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COUNTING AND VALUING WOMEN'S WORK IN SRI LANKA:

USE OF NATIONAL TIME TRANSFER ACCOUNT METHODOLOGY TO ADDRESS GENDER-BASED INEQUALITITES

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Disclaimer

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EXECUTIVE SUMMERY

This study is an extension of the previous work on the National Transfer Accounts (NTA) of Sri Lanka carried out in 2021. Since the NTA did not include a gendered analysis, this study employed a novel methodology developed by the 'Counting Women's Work Project' which uses System of National Accounts (SNA) data and non-SNA data for examining market production and household production by gender across the life cycle. Such an analysis has not hitherto been done in Sri Lanka and thus this study can be regarded as pioneering work. The use of National Time Transfer Accounts (NTTA) data is very important for Sri Lanka from the sustainable development perspective specifically SDG 5 (to achieve gender equality and empower all women and girls) and SDG Target 5.4 (to 'recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate). It is expected that this study will be an eye opener for the policy planners and political authorities to open up more and more decent employment opportunities for women and also create an environment for them to move away from already burdened domestic work and unpaid care work at the household level.

Sri Lanka already experiences very low female labour force participation irrespective of the country's high levels of educational attainments and other social indicators. The most striking feature is that the gender gap in labour force participation rates has widened more during the past decade. The present study proposes that a national level policy intervention is urgently required to make favourable working conditions for women which can include affordable childcare and aged care, flexible and part-time working arrangements and improved transportation facilities. The study also questioned whether the use of 'labour force approach' in determining labour force participation is the most appropriate definition because unpaid /family care work at home or elsewhere is not taken as active engagement in a country's labour force. This approach is best suited to an economy in which the dominant form of economic activity is stable wage employment. The underlying concepts and definitions of this approach are extremely difficult to apply to economies such as that of Sri Lanka, where some production is family-based and for home consumption, where the agricultural cycle generates sharp seasonal variation in activity, where the length of the working day is not uniform, where most wage work is for daily wages, and where many individuals engage in a variety of economic activities in a variety of sectors in the course of a single year. This approach does not incorporate activities such as unpaid care work, which fall outside of the traditional economic production boundary.[1] In this context, a time-use approach with the use of NTTA methodology can yield better results, because it has the advantage of greater flexibility in categorizing work and measuring the workday; it can better capture occupational multiplicity and seasonal variation in work-time inputs.

[1] https://ourworldindata.org/female-labor-force-participation-key-facts#working-women-vs-women-in-the-labor-force

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The study proved with the use of NTTA methodology that these differences are a true reflection of reality which compensates for the usual measure of 'production' being incomplete because of the exclusion of unpaid services from the SNA definition of production. The analysis showed that unpaid care and household work represent a significant proportion of total output within Sri Lankan society—roughly 36 percent of Gross Domestic Product (GDP) in 2017 and in particular, more of this work is being undertaken by women than men.

This study also explored the patterns of time-use across the life cycle by gender. Gender specialization in productive activities was found to be significant in Sri Lanka. At every age, males are found to spend more time than females in market work activities, while the opposite is true in terms of both unpaid housework and care. The analysis further revealed that learning related activities are dominated by the younger age groups until around the age of 30 years while females have higher participation in learning. It was also revealed that women have higher use of time for socializing, communication, community participation and religious practice while both genders show an increasing trend in these activities by age. Time used for culture, leisure, mass media and sports is being dominated by men but women also have started to dominate especially at the extreme elderly ages.

The study demonstrated that time spent for production of goods for own final use gradually rises to usual terminal ages in the workforce for both sexes and then there is sharp decline towards older ages. Furthermore, the present analysis discovered that consumption of non-market production is highest for infants. Overall, this study proved that children are very costly and this may have been one of the factors affecting fertility decline in the country. When market alone is considered, children are costly in terms of the deficit of consumption over production that they must receive in the form of transfers from parents, other family members, or members of society. However, if home production is also considered, older persons do not get much more expensive because they themselves are doing a great deal of unpaid care and housework. This is seen for both men and women. Young children, on the other hand, get even costlier relative to other age groups because they are the largest consumers of unpaid care work time. This puts the prospect of future population ageing in a different perspective than if only market goods and services are considered in valuing the cost of young or old dependents.

