

# **Involvement in Domestic Work and its Impact on Individual's Wage**

BECO 421 Research and Project Work



**Submitted by:**

Sukrita Karkee

A025821-18

BECON IV/II

**Supervisor:**

Mani Nepal (PhD)

DEPARTMENT OF ECONOMICS  
KATHMANDU UNIVERSITY SCHOOL OF ARTS  
HATTIBAN, LALITPUR

AUGUST 2022

**Abstract:** Involvement in domestic work comes with certain opportunity costs. Assuming an individual's energy constraints, allocation of energy into domestic work subtracts from energy that the individual can allocate to activities that have a positive impact on earning, such as developing additional skills. This opportunity cost is explored in this study by using individuals' market wages, and examining the significance of participation in domestic work on the wages. By further examining the gender interaction with housework and wages, it is also explored if women's wages are disproportionately affected by their involvement in housework, given their disproportionate share of the burden. The cross sectional data from Nepal Labor Force Survey 2017-18 is used. The OLS estimates show that domestic work has a negative impact on wages for both genders, with human capital variables and experience in the market also significant and positive. Women are shown to earn less than men by upto 28%. The impact of domestic work on wages is not different for men and women, however, women do the majority of the housework. Women can benefit from substituting domestic work with education and gaining additional skills. Findings of the study can have policy implications on work-family policies like maternity leaves, on-site child care, etc. that could level the share of domestic work in households. Housework and domestic work are used interchangeably throughout this paper.

**Keywords:** domestic work, housework, individual energy constraint, wages, income inequality, gender, work-family policy

## Introduction

Housework remains an overlooked component of economic activity, with no official records in the national income accounts. Women especially bear the burden of balancing unpaid housework as well as paid labor in the market. Although it has been noted that housework has negative impacts on the individual's labor force activities, the direct effects on wages have had few studies. In past empirical research, the gender wage gap has been explored by incorporating human capital (education, work experience) and structural variables (organizational size and class, occupational and industrial sectors), however, they have only accounted for half of the difference in earnings (Bibb and Form, 1977; Roos, 1981, as cited in Coverman 1983). Corcoran and Duncan (1979) further estimate that only 44% of the gap is accounted for by differences in job market experience and labor force attachment. In 2014, the OECD suggested that the unequal division of unpaid work between women and men could be the missing link in the analysis of gender gaps in labour market outcomes.

Becker (1985) theorizes that given an individual's energy constraints, the time allocated to household labor directly and negatively affects effort dedicated to the market which is a determinant for wages in his model. Moreover, allocating time and effort to housework comes with opportunity costs by reducing said resources which could have been allocated to earning increasing

activities like education and training.

Additionally, despite women increasingly joining the workforce and having better access to education, their domestic life remains to converge on a similar path. Past empirical research has shown that regardless of employment status, household labor still falls on women (Geerken & Grove, 1983), irrespective of their class (Coverman, 1983). Over the 40 years preceding 2010, women have stayed the leading demographic for participating in each type of domestic work, with particular focus on routine tasks, also categorized as feminine tasks (such as cooking, cleaning and laundry) ( Kan et al., 2011). This, combined with Becker's (1985) model, could mean that their disproportionate engagement in the household could explain their lower earnings in the market compared to men. It stands that women with relatively-high earning potentials are then the most disadvantaged (Coverman, 1983). This puts a brake on their economic empowerment (Ferrant et al., 2014).

The difference in hours spent in housework between dual income partners is the smallest (a two hour difference) in countries like Denmark and Finland. In contrast, Japan has a difference of 10 hours and more per week, even when working hours, income and other conditions are made equal (Tsutsui, 2016).

In Nepal, the situation is similarly dire, with the male to female ratio of working age population being 100:125, in stark comparison to the ratio for employed population being 100:59 (CBS, 2019). Nepal is a country which is heavily inclined towards traditional gender ideologies that propose a male breadwinner model and the burden of housework fall on women. Similar to western research, studies have been conducted in Nepal about the income inequalities affecting women, however, the impacts that labor inequalities within households have on the labor market outcomes of women outside the household have not yet been explored. This paper aims to fill that gap in literature. It aims to answer the question, "*Does participation in domestic work at home affect what an individual is able to earn in the market?*"

Considering the disproportionate division of domestic work in the household, a second question, "*Is the effect of domestic work on wages different for men and women?*" is also posed.

The findings of this study could have important implications for work-family policies that encourage equal participation in the household. Previous research shows that women's earnings and employment increase their bargaining power in the home (Amartya Sen, 1990; Lawrence James Haddad, Hoddinott, and Alderman ,1997; Duncan Thomas, 1997; World Bank, 2001; Klasen and Wink, 2003; and King, Klasen, and Porter, 2008, as cited in Klasen & Lamanna, 2009). Women's economic empowerment can also lead to higher savings, more productive investments, and higher expenditure on their children's human capital development, all fostering economic growth. In fact, gender inequality in labor force participation has a sizable negative impact on economic growth (Klasen & Lamanna, 2009). Policies such as parental and sick leave for both men and women can lessen the disparity of the share of domestic work in households. On-site child care, remote working and flexible working hours can help individuals better balance market and household activities as well.

The results help explore whether there is room to improve the division of work at home, and what policy implications that has for childcare leave, family support and established working styles. Such policies are based on the time availability perspective that says individuals perform domestic work according to the time they have available for it (Estes et al., 2007).

## Literature Review

Previous studies that have found a negative relationship between domestic work and wages have focused primarily on countries of the west (Baxter, 1992, Australia; McAllister, 1990, Australia; Bonke et al., 2005, Denmark; Bryan and Sevilla-Sanz, 2011, UK; Phipps et al., 2001, Canada; Hirsch and Konietzko, 2013, Germany; Matteazzi & Scherer, 2021, Germany, Italy and the US). The division of domestic labor relies heavily on socio-cultural norms, making for varying cross-country results.

Coverman (1983) estimates wage equations for white, married women and men using data from the Quality of Employment Study (QES) 1977, with a sample of 698 men and 240 women from the US. The log of weekly wages was taken. The main independent variable was the domestic labor time. The control variables consisted of personal and household characteristics, sex-role attitudes, spouse's childcare time, number of children, human capital variables, labor supply, job-related characteristics and class. Class is organized on the basis of Marxist class categories (includes distinctions of employee vs employer, autonomy, and whether or not they supervise other workers). The OLS estimates found a negative and significant effect of domestic labour time on wages for men of the working class, and women of the non-working class. The most significant negative effects were seen in women with high earnings and labor supply who had husbands with lower income than other women. Coverman (1983) explains the results as being indicative of gender roles having more impact than class. The study also showed that husbands' participation in child care increased wages for working-class women.

