

Impact of COVID-19 on working hours – A gendered study

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Abstract

In the wake of COVID-19 the relationship between the number of hours spent on job and overall job performance and efficiency is a focal point of discussion for the policy makers and the business leaders. Recently, the corporate leaders have sparked a debate on causal relationship between number of hours spent on the job and business performance. COVID-19 saw a majority of businesses move to remote and online mode, leading to substantial decline on time spent on job. The study aims to empirically analyze the impact of COVID-19 on hours worked and time spent on job. Moreover, difference in difference method has been used to examine how COVID-19 impacted working hours for men and women differently. The second part of the study uses the regression dynamic panel to study the impact of COVID-19 on household income and its gendered impact. The data for the analysis was taken from Consumer Pyramid dx, Peopledx wave 18, 19 and 20. Overall the results show that there is significant decline in hours worked during COVID-19 with average number of working hours for women experiencing a greater decline than the men. In the second part of study, regression analysis is undertaken to measure the impact of region, education and gender on income of households. As per the analysis, rural regions have lower income as compared to urban regions. And higher education leads to significantly increase in income.

Keywords: Time spent on job, gendered difference, COVID-19

Introduction

Time spent on job and causal inference between time spent on job to boost corporate performance is a matter of debate for the policy makers and corporate leaders and researchers from the modern school of thought. Recently, in wake of COVID-19, declining bottom lines, lot of business leaders have sparked a debate on causal relationship between time spent on job and business performance. During COVID-19, the hours worked saw a steep decline in time spent on jobs. Difference in difference method using parallel trends has been deployed to compare the number of hours worked by the males and females during COVID-19. Theoretical framework of gendered impact on work hours has been used to study how crisis events like COVID-19 exacerbate existing income inequalities, sectoral unemployment for female workers as compared to the males. This study will be of interest to policy makers to design policy interventions to ensure gender equity, inclusiveness without compromising business performance. Theoretical framework of gendered impact on work hours has been deployed to analyze how crisis events like COVID-19 amplify pre-existing disparities between males and female workers. This framework highlights those inequalities grounded in gender roles, stereotypes are amplified during period of economic and social crisis. This framework highlights how women workers who are under represented are affected by the workers and suffer from a sharp decline in working hours, income as compared to males. This gendered inequality not only widens the economic gaps but also creates fault lines in form of traditions that impact future trajectory of career growth for women in the workplace. By highlighting mechanism and precursors like crisis that exacerbate gendered market outcomes this study highlights the need for policy intervention in an institutional environment to ensure participation of women in the workplace. The study utilizes difference in difference methodology to assess how COVID-19 impacts time spent on working by males as compared to females. Dynamic panel regression has been used to analyze the gendered impact of COVID-19 on household income. The results of the study indicate that COVID-19 witnessed a decline in number of hours worked. While working hours decreased for both genders, the decrease was more pronounced for male members as compared to the females. Thus, during COVID-19 the males worked higher number of hours as compared to the females. The analysis also highlighted a positive relationship between household, size and income, signalling that the larger families tend to have larger income. Besides, that the education has a positive relationship with household income. During COVID-19 household income increased more as compared to the normal times due to the implementation of various Government schemes. The rural households witnessed higher household income as compared to the urban households.

Research Problem

During COVID-19, the lockdown resulted in vast impact on working hours for the general public. The research questions for the study are given below:

RQ1: COVID-19 significantly impacted the number of working hours for females as compared to male work force

Data

Section 1: Research question on impact of COVID-19, Gender on time spent by employees on their employees

The study uses secondary data from Consumer Pyramids dx database maintained by CMIE (Centre for Monitoring Indian Economy). For this study data was drawn for 2 different periods (1) Pre COVID-19 September October November December (2) Post COVID-19 Jan – August 2019. The sample was restricted to households participating in the self-help groups. The selection was done on the basis of the available information.

Table 1: Description of the variables (Source: Author's own work)

Variables	Description
COVID-19	Binary variable – 1 for COVID-19 and 0 for non-COVID-19 period
Gender	Binary variable – 1 for female and 0 for male
Time spent on work for employer	Time spent on work for employer is number is stated time spent by a member of a sample household on an average, on work undertaken for an employer. Time spent is expressed in terms of hours.
Education	Education. 0 house of all illiterates, 1 = Matriculates and house of some literates; 2= Household of minority literates; 3= Household of majority literates; 4= Household of all matriculates; 5 = Household of minority graduates; 6 = Graduates dominated household; 7 = All graduates dominated household
Region	1 for rural region and 0 for urban region
Log income	Income for the households (Logarithmic)

Table 1 provides the detailed description of the variables used for the purpose of study. Dependent variable in the study is Time spent on work for employer. And the independent variable is gender which is binary variable with value 1 for females and 0 for males. COVID-19 is binary variable with value 1 for COVID-19 and 0 for non-COVID-19.

