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NIPFP

February 2022

Online at <https://mpra.ub.uni-muenchen.de/111925/>
MPRA Paper No. 111925, posted 11 Feb 2022 11:56 UTC

Covid19 and Fiscal Policy for Unpaid Care Economy

Lekha Chakraborty¹

Abstract

Against the backdrop of covid19 pandemic, measuring unpaid care economy is significant to capture the roles and well-being of men and women. This paper analyses the unpaid care sector in India using the recent Time Use Survey 2020 and explores the fiscal policy measures to address the sector. Time poverty affects income poverty. The evidence from the time use survey across Indian States revealed the gender and geographic differentials in the time use pattern across men and women. The allocation and efficiency of nonmarket working time in the unpaid care economy is important for economic growth along with market working time. As the macro policies are constructed only on the basis of market economy, the nonmarket work in the unpaid care economy continues to remain statistically invisible. The link between fiscal policy and time allocation suggest that worsening public infrastructure investment affects the market work with evident gender differentials. The broad conclusion is that fiscal policies designed to redress income poverty can be partial if they do not take into account the aspects of time poverty.

¹ Thanks are due to Maria Floro , Mieke Meurs and other scholars of PGAE, Department of Economics, American University, Washington DC for their valuable discussions.

Against the backdrop of covid19 pandemic, measuring unpaid care economy is a unique contribution to the economic literature and policy discourses as it captures the roles and well-being of children, women and men, especially poor women and mothers, in ways that extend beyond the scope of standard economic indicators (Grown, Floro and Elson, 2010). The allocation and efficiency of nonmarket working time may be more important to economic growth than market working time. Yet, the attention paid by economists to the market economy skews any paid to the other; nonmarket work continues to remain statistically invisible. This paper analyses the unpaid care sector in India using the recent Time Use Survey 2020 data and explores the fiscal policy measures to address the sector.

In theory, the nonmarket time aggregates leisure and work at home. The justification for aggregating leisure and unpaid work at home rests on two assumptions: (a) the two elements react similarly to changes in socioeconomic environment and, therefore, nothing is gained by studying them separately; and (b) the two elements satisfy the conditions of a composite input— that is, the relative price is constant and there is no interest in investigating the composition of the aggregate since it has no bearing on production and the price of the output (Gronau 1977). However, the time use survey findings did reveal that these two assumptions are wrong, as unpaid work at home and leisure are not affected in the same way by changes in socioeconomic variables and the composition of the aggregate affects many facets of the intra-household behavior. The findings from time-use survey—tricotomising the allocation of time into work in market, work at home, and leisure—can provide insights to integrate the nonmarket work into economic modeling and, in turn, in macroeconomic policy making. This is particularly relevant when public investment policy can redress intra-household inequalities in terms of household division of labour by supporting initiatives that reduce the time allocation of women in unpaid work. Examples of such public policy interventions are improved infrastructure in the water sector, rural electrification, roads, sanitation services, and better transport infrastructure. The paper is organized into sections. Section 1 reviews the existing literature on care economy and covid19. Section 2 analyses the Time Use Survey data of 2020, published by National Statistical Office, Government of India. Section 3 analyses the gender and regional differentials in the time use pattern across Indian States. Section 4 analyses the link between fiscal policy and unpaid care economy. Section 5 concludes.

1. Covid 19 and Unpaid Care Economy : Review of Literature

Time-use data, is used to capture the chronology of time, in which the time is dichotomized into market time and nonmarket time. The impact of crisis on unpaid care economy work has been conducted against the backdrop of global financial crisis (Bahçe-Kaya, Seçil and Emel Memiş. 2013 and Berik, Günseli and Ebru Kongar. 2013, Rodgers and Menon, 2012; Floro and Hitomi, 2011; Yamamoto, 2017) and recently ex-post to covid-19 pandemic outbreak (Deshpande, 2020; Chakraborty, et al 2021, İlkaracan and Memiş, 2021; Andrew et al, 2020).

Against the backdrop of covid19 pandemic, the time use surveys are becoming more relevant to capture the fragility of work-life balance of employed women and the plausible

window of opportunity created by men's increased participation in unpaid work (İlkkaracan and Memiş, 2021; Andrew et al, 2020). In the context of Turkey, during the COVID-19 pandemic, women's unpaid work time almost doubled, while men's quadrupled. İlkkaracan and Memiş (2021) highlighted the need for work-life balance policies and for investment in social care economy infrastructure in times of covid19. In India, Deshpande (2020) has analysed the first order effects of lockdown on gender gaps in time allocation and in turn labour market outcomes. Chakraborty (2021) has analysed the gender components of economic stimulus packages – both fiscal and monetary policies – of selected countries in Asia Pacific region and identified that care economy infrastructure has not been given adequate emphasis in the stimulus packages in the region. The data from rapid gender assessment surveys investigating the socioeconomic consequences of COVID-19 on women's and men's lives, reveals that the impact of the pandemic goes far beyond health consequences (Seck et al, 2021); and given the labour markets in turmoil, work from home with young children out of school and intensified care needs of elderly and ill family members, there is a significant increase in the demand for unpaid domestic and care work during the covid19 pandemic. The study noted that with the market economy being closed, women are disproportionately bearing the burden of unpaid care and domestic work triggered by the lockdowns, and they are losing their livelihoods faster than men, and women are disproportionately affected by mental health issues (Seck, et al, 2021). Craig and Churchill (2021) report early results on how the pandemic affected paid work, domestic work, and caring responsibilities. Their findings revealed that women shouldered most of the extra unpaid workload, but men's childcare time increased more in relative terms, so average gender gaps narrowed. These inferences reflect a need for sustained policy attention to the care economy to narrow rather than widen gender disparity in the time of pandemic. Gender budgeting is a promising fiscal framework to incorporate these significant concerns relate to unpaid care economy.