McLennan (2000) also hypothesized that assuming market effort has a positive relationship to wages, allocating time to housework would reduce market wages. The natural logarithm of wage was taken, weekly domestic work hours was taken as a proxy for effort in the market, and the model was controlled for human capital variables, demographic variables, number of weekly hours of market work, and south and urban residence to account for cost of living and difference in labor quality. The study utilized the National Longitudinal Study of Young Women and Young Men (NLS) that collected data from 1968-1988 in the US. The two stage least squares estimates showed a significant and negative relationship between housework and wages only among married white women and not among other demographics studied. McLennan also found that the OLS results for married white women could be explained by endogeneity and/or heterogeneity in the data. The differences in wage was better explained by other variables like education and urban dwelling, which had a positive and significant relationship with wage across white and black, married and unmarried women.

A similar study by Matteazzi & Scherer (2021) done across Italy, Germany and the US showed that the added step of conducting a Neuman-Oaxaca wage-decomposition analysis along with including partner's housework resulted in significant and negative relationships between housework and wages for men and women in all three countries. Housework explained a larger portion of the gender-wage gap in Europe. The study also found that greater equality within the household was achieved through women participating in less domestic work, than by men participating in more domestic work. This could make a case for paid household help where available, and affordable. However, the study also found that the reduction of female wage penalty was greater than the increase in male wage premium, making a case to consider both partner's wages when sharing the burden of domestic work. The data used were EU-SILC 2010 for Germany and Italy, and 2009 PSID data for the US.

In their 1997 paper, Hersch & Stratton also found that domestic work hours negatively and significantly affect women's wages from both OLS and IV estimates. Controlling for individual

fixed effects reduced the magnitude of the impact, but did not eliminate its significance. The results for men were inconclusive, with the OLS estimates suggesting a negative and significant impact of domestic work hours, although to a lesser degree than that for women, whereas IV estimates and results from fixed effects returning a non-significant relationship. The researchers owe this difference to the possible biasedness of the estimates, as the instruments explain little of their variation in housework. The data used for this study was University of Michigan's Panel Study of Income Dynamics (PSID) collected from 1979 to 1987.

Baxter (1992) found that involvement in domestic work (and not domestic work hours) had a significant and negative effect on the earnings of women. For men, earnings were more dependent on paid work characteristics. Baxter concludes that this is because the boundaries between home and work are much better defined for men than it is for women. The findings further suggested that the convergence between men and women's time spent in housework was owed more to the reduced housework hours on women's part than increased housework hours on men's part. The model was controlled for paid work characteristics (union membership, class categories like manager and expert, work hours) and demographic characteristics (education, age, number of children, sex role attitudes). The study was done on the Australian data from the Comparative Project on Class Structure and Class Consciousness survey conducted in 1986.

The two categories of housework are (i) female tasks (like cooking and cleaning that require more frequent participation and inflexible scheduling), and (ii) male tasks (like yard work and repair, that require less frequent participation and have more flexible scheduling). Past research has found that female tasks drive down wages for both men and women more than male tasks do (Noonan, 2001). Estes et al. (2007) further find in their study that only time spent in female tasks had a negative effect on hourly wage, suggesting that domestic work has a disproportionate impact on women's wages. In addition, despite men having shown a trend to participate more in housework over the past few decades, their contribution has been more focused on non-routine tasks (Kan et al., 2011).

## **Theoretical Framework**

Becker's (1985) economic model suggests that housework has a negative impact on wages because of an individual's energy constraints. According to his model, increased effort in market activities increases wages by increasing productivity. An individual faces time, effort, and income constraints. Assuming that energy is finite and has to be distributed across multiple tasks, and that the time spent in the market is constant, increasing the time spent on household activities that are effort-intensive will reduce the effort exerted per hour on market activities. The energy used per hour on any activity depends on the effort intensity of the activity and the marginal utility of time and effort.

Housework tasks like childcare, cooking and cleaning are energy-intensive, meaning that increasing effort in the house relates to reduced effort in market work, leading to lower productivity and wages. That is, male-breadwinner models imply women allocate less effort to the market compared to men working the same number of hours, and as such earn lower wages despite having similar human capital characteristics (Coverman, 1983). Additionally, investment in human capital derives its benefits from increased wages, which in turn depends on the effort exerted per hour on

market activities. This means that women would not be encouraged to further their human capital, since they earn less than men for equivalent hours worked in the market.

This can lead individuals themselves to seek out less demanding, flexible jobs which are usually attributed to lower wages, or have employers assume lower productivity and less commitment to work, leading to lower wages (Matteazzi & Scherer, 2021).

As such, it is hypothesized that domestic work has a direct impact on wages assuming that domestic work has a negative impact on unmeasured constructs that should impact wage differentials independent of the functional positions of men and women at the workplace. These constructs include commitment to work, productivity, leisure time, etc. (Coverman, 1983).

This gives us our alternative **Hypothesis 1**: There is a significant relationship between domestic work and an individual's wage.

Gender-constructivist theories further build on this through the lens of gender norms. A gender constructivist approach utilizes beliefs about sexual differences to understand patterns of institutional forms, social interaction, and political outcomes (Carver, 2003).

This gives us alternative **Hypothesis 2**: The effect of domestic work on wage is different for men and women.

## **Method**

### *Data*

This study uses cross-sectional data from Nepal Labour Force Survey (NLFS III) conducted by the Central Bureau of Statistics (CBS) in collaboration with the International Labor Collaboration (ILO) in 2017-2018. The survey is the third of its kind, following NLFS I done in 1998/99 and NLFS II done in 2008; all of which measure activities in the labor market, such as employment and unemployment, human capital formation, domestic and volunteer work, and other interesting data, including the socioeconomic characteristics of respondents. Due to changes in standards after the 19th International Conference of Labor Statisticians, the NLFS III might not be comparable to its preceding surveys.

The survey was carried out in the rural and urban areas across the seven provinces of the country as the domains. A two-stage stratified design was used, with enumeration areas (EA) as the primary sampling units (PSU) and households as the secondary stage units (SSU) that resulted in 900 PSUs with 20 household samples per PSU, and a total of 18,000 households and 69,018 (un-weighted) observations in the survey. As such, the cluster option in STATA was employed for this study in order to ensure robustness of standard errors taking into account possible spatial correlation due to clustering.

This paper has utilized 6097 individual level observations out of which 4657 are male and 1440 are female. Only married individuals of the working age (>15) who are currently employed are considered.

### *Dependent Variable*

Individual monthly wage is taken as the variable of interest. The NLFS III provides either monthly, weekly or daily individual wages which are then converted into monthly wage with the assumption that individuals work for 8 hours a day, 48 hours a week (The Labour Act, 2017), and 192 hours a month. Wages of only individuals' main job are provided. The monthly wage is log transformed to allow for a constant percentage effect of independent variables on wage (Wooldridge, 2016).