Table 2: Summary of statistics (Source: Author's own calculation)

Summary of data statistics

	Frequency	Mean	Pre Covid	Post Covid
COVID	840	0.33		
Time spent		6.81 hours	7.37	5.67
Time spent on work by females			7.45	5.81
Time spent on work by males			6.16	5.38

Section -2 – Research question on impact of COVID-19 and gender on income of households

Data

For the purpose of study, the data was taken from pre COVID-19 period Jan – April 2019. And the post COVID-19 data was taken from Sep – Dec 2020 and 2021. The data was taken Consumer Pyramid dx from CMIE (Centre for Monitoring Indian Economy). The summary of statistics is given below:

Table 3: Summary statistics (Source: Author's own calculation)

Particulars	Mean
Log income	1,95,921
Number of members	2.1
Gender (Women headed households)	964
Male headed households	1,397
Education	2.83
COVID-19	11805 observations
Normal times	9,440 observations

Research methodology

For the purpose study, the difference and difference methodology has been used. And in order to check for the presence of interaction effect, parallel trends have been used. The graphical analysis highlights the presence of the parallel trends in the data. This further validated the use of the difference and difference method to analyze the impact of gender and COVID-19 on the time spent by the employees with the employer. Figure 1 provides the graphical analysis of the time spent by the male and female workers in pre and post COVID-19 period. The blue line refers to the time spent by the males on job and red line refers to the time spent by the females on the job. Time periods are depicted on the Y axis. Wave 18 and 19 are the pre COVID-19 waves and 20 is the post COVID-19 wave of data collection. Clearly from the analysis of the data, the time spent on the job has fallen for both males and females. But the time spent for females have fallen more than the time spent by the males.

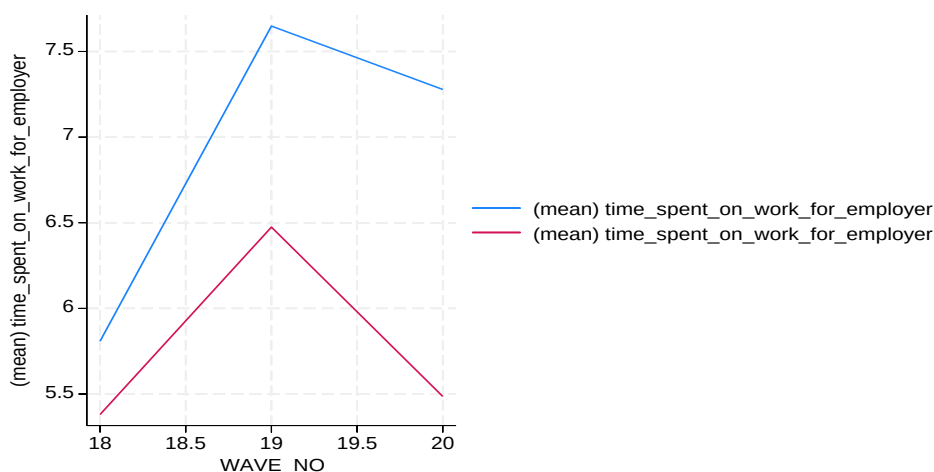


Figure 1: Parallel trend analysis (Source: Author's own work)

Results and analysis

Research Ques 1: Impact of COVID-19, Gender on time spent by employees on their employees

Table 4: Difference in difference (Source: Author's own work)

Time spent on work by employer = $\alpha_{it} + \beta_{it} \text{ Gender} + \lambda_{it} \text{ Covid} + \gamma_{it} \text{ Gender} \cdot \text{Covid} + \varepsilon_{it}$

Time spent on work by employer	Coefficient	Std error
Constant	6.168***	0.234
Covid	-0.787***	0.216
Gender*Covid	-0.862***	0.182
Gender	1.29***	0.175

From the analysis of results baseline average hours spent by the male employees on the work is 6.168 in pre COVID period. During COVID-19, the hours spent on work by men declined significantly by 0.8 hours as the coefficient for Covid-19 is -0.787, with significant p value. Interaction term for gender and covid is -0.862, suggesting that the females experienced an additional decline of 0.862 hours in work during COVID-19 as compared to males. For gender the coefficient is 1.29 with significant p value indicating that on an average women spent 1.3 hours more on work as compared to men.