Despite the growing recognition of implications of time-budget statistics for macroeconomic policy making, there have been relatively few examples of empirical literature on the topic. Bredie and Beehary (1998) revealed that easy accessibility to drinking water facilities might lead to an increase in school enrollment, particularly for girls; in Madagascar, 83 percent of the girls who did not go to school spent their time collecting water, while only 58 percent of the girls who attended school spent time collecting water. Khandker (1998) showed that it was not the patriarchy per se that restricts women's time from market work in Bangladesh, but rather economic factors like low wages and low education. In the context of Pakistan, Ilahi and Grimard (2000) indicated that worsening water-gathering infrastructure caused an increase in the total work burden of women. Empirical evidence suggests that women workers in Thailand experience a higher incidence of work intensity and hence lower quality of life compared with men (Floro and A Pichetpongsa 2010). Using time use data, analysis of "time poverty" (defined as lack of enough time for rest and leisure after accounting for the time that has to be spent working, whether in the labor market, doing domestic work, or performing other activities such as fetching water and wood) and found that women are more likely to be "time poor" than men (Bardasi, Elena and Quentin Wodon, 2010; Gammage, 2010). Motiram and Osberg (2010) uses the Indian Time Use Survey (ITUS 1999) to analyse gender inequalities in the allocation of household tasks among girls and boys and their parents, finds more mixed evidence regarding gender favoritism in human capital investment. Liu Lan and Xiao-yuan

Dong, Xiaoying Deng, 2010 unveil striking differences in labor market outcomes between caring for parents and caring for parents-in-law: caring for parents does not affect the caregiver's employment status and work hours, whereas caring for parents-in-law has a statistically significant, sizable, negative effect on the caregiver's probability of employment and hours of paid work. John(2020) analysed the link between women's paid work participation and intimate partner violence and found that in Nepal, the evidence refutes the economic bargaining models which contend that women's paid work reduces violence experienced due to increased bargaining power. The study found that in traditional setting, working women are more likely to experience increased violence as they transgress traditional gender roles and the underlying gender hierarchies.

2. Interpreting Time Use 2020

Nonmarket work remains significantly invisible in national accounts. A recognized shortcoming of the present system of national accounting (SNA) is the omission of non-market production from national accounts (Mullan, 2010, Chakraborty, 2014). The attempt of the United Nations Statistical Division in extending the production boundary of the Systems of National Accounts (SNA) in 1993 has led to the inclusion of nonmarket work into the national accounting system as satellite accounts (Box 1). Based on SNA 1993, the TUS classified the activities into SNA activities (that get included in GDP calculations), non-SNA activities (that do not get included in GDP, but should be included in the satellite accounts), and residual activities.

In the Time Use Survey conducted in India by the National Statistical Organisation, the International Classification of Activities for Time Use Statistics 2016 (3-digit code) (ICATUS) was used to record the activities of the household members.

The latest Time Use Survey (TUS) of India was conducted during January to December 2019, for each member of age 6 years and above of the selected 1,38,799 households (rural: 82,897 and urban: 55,902). The Time Use Survey covered 4,47,250 persons of age 6 years and above, with 2,73,195 in rural India and 1,74,055 in urban India. The TUS 2020 noted that the survey covered the whole of the Indian Union except the villages in Andaman and Nicobar Islands which are difficult to access. The first large-scale survey time use survey conducted in India during July 1998 to June 1999 covered 18,591 households in India, covering all members of the household aged six years and above, for only six selected States.

Box 1 Time Use Survey Classification of activities in SNA and Non-SNA, India 2020

- **SNA production**
 - Employment in corporations, government and non-profit institutions
 - Production of goods for own final use
 - Employment in household enterprises to produce goods
 - Employment in household enterprises to provide services
 - Ancillary activities and breaks related to employment
 - Training and studies in relation to employment
 - Employment-related travel
-

- Unpaid trainee work and related activities
- Unpaid direct volunteering for other households for production of goods or for production of goods/services for market/non-market units
- Unpaid community- and organization-based volunteering for production of goods or for production of goods/services for market/non-market units
- Other unpaid work activities (other than those which are already covered in SNA or covered in non-SNA production)
- **Non-SNA production**
- Unpaid domestic services for household members
- Unpaid caregiving services for household members
- Unpaid direct volunteering for other households for production of services for the Households
- Unpaid community- and organization-based volunteering for production of services for the Households
- Other residual activities
- Seeking employment
- Setting up a business
- Commuting
- Learning
- Socializing and communication, community participation and religious practice
- Culture, leisure, mass-media and sports practices
- Self-care and maintenance

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

The Time Use Survey gives a better understanding of how time is allocated across gender in the economy and provides some insights into the extent of statistical invisibility of women's work in India. The time allocation of different activities under unpaid care economy sector is highlighted in the analysis in this section. The estimates of latest Time Use Survey is used for the analysis, however the State-level estimates of first Time Use Survey is selectively used for valuation of care economy as per cent of Gross State Domestic Product due to required data availability for the valuation.

The time-use data is generated usually on the basis of time-diary method, confined to a probability sample of all types of days (weekdays and weekends). Time diary is a retrospective method in which the respondents are asked to keep an account of a recent twenty-four hours chronology of the use of time and researchers code the responses to a standard list of activities. Time-use diaries are preferred over the other methods, for they tend to be more comprehensive, they enable respondents to report activities in their own terms, and they have some form of built-in check that increases the reliability of the data (Juster and Stafford 1985).

The time-diary method has certain deficiencies. The significant one is the presence of multitasking or omission of overlapping activities. This results from the imposition of a rigid constraint of time use, namely, no person has either more or less time available than twenty-four hours per day (time constraint) and the set of activities capable of being measured, described, and analyzed must add up to a fixed number of hours or days (Floro 1995). Theoretically, it can be solved by defining the new activity as a joint activity, but the codes for possible diary activities would explode in number. The practical way of solving this problem is to indicate one activity as primary and the other as “secondary.” Yet another way to conceptualize secondary activities is to argue that there is really only one activity at any given time, but there are frequent switches between activities and if the time grid were fine enough, the issue of secondary activities would effectively disappear. Finally, it seems plausible that the issue of multiple or joint activities is the key source of the major failure of alternative recall methods. Recall accuracy falls when the respondents make primitive attempts to respond to questions about hours of an activity in the last week or month by engaging in a kind of *temporal double counting*—adding in periods when the activity was secondary to periods when it was central (Juster and Stafford 1985).

3. Time Use Pattern across Gender and Geography in India

The estimates of time use per day in different activities are presented in this section for the Indian context, considering the participants in different activities and also presented considering all persons irrespective of their participation in activities to understand the distribution of total time of 1440 minutes available for each person in a day in different activities (Government of India, Time Use Survey 2020). The participation rate in a day in any activity is defined in Time Use Survey as the percentage of persons performing that activity during the 24 hours of the reference period. The average time (in minutes) spent in a day per person in SNA production, non-SNA productions and residual other activities in India is given in Table 4.1. In rural India, women spent 286 minutes (around 5 hours) while men spent only 40 minutes a day. In urban India, men spent only half an hour in care economy, while women spent 270 minutes a day (Table 1).