Both the monthly wage and the log of monthly wage are presented in the descriptive statistics in Table 1. Table 1A in the appendix shows that the mean monthly wage for men is NRS 19827, in contrast to the mean monthly wage of NRS 13566 for women (31.6% less than that for men). The difference is shown to be statistically significant by the *t*-test.

### *Key Predictor Variable*

The key predictor variable is hours spent per day in domestic work. The dataset provides three categories of household work, namely (i) cooking foods, washing clothes, etc., (ii) care take of sick, disable, aged people, and (iii) care take of children. The predictor variable was constructed using respondents' self-reported hours (7 days prior to the survey) spent on each of these categories, and dividing them by 7 to get daily hours spent in domestic work.

For the sake of comparison, a separate regression is also run substituting daily hours spent in domestic work with involvement in domestic work, for which dummies were created, as seen in Table A2 in the appendix. The results for regressions on both the variables are consistent with each other for the most part.

### *Control Variables*

The model is controlled for individual and household variables (age, gender, household size, number of children, ethnicity, region of residence, and paid labor supply per day), human capital variables (education level, technical and vocational training), and structural variables (skill level, experience level, and type of occupation) that are important predictors of an individual's economic performance (Coverman, 1983).

### *Gender Interaction Term*

In order to get further insight on the interaction of gender with wage and domestic work, a gender interaction term is introduced by interacting the daily hours spent in domestic work with the dummy for gender, in this case the gender of interest: female.

### *Instrument Variable (IV)*

Domestic work hours is endogenous in the wage equation, since lower wages might also prompt individuals to specialize in housework. To account for this reverse causality between wage and hours spent in domestic work, the variable for domestic work is instrumented by status of home ownership (Matteazzi & Scherer, 2021).

**Table 1. Descriptive Statistics for Married and Employed Women and Men, (N=6097)**

Variable	Mean	SD	Min	Max
<b>Dependent Variable</b>				
Monthly wages	18,348.585	10,203.018	1,200	250,000
Log of monthly wages	9.689	.52	7.09	12.429
<b>Key Predictor Variable</b>				
Domestic work inside home (hours/day)	.991	1.42	0	10.571
Involvement in domestic work	.542	.498	0	1
<b>Gender Interaction Term</b>	<b>.593</b>	1.349	0	10.571
<b>Instrument Variable</b>				
Home Ownership	.852	.355	0	1
<b>Individual &amp; Household Variables</b>				
Urban	.65	.477	0	1
Household size	5.193	2.694	1	27
No. of children	2.39	1.833	0	16
Janajati	.401	.49	0	1
Brahmin/Chhetri	.295	.456	0	1
Dalit	.146	.354	0	1
Madhesi	.098	.298	0	1
Muslim	.026	.16	0	1
Other	.033	.178	0	1
Female	.236	.425	0	1
Age	37.664	11.284	15	84
Paid labor supply (hours/day)	6.307	2.078	.286	16.571
<b>Human Capital Variables</b>				
Illiterate	.219	.413	0	1
Primary	.229	.42	0	1
Middle	.141	.348	0	1
Secondary	.176	.381	0	1
Higher secondary	.108	.31	0	1
Bachelor	.081	.272	0	1
Masters	.047	.211	0	1
Technical/Vocational Training	.151	.358	0	1
<b>Structural Variables</b>				
Unskilled	.32	.467	0	1
Skilled	.463	.499	0	1
High Skilled	.217	.412	0	1
Non-government Job	.789	.408	0	1



Experience <5 years	.521	.5	0	1
Experience 5-9 years	.174	.379	0	1
Experience 10 years and more	.305	.46	0	1

*Source: Nepal Labour Force Survey (NLFS), 2017/18*

## Empirical model

$$\ln(W_i) = \beta_0 + \sum_1^k \beta_k X_{ik} + \epsilon_i \dots (i)$$

The model for this study is given by equation (i), where the log of monthly wage,  $W$ , for the  $i^{\text{th}}$  individual is the dependent variable. The regression coefficients are denoted by  $\beta$ ;  $k$  indexes independent variables  $X$ ; and  $i$  indexes respondents. The error term is given by  $\epsilon$ . The same model is run twice, once with the categorical variable of involvement in domestic work as the key predictor (Table A2, appendix), and a second time with the continuous variable of daily hours spent on domestic work (Table 2). Since the data is not available, the model will not control for measures of job segregation – which along with real labour market experience, has been recognized to explain most of the gender wage gap (Blau and Kahn, 2017).

The coefficients are estimated using Ordinary Least Square (OLS) multiple linear regression. Independent variables are added in phases from Model I through Model VI. To account for spatial correlation from cluster sampling, the cluster option is used for  $\text{psu}$  in all six models, along with adjustment for district fixed effects in Models V & VI.

The model could have reverse causality; i.e. housework can affect wages, but wages can also determine household work by either making market substitutes (food deliveries, laundry, maids, etc.) affordable to individuals (Hersch & Stratton, 1997), or by allowing them to demand greater housework participation from their spouses given their comparative advantage in the market (Matteazzi & Scherer, 2021). For endogeneity of housework, individual housework is instrumented by house ownership since data on household non-labor income (Matteazzi & Scherer, 2021) is not available. However, the instrument proved to be weak by the Stock-Yogo weak IV test ( $\text{rk F-statistic}=13.42$ ; 10% maximal IV size =16.38). Multicollinearity was tested by employing Variance Inflation Factor (VIF) to full Model IV before accounting for district fixed effects. The mean VIF was 1.97 and no variable had a  $\text{VIF}>5$ , showing no need for concern.

## Results

The estimated coefficients on the wage equation variables are consistent with the literature. Domestic work hours have a negative impact on both men and women's wages, significant at the 10% level. This supports our alternative Hypothesis 1: that there is a significant relationship between domestic work and an individual's wage.