In this study, combining production and consumption profiles reveals large transfers to children. On average, cohorts become net producers at age 20 and only return to being net consumers again at 75 years of age. For male cohorts, net transfer inflows fall below two percent of peak labour income between the ages of 18 and 28, but never turn negative (indicating net transfer outflows). Female cohorts, in contrast, make net transfers from age 13 to age 80: net transfer outflows rise to almost 40 percent of peak labour income during their late twenties and remain above 20 percent until age 60. Of course, we should note that these estimates are cross-sectional instead of longitudinal, so younger cohorts now may not behave in the same ways as older persons today when they reach those ages themselves.

When the difference between consumption and production across age is analyzed by gender, it was found that life cycle surplus for women is increased when home production is added to the market production. This is mainly because of the contribution made by unpaid care work and domestic work. This contribution spreads from age 20 to around 75 years of age as seen in the life cycle surplus generated by home production alone. However, life cycle deficits generated by not having enough labour market involvement by women has made their consumption higher than what they have earned. In the case of men, involvement in household production has not made any significant contribution to make any change in the life cycle surplus.

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01

INTRODUCTION

Women's economic empowerment and equality between women and men are regarded as necessary conditions for attaining sustainable development in any country including Sri Lanka. Efforts to empower women commenced in 1975 with the declaration of the International Women's Year by the United Nations General Assembly. Four years later, in 1979, the UN General Assembly adopted the Convention on the Elimination of All Forms of Discrimination against Women. Subsequently, in 1981, an international standard was set for promoting equality between women and men. In 2017, the United Nations marked International Women's Day with calls for empowering and educating women and girls to reach gender equality in the workplace. The 2030 Agenda for Sustainable Development has reaffirmed the universal consensus on the importance of gender equality and its contribution to the achievement of the SDGs.[2] Quality jobs for women, universal social protection, and measures to recognize, reduce, and redistribute unpaid care and household work are crucial to delivering on the new sustainable development agenda, which aims to reduce poverty (Goal 1), inequalities (Goal 10), achieve gender equality (Goal 5) and promote inclusive and sustainable economic growth, full and productive employment, and decent work for all (Goal 8). In this context, it is imperative for Sri Lanka to incorporate women's labour force participation together with their contribution to household production into its national policy formulation on women.

The labour force participation rate of women in Sri Lanka has remained at a low rate despite the country's high levels of educational attainments and other social indicators. There has been a decline in labour force participation rates in all ages and by gender in 2016 compared to that of 2006. The gender gap in the labour force participation rates has also widened more during the past decade. These differences are to some extent due to deep-rooted traditional gender roles, but also due to economic incentives. A national level policy intervention is required to make favourable working conditions for women which can include affordable childcare and aged care, flexible and part-time working arrangements and improved transportation facilities. It is important to begin by questioning whether labour force statistics in Sri Lanka properly consider actual labour participation of women since unpaid /family care work at home or elsewhere is not taken as active engagement in the country's labour force.

Census as well as Labour Force Surveys (LFS) in Sri Lanka have been using the 'labour force approach' to collect information on the labour force. It defines working age population as all persons of age 15 years and above and the labour force as economically active population 15 years of age and over. 'Economically active' is defined as working for profit, wage or salary; helping, without remuneration, another family member work for profit or wage; or looking for such work. This approach is best suited to an economy in which the dominant form of economic activity is stable wage employment.

[2] https://sdgs.un.org/

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The underlying concepts and definitions of this approach are extremely difficult to apply to economies such as that of Sri Lanka, where some production is family-based and for home consumption, where the agricultural cycle generates sharp seasonal variation in activity, where the length of the working day is not uniform, where most wage work is for daily wages, and where many individuals engage in a variety of economic activities in a variety of sectors in the course of a single year. This approach does not incorporate activities such as unpaid care work, which falls outside of the traditional economic production boundary.[3] In other words, women often work but are not regarded as 'economically active' for the purpose of labour supply statistics in the country. Instead, a time-use approach can yield better results, because it has the advantage of greater flexibility in categorizing work and measuring the workday; it can better capture occupational multiplicity and seasonal variation in work-time inputs.