Table 1: Time Allocation in SNA and Non-SNA, India 2020

| Description of the activity (all India) | male | female | Person |
|-----------------------------------------|-------|--------|--------|
| | Rural | | |
| SNA production | 262 | 87 | 176 |
| Non-SNA production | 40 | 286 | 161 |
| SNA and non-SNA production | 301 | 373 | 337 |
| Residual other activities | 1139 | 1067 | 1103 |
| Total | 1440 | 1440 | 1440 |
| | Urban | | |
| SNA production | 288 | 63 | 179 |
| Non-SNA production | 33 | 270 | 148 |

| | | | |
|----------------------------|-----------|------|------|
| SNA and non-SNA production | 321 | 333 | 327 |
| Residual other activities | 1119 | 1107 | 1113 |
| Total | 1440 | 1440 | 1440 |
| | Aggregate | | |
| SNA production | 269 | 80 | 177 |
| Non-SNA production | 38 | 281 | 157 |
| SNA and non-SNA production | 307 | 361 | 334 |
| Residual other activities | 1133 | 1079 | 1106 |
| Total | 1440 | 1440 | 1440 |

Note: (i) The estimates have been calculated considering all the activities in a time slot
(ii) Figures may not add up to 1440 due to rounding.

***Source*:** Government of India (2020), Time Use Survey 2020, National Statistical Office

The percentage share of SNA production, non-SNA production and residual other activities of the total time in a day per person based on all-India is given in Table 2. The estimates reveal that 19.9 per cent of time spent by women in care economy in rural India as compared to 2.8 per cent by men. In urban India, it is slightly reduced to 18.8 per cent by women and 2.3 per cent by men (Table 2).

The average time (in minutes) spent in a day per person of different age groups in SNA production, non-SNA production and residual other activities reveal that in rural India, women even in the age group 60 years and above spent around 217 minutes a day in unpaid care economy sector while men spent 52 minutes a day. In urban India, women and men of age group 60 years and above spent 204 minutes and 48 minutes respectively a day. The estimates of other age groups suggest that women spent around 5 hours a day in care economy (Table 3).

Table 2: Distribution (%) of time use into SNA and Non-SNA, India 2020

| Description of the activity (all India) | Male | Female | Person |
|-----------------------------------------|------------------|--------|--------|
| | Rural | | |
| SNA production | 18.2 | 6.0 | 12.2 |
| Non-SNA production | 2.8 | 19.9 | 11.2 |
| SNA and non-SNA production | 20.9 | 25.9 | 23.4 |
| Residual other activities | 79.1 | 74.1 | 76.6 |
| all | 100.0 | 100.0 | 100.0 |
| | Urban | | |
| SNA production | 20.0 | 4.4 | 12.4 |
| Non-SNA production | 2.3 | 18.8 | 10.3 |
| SNA and non-SNA production | 22.3 | 23.1 | 22.7 |
| Residual other activities | 77.7 | 76.9 | 77.3 |
| all | 100.0 | 100.0 | 100.0 |
| | Aggregate | | |

| | | | |
|----------------------------|-------|-------|-------|
| SNA production | 18.7 | 5.6 | 12.3 |
| Non-SNA production | 2.6 | 19.5 | 10.9 |
| SNA and non-SNA production | 21.3 | 25.1 | 23.2 |
| Residual other activities | 78.7 | 74.9 | 76.8 |
| all | 100.0 | 100.0 | 100.0 |

Note: (i) The estimates have been calculated considering all the activities in a time slot
(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

Table 3: Age-disaggregated Time Allocation in SNA and Non-SNA in India, 2020

| Description of the activity (all India) | age group (time in minutes) | | | | | | | | |
|-----------------------------------------|-----------------------------|----------------|---------------|----------------|----------------|---------------|----------------|----------------|---------------|
| | 15-29 Years | 15-59 Years | 60 Years + | 15-29 Years | 15-59 Years | 60 Years + | 15-29 Years | 15-59 Years | 60 Years + |
| | male | fe- male | per- son | male | fe- male | per- son | Male | fe- male | Per- son |
| | Rural | | | | | | | | |
| SNA production | 244 | 62 | 151 | 327 | 104 | 215 | 222 | 80 | 154 |
| Non-SNA production | 35 | 332 | 186 | 44 | 345 | 196 | 52 | 217 | 132 |
| SNA and non-SNA production | 280 | 393 | 337 | 372 | 448 | 411 | 275 | 297 | 285 |
| Residual other activities | 1160 | 1047 | 1103 | 1068 | 992 | 1029 | 1165 | 1143 | 1155 |
| All | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 |
| | Urban | | | | | | | | |
| SNA production | 255 | 58 | 161 | 356 | 77 | 220 | 161 | 33 | 98 |
| Non-SNA production | 28 | 265 | 142 | 35 | 318 | 173 | 48 | 204 | 125 |
| SNA and non-SNA production | 284 | 323 | 303 | 391 | 395 | 393 | 209 | 237 | 223 |
| Residual other activities | 1156 | 1117 | 1137 | 1049 | 1045 | 1047 | 1231 | 1203 | 1217 |
| All | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 |
| | Aggregate | | | | | | | | |
| SNA production | 248 | 60 | 155 | 337 | 95 | 217 | 204 | 65 | 136 |
| Non-SNA production | 33 | 312 | 172 | 41 | 337 | 189 | 51 | 213 | 130 |
| SNA and non-SNA production | 281 | 373 | 327 | 378 | 432 | 405 | 255 | 279 | 267 |
| Residual other activities | 1159 | 1067 | 1113 | 1062 | 1008 | 1035 | 1185 | 1161 | 1173 |
| All | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 | 1440 |

Note: (i) The estimates have been calculated considering all the activities in a time slot
(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office

