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## The Time Allocation Behaviour of Working Women in Organized Sector : Empirical Evidence from Urban Odisha



Gayatri Nayak<sup>1</sup>



S.K. Padhi<sup>2</sup>

*This paper aims to explore the time allocation of working women and how they distribute their limited time (24hrs) resource for different activities per day. It gives information about when and where an activity takes place, how it is organized etc., all of which have significant policy implications. Here time allocation for domestic/household work is one of the major arenas have been highlighted as it consumes a huge portion of working women's time, and the value of domestic work performed by working women are also calculated. Basically working women spend about 7 hours per day for domestic work and the value of their HH work is about 941.54 rupees per day as revealed from the empirical study. This study is confined to Bhubaneswar Municipal Corporation; hence no macro level inferences can be made from this.*

**Key Words :** Working Women (WW), Household (HH), Time allocation, Occupation JEL Classification: J81, D19, J29, J24

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### Introduction :

Time is frequently more valuable than money and it is regarded as a common and accepted concept. Gronau (1977) 'Compares Wife's time to an iceberg, the visible top shows the time she spends in the market but the submerged part is just like the amount of time she spends at home'. Women's position to development is often under predictable and under reported with the usual instrument of census, and time-use-surveys truly and exactly pictures women's social and economic contribution to the family, society and for the whole nation. Even though since ancient times GDP per capita is accepted as measure of welfare of the economy, but really how individuals earn income, how much time they spend on paid work, how much stress strain they face while combining paid market work and unpaid domestic work, how much leisure they gain, all these are to be considered as important indicators to examine the quality of life of the individuals. Along with the paid market work, women especially WW has to spend their time on so many domestic activities including cooking, cleaning, washing, caring etc. and the list goes endless. Rather than adopting the usual GDP estimator to calculate the growth of the economy, indicators of sustainable growth which considers the value of household services along with other variable is also necessary in the real world. Such a genuine indicator is GPI (Genuine Progress Indicator) for sustainable development. The invisible economy is mainly concentrated by a woman who performs the unpaid work which mainly contributed to the emotional and physical development of every family and in fact they are building up the human capital of every nation. Governments should take measures to assign a monetary value to the

unpaid work performed by women. Household satellite accounts and time use surveys help to give visibility to their work (Ramya (2013).

### Literature Review

Bianchi (2010) categorizes parent's time into paid work, housework and child care. Such a categorization is also undertaken here. While investigating care work given for old, friends, adult and children are also considered in her analysis. On the basis of the empirical data collected over the last decade in US made it clear that despite rapid increase in maternal employment, mother's investment in child rearing remains very high and another significant finding is that once a working woman had a child, her time dedicated to domestic work shows a sharp increase. Souse-poza et al. (2000) explained that men's allocation of time to housework and child-care is mostly invariant to changes in socio-economic factors. Women's allocation of time to housework and child-care is shown to depend on several social, economic and demographic factors. It is deliberate with two market alternate cost methods and three opportunity cost method. The result shows that the value of time assigned to housework and child-care ranges from 27% to 39% and from 5% to 8% of GDP in (1997) respectively.

Malathy (1994) made an estimation of the allocation to non-market work of urban women in Madras with the goal of examining the responsiveness of non-market time allocations to economic incentives, namely wages and income, and to appreciate the role of education on time allocation. The importance of this study stems from the fact that 'housework is an important activity for women, mainly in the developing countries, and ignoring this element of time use can critically warp our dimension of

<sup>1</sup> Research Scholar in Economics, Department of Social Science, Fakir Mohan University, Balasore, Odisha gayatri.you@gmail.com

<sup>2</sup> Reader in Economics, Department of Social Science, Fakir Mohan University, Balasore, Odisha sunilkpadhi78@gmail.com

their productive role' (p.744). Based on the structure of analysis of the new HH economics approach, the study found out that an increase in wife's wage is expected to have a negative effect on non-market time allocation. An increase in the husband's salary exerts an income effect which is negative. The study shows a replacement opposite relationship between the spouses' time (p.745).