[3] https://ourworldindata.org/female-labor-force-participation-key-facts#working-women-vs-women-in-the-labor-force

02

GENDER DIFFERENCES IN LABOUR INCOME AND CONSUMPTION (USE OF NTA METHODOLOGY)

NTA profiles signify general patterns of behaviour that exist within societies (United Nations, 2003). Therefore, the behavioural changes across different age cohorts are discernible from NTA age profiles because of the disaggregation of income and consumption by age. This aspect can be further extended to show how disaggregation of labour income profiles vary by gender, or in other words, it reveals the extent to which labour market engagement and labour market outcomes vary by gender (Donehower, 2018). When data is available by both age and gender, mean labour income for males is usually higher than that of females at every age and Sri Lanka is no exception. Figure 1 exhibits general NTA labour income and consumption profiles for Sri Lanka for 2016. This introduces the profiles for the total population, while Figure 2 shows the same profiles disaggregated by gender. Figure 1 reveals that labour income is higher in prime working ages. However, it is important to note that labour income goes beyond prime working ages to older age groups.

Consumption does not vary as much as labour income by age but is somewhat higher for older age groups. Labour income goes along with the typical bell-shaped profile, with virtually no labour income among children. This is mainly because the survey question does not include younger children although younger children often help their parents with family farms or businesses. It has been found that about 317 million children provide their labour at different places to meet the expenses of their families, leaving their schools, mainly because of poverty (ILO, 2006). By age 15 it begins to rise gradually and peaks around age 40. It sharply declines after age 60 but remains active at older ages, but with lower values. Consumption normally increases once children reach school-going age, levels off during the late teens and twenties, and gradually rises thereafter in older ages because of the high health-related costs.

The left panel in Figure 2 indicates a pattern that is similar to the general pattern of labour income and consumption distribution by age and gender which means that the general pattern is dominated by the consumption and labour income pattern of men. The Right panel in Figure 2 reveals that consumption is higher than the labour income of women at every age compared to that of men. This reflects how the lower labour participation of women has made them heavily dependent on the labour income of men at the household level for meeting their market-based consumption needs.

[3] https://ourworldindata.org/female-labor-force-participation-key-facts#working-women-vs-women-in-the-labor-force

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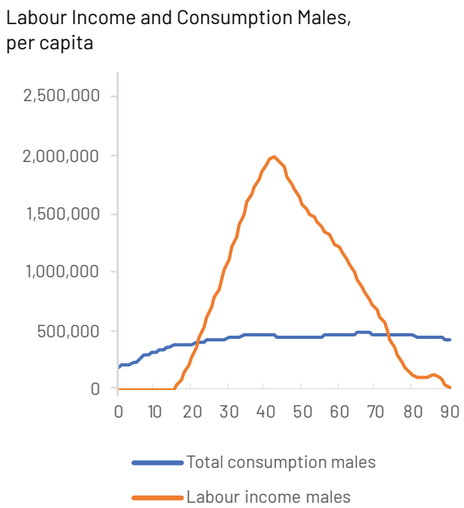
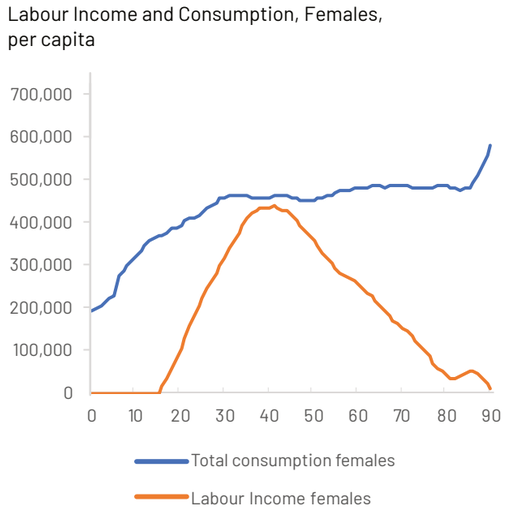
Figure 1.
Consumption and Labour Income, Both sexes, per capita

Source: Authors' calculations
Note: Labour income includes all the value of the work effort of employees, the self-employed and unpaid family workers (UN, 2013). Therefore, labour income is comprised of labour earnings inclusive of fringe benefits, and self-employed labour income. Consumption includes the goods and services that satisfy the needs and requirements of households (UN, 2013). Therefore, it includes both public and private consumption on items such as education, health and other goods.

Figure 2.
Labour Income and Consumption by Gender, per capita





Source: Authors' calculations

What