Table 4: Age-disaggregated Distribution (%) of Time Allocation in SNA and Non-SNA, India 2020

| Age group | 15-29 Years | 15-59 Years | 60 Years + | 15-29 Years | 15-59 Years | 60 Years + | 15-29 Years | 15-59 Years | 60 Years + |
|-----------|----------------|----------------|---------------|----------------|----------------|---------------|----------------|----------------|---------------|
|-----------|----------------|----------------|---------------|----------------|----------------|---------------|----------------|----------------|---------------|

| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
|-----------------------------------------|------------------|--------|--------|------|--------|--------|------|--------|--------|
| Description of the activity (all India) | Rural | | | | | | | | |
| SNA production | 16.9 | 4.3 | 10.5 | 22.7 | 7.2 | 14.9 | 15.4 | 5.6 | 10.7 |
| Non-SNA production | 2.4 | 23.1 | 12.9 | 3.1 | 24 | 13.6 | 3.6 | 15.1 | 9.2 |
| SNA and non-SNA production | 19.4 | 27.3 | 23.4 | 25.8 | 31.1 | 28.5 | 19.1 | 20.6 | 19.8 |
| Residual other activities | 80.6 | 72.7 | 76.6 | 74.2 | 68.9 | 71.5 | 80.9 | 79.4 | 80.2 |
| All | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | Urban | | | | | | | | |
| SNA production | 17.7 | 4 | 11.2 | 24.7 | 5.3 | 15.3 | 11.2 | 2.3 | 6.8 |
| Non-SNA production | 1.9 | 18.4 | 9.9 | 2.4 | 22.1 | 12 | 3.3 | 14.2 | 8.7 |
| SNA and non-SNA production | 19.7 | 22.4 | 21 | 27.2 | 27.4 | 27.3 | 14.5 | 16.5 | 15.5 |
| Residual other activities | 80.3 | 77.6 | 79 | 72.8 | 72.6 | 72.7 | 85.5 | 83.5 | 84.5 |
| All | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| | Aggregate | | | | | | | | |
| SNA production | 17.2 | 4.2 | 10.8 | 23.4 | 6.6 | 15.1 | 14.2 | 4.5 | 9.4 |
| Non-SNA production | 2.3 | 21.7 | 11.9 | 2.8 | 23.4 | 13.1 | 3.5 | 14.8 | 9 |
| SNA and non-SNA production | 19.5 | 25.9 | 22.7 | 26.3 | 30 | 28.1 | 17.7 | 19.4 | 18.5 |
| Residual other activities | 80.5 | 74.1 | 77.3 | 73.8 | 70 | 71.9 | 82.3 | 80.6 | 81.5 |
| All | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Note: (i) The estimates have been calculated considering all the activities in a time slot
(ii) Figures may not add up to 100 due to rounding

***Source*:** Government of India (2020), Time Use Survey 2020, National Statistical Office.

The percentage share of unpaid activities, paid activities and residual other activities of the total time in day per person of different age groups reveal that women of age group 60 years spent 15.1 per cent and 15-29 years age group spent 23.1 per cent in care economy in rural India, when compared to men of same age groups respectively 3.6 per cent and 2.4 per cent of entire day (table 4). The pattern is same for urban India as well.

The average time (in minutes) spent in a day per participant in different activities reveals that women in rural India spent 301 minutes on an average in unpaid domestic services including household chores while men spent only 98 minutes. In urban India, time allocation in household chores by men and women respectively was 97 and 299 minutes. In addition to household chores, women spent 132 minutes for the unpaid caregiving services within the household compared to 77 minutes by men in rural India. In urban India, the time allocation by men and women in unpaid care services was respectively 75 and 138 minutes, as per the time use statistics 2020 (Table 5).

Table 5: Time allocation of Men and Women in a day in different activities in India , 2020

| Description of the activity (time given in minutes) | Rural | | | Urban | | | Aggregate | | |
|--------------------------------------------------------------------------------------|-------|--------|--------|-------|--------|--------|-----------|--------|--------|
| | Male | Female | person | male | Female | person | male | Female | Person |
| Employment and related Activities | 434 | 317 | 404 | 514 | 375 | 485 | 459 | 333 | 429 |
| Production of goods for own final use | 203 | 123 | 158 | 134 | 64 | 85 | 198 | 116 | 151 |
| Unpaid domestic services for household members | 98 | 301 | 249 | 94 | 293 | 247 | 97 | 299 | 248 |
| Unpaid caregiving services for household members | 77 | 132 | 113 | 75 | 138 | 116 | 76 | 134 | 114 |
| Unpaid volunteer, trainee and other unpaid work | 99 | 98 | 98 | 111 | 101 | 106 | 102 | 99 | 101 |
| Learning | 422 | 422 | 422 | 435 | 425 | 430 | 426 | 423 | 424 |
| Socializing and communication, community participation and religious practice | 151 | 139 | 145 | 138 | 138 | 138 | 147 | 139 | 143 |
| Culture, leisure, mass-media and sports practices | 162 | 157 | 159 | 171 | 181 | 176 | 164 | 165 | 165 |
| Self-care and maintenance | 737 | 724 | 731 | 711 | 720 | 715 | 729 | 723 | 726 |

Note: (i) The estimates have been calculated considering all the activities in a time slot

(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

The average time (in minutes) spent in a day per participant of different levels of education reveal that despite the levels of education, the time spent in care economy by men and women in unpaid household services and unpaid caregiving services remained almost unchanged . The time spent by women in household chores was around 5 hours across categories of education (Table 6).

Table 6: Time Allocation by Men and Women of different levels of Education in India, 2020

| Description of the activity | literate and level of education | | | | | | | literate and level of education | | | | | | |
|------------------------------------------|---------------------------------|---------------|---------|------------------------------|-----------|-----|--------------|---------------------------------|---------|------------------------------|-----------|-----|--|--|
| | Not Literate | below primary | primary | upper primary/ mid-secondary | and above | All | Not Literate | below primary | primary | upper primary/ mid-secondary | and above | All | | |
| | Male | | | | | | | Female | | | | | | |
| Employment and related activities | 447 | 430 | 449 | 464 | 471 | 459 | 342 | 303 | 315 | 305 | 349 | 333 | | |

| | | | | | | | | | | | | |
|---------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Production of goods for own final use | 217 | 196 | 197 | 198 | 184 | 198 | 140 | 107 | 108 | 98 | 89 | 116 |
| Unpaid domestic services for household | 108 | 93 | 95 | 94 | 95 | 97 | 296 | 301 | 304 | 308 | 295 | 299 |
| Unpaid caregiving services for household | 77 | 84 | 75 | 73 | 76 | 76 | 126 | 126 | 131 | 131 | 146 | 134 |
| Unpaid volunteer, trainee and other unpaid | 92 | 87 | 94 | 102 | 111 | 102 | 103 | 90 | 98 | 91 | 102 | 99 |
| Learning | 366 | 416 | 438 | 450 | 417 | 426 | 355 | 411 | 440 | 453 | 410 | 423 |
| Socializing and communication, community | 169 | 125 | 140 | 142 | 149 | 147 | 159 | 122 | 130 | 131 | 132 | 139 |
| Culture, leisure, mass-media and sports | 150 | 190 | 166 | 156 | 164 | 164 | 159 | 186 | 165 | 157 | 165 | 165 |
| Self-care and maintenance | 751 | 760 | 734 | 723 | 710 | 729 | 738 | 749 | 721 | 713 | 702 | 723 |

Note: (i) The estimates have been calculated considering all the activities in a time slot
(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

The geographically disaggregated average time (in minutes) spent in a day per participant in different activities reveal that in rural and urban India women spent around 300 minutes on unpaid domestic services for household members as compared to around 98 minutes by men (Table 7). In caregiving services for household members, men spent little more than an hour while women spent more than two hours in rural and urban India.