Wales and Woodland (1977) presents a model of HH in which time is allocated between job work, leisure and housework. Leisure is in fact a function of wage rate of husband, wife, and price of Hicksian composite good, full income. When housework hours are treated as endogenous, as income increases, demand for big house, to perform HH duties more labour saving devices arise. To examine the working hours of each spouse, wage rate non labour income and socio-economic factors are taken as illustrative variables. Results of these studies are used to conclude the extent to which work effort of the husband or wife that change as a result of the changes in the wage rate of each spouse.

Quentin et al. (2010) in their study conducted in Sierra Leone revealed that if women allocate more time on domestic tasks, it will negatively affect their economic opportunities. Under such position instead of sharing domestic tasks HH may demand the services of paid domestic workers. Time allocation model incorporating domestic workers and occupation wise time use between the farmers and hiring of paid domestic work is undertaken by Yang et al. (2004). In a dual earner household, time constraint is so willingly felt which cover the way for an increasing demand for domestic workers. The stress and strain faced by WW in their time allocation lead to a sharp increase in the demand for domestic workers. Talking from the side of substitutability, if domestic work performed by woman herself and work performed by the domestic workers are perfect substitutes, working women will begin to hire their services when their market wage is greater than the hired service of the domestic worker.

#### Objective

In the view of the above stated studies, the objective is to examine a detailed sketch of 'time allocation of WW and value of the domestic work across different occupations'.

#### Hypothesis

In the present study we hypothesize that, there are significant differences in the time allocation behaviour of working women based on their occupation and nature of work.

#### Data and Methodology

Working women refers to those women's were work outside the home for wages or where the women are working in the labour market for wages/salaries. The data were collected from 200 WW households using purposive sampling and a questionnaire structured to throw light into the time allocation of WW, in organized sector of

Bhubaneswar Municipal Corporation (BMC) area. BMC records the highest participation of women in the organized labour market, literacy rate, predominance of service sector etc. and Bhubaneswar is the capital of Odisha which can be seen as a representative of state, and BMC is mostly urban in nature. About 87% in the sample women are married and remain 8.5% are widow and 4.5% are unmarried. All WW of the sample belongs to age between 25 to 60 years old. In the present study examine the different related work and its significance upon the time allocation of WW is presented. One way ANOVA is used to compare the different related work time allocation of WW with different occupational status.

#### Result and Discussion

As the present study being a comparative study based on different occupational categories. All the occupations are categorized in 8 different classes for easy understanding, that 1<sup>st</sup> group which consists 22% teaching professional (teacher, lecturer, professor etc.), 2<sup>nd</sup> group consists 9.5% medical staffs (doctor, nurse, and dietician), 3<sup>rd</sup> group consists 7.5% senior officials & managers (senior officers, deputy director, director, statistical officer, manager, etc.), 4<sup>th</sup> group consists 16.5% engineer (technician, hardware and software engineer etc.), 5<sup>th</sup> group consists 8.5% media, protection and legal services (mass media, police, lawyer, and legal officers etc.), 6<sup>th</sup> group consists 19% clerk and related worker (all clerical, office assistant, section officer etc.), 7<sup>th</sup> group consists 12% receptionist and airport jobs (receptionist, airhostess, flight attendant etc.), and 8<sup>th</sup> group consists 5% peon and home-guard (all class-4 staff).

Table.1: Occupational distribution of sample respondents

	Occupation	Frequency	Percentage
1	Teaching professional	44	22
2	Medical staff	19	9.5
3	Senior officials & Managers	33	16.5
4	Engineer	15	7.5
5	Media, protection & legal services	17	8.5
6	Clerk & related worker	38	19
7	Receptionist & airport job	24	12
8	Peon & Home-guard	10	5
	<b>Total</b>	<b>200</b>	<b>100</b>

Source: Sample survey, April 2018

Working hours are one of the important factors which effect employee's motivation. Mainly the time use patterns of individuals differ in week days, holidays, in the event of abnormalities, in days such as celebration of festivals, arrival of guests. Such abnormal days were not considered for the study and the respondents were asked to state the time that they spent on various activities in normal days. So focus is given mainly on normal working days and time allocation of WW across different occupational categories in the concerned days is undertaken. Total time allocation, time allocation of domestic work and time devoted to personal care, elderly care, rest and leisure activities are presented. Along with

the time allocation details, the value of domestic work performed by WW are also calculated.