Regression

Research ques 2: Impact of COVID-19 and gender on income of households

Data

This part of study aims to discuss about the impact of Gender (Female) and COVID-19 on the income of the employees. Regression analysis has been conducted to measure the impact of gender, number of employees, education, and region on the income of the members of the household. The analysis of the data highlights that number of members positively impacts the income of the households. Moreover, the females have a positive impact on the income of the households. Regions is a binary variable, which is 1 for rural regions and 0 for the urban regions. The analysis of the data highlights that rural region witnessed an increase in the total income due to various schemes introduced by the Government during COVID-19. Also, better education leads to higher income for the households. The interaction between gender and COVID-19 also has a positive impact on income of the households. The analysis of the results highlights that the social schemes and various initiatives by the Government such as income had a positive impact on the income of the households.

Moreover, during COVID-19 the Government introduced various schemes, which had a positive impact on the income of the households.

Table 5: Regression results (Source: Author's own calculation)

$$\text{Logincome}_{it} = \alpha_{it} + \beta_{it} \cdot \text{COVID} + \gamma_{it} \cdot \text{Gender} + \lambda_{it} \cdot \text{Gender} * \text{COVID} + \theta_{it} \text{Number of members} + \varphi_{it} \text{Education} + \Delta_{it} \text{Region} + \varepsilon_{it}$$

	Logincome	S.E.	LCL	UCL
COVID.	0.065***	0.017	0.030	0.100
Gender				
COVID	0.108***	0.012	0.084	0.132
Number of members	0.102***	0.004	0.092	0.111
Gender	0.003	0.015	-0.026	0.033
Education	0.099***	0.003	0.091	0.107
Region	-0.038***	0.014	-0.067	-0.009
Constant	8.94***	0.019	8.905	8.982
Rho square	0.167			

Results and discussion

The coefficient for interaction term for COVID-19 and gender, where gender is females is 0.065 with significant p values, suggesting that the women headed households experienced an additional income increase of 6.5% in income during COVID-19 as compared to men headed households, ceteris paribus. This could be due to the various schemes started by the Government of India. Various studies highlight that income saw a sharp decline in the first wave of lockdown but the recovery was sharp in period 2020-21. And recovery was much sharper for the higher income households as compared to lower income households. A detailed study on impact of COVID 19 on Quartile income can be undertaken in future. The coefficient for COVID-19 is 0.108 with significant p value, indicating that the overall income increased by 10.8% during COVID-19 during COVID-19 relative to pre COVID-19 period. The number of members in the household has a positive impact with coefficient 0.102, indicating that an additional member increased the income of household by 10.2%. The coefficient for gender is 0.003, implying that before COVID-19 there is not much significant difference in income of households due to gender. Education has a strong positive impact on income suggesting that higher education is linked to 9.9% higher income for households with more educated members. There is regional variation in the income, with rural households having 3.8% lower income as compared to urban households. The baseline income is 8.84 in log terms.

Conclusion

From the study COVID-19 led to significant reduction in work hours for both men and women headed households with women experiencing a larger decline in work time compared to men. Before pandemic women spent 13 hours on average more on work as compared to men. The pandemic caused a decline of 0.8 hours more for men as compared to women. Women experienced a sharper decline with a reduction of 1.61 hours as compared to 0.8 hours for men. Thus, due to COVID-19 women found it more difficult to shoulder economic activities as compared to men. Also, during COVID-19 household income increased by 10.8% during COVID-19 as compared to pre COVID-19 period. Women headed household experienced an additional increase of 6.5% in income as compared to male headed household. This increase is result of various schemes launched by state. And before pandemic there was no difference in income of household size is associated with 10.2% jump in income of households. With higher education contributing to 9.9% increase in income of households. Rural region has 3.8% lower income as compared to urban regions. In summary, despite decrease in women's work hour which signifies unpaid work, women headed households were financially resilient during pandemic. Though structural factors like education and urban location remains significant determinant of income. The results have lot of implication for policymakers, as they signify positive impact of various schemes on the income of the households. As per the study, more initiatives can be taken to reduce regional disparity in the income of the households.