The percentage share of total time in different activities in a day per person reveal that in rural India, women spent 17.2 per cent of total time in unpaid domestic services and 2.6 per cent in unpaid caregiving services for household members; while these figures are respectively 1.9 per cent and 0.8 per cent for men (Table 8). In urban India, these estimates are 16.9 per cent and 2.6 per cent for women; and 1.7 per cent and 0.8 per cent for men.

Table 7: Time Allocation in Different Activities by Geography, 2020

| Description of the activity | Rural | | | Urban | | | Aggregate | | |
|---------------------------------------------------------|-------|--------|--------|-------|--------|--------|-----------|--------|--------|
| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
| Employment and related Activities | 434 | 317 | 404 | 514 | 375 | 485 | 459 | 333 | 429 |
| Production of goods for own final use | 203 | 123 | 158 | 134 | 64 | 85 | 198 | 116 | 151 |
| Unpaid domestic services for household members | 98 | 301 | 249 | 94 | 293 | 247 | 97 | 299 | 248 |
| Unpaid caregiving services for household members | 77 | 132 | 113 | 75 | 138 | 116 | 76 | 134 | 114 |
| Unpaid volunteer, trainee and other unpaid work | 99 | 98 | 98 | 111 | 101 | 106 | 102 | 99 | 101 |
| Learning | 422 | 422 | 422 | 435 | 425 | 430 | 426 | 423 | 424 |

| | | | | | | | | | |
|--------------------------------------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Socializing and communication, community participation and religious practice | 151 | 139 | 145 | 138 | 138 | 138 | 147 | 139 | 143 |
| Culture, leisure, mass-media and sports practices | 162 | 157 | 159 | 171 | 181 | 176 | 164 | 165 | 165 |
| Self-care and maintenance | 737 | 724 | 731 | 711 | 720 | 715 | 729 | 723 | 726 |

Note: (i) The estimates have been calculated considering all the activities in a time slot

(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

Table 8: Distribution (%) of Time, by Geography and Gender, in India, 2020

| Description of the activity (all India) | Rural | | | Urban | | | Aggregate | | |
|----------------------------------------------------------------------------------------|-------|--------|--------|-------|--------|--------|-----------|--------|--------|
| | Male | Female | Person | Male | Female | Person | Male | Female | Person |
| Employment and related Activities | 16.9 | 4.2 | 10.6 | 21.3 | 4.3 | 13.1 | 18.3 | 4.2 | 11.4 |
| Production of goods for own final use | 2.7 | 2.2 | 2.4 | 0.3 | 0.3 | 0.3 | 1.9 | 1.6 | 1.8 |
| Unpaid domestic services for household members | 1.9 | 17.2 | 9.4 | 1.5 | 16.1 | 8.6 | 1.7 | 16.9 | 9.2 |
| Unpaid caregiving services for household members | 0.8 | 2.6 | 1.7 | 0.7 | 2.5 | 1.6 | 0.8 | 2.6 | 1.7 |
| Unpaid volunteer, trainee and other unpaid work | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 | 0.2 | 0.1 | 0.1 |
| Learning | 7.1 | 5.7 | 6.4 | 7 | 6.1 | 6.6 | 7.1 | 5.8 | 6.5 |
| Socializing & communication, community participation and religious practice | 9.6 | 8.8 | 9.2 | 8.7 | 8.8 | 8.8 | 9.3 | 8.8 | 9 |
| Culture, leisure, mass-media and sports practices | 9.7 | 9 | 9.4 | 10.9 | 11.7 | 11.3 | 10.1 | 9.8 | 9.9 |
| Self-care and maintenance | 51.2 | 50.3 | 50.8 | 49.4 | 50 | 49.7 | 50.6 | 50.2 | 50.4 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

***Note: (*i)** The estimates have been calculated considering all the activities in a time slot

(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

The percentage of persons participating in different activities as per the usual principal activity status revealed that labour market participation has not reduced the percentage of women participating in unpaid domestic chores in the care economy. Around 93 per cent of women workers (as per broad usual principal status) spent time in unpaid domestic services for household members as compared to 17.8 per cent of men (Table 9).

Table 9: Percentage of Men and Women participating in different activities (usual principal activity status)

| Description of the activity (all India) | Broad usual principal activity status | | | | |
|-----------------------------------------|---------------------------------------|------------|--------------|---------------------|-----|
| | worker | unemployed | labour force | not in labour force | All |
| | | | | | |

| | Male | | | | |
|--------------------------------------------------------------------------------------|--------|------|------|------|------|
| Employment and related activities | 84.9 | 21.3 | 82.7 | 6.3 | 57.3 |
| Production of goods for own final use | 18.8 | 12 | 18.6 | 5.6 | 14.3 |
| Unpaid domestic services for household members | 31 | 33.9 | 31.1 | 16.1 | 26.1 |
| Unpaid caregiving services for household members | 17.8 | 9.7 | 17.5 | 7 | 14 |
| Unpaid volunteer, trainee and other unpaid work | 3.2 | 3.9 | 3.2 | 1.6 | 2.7 |
| Learning | 1.2 | 22.5 | 1.9 | 67.8 | 23.9 |
| Socializing and communication, community participation and religious practice | 94.4 | 96.1 | 94.5 | 85.2 | 91.4 |
| Culture, leisure, mass-media and sports practices | 85.2 | 95.1 | 85.5 | 94.6 | 88.5 |
| Self-care and maintenance | 100 | 100 | 100 | 100 | 100 |
| | Female | | | | |
| Employment and related activities | 73 | 12.9 | 70.9 | 5.5 | 18.4 |
| Production of goods for own final use | 27.9 | 14.8 | 27.4 | 18.2 | 20 |
| Unpaid domestic services for household members | 93 | 85.6 | 92.8 | 78.4 | 81.2 |
| Unpaid caregiving services for household members | 24 | 18.3 | 23.8 | 28.5 | 27.6 |
| Unpaid volunteer, trainee and other unpaid work | 2.8 | 3.2 | 2.9 | 1.8 | 2 |
| Learning | 1.7 | 34 | 2.9 | 24 | 19.8 |
| Socializing and communication, community participation and religious practice | 90.9 | 94.9 | 91.1 | 91.3 | 91.3 |
| Culture, leisure, mass-media and sports practices | 79.9 | 92.5 | 80.4 | 86.5 | 85.3 |
| Self-care and maintenance | 100 | 100 | 100 | 100 | 100 |

Note: (i) The estimates have been calculated considering all the activities in a time slot
(ii) Figures may not add up to 100 due to rounding

Source: Government of India (2020), Time Use Survey 2020, National Statistical Office.

