours by nearly five per day, and having children under five also increased them by an additional 1.9 hours per day. Having

outside help for the care of children under five reduced the amount of time parents spent on household responsibilities by about one hour per day.

Unsurprisingly, households with children under five have a larger daily quantity of household production hours on average, coming in at around 14 hours per couple per day. For parents in households with children of age five or greater, household responsibilities for the couple consume just over ten hours of their day. The distribution of these responsibilities between spouses is similar, with the wife doing 72% of the household work on average in families with no children under five, and 70% of the household work on average in families with children under five. It is worth noting, however, that the effect of children under five on the share of household responsibilities is statistically significant at all levels.

Based on this information, I know that for those families with children under five who were outsourcing childcare help prior to the pandemic, stay-at-home orders will increase their household responsibilities by about one hour per day for each parent, or two hours per day total. The burden here will disproportionately fall on the wife, as we see from Figure 3.

However, it is not just childcare for children under five that has been impacted by the pandemic. One of the most unique and unprecedented side effects of COVID-19 is the closure of schools and move to online classes. In order to attempt to measure the effects, I examined the share of household responsibilities in families where at least one child is not enrolled in school. I found that in families in which every child is attending school, women take on about 71.66% of household responsibilities, and in families where at least one child is not attending school, women take on 74.5% of the household responsibilities. This relationship is shown in Figure 4. I performed a two-sample t-test of the percentage of household responsibilities taken on by the

wife by whether or not all children attend school, and I found the effect to be significant at all levels.



Bar graph representing the percent of daily household production taken on by married women with children, contingent on whether or not all of their children attend school. Calculations based on data from the 2012-2013 Encuesta Nacional del Uso del Tiempo.

Section VIII: Regressions

To better understand what factors might contribute to the amount of unpaid household labor an individual takes on, I ran two series of ordinary least squares regressions, where I regressed daily hours spent performing household responsibilities on a number of independent variables. In the first series, the regressions were run on an unrestricted sample of 41,293 adults. In the second series of regressions, I conditioned for couples with children. Sample size for the latter series was 22,737.

In the first set of regressions, regardless of the explanatory variables chosen, the binary variable for being a woman always had a substantial and statistically significant effect, implying daily household production time of about three to four additional hours for women. The effect of having children between five and eighteen was also statistically significant and indicated over an hour in increased responsibilities, while the magnitude of the effect of having children under five was also statistically significant with a magnitude of more than double that of having older children. I created an interaction term for the binary variables for having outside childcare help and having kids under five, and found this to be associated with reduced time spent on household responsibilities. This effect was always statistically significant at the ten percent level or higher.

	(1)	(2)	(3)	(4)
	Household	Household	Household	Household
VARIABLES	Production Hours	Production Hours	Production Hours	Production Hours
iswoman	2.835***	3.971***	2.834***	2.831***
	(0.0430)	(0.0382)	(0.0431)	(0.0433)
haskids_18	1.052***	1.149***	1.052***	1.054***
	(0.0425)	(0.0432)	(0.0425)	(0.0426)
haskids_5	2.644***	3.089***	2.646***	2.647***
	(0.0513)	(0.0543)	(0.0539)	(0.0540)
hh_help		0.308	0.561*	0.562*
		(0.310)	(0.295)	(0.295)
kids_5_help		-1.169***	-0.553*	-0.558*
		(0.331)	(0.315)	(0.315)
fullTime	-2.962***		-2.963***	-2.968***
	(0.0504)		(0.0508)	(0.0516)
partTime	-1.399***		-1.400***	-1.404***
	(0.0649)		(0.0650)	(0.0653)
unemployed	-0.399***		-0.399***	-0.403***
	(0.110)		(0.110)	(0.110)
couple	0.670***		0.670***	0.670***
	(0.0470)		(0.0470)	(0.0470)
edlevel				0.00361

Table 3: Unrestricted Regressions

				(0.00730)
Constant	4.177***	1.990***	4.175***	4.162***
	(0.0712)	(0.0375)	(0.0714)	(0.0759)
Observation				
S	41,239	41,239	41,239	41,239
R-squared	0.326	0.255	0.326	0.326

Standard errors in parentheses

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

In the second set of regressions, where I conditioned on being a couple with kids, the effect of being a woman on hours of household production was even greater magnitude. Depending on the model, I find that wives, on average, spend at least three hours per-week more on home production than husbands. Working full time had a significant, negative relationship with the number of daily hours spent performing household duties, but this effect was of smaller magnitude than the effect of being a woman. Notably, education level had a small but significant effect on hours of household production.