Occupation wise hour of work on working place:

The Table-2 explains the usual working hours of WW at working place by different occupation. Regarding to this out of the total majority group (49%) are working 8hrs on their occupation, followed by 7 hour (30%).

Table 2: Occupation wise hour of work in working place of respondent

Occupation	Working hour in working place (in hours per day)							Total
	5hr	6hr	7hr	8hr	9hr	10hr	Above 10 (14hr)	
1 Teaching professional	4	19	21	0	0	0	0	44
2 Medical staff	0	2	3	6	3	5	0	19
3 Senior officials & Managers	0	0	7	24	2	0	0	33
4 Engineer	0	0	0	13	2	0	0	15
5 Media, protection & legal services	0	0	2	12	0	0	3	17
6 Clerk & related worker	0	1	14	22	1	0	0	38
7 Receptionist & airport job	0	0	13	11	0	0	0	24
8 Peon & Homeward	0	0	0	10	0	0	0	10
<b>Total</b>	<b>4</b>	<b>22</b>	<b>60</b>	<b>98</b>	<b>8</b>	<b>5</b>	<b>3</b>	<b>200</b>
	(2%)	(11%)	(30%)	(49%)	(4%)	(2.5%)	(1.5%)	(100%)

Source: Sample survey, April 2018

Total time allocation across different occupational status

This section related with how a WW allocates her 24 hours on different activities. Time spend at work place have a significant control upon her other activities within the family. For easy understanding, time allocation to total time is classified into five categories: i) Time at work place', which includes only that time which is spending in working place for paid market work, ii) Time for HH work, which includes cooking, cleaning, washing, child care, elderly care, HH management and other related work etc. iii) Sleeping and resting time, iv) Transportation time, which is including that time which is spend by WW for travel working place to residence and v) Other personal related work, which is includes reading books and newspaper, walking, talking, hobbies, project work, preparing for promotion etc.

Table 3: Total time allocation across different occupational status

Occupation	Time distribution (in hours per day)				
	Time at work place	Time for HH work	Sleeping & leisure time	Transportation time	Other personal related
1 Teaching professional	6.39	7.65	7.49	0.82	1.65
2 Medical staff	8.32	6.13	7.59	0.49	1.47
3 Senior officials & Managers	7.85	6.35	7.37	0.79	1.64
4 Engineer	8.13	5.65	7.6	0.54	2.08
5 Media, protection & legal services	9.06	6.27	6.35	0.57	1.75
6 Clerk & related worker	7.61	7	6.97	0.68	1.74
7 Receptionist & airport job	7.46	7	7.33	0.58	1.63
8 Peon & Homeward	8	6.57	7.75	1.07	0.98
<b>Total</b>	<b>7.85</b>	<b>6.58</b>	<b>7.31</b>	<b>0.69</b>	<b>1.62</b>
<b>F value</b>	<b>19.386</b>	<b>5.532</b>	<b>5.524</b>	<b>2.52</b>	<b>1.277</b>
<b>p value</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>&lt;0.001</b>	<b>0.017</b>	<b>0.264</b>