**Table 2. Linear Regression Results Using OLS, For Log of Monthly Wage Regressed on Daily Hours Spent in Domestic Work**

Models	I	II	III	IV	V	VI
--------	---	----	-----	----	---	----

	Key Pre- dictor Var- iable	Adjusted for Individual & Demographic Characteristics	Adjusted for Hu- man Capi- tal	Full Model Adjusted for Structural Characteristics	Final Model Ad- justed for District Fixed Ef- fect	Model V Adjusted for Gender Interaction Term
Variables						
Domestic Work In- side Home (hr/day)	<b>-0.0736***</b> <b>(0.00541)</b>	0.00120 (0.00612)	<b>-0.0113*</b> <b>(0.00577)</b>	<b>-0.0101*</b> <b>(0.00567)</b>	<b>-0.0113**</b> <b>(0.00571)</b>	<b>-0.0143*</b> <b>(0.00798)</b>
Gender Interaction Term						0.00558 (0.0109)
Urban (ref: Rural)		0.00989 (0.0189)	-0.0244 (0.0176)	-0.0264 (0.0169)	-0.00699 (0.0155)	-0.00703 (0.0155)
Household Size		-0.00669 (0.00482)	<b>-0.0140***</b> <b>(0.00411)</b>	<b>-0.0131***</b> <b>(0.00408)</b>	<b>-0.0108***</b> <b>(0.00400)</b>	<b>-0.0108***</b> <b>(0.00400)</b>
No. of Children		-0.0106 (0.00687)	0.00671 (0.00615)	0.00717 (0.00595)	<b>0.0113*</b> <b>(0.00589)</b>	<b>0.0112*</b> <b>(0.00589)</b>
Janajati (ref: Brah- min/Chhetri)		<b>-0.102***</b> <b>(0.0192)</b>	0.0180 (0.0186)	0.0111 (0.0180)	0.00381 (0.0180)	0.00369 (0.0180)
Dalit		<b>-0.152***</b> <b>(0.0254)</b>	0.00475 (0.0247)	-0.00890 (0.0238)	-0.00739 (0.0240)	-0.00756 (0.0240)
Madhesi		<b>-0.157***</b> <b>(0.0298)</b>	<b>-0.0506*</b> <b>(0.0270)</b>	<b>-0.0615**</b> <b>(0.0260)</b>	-0.0242 (0.0274)	-0.0237 (0.0274)
Muslim		<b>-0.217***</b> <b>(0.0507)</b>	-0.0643 (0.0509)	<b>-0.0928*</b> <b>(0.0502)</b>	-0.0404 (0.0501)	-0.0403 (0.0501)
Others		<b>-0.110**</b> <b>(0.0467)</b>	-0.0360 (0.0459)	-0.0393 (0.0428)	-0.0411 (0.0414)	-0.0409 (0.0414)
Female (ref: Male)		<b>-0.417***</b> <b>(0.0200)</b>	<b>-0.375***</b> <b>(0.0195)</b>	<b>-0.334***</b> <b>(0.0193)</b>	<b>-0.337***</b> <b>(0.0191)</b>	<b>-0.345***</b> <b>(0.0248)</b>
Age		<b>0.00235***</b> <b>(0.000680)</b>	<b>0.00383***</b> <b>(0.000682)</b>	<b>0.00138*</b> <b>(0.000729)</b>	<b>0.00128*</b> <b>(0.000692)</b>	<b>0.00127*</b> <b>(0.000693)</b>
Paid Labor Supply		<b>0.00803**</b>	<b>0.0131***</b>	<b>0.0101***</b>	<b>0.00862**</b>	<b>0.00861***</b>

(hours/day)				*	
	(0.00353)	(0.00339)	(0.00338)	(0.00322)	(0.00322)
Illiterate (ref: Higher Secondary)		-0.173***	-0.0725**	-0.0481	-0.0478
		(0.0267)	(0.0306)	(0.0307)	(0.0307)
Primary School		-0.0735***	-0.00388	-0.000298	-0.000256
		(0.0263)	(0.0296)	(0.0293)	(0.0293)
Middle School		-0.0805***	-0.0262	-0.0218	-0.0218
		(0.0284)	(0.0311)	(0.0303)	(0.0303)
Secondary School		-0.0780***	-0.0420	-0.0390	-0.0389
		(0.0264)	(0.0280)	(0.0277)	(0.0277)
Bachelors		0.275***	0.278***	0.264***	0.264***
		(0.0308)	(0.0310)	(0.0305)	(0.0305)
Masters		0.488***	0.495***	0.461***	0.462***
		(0.0338)	(0.0343)	(0.0334)	(0.0335)
Technical/Vocational Training (ref: No Training)		0.0400**	0.0130	0.0226	0.0223
		(0.0193)	(0.0194)	(0.0196)	(0.0196)
Skilled (ref: Unskilled)			0.193***	0.160***	0.160***
			(0.0164)	(0.0157)	(0.0157)
High Skilled			0.182***	0.173***	0.173***
			(0.0300)	(0.0299)	(0.0298)
Non-govt Job (ref: Govt job)			0.0507**	0.0498**	0.0498**
			(0.0230)	(0.0234)	(0.0234)
Experience 5-9 years (ref: Experience <5 years)			0.0186	0.0105	0.0107
			(0.0173)	(0.0170)	(0.0170)
Experience 10 years & more			0.124***	0.120***	0.120***
			(0.0168)	(0.0163)	(0.0163)
Constant	9.761***	9.788***	9.662***	9.507***	9.499***
					9.502***

	(0.0106)	(0.0438)	(0.0468)	(0.0512)	(0.0501)	(0.0503)
Observations	6,097	6,097	6,097	6,097	6,097	6,097
Adjusted R-squared	0.040	0.141	0.220	0.252	0.286	0.286

*Note: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; ref=reference*

### Model I

In the first model, log of monthly wage is regressed only on the key predictor variable, domestic work. The relationship is negative and significant. Model I in Table 2 shows a 7.3% decrease in monthly wage owing to an additional hour spent in daily domestic work. Model I in Table A2 in the appendix shows a 14.9% decrease in monthly wage with involvement in domestic work. Both these results are significant at the 1% level (Table 2:  $t = -13.60$ ,  $p = 0.000$ ).

### Model II

The second model is adjusted for individual & demographic characteristics. The effect of domestic work on wages lose their significance in both Tables 2 and A2. Model II in both tables also shows a positive (although not significant) relationship between domestic work and monthly wage. Here, ethnicities, gender, age and paid labor supply gain significance ( $p < 0.01$ ). All ethnicities make 9% to 19% less per month than their Brahmin/Chhetri counterparts, with Muslims making the least (19.5% less than Brahmin/Chhetri). The table also shows that women make 34.1% less than men. Each additional year in age increases monthly wage by 0.23%, and each additional hour supplied to paid work increases it by 0.8%. The effect of paid work is significant at the 5% level. The results are similar for involvement in housework in Table A2 in the appendix.

### Model III

Adjusting for human capital brings back the significance of domestic work on wage for both tables. Table 2 shows that monthly wages decrease by 1.13% with each additional hour spent daily on domestic work. Table A2 shows a 2.33% decrease. Both these results are significant at the 10% level (Table 2:  $t = -1.95$ ,  $p = 0.051$ ).