	(1)	(2)	(3)	(4)
VARIABLES	HH Production Hours	HH Production Hours	HH Production Hours	HH Production Hours
iswoman	4.892***	3.363***	3.363***	3.324***
	(0.0536)	(0.0641)	(0.0644)	(0.0648)
haskids_5	1.870***	1.672***	1.676***	1.677***
	(0.0584)	(0.0537)	(0.0566)	(0.0565)
hh_help	0.230		0.589	0.602
	(0.541)		(0.522)	(0.522)
kids 5 help	-1.009*		-0.597	-0.676

Table 4: Regressions Restricted to Couples with Kids

	(0.556)		(0.537)	(0.537)
fullTime		-2.964***	-2.965***	-3.032***
		(0.0749)	(0.0759)	(0.0770)
partTime		-1.327***	-1.327***	-1.377***
		(0.0956)	(0.0958)	(0.0963)
unemployed		-0.150	-0.149	-0.210
		(0.159)	(0.159)	(0.159)
edlevel				0.0555***
				(0.0112)
Constant	2.799***	5.525***	5.523***	5.341***
	(0.0430)	(0.0826)	(0.0834)	(0.0911)
Observation				
S	22,737	22,737	22,737	22,737
R-squared	0.292	0.341	0.341	0.341

Standard errors in parentheses

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

These results are important because they confirm that women with children have a much greater burden of household responsibilities, regardless of their employment status. Additionally, having help with childcare – which is not a possibility during the pandemic – meant fewer hours spent on household production per day.

Section IX: Opportunities for Further Research

There are a number of opportunities to expand on the findings of this paper. First and foremost, an accurate picture of job losses from the pandemic would enable a more robust

analysis of how distribution of household responsibilities would change. According to the Departamento Administrativo Nacional de Estadística (DANE), a Colombian government statistics agency which administers both the ENUT and GEIH, the unemployment rate in July was over 20%, up nearly ten percentage points since July of 2019. Clearly, the economic impact of the pandemic is severe. Sex disaggregated employment and time use data would provide a clearer picture of how the pandemic's economic fallout is affecting men and women differently.

Further, the degree to which women and men occupy sectors and jobs that are qualified as essential might influence whether they are able to telecommute. Ultimately, this would impact the share of household responsibilities performed by women, and give a more complete picture of the gendered effects of the pandemic. In order to do this, one would need data on the ability to telecommute in different sectors.

Another important area for investigation is what policy actions could mitigate the disproportionate impact of the recession on women. Perhaps certain jurisdictions have implemented laws that have the effect of decreasing the costs of the pandemic for women, or individual companies have created flexible policies that have allowed parents to create a more equal division of labor. It would be interesting to use data one the different COVID-19 response policies that have been enacted in order to discern what sorts of policies might provide a more equal distribution of the burden of the pandemic, and which ones might have the opposite effect, in order to make useful recommendations for policy actions moving forward.

Section X: Household Responsibilities and the Pandemic

The findings provided in this paper show that, if these trends indeed persist during the pandemic, the 2020 recession is poised to hit working aged women much harder than men. Firstly, single parents, which account for just over 20% of all households in Colombia, are in the most volatile situation in terms of ensuring they have sufficient income and caring for their children, and single mothers make up the vast majority of single parent households. Further, in addition to changes in their employment statuses, the pandemic and the new normal that it has created will alter time spent on unpaid care work. For married women with kids, who already take on the majority of the day-to-day responsibilities of a household even if they are working full time, the increase in household production duties could impact their ability to complete their work or care for their own needs. Using methods consistent with Alon et al., I found that married women with children can expect to see a 14 hour increase in weekly childcare duties, while men can expect to see a six-hour increase. This does not account for household production duties other than childcare. Thus, Colombian women may have to reduce work hours, as many American women did during the pandemic (Collins et al., 2020).