Source: Sample survey, April 2018

The Table-3 revealed that, 5<sup>th</sup> group employees WW spend comparatively more time at work place, nearly 9.06 hours per day, and 1<sup>st</sup> occupational group WW spend relatively less time at the work place, nearly 6.39 hours per day. On an average WW are spent 7.85 hours per day for their working place. Teaching profession's WW have highest time allocation for domestic work, nearly 7.65 hours per day and

the engineer professional have the lowest time spend for domestic work, nearly 5.65 hours per day. On an average WW are spending 6.58 hours per day for domestic work. Sleep is in fact a major expenditure of time that exhibits important disparity within every population. Sleep will definitely add to an individual's efficiency and it is clear that sleeps increases efficiency and through this is helps to maximize money income (Becker, 1965). Turning to time allocation for sleeping and resting time on an average WW have spent 7.31 hours per day. For transportation time, on an average WW spend 0.69 hours per day because of long distance between working place to their residence (home). On averages WW have getting rest 1.62 hours' time per day for other personal related worked, and also found that engineers are spend more time and 8<sup>th</sup> occupational group employees are spend less time for this. As F value is found to be highly significant for all factors expect other personal related work.

Proportional (%) time allocation by occupational status

How much proportion of total time is devoted to different activities is also very important while examining the time allocation of WW. When taking on an average, it is revealed that WW are spent 32.71% of their total time for market work, 27.41% for household work, 30.45% for sleeping and resting, 2.89% for transportation and nearly 6.74% for other personal related work. Both the work taken together, that is market work and unpaid household work comes more than 60% for their time and balance less than 40% for other's (sleeping, resting, traveling etc.).

Table 4: proportional time allocation (%) across different occupational status

Occupation	Time distribution (in % from 24 hours)				
	Time at work place	Time for HH work	Sleeping & leisure time	Transportation time	Other personal related
1 Teaching professional	26.61	31.89	31.2	3.41	6.88
2 Medical staff	34.65	25.53	31.63	2.07	6.12
3 Senior officials & Managers	32.7	26.46	30.71	3.28	6.85
4 Engineer	33.89	23.54	31.67	2.24	8.66
5 Media, protection & legal services	37.75	26.13	26.47	2.38	7.28
6 Clerk & related worker	31.69	29.17	29.06	2.84	7.25
7 Receptionist & airport job	31.08	29.17	30.56	2.41	6.79
8 Peon & Homeward	33.33	27.38	32.29	4.46	4.08
<b>Total</b>	<b>32.71</b>	<b>27.41</b>	<b>30.45</b>	<b>2.89</b>	<b>6.74</b>

Source: Sample survey, April 2018

Domestic time allocation across occupational status

Time allocation to total household work is further classified into mainly three: Time devoted to (a) main household work (which is also divided into two different parts, like i.) cooking and ii) washing & cleaning), (b) care time (which include child care, elderly care) and (c) household management (which include paying bills, shopping, water collection, domestic outsourcing, gardening etc.). The values presented in the table 4.17 are average or mean value of time in hours per day.

An occupation wise assessment of domestic time allocation reveals that there exists significant difference between different occupational categories in their total domestic time allocation that is time devoted for

Table 5: Domestic time allocation (in hours) across occupational status

Occupation	HH main work		Care time	HH management/ other related work	Total time for HH work
	Cooking	Washing & cleaning			
1 Teaching professional	2.38	1.09	2.03	2.16	7.65
2 Medical staff	1.96	0.76	2.4	1	6.13
3 Senior officials & Managers	2	0.94	1.78	1.63	6.35
4 Engineer	1.63	0.94	1.13	1.94	5.65
5 Media, protection & legal services	2.09	0.9	2.58	0.71	6.27
6 Clerk & related worker	2.42	0.99	2.43	1.16	7
7 Receptionist & airport job	2.13	1.01	1.8	2.06	7
8 Peon & Homeward	2.56	1.02	2.37	0.62	6.57
<b>Total</b>	<b>2.15</b>	<b>0.96</b>	<b>2.06</b>	<b>1.41</b>	<b>6.58</b>
<b>F value</b>	<b>2.73</b>	<b>1.941</b>	<b>1.827</b>	<b>1.301</b>	<b>5.532</b>
<b>p value</b>	<b>0.01</b>	<b>0.065</b>	<b>0.084</b>	<b>0.002</b>	<b>&lt;0.001</b>

Source: Sample survey, April 2018

household work. Table-5 revealed that most of the time used for main household work (2.15+0.96=3.11 hours per day), followed by care time (especially child care) and less time for others, because for time poverty for household work. Another interesting result found that WW are spend less time for washing and cleaning because substitute using of washing machine, dish washer, vacuum cleaner and domestic maid helper.