Household size gains significance at the 1% level (Table 2:  $t = -3.40$ ,  $p = 0.001$ ), with monthly wage decreasing by 1.4% with each additional member. Ethnicities lose their significance, with Madhesi earning 5% less than Brahmin/Chhetri, significant at the 10% level. Females earn 31.9% less than men, a reduction in magnitude from Model II, but not from significance (Table 2:  $t = -19.26$ ,  $p = 0.000$ ). Age and paid labor supply both still have a significant and positive effect on monthly wage, increasing it by 0.38% per additional year and 1.31% per additional hour a day respectively, a slight growth in magnitude from Model II with significance still at the 1% level.

Education is significant at the 1% level. Masters degree holders earn 62.9% more than those with only high school education, whereas Bachelors degree holders earn 31.7% more than high school graduates. Primary to secondary level graduates earn between 7-8% less than high school graduates, whereas illiterate people earn 15.7% less. Technical/vocational training increases

monthly wage by 4%, significant at the 5% level.

The results are not substantially different in Table A2.

#### Model IV

The fourth model is fitted for all the control variables by adjusting for structural characteristics. The impact of domestic work hours on monthly wage is still significant at the 10% level ( $t = -1.78$ ,  $p = 0.076$ ). Each additional hour spent per day on domestic work decreases the monthly wage by 1%. Household size remains significant at the 1% level, reducing monthly wages by 1.3% with each additional member, not a substantial magnitude change from Model III. Madhesi people earn 6.2% less than their Brahmin/Chhetri counterparts. Muslims also earn 9.3% less. Women earn 28% less than men, a decrease in magnitude from Model III, but not so much in significance (Table 2:  $t = -17.34$ ,  $p = 0.000$ ). The significance of age goes down to the 10% level, increasing wage by 0.13% with each additional year, which is a slight decrease in magnitude from the previous model. Paid labor supply per day increases wage by 1% per hour, significant at the 1% level.

Only illiteracy, bachelors, and masters degrees retain their significance. Illiteracy brings down monthly wage by 7.2%, a decrease in magnitude from model III. Bachelors and masters degrees increase wage by 32.1% and 64.1% respectively, which are not significant magnitude changes from Model III. Training loses significance. Skill is seen to be significant at the 1% level, with skilled employees earning 21.3% more, and highly skilled employees earning 19.96% more than unskilled employees. Non-government job holders also gain 5.1% more wages than government employees, significant at the 5% level. Experience of more than 10 years increases wages by 13.2% compared to less than 5 years of experience, significant at the 1% level.

Table A2 sees that the relationship between monthly wages and involvement in domestic work loses significance starting Model IV. The remaining results are not substantially different from those seen in Table 2 for hours spent in domestic work.

#### Model V

Adjusting for district fixed effects retains the significance of domestic work hours. Each additional hour spent daily in domestic work decreases monthly wage by 1.1%, with improvement in significance, now at the 5% level (Table 2:  $t = -1.99$ ,  $p = 0.047$ ). The impact of household size remains similar in magnitude and significance to Model IV. Number of children is now significant at the 10% level, with each additional child increasing wages by 1.1%. Ethnicities lose their significance. Females earn less than men by similar magnitude and significance as Model IV. The effects of age and paid labor supply do not significantly change either. Only Bachelors and Masters degrees remain significant, with Bachelors degree holders earning 30% more, and master degree holders earning 58.6% more than high school graduates, a slight decrease in magnitude from previous models, while maintaining significance at the 1% level. Skill levels retain their significance at the 1% level, with skilled workers earning 17.4% more, and highly skilled workers earning 18.9% more than unskilled workers. Non-government job holders earn 5% more than government workers, significant at the 5% level, and more than 10 years of experience increases wage by 12.7% more than under 5 years of experience, significant at the 1% level.

## Model VI

The gender interaction term is insignificant, i.e. the relationship between wage & domestic work is not influenced by gender. Other results remain the same as those for Model V.

## Discussion

Results from Table 2 show that domestic work hours impact monthly wages negatively for both men and women. Table A2 shows that on adjusting for structural characteristics like skill and experience, the impact of involvement in domestic work loses significance. In fact, even when looking at domestic work hours, factors like gender, paid labor supply, education, skill and experience are highly significant. The gender interaction term showed insignificant results, meaning that the relationship between domestic work and wages is not dependent on gender. This finding does not support our alternative Hypothesis 2. That is, findings show that the effect of domestic work on wage is not different for men and women. However, it should be noted that only female type tasks were taken into account, so that the differences between impacts of masculine tasks and feminine tasks have not been reflected by the results.

When adjusted for all the control variables, and district fixed taken into account, women earn up to 28% less than men. In line with Becker's (1985) model, this could be suggestive of women earning less due to less energy allocated to market tasks. In fact, the data shows that for each category of domestic work, namely (i) cooking and washing, (ii) childcare, and (iii) oldcare, women spend significantly more hours per week on housework than do men, as shown by Figure B1 in the appendix. It could also be suggestive of women choosing more flexible jobs attributed to lower wages, as discussed by Matteazzi & Scherer (2021). In line with Becker's (1985) model, the amount of paid labour supplied by the individual to the market also impacts wages. Women would be better off in terms of income if they substitute time allocated to housework by time allocated to the market.

Additionally, Bachelors and Masters degrees remained significant even after adjusting for all control variables and the district fixed effect. This suggests that providing higher education to women can help close the pay gap between men and women. Figure B2 in the appendix shows the lowest education curves showing age-earnings profile by education level. Individuals with higher education are shown to have significantly higher wages. The insignificance for other levels of education can suggest that apart from higher education, differences in wages between men and women are better explained by other factors.

The higher skill levels, and more than 10 years of experience are seen to improve income as well by upto 19% and 13% respectively. Non-government jobs are also found to pay more than government jobs by about 5%.

Household size could have a negative impact on wages due to more domestic work added with more members to perform them for. The number of children having a positive impact on wages could be because more children require greater income, causing parents to do more market work, possibly by having older children take care of younger ones.

These findings can have policy implications for work-family life in a way that equalizes the share of housework at home. According to Estes et al (2007), the two categories of work-family policies are (i) work support policies (for instance, remote working, on-site child care and flexible working hours), and (ii) family support policies (such as parental and sick leave). The second category does reduce employee work-time, whereas the first does not. In their study, "*Is Work-Family*

*Policy Use Related to the Gendered Division of Housework?*”, Estes et al (2007) found that men who use family support policies participate in a higher share of female-type tasks at home. The study also found that work-family policies do not lead to reinforcement of women’s participation in housework. This makes an encouraging case for such policies in combating gender differences at home that translate to market outcomes for women. Kan et al. (2011) also found that social democratic (Nordic) countries where policies for equality are adopted and fathers are encouraged to take parental leaves showed the most remarkable decline in women’s share of housework between 1970 and 1980. Education and awareness programs specifically around equality at home can also be helpful. In fact, education can be important for both genders, since past literature has found that men with less traditional gender attitudes participate more in home production and are more supportive of their partners’ careers. Similarly, women with more traditional views accept an unequal division of housework because of the normative standards they believe in (Lavee and Katz, 2002; as cited in Matteazzi & Scherer, 2021). León-Himmelstine & Salomon (2020) found that conducting interactive and participatory workshops and community and household dialogues on average increased the time men in the Philippines spent on household tasks by 50% after participating in the two-and-a-half year programme.