The classification of activities in System of National Accounts (SNA) Production, non-SNA and other remaining activities is given in the Box 2.

Box 2 Systems of National Accounts 1993

The 1993 System of National Accounts (SNA) limits economic production of households for their own consumption to the production of *goods* alone and excludes the own-account production of personal and domestic services (except for the services produced by employing paid domestic staff, the own-account production of housing services produced by employing paid domestic staff, and the own-account production of housing services by owner-occupants). This allows the SNA to avoid valuing activities such as eating, drinking, and sleeping, which are difficult for a person to obtain from

another person. But, in the process, activities such as fetching water from the river or the well, collecting fuel wood, washing clothes, house cleaning, and preparation and serving of meals, as well as care, training, and instruction of children and care of sick, infirm, or old people also gets excluded from the definition of economic activity. These services are mostly performed by women, but can also be procured from other units. While these activities are excluded partly because of the inadequate price systems for valuing these services, this exclusion principle leads to the economic invisibility and a statistical underestimation of women's work. It is interesting to recall in this context the famous economist Pigou's comment that if a housemaid employed by a bachelor were to marry him, national income would fall, since her previously paid work would now be performed unpaid.

SNA 1993 suggests development of estimates for the value of household production of services for own use in satellite accounts of an alternative concept of gross domestic product (GDP). Estimation of the "unpaid" work of women in the care sector can suggest a quantification of the contribution of women to the economy. The quantification can also be useful for two more reasons. First, it would provide a fuller understanding of how resources and time are allocated in the economy. Second, it would indicate the extent to which economic development and the associated feminization of labor—through the substitution of own-account production of services by purchases from the market (for example, households using self-service laundry services instead of washing at home)—would give a fillip to the growth rate of GDP as it is measured. Monitoring such estimates over time can also help in understanding the effect of policies on these own-account production of services, which are critical for welfare.

Source: Systems of National Accounts, UNSD (1993); Lahiri, Chakraborty, and Bhattacharyya (2002), Chakraborty (2014)

The valuation of care economy for six selected States in India is attempted, using the estimates of first time use survey. The first time-use survey found that, in the production of own-account services that qualify for inclusion in the satellite accounts as per SNA 1993, on average, a female spent 34.6 hours per week compared to 3.6 hours by a male (Table 10). In these activities, females in Gujarat scored the most time spent (39.08 hours per week), followed by Madhya Pradesh (35.79 hours) and Orissa (35.70 hours).

Table 10: Time Allocation by Women and Men, Selected States of India (weekly average time in hours)

| States | Female | | | Male | | | Total | | |
|-----------------------|--------------|--------------|------------------|-----------|-------------|------------------|--------------|--------------|------------------|
| | SNA | Ext-SNA | Residual Non-SNA | SNA | Ext-SNA | Residual Non-SNA | SNA | Ext-SNA | Residual Non-SNA |
| Haryana | 21.26 | 31.06 | 115.67 | 37.7 | 1.99 | 128.23 | 30.19 | 15.24 | 122.52 |
| Madhya Pradesh | 19.85 | 35.79 | 112.38 | 42.1 | 4.43 | 121.47 | 31.54 | 19.22 | 117.19 |
| Gujarat | 17.6 | 39.08 | 111.36 | 43.6 | 3.19 | 121.12 | 31.24 | 20.27 | 116.44 |
| Orissa | 17.07 | 35.7 | 115.2 | 40.1 | 4.47 | 123.45 | 28.69 | 19.91 | 119.36 |
| Tamil Nadu | 18.97 | 30.46 | 118.61 | 42.5 | 3.19 | 122.27 | 30.68 | 16.87 | 120.45 |
| Meghalaya | 26.34 | 34.52 | 107.15 | 45.9 | 7.16 | 114.78 | 35.88 | 21.28 | 110.84 |
| Combined States | 18.72 | 34.63 | 114.58 | 42 | 3.65 | 122.42 | 30.75 | 18.69 | 118.62 |

***Source*:** Government of India (2000), Time-use Survey (2000)

Time-use data of combined states suggest that women spent 50.52 percent of their time on unpaid work while men spent only 33.15 percent (Table 4.11). The interstate differences revealed that percent of time spent by females in unpaid activities was highest in Haryana (85.99 percent), followed by Meghalaya (76.39 percent) and Orissa (69.44 percent); the lowest time spent was in Tamil Nadu (32.45 percent).

Table 11: Distribution (%) of Time Use in SNA and Non-SNA: Selected States in India

| States | Male | | | Female | | | Total | | |
|----------------------------|--------------|--------------|------------------------------------|-------------|--------------|------------------------------------|--------------|--------------|------------------------------------|
| | Paid | Unpaid | % of time use on unpaid activities | Paid | Unpaid | % of time use on unpaid activities | Paid | Unpaid | % of time use on unpaid activities |
| Haryana⁴ | 33.09 | 18.12 | 35.38 | 4.13 | 25.34 | 85.99 | 20.6 | 21.37 | 51.58 |
| Madhya Pradesh | 29.41 | 23.34 | 44.25 | 14.3 | 15.75 | 52.4 | 22.99 | 20.12 | 46.67 |
| Gujarat | 44.37 | 14.17 | 24.21 | 17.2 | 13.87 | 44.67 | 33.26 | 14.05 | 29.7 |
| Orissa | 31.25 | 22.42 | 41.77 | 8 | 18.18 | 69.44 | 20.55 | 20.47 | 49.9 |
| Tamil Nadu | 41.42 | 13.36 | 24.39 | 21.8 | 10.32 | 32.45 | 32.74 | 12.04 | 26.89 |
| Meghalaya | 17.34 | 35.39 | 67.12 | 7.83 | 25.34 | 76.39 | 12.65 | 30.44 | 70.64 |
| Combined States | 36.54 | 18.12 | 33.15 | 14.9 | 15.18 | 50.52 | 27.16 | 16.85 | 38.29 |