#### Child care time allocation across occupational status

While examining child care and related aspects major time use studies are focused on parent's time use for example, Neuwirth (2004) made estimation on parent's caring activities and mother's market working time and time for child care is discussed. Parents with young children came under high time pressure and how that time pressure is varied across occupation is not considered in many studies; here a clear focus is maintained only on women especially WW. Human development report (1995) exposed that 'once a woman has child she is expected to spend about 3.3 more hours per day on unpaid activities and a women with children below 5 year is expected to put 9.6 hours of total work every day for child care'. For analysis the total child care provided by women, here only who have young child (0-15 years) is considered and it is divided into three type of care;

1. Primary child care (which include breast feeding, general feeding, bathing, changing dress and diapers, medical care, rocking a child to sleep and so on).
2. Educational child care (which include helping children to do homework, reading for children, etc.)
3. Recreational child care (which include time spend on playing games with children, going out door, serving food so on).

The F value reveals that there is no significant difference between different occupational groups in providing child care, as it is clear that women whatever be their occupational status they spends almost parallel time for child care. On an average WW have spent less time for educational child care (0.52 hours per day), because they must have time poverty, with also because of, they appoint an alternate private teacher to look after their children's educational needs. Table-6 reveals that WW have spent 2.73 hours per day for total child care.

Table 6: Child care (who have 0-15 years child) time allocation (in hours per day) across occupational status

Occupation	Child care time allocation (in hours per day)			
	Primary child care	Educational child care	Recreational child care	Total child care
1 Teaching professional	1.05	0.82	0.99	2.86
2 Medical staff	1.58	0.43	0.88	2.86
3 Senior officials & Managers	0.95	0.49	0.92	2.36
4 Engineer	1	0.26	0.81	2.07
5 Media, protection & legal services	1.19	0.85	0.98	3.02
6 Clerk & related worker	1.31	0.52	1.17	3
7 Receptionist & airport job	1.86	0.14	0.91	2.91
8 Peon & Homeward	1.38	0.64	0.95	2.96
<b>Total</b>	<b>1.26</b>	<b>0.52</b>	<b>0.95</b>	<b>2.73</b>
<b>F value</b>	<b>1.658</b>	<b>2.925</b>	<b>1.391</b>	<b>1.274</b>
<b>p value</b>	<b>0.131</b>	<b>0.007</b>	<b>0.215</b>	<b>0.269</b>

Source: Sample survey, April 2018

#### Time allocation for personal care across occupation

It is found from the Table-7, that the F value is significant in case of total personal care, in the case with teaching and medical professionals (0.81 and 0.74 hours per day respectively) who spend some what a little bit time more than other occupational categories. It also reveals that there is no significant difference between occupational groups in the time devoted to health care (physical exercise). On an average working woman spend very less time for personal health care or physical exercise (0.22 hours per day).

Table 7: Time allocation (in hours) for personal care

Occupation	Personal care		
	Health care/ physical exercise	Other related care	Total personal care time
1 Teaching professional	0.23	0.58	0.81
2 Medical staff	0.29	0.45	0.74
3 Senior officials & Managers	0.29	0.28	0.57
4 Engineer	0.31	0.37	0.68
5 Media, protection & legal services	0.1	0.25	0.35
6 Clerk & related worker	0.15	0.38	0.53
7 Receptionist & airport job	0.28	0.24	0.52
8 Peon & Homeward	0.07	0.27	0.34
<b>Total</b>	<b>0.22</b>	<b>0.35</b>	<b>0.57</b>
<b>F value</b>	<b>1.426</b>	<b>3.602</b>	<b>3.543</b>
<b>p value</b>	<b>0.197</b>	<b>0.001</b>	<b>0.001</b>

Source: Sample survey, April 2018

#### Time allocation for elderly care across different occupation

India is the 2<sup>nd</sup> populated country in the world, around 104 million elderly persons which is 8.6% of the population (census of India, 2011). Table-8 reveals that among different occupational categories no significant difference in time allocation for elderly care can be noticed. Taking all together WW spend only 0.18 hours per day for elderly care, which is very negligible.