Apart from work-family policies, the development of infrastructure also plays an important role in reducing individuals’ housework time. For instance, new water infrastructure was shown to significantly reduce the time spent by women to collect water (León-Himmelstine & Salomon, 2020; Ferrant et al., 2014).

## **Limitations**

The problem of endogeneity was encountered between the dependent variable monthly wage, and the key predictor daily hours spent in domestic work. This problem was owed to reverse causality, since wages can also influence participation in housework. As such, assets (house ownership) was used as the IV, however, it proved to be a weak IV (Yogo, 2005) so an IV regression was not done. If available within the dataset, this paper would benefit from finding a stronger IV for daily hours spent in domestic work.

Only feminine tasks were taken into account due to unavailability of masculine tasks. In line with Noonan’s (2001) work, the availability of data on feminine and masculine domestic works would help make better inferences on whether specifically female housework chores have a greater negative effect on wage than male household chores; and if this causes women’s wages to be more impacted by domestic work than men’s wages given the type of domestic work.

Additionally, only the wages and experiences for individual’s main job were available. This could have kept the analysis from reflecting accurate results. Also, as found by Press & Townsley (1998), both husbands and wives tend to over-report their housework hours. It is also contested that wives tend to over-report their housework hours owing to their burden of the majority of housework (Marini & Shelton, 1993; as cited in Press & Townsley, 1998), while it is also pointed out that involvement in majority of the housework makes for more accurate self-reports.

Lastly, the cross sectional nature of the data does not allow for definitive inferences.

## **Conclusion**

Becker (1985) argues that considering individuals have a constraint on total energy and market

time, household labor time would directly and negatively affect market effort, which in turn negatively affects productivity at work, and thus, wages. Our OLS estimates were in line with this theory, showing that involvement in domestic work significantly, and negatively affects wages by about 1.1%. The gender interaction term is insignificant, meaning that housework does not affect the wages of men and women differently. However, our data also shows that women do the majority of the feminine type housework that are generally more energy-intensive and have a relatively inflexible schedule. This could mean that women are at a greater disadvantage from doing housework because of the type and hours they dedicate to doing them. Therefore, our results show a need to lessen the burden of housework for women as a means to further close the gender wage gap. However, given the limitations of the study, the results should be interpreted with caution.

Women are also shown to earn upto 28% less than men. Considering that other significant factors affecting wages include higher education, experience in the market, age and skill levels, our results show that women can also benefit from time and effort allocated to human capital development.

Keeping in mind that an individual has energy constraints, women can benefit from policies at the workplace that promote an equal division of domestic work at the household. Since domestic work in this paper refers to childcare, elderly care, and cooking/washing, companies can incorporate provisions like paid parental leaves for both women and men for postnatal care, for instance, which can significantly lessen the burden that women face at home, allowing them a quicker recovery period, more energy to dedicate to the office, as well as extra time to sharpen their skills, all of which contribute to increased productivity at work. Building appropriate infrastructure as well as conducting programs to promote equal division of housework in the home can also have positive impacts.

For further research, the relationship between hours spent in domestic work and wages can be explained better by utilizing the Blinder-Oaxaca decomposition analysis. Data on leisure time can give valuable insight on whether or not one spouse taking on the majority of the housework in fact relates to rational resource allocation, and whether it is optimal for a household. Also, studying the effects of domestic work on labor force participation can give additional insight into the extent of its influence.

## References

- Becker, G. S. (1985). Human Capital, Effort, and the Sexual Division of Labor. *Journal of Labor Economics*, 3(1), S33–S58. <http://www.jstor.org/stable/2534997>
- Baxter, J. (1992). Domestic labour and income inequality. *Work, Employment and Society*, 6(2), 229–249. <https://doi.org/10.1177/095001709262004>
- Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? trends in the gender division of Household Labor. *Social Forces*, 79(1), 191. <https://doi.org/10.2307/2675569>
- Carver, T. (2003). Gender and International Relations. *International Studies Review*, 5(2), 287–302. <https://doi.org/10.1111/1521-9488.5020221>
- CBS. (2019). *Report on the Nepal labour force survey 2017/18 - Statistical report*. 244.



- Ciabattari, T. (2001). Changes in men's conservative gender ideologies. *Gender & Society*, 15(4), 574–591. <https://doi.org/10.1177/089124301015004005>
- Corcoran, M. & Duncan, G.J. “Work History, Labor Force Attachment, and Earnings Differences between the Races and Sexes.” *The Journal of Human Resources* 14, no. 1 (1979): 3–20. <https://doi.org/10.2307/145535>
- Estes, S. B., Noonan, M. C., & Maume, D. J. (2007). Is work-family policy use related to the Gendered Division of housework? *Journal of Family and Economic Issues*, 28(4), 527–545. <https://doi.org/10.1007/s10834-007-9075-6>
- Ferrant, G., Pesando, L. M., & Nowacka, K. (2014). Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes. OECD Development Centre, December, 12.
- Hersch, J., & Stratton, L. S. (1997). Housework, Fixed Effects, and Wages of Married Workers. *The Journal of Human Resources*, 32(2), 285–307. <https://doi.org/10.1080/13545700902893106>
- Klasen, S., & Lamanna, F. (2009). The impact of gender inequality in education and employment on economic growth: New evidence for a panel of countries. *Feminist Economics*, 15(3), 91–132. <https://doi.org/10.1080/13545700902893106>
- León-Himmelstine, C., & Salomon, H. (2020). Findings from a WE-care project final evaluation: January 2020. <https://doi.org/10.21201/2020.5587>
- Man Yee Kan, Sullivan, O., & Gershuny, J. (2011). Gender convergence in domestic work: Discerning the effects of interactional and institutional barriers from large-scale data. *Sociology*, 45(2), 234–251. <https://doi.org/10.1177/0038038510394014>
- Matteazzi, E., & Scherer, S. (2021). Gender Wage Gap and the Involvement of Partners in Household Work. *Work, Employment and Society*, 35(3), 490–508. <https://doi.org/10.1177/0950017020937936>
- McALLISTER, I. (1990). Gender and the Household Division of Labor: Employment and Earnings Variations in Australia. *Work and Occupations*, 17(1), 79–99. <https://doi.org/10.1177/0730888490017001004>
- McLennan, M.C. (2000). Does household labour impact market wages?, *Applied Economics*, 32:12, 1541-1557, <https://doi.org/10.1080/000368400418952>
- Noonan Mary C. (2001). The Impact of Domestic Work on Men ’ s and Women ’ s Wages. *Journal of Marriage and Family*, 63(November), 1134–1145. <http://www.jstor.org/stable/3599819>
- Press, J. E., & Townsley, E. (1998). Wives' and husbands' housework reporting. *Gender & Society*, 12(2), 188–218. <https://doi.org/10.1177/089124398012002005>
- Stock J, Yogo M. [Testing for Weak Instruments in Linear IV Regression](#). In: Andrews DWK Identification and Inference for Econometric Models. New York: Cambridge University Press ; 2005. pp. 80-108.