***Source*:** Government of India (2000), Time-use Survey (2000)

Imputing value to labor time spent on unpaid work, the contribution of nonmarket work was estimated across six states of India. District-wise data on wage rates for agricultural labor and wage rates for urban, unskilled manual labor have been used for valuing unpaid work in rural and urban areas, respectively. With this methodology, projecting the TUS results by age and district of the population, valuation of time spent on unpaid activities by females in Meghalaya and Madhya Pradesh indicates that the value of unpaid activities could be as much as 38–41 percent of the relevant State Domestic Product (SDP). For example, the total value of such activities by females was Rs 29,034 crore in Madhya Pradesh, relative to SDP of Rs. 70,832 crore (Table 12).

Table 12: Valuation of Unpaid Care Economy: Selected States of India

| States | Value of Nonmarket Work (Rs. Crores) | | | SDP (Rs. cr.) | “Nonmarket Work” as a % of State Domestic Product | | |
|-----------------------|--------------------------------------|-----------|-----------|---------------|---------------------------------------------------|-------|--------|
| | Male | Female | Total | | 1997–98 | Male | Female |
| Haryana | 928.74 | 10,209.30 | 11,138.04 | 37,427 | 2.48 | 27.28 | 29.76 |
| Madhya Pradesh | 4,466.03 | 29,034.09 | 33,500.12 | 70,832 | 6.31 | 40.99 | 47.3 |
| Gujarat | 2,209.55 | 22,577.63 | 24,787.18 | 86,609 | 2.55 | 26.07 | 28.62 |
| Orissa | 1,463.78 | 11,343.88 | 12,807.65 | 32,669 | 4.48 | 34.72 | 39.2 |
| Tamil Nadu | 3,073.37 | 19,922.04 | 22,995.40 | 87,394 | 3.52 | 22.8 | 26.31 |

| | | | | | | | |
|------------------|--------|--------|----------|-------|-------|-------|-------|
| Meghalaya | 260.45 | 862.97 | 1,123.42 | 2,250 | 11.58 | 38.35 | 49.93 |
|------------------|--------|--------|----------|-------|-------|-------|-------|

Source: Pandey (2000)

Compared to females, the valuation of unpaid activities by males was limited to only about 2 percent of SDP in Gujarat and Haryana. The unpaid work, as a proportion of SDP, is as high as 49.93 percent in Meghalaya and 47.30 percent in Madhya Pradesh.

4. Fiscal Policy and Unpaid Care Economy Links

The valuation of unpaid care economy has significant policy implications, in terms of gender budgeting. It is often argued that mainstream public expenditure, such as infrastructure, is non-rival in nature and therefore applying a gender lens to these expenditures may not be feasible. This argument is refuted by the time use statistics. The time use data revealed that this argument is often flawed, as there is an intrinsic gender dimension to the non-rival expenditure. The time allocation in activities like fetching of water and fuel has significant gender differentials, therefore infrastructure investment with gender-sensitive water and energy policies can really benefit women. The gender disaggregated statistics of time use in the water sector across the six selected states in India from the first time use survey clearly revealed that women spent more time in fetching water than men, except in Gujarat (Table 13).

Table 13: Time-Use Pattern by Men and Women in Water Sector (weekly average time in hours)

| States | Rural | | | Urban | | | Total | | |
|------------------------|-------|--------|-------|-------|--------|-------|-------|--------|-------|
| | Male | Female | Total | Male | Female | Total | Male | Female | Total |
| Haryana | 3.2 | 5.54 | 5.38 | 3.08 | 4.79 | 4.71 | 3.19 | 5.48 | 5.33 |
| Madhya Pradesh | 3.21 | 5.4 | 5.03 | 1.21 | 2.96 | 2.76 | 3.11 | 5.22 | 4.88 |
| Gujarat | 14 | 0 | 14 | 0 | 0 | 0 | 14 | 0 | 14 |
| Orissa | 5.96 | 8.02 | 7.83 | 0 | 5.21 | 5.21 | 5.96 | 7.94 | 7.76 |
| Tamil Nadu | 3.85 | 4.79 | 4.69 | 2.56 | 4.62 | 4.26 | 3.33 | 4.74 | 4.57 |
| Meghalaya | 4.69 | 5.21 | 5.04 | 9.54 | 7.08 | 8.31 | 5.34 | 5.34 | 5.34 |
| Combined States | 3.83 | 5.11 | 4.97 | 3.02 | 4.63 | 4.35 | 3.61 | 5.02 | 4.85 |

Source: Chakraborty (2014)

Apart from the time allocation in the activity, it is to be noted that the travel time for fetching water, fuel, etc. is also equally time consuming. The time-use data also revealed the gender differentials in travel time. There is thus a clear link between access to water and time allocation of women, who have a primary responsibility to ensure drinking water to their households, which suggest that changes in the availability of water infrastructure can lessen their burden in fetching the water, as well as release their time locked up in nonmarket work for the income-earning economic activities. In other words,

investment in water infrastructure can help women in reallocating their labor time and reduce the stress related to walking long distances to fetch water.

In the next section, an illustrative empirical investigation of this hypothesis is undertaken using the data from the Time-use Survey for variables on time and finance accounts of selected states of India for the variable related to public infrastructure.

Ideally, the empirical analysis requires comprehensive time-use data, either in terms of longitudinal surveys or across considerable cross-section units. However, within the data constraints of limited cross-section units of time-use data collected in rural and urban regions of selected states of India, an illustrative analysis is undertaken to examine the link between infrastructure and time allocation. The hypothesis under investigation is whether better access to water infrastructure can help women to spend more time on market-oriented activities. The theoretical framework is given in Box 3.

Box 3 The Link between Time Allocation and Public Investment

The link between infrastructure investment and time allocation is interpreted in Becker-Gronau models of time allocation. This framework is derived by refuting the assumption of *labor force exogeneity* in the treatment of the nonmarket economy, which is intrinsic to the neoclassical labor supply models of consumption and leisure. In other words, the model has incorporated the intrahousehold gender asymmetries in the allocation of time, as well as the choices and constraints regarding labor-force participation in the market and nonmarket economy. The improvised model recognizes the dynamic interaction between the dual sets of economic activity—that is, the statistically invisible nonmarket economy and market economy.