Additionally, women perform nearly 3/4ths of household responsibilities in families where not all children attend school. This may indicate that an increased proportion of childcare duties will fall on women during the pandemic. Another finding of note was that for families with children under five, wives who did not outsource childcare did over 12% more of the household duties than wives who did outsource childcare. This once again suggests that the extenuating circumstances of the pandemic will not only increase raw hours of household responsibilities within households, but also increase the share of those hours being done by women. On the other hand, it could be an opportunity for a more even distribution of household responsibilities. In fact, when Farre et al. tried to measure similar phenomena in Spain, they found that the raw number of hours of household production went up during the pandemic, and women still took on the majority of these hours. However, the proportion of responsibilities they shouldered dropped slightly (2020).

Section XI: Conclusion

Our findings align with previous research showing that women do the majority of household work. I found that of all variables I tested in the regressions, being a woman had the largest positive effect on number of daily hours of household production. This result is a symptom of broader expectations regarding women and unpaid care work.

Further, outsourcing childcare and sending all children to school also impacted the share of household production a Colombian woman might expect to take on. Many of these effects will be exacerbated by COVID-19. With no ability to outsource childcare, and even schooling being done from home, it is clear that the pandemic will have significant consequences regarding these expectations for women's contributions of unpaid care work. Whether and how these effects will be mitigated remains to be seen.

Bibliography:

- Alon, T., Doepke, M., Olmstead-Rumsey, J., & Tertilt, M. (2020). *The Impact of COVID-19 on Gender Equality* (No. w26947; p. w26947). National Bureau of Economic Research. <u>https://doi.org/10.3386/w26947</u>
- Amador-Jiménez, M., Millner, N., Palmer, C., Pennington, R. T., & Sileci, L. (2020). The Unintended Impact of Colombia's Covid-19 Lockdown on Forest Fires. *Environmental and Resource Economics*, 76(4), 1081–1105. <u>https://doi.org/10.1007/s10640-020-00501-5</u>
- Collins, C., Landivar, L. C., Ruppanner, L., & Scarborough, W. J. (n.d.). COVID-19 and the gender gap in work hours. *Gender, Work & Organization*, *n/a*(n/a). https://doi.org/10.1111/gwao.12506
- *Empleo y desempleo*. (n.d.). Retrieved September 4, 2020, from https://www.dane.gov.co/index.php/estadisticas-por-tema/mercado-laboral/empleo-y-desempleo
- Farré, L., Fawaz, Y., González, L., & Graves, J. (2020a). How the COVID-19 Lockdown Affected Gender Inequality in Paid and Unpaid Work in Spain. 39.
- Gould, E., Zipperer, B., & Kandra, J. (n.d.). Women have been hit hard by the coronavirus labor market: Their story is worse than industry-based data suggest. *Economic Policy Institute*.
 Retrieved May 20, 2020, from <u>https://www.epi.org/blog/women-have-been-hit-hard-by-thecoronavirus-labor-market-their-story-is-worse-than-industry-based-data-suggest/</u>
- Hensvik, L., Le Barbanchon, T., & Rathelot, R. (2020a). Which jobs are done from home? Evidence from the American Time Use Survey. *SSRN Electronic Journal*.

https://doi.org/10.2139/ssrn.3574551

Policy Responses to COVID19. (n.d.-b). IMF. Retrieved September 18, 2020, from https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19

- Staff, R. (2020, September 11). Colombia coronavirus cases pass 700,000, deaths nearing 23,000. *Reuters*. https://www.reuters.com/article/us-health-coronavirus-colombia-idUSKBN26232N
- von Gaudecker, H.-M., Holler, R., Janys, L., Siflinger, B., & Zimpelmann, C. (2020). Labour Supply in the Early Stages of the COVID-19 Pandemic: Empirical Evidence on Hours, Home Office, and Expectations. *Institute of Labor Economics*, 25.