*The Labour Act , 2017 ( 2074 )s.17.1(Nep.)*

Tsutsui, J. (2016). Female labor participation and the sexual division of labor: a consideration on the persistent male-breadwinner model. *Japan Labor Review*, 13(3), 80–100.

Wooldridge, J. M. (2020). *Introductory econometrics: A modern approach*. Cengage, 43-44.

## Appendix

### Appendix A- Descriptive Statistics & OLS estimates

**Table A1.** Descriptive Statistics by Gender

Variable	Male(N=4657)		Female (N=1440)	
	Mean	SD	Mean	SD
<b>Dependent Variable</b>				
Monthly wages	<b>19827.313*</b>	10437.319	<b>13566.338*</b>	7652.721
Log of monthly wages	<b>9.787*</b>	.472	<b>9.37*</b>	.543
<b>Key Predictor Variable</b>				
Domestic work inside home (hours/day)	<b>.521*</b>	.9	<b>2.509*</b>	1.701
<b>Individual &amp; Demographic Variables</b>				
Urban	<b>.64*</b>	.48	<b>.683*</b>	.466
Household size	<b>5.32*</b>	2.784	<b>4.781*</b>	2.334
No. of children	<b>2.466*</b>	1.907	<b>2.145*</b>	1.548
Janajati	.394	.489	.423	.494
Brahmin/Chhetri	<b>.287*</b>	.453	<b>.32*</b>	.467
Dalit	.145	.352	.151	.358
Madhesi	<b>.11*</b>	.313	<b>.061*</b>	.24
Muslim	<b>.03*</b>	.171	<b>.013*</b>	.114
Others	.033	.179	.032	.176
Age	<b>38.572*</b>	11.595	<b>34.727*</b>	9.652
<b>Human Capital Variables</b>				
Illiterate	<b>.192*</b>	.394	<b>.306*</b>	.461
Primary	<b>.253*</b>	.435	<b>.151*</b>	.358
Middle	<b>.16*</b>	.367	<b>.08*</b>	.271
Secondary	<b>.186*</b>	.389	<b>.147*</b>	.354
Higher secondary	<b>.087*</b>	.281	<b>.176*</b>	.381
Bachelor	<b>.075*</b>	.263	<b>.099*</b>	.299
Masters	.049	.216	.04	.197
Technical/Vocational Training	<b>.146*</b>	.353	<b>.17*</b>	.376
No Tec/Vocational Training	.854	.353	.83	.376
<b>Structural Variables</b>				
Unskilled	<b>.273*</b>	.446	<b>.472*</b>	.499
Skilled	<b>.547*</b>	.498	<b>.192*</b>	.394

High Skilled	<b>.18*</b>	.384	<b>.336*</b>	.473
Government	<b>.196*</b>	.397	<b>.262*</b>	.44
Non-government job	.804	.397	.738	.44
Experience <5 years	<b>.497*</b>	.5	<b>.599*</b>	.49
Experience 5-9 years	<b>.18*</b>	.384	<b>.156*</b>	.363
Experience 10 years and more	<b>.323*</b>	.468	<b>.245*</b>	.43

Note: two-tailed *t*-test at  $p < 0.05^*$  for difference between men and women

**Table A2. Linear Regression Results Using OLS, For Log of Monthly Wage Regressed on Involvement in Domestic Work**

Models	I	II	III	IV	V	VI
	Key Pre-dictor Variable	Adjusted for Individual & Demographic Characteristics	Adjusted for Human Capital	Adjusted for Structural Characteristics	Final Model Adjusted for District Fixed Effect	Model V Adjusted for Gender Interaction Term
<b>Variables</b>						
Involvement in Domestic Work	<b>- .162***</b>	-0.00671	<b>-0.0233*</b>	-0.0107	-0.0181	-0.0169
	<b>(0.0139)</b>	(0.0148)	<b>(0.0141)</b>	(0.0136)	(0.0132)	(0.0132)
Gender Interaction Term						-0.00766
						(0.00783)
Urban (ref: Rural)		0.00982 (0.0189)	-0.0237 (0.0176)	-0.0258 (0.0169)	-0.00624 (0.0155)	-0.00652 (0.0155)
Household Size		-0.00692 (0.00481)	<b>-0.0136***</b> <b>(0.00411)</b>	<b>-0.0125***</b> <b>(0.00410)</b>	<b>-0.0103**</b> <b>(0.00401)</b>	<b>-0.0105***</b> <b>(0.00400)</b>
No. of Children		-0.0105	0.00604	0.00653	<b>0.0105*</b>	<b>0.0109*</b>

	(0.00684)	(0.00615)	(0.00596)	(0.00590)	(0.00588)
Janajati (ref: Brah- min/Chhetri)	<b>-0.103***</b> <b>(0.0192)</b>	0.0181 (0.0185)	0.0113 (0.0180)	0.00391 (0.0180)	0.00391 (0.0180)
Dalit	<b>-0.152***</b> <b>(0.0254)</b>	0.00445 (0.0246)	-0.00917 (0.0238)	-0.00775 (0.0240)	-0.00743 (0.0240)
Madhesi	<b>-0.156***</b> <b>(0.0298)</b>	<b>-0.0495*</b> (0.0269)	<b>-0.0616**</b> (0.0260)	-0.0239 (0.0274)	-0.0242 (0.0274)
Muslim	<b>-0.217***</b> <b>(0.0506)</b>	-0.0636 (0.0510)	<b>-0.0925*</b> (0.0504)	-0.0396 (0.0501)	-0.0399 (0.0501)
Others	<b>-0.110**</b> <b>(0.0468)</b>	-0.0360 (0.0458)	-0.0395 (0.0427)	-0.0412 (0.0413)	-0.0414 (0.0414)
Female (ref: Male)	<b>-0.411***</b> <b>(0.0182)</b>	<b>-0.384***</b> (0.0180)	<b>-0.348***</b> (0.0176)	<b>-0.349***</b> (0.0174)	<b>-0.331***</b> (0.0248)
Age	<b>0.00231***</b> <b>(0.000681)</b>	<b>0.00389***</b> <b>(0.000684)</b>	<b>0.00147**</b> <b>(0.000729)</b>	<b>0.00137**</b> <b>(0.000690)</b>	<b>0.00134*</b> <b>(0.000691)</b>
Paid Labor Supply (hours/day)	<b>0.00782**</b> <b>(0.00353)</b>	<b>0.0133***</b> <b>(0.00339)</b>	<b>0.0105***</b> <b>(0.00338)</b>	<b>0.00896***</b> <b>(0.00322)</b>	<b>0.00875***</b> <b>(0.00322)</b>
Illiterate (ref: Higher Secondary)		<b>-0.171***</b>	<b>-0.0711**</b>	-0.0465	-0.0474