The model assumes that the household's utility function depends on the commodities consumed (z_i) and the leisure of its members (t_i^1):

$$u_i = u_i(z_i, t_1^1, t_2^1) \quad (1)$$

Consumption is generated through a household production function:

$$z_i = z_i(W_i, x_i, t_1^e, t_2^e) \quad (2)$$

where W_i is the amount of water used by the household, x_i is a monetized input, and t_i^e denotes the time allocated to nonmarket work (e-SNA) by family members; $i= 1,2$. The water production function, in turn, is generated by:

$$W_i = f(t_i^w, \Omega_i) \quad (3)$$

where t_i^w is time allocated to fetch water and parameter Ω_i captures the access to water infrastructure.

The household agents maximize their welfare subject to budget and time constraints given by:

$$\max u_i = u_i(z_i, t_i^1) \quad (4)$$

subject to

$$t_i^w + t_i^m + t_i^e + t_i^1 \geq T_0 \quad (5)$$

and

$$x_i = w_1 t_1^m + w_2 t_2^m + v_i \quad (6)$$

where t_1^m is the market time, T_0 is total time endowment, w_i is the market wage rate, and

v_i is the unearned income.

Combining Equations (5) and (6), the full income constraint is obtained as follows:

$$x_i + w_i(t_i^w + t_i^e + t_i^1) = w_i T_0 + v_i \quad (7)$$

Solving for the first order conditions, a set of selected determinants of optimum time and commodity demand functions are derived a follows:

$$t^m = t^m(w, v, \Omega) \quad (8)$$

and

$$x^* = x(w, v, \Omega) \quad (9)$$

For econometric estimation, a reduced system of time equation is specified as follows:

$$t^m = t^m(w, v, \Omega) + \mu_i \quad (10)$$

Source: Chakraborty (2008)

The model specification is proposed as follows:

$$t_i^m = \alpha + \beta \text{infra}_i + \gamma \text{infrasq}_i + \lambda t_i^o + \delta t_i^c + \text{dummy} + u_i;$$

where t_i^m is time allocation in SNA activity (otherwise referred as market time). The variable infra_i denotes allocation and access to water infrastructure. The financial input variable of allocation is proxied by the log of public investment in infrastructure across cross-section units, while access to infrastructure or the distance variable is captured through the time-use budget of travel (ttimi). The squared term of infrastructure reflects the plausible quadratic relationship between access to infrastructure and market time—that is, market time falls with fetching distance, but at a decreasing rate. The variable t_i^o denotes the opportunity cost of time, which is captured through market wage rate. Wage rates for agricultural labor and wage rates for urban, unskilled manual labor have been used for proxying the t_i^o in rural and urban areas, respectively. The unearned income is proxied by spouse's wage in selected models. As variables of opportunity cost of time and unearned income reported multicollinearity problems, estimations are done in separate models. The models are controlled for the nonmonetised work done in the *care economy* (t_i^c). A dummy is defined that takes the value of one if the unit of analysis is rural and a value of zero otherwise. The parameters β and γ measure the effect of infrastructure on time variables; μ_i is a random error term. The econometric results are given in Table 14.

The results, though tentative due to data constraints, suggest that there is a quadratic relationship between access to infrastructure and market work; market time decreases with travel time to fetch water, but at a decreasing rate. The estimated coefficients suggest that the relationship between infrastructure access and time allocation in SNA activity is negative, which supports the hypothesis that better public infrastructure may release women's time to more market-oriented work. The financial input proxy for infrastructure also shows an initially decreasing and then increasing link with SNA activity, which needs a careful interpretation. The results indicate that higher infrastructural investment per se does not release time of women towards SNA activity. This points to the fact that higher budgetary allocation for infrastructure per se does not mean higher spending. Gender-budgeting studies showed that there is a significant deviation between

what is budgeted and what is actually spent (Lahiri , Chakraborty & Bhattacharya 2002). The lag in the implementation of infrastructural projects may be a reason for the concave relationship. The results of linear models are not reported, as the quadratic models turned out to be the better fits.

Theoretically, a positive relationship between wages and market work is expected, which explains that as opportunity cost of time rises, women may allocate more time to market work. However, results revealed that wage is not a significant determinant of women's time in SNA activity. The labor-supply models predict an inverse relationship between unearned income and SNA activity. However, the estimated coefficient of spouse's wage is not found significant in determining women's time allocation in SNA activity. The model is controlled for the nonmonetised work in the care economy, inclusive of child care, care for sick, and elderly care. The results showed that there is an inverse relationship between the work in the care economy and market economy, however, it was significant only for the models with financial input variable.

Broadly, the estimates suggest that there can be a link between deterioration in infrastructure and rural poverty, as worsening water infrastructure could lock-in the time of women in unpaid work that would otherwise be available for income-generating SNA activity. Time poverty affects income poverty, however, the aspects of *time poverty* are often overlooked when framing macro policies. The point to be noted here is that even with the unit-record data, the analysis of the poverty-related aspects of time allocation and its implications for public investment may be severely restricted, as time-use data across income quintiles or monthly per capita consumer expenditure (mpce) quintiles is not available for India. In addition to the link between public investment and time allocation, the time use surveys can also be used to understand the other aspects of macro-fiscal policies including the policies relate to work-life balance, care provider's perspectives and the dual work burden of women (Antonopolos and Hirway, 2004; İlkkaracan and Memiş, 2021 ; Stevano et al, 2019, Arora and Codrina, 2017; Seymour et al 2020; Qi and Xiaoyuang, 2018; Craig and Churchil, 2021; Amarante and Cecilia, 2018; Floro and Hitomi, 2011; İlkkaracan, İpek, Kijong Kim, Tom Masterson, Emel Memiş, and Ajit Zacharias. 2020.).

5 Conclusion

The paper provides the evidence from the recent time use data analysis across States of India. The evidence from the time use survey across Indian States revealed the gender and geographic differentials in the time use pattern across men and women. The link between public infrastructure and time allocation suggest that worsening public infrastructure affects the market work with evident gender differentials. The access to public infrastructure can lead to substitution effects in time allocation between unpaid work and market work, which has implications for reducing the poverty in the household. The broad conclusion is that fiscal policies designed to redress income poverty can be partial if they do not take in to account aspects of time poverty

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