#### Quantification of value of domestic work of working women

Thus GDP is not a better method of calculating the level of economic activities; a GPI can be obtained through household settlement accounts. GPI supplements GDP and it represents the accurate cost and can be used as a tool of sustainable development. The important feature of GPI is that along with other factors the unpaid domestic activities promotes the welfare of every economy which

**Table 8: Time allocation (in hours) for Elderly care**

Occupation	Elderly care time
1 Teaching professional	0.34
2 Medical staff	0.14
3 Senior officials & Managers	0.27
4 Engineer	0.17
5 Media, protection & legal services	0.26
6 Clerk & related worker	0.14
7 Receptionist & airport job	0.1
8 Peon & Homeward	0
<b>Total</b>	<b>0.18</b>
<b>F value</b>	<b>1.524</b>
<b>p value</b>	<b>0.161</b>

Source: Sample survey, April 2018

are mainly performed by women is also take into kindness and on the basis of GPI calculation an average Indian house wife adds Rs.78000 per year to the economy (Indian Economy Review, 2011).

With the help of time use surveys the economic value of domestic work is calculated and if these unpaid activities are properly recognized, it will become very easy for the policy framers to frame suitable policies. But illogically all such domestic work is classified as 'economically unproductive' and the WW's true work is thus economically undervalued. Here an attempt is thus made to calculate the value of domestic work performed by WW across different occupations. The formula is:

Value of domestic work performed by women = Average time spend for domestic work per day × Average salary per hour (equivalent to the salary position of each occupational category).

On the basis of the formula, the 1<sup>st</sup> teaching occupational spend on an average 6.39 hours per day at the work place, their average salary per day can also be gained from their monthly salary. From that it is possible to find out their average salary per hour. The sample survey also gives the data on an average time spend for domestic work and when their average salary is multiplied by the average time they spend for domestic work, their value of domestic work can be calculated. The 1<sup>st</sup> teaching occupational category on an average spend about 7.65% hours per day on domestic work and the value of domestic work per day is 1425.41 rupees.

**Table 9: Value for the domestic work per day across different occupation**

Occupation	Average time at work place (in hrs per day)	Average salary per day (Rs.)	Average salary per hour (Rs.)	Average time spent for HH work (in hrs per day)	Value of the HH work per day (Rs.)
1 Teaching professional	6.39	1190.64	186.33	7.65	1425.41
2 Medical staff	8.32	1570.18	188.72	6.13	1156.88
3 Senior officials & Managers	7.85	1976.77	251.82	6.35	1599.04
4 Engineer	8.13	1096.67	134.89	5.65	762.14
5 Media, protection & legal services	9.06	1119.61	123.58	6.27	774.83
6 Clerk & related worker	7.61	941.93	123.78	7	866.43
7 Receptionist & airport job	7.46	531.94	71.31	7	499.14
8 Peon & Homeward	8	558.33	69.79	6.57	458.53
<b>Total</b>	<b>7.85</b>	<b>1123.26</b>	<b>143.09</b>	<b>6.58</b>	<b>941.54</b>

Source: Sample survey, April 2018

Similarly for the 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> occupational groups spend 6.13, 6.35, 5.65, 6.27, 7.0, 7.0 and 6.57 hours respectively per day for domestic work and its value is about Rs.1156.88, Rs.1599.04, Rs.762.14, Rs.774.83, Rs.866.43, Rs.499.14 and Rs.458.53 rupees per day. Taking all together WW spend about 6.58 hours per day for domestic work and the value of their HH work is about 941.54 rupees per day.

#### Conclusion

Time allocation survey and quantification of HH domestic work will become very easy for the policy framers to frame suitable policies for the improvement of not only WW but also improve the conditions of home makers, and also apply sustainable tools to calculate the correct sustainable growth of our state.

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