	<b>(0.0267)</b>	(0.0306)	(0.0307)	(0.0307)
Primary School	<b>-0.0717***</b>	-0.00253	0.00117	0.000574
	<b>(0.0263)</b>	(0.0296)	(0.0293)	(0.0293)
Middle School	<b>-0.0789***</b>	-0.0250	-0.0205	-0.0210
	<b>(0.0283)</b>	(0.0310)	(0.0302)	(0.0302)
Secondary School	<b>-0.0760***</b>	-0.0405	-0.0373	-0.0381
	<b>(0.0264)</b>	(0.0280)	(0.0277)	(0.0278)
Bachelors	<b>0.275***</b>	<b>0.278***</b>	<b>0.264***</b>	<b>0.264***</b>
	<b>(0.0309)</b>	<b>(0.0311)</b>	<b>(0.0305)</b>	<b>(0.0305)</b>
Masters	<b>0.488***</b>	<b>0.494***</b>	<b>0.460***</b>	<b>0.460***</b>
	<b>(0.0338)</b>	<b>(0.0344)</b>	<b>(0.0335)</b>	<b>(0.0335)</b>
Technical/Vocational Training (ref: No Training)	<b>0.0389**</b>	0.0122	0.0217	0.0224
	<b>(0.0193)</b>	(0.0194)	(0.0196)	(0.0196)
Skilled (ref: Un- skilled)		<b>0.192***</b>	<b>0.159***</b>	<b>0.160***</b>
		<b>(0.0165)</b>	<b>(0.0157)</b>	<b>(0.0157)</b>
High Skilled		<b>0.181***</b>	<b>0.172***</b>	<b>0.173***</b>
		<b>(0.0300)</b>	<b>(0.0299)</b>	<b>(0.0299)</b>

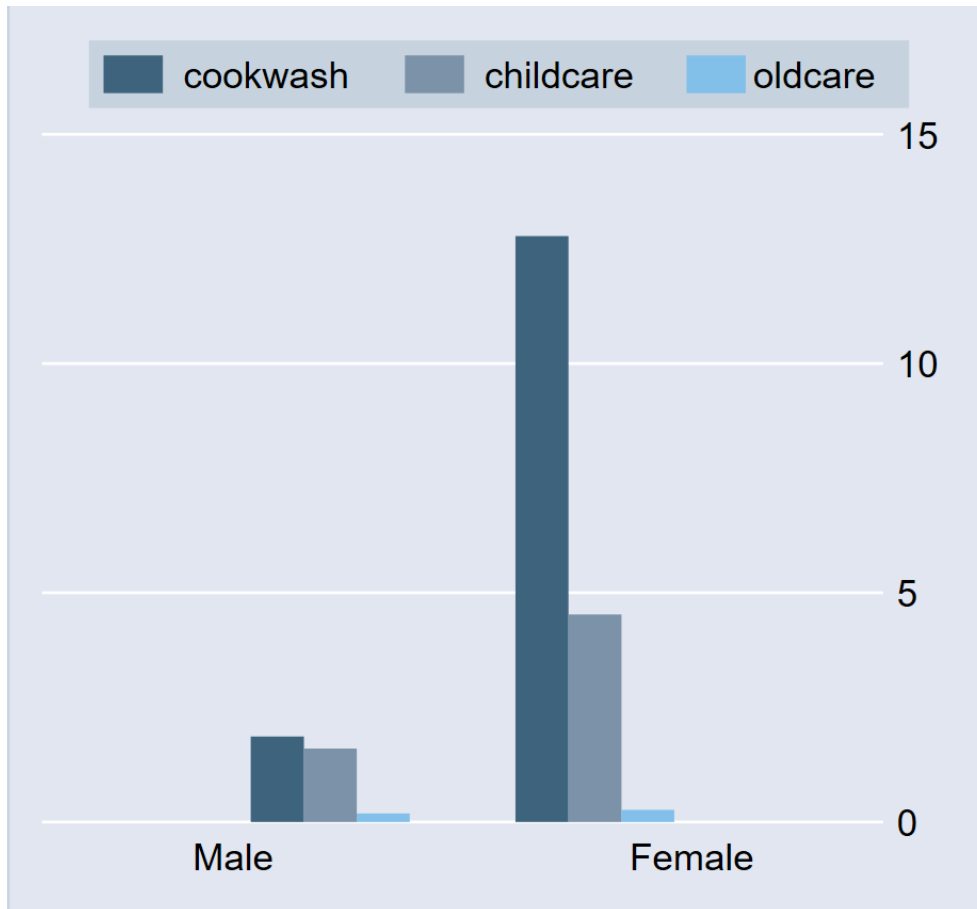
Non-govt Job (ref: Govt job)				<b>0.0510**</b>	<b>0.0500**</b>	<b>0.0499**</b>
				<b>(0.0230)</b>	<b>(0.0234)</b>	<b>(0.0234)</b>
Experience 5-9 years (ref: Experience <5 years)				0.0188	0.0109	0.0106
				(0.0173)	(0.0170)	(0.0170)
Experience 10 years & more				<b>0.124***</b>	<b>0.120***</b>	<b>0.120***</b>
				<b>(0.0169)</b>	<b>(0.0163)</b>	<b>(0.0163)</b>
Constant	9.776*** (0.0111)	9.796*** (0.0447)	9.660*** (0.0473)	9.497*** (0.0514)	9.494*** (0.0504)	9.496*** (0.0505)
Observations	6,097	6,097	6,097	6,097	6,097	6,097
Adjusted R-squared	0.024	0.141	0.220	0.252	0.286	0.286

---

*Note: Robust standard errors in parentheses \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ ; ref=reference*

## Appendix B- Graphs

**Figure B1.** *Gender Specific Domestic Work Hours Per Week*





**Figure B2.** *Lowess education curves showing age-earnings profile by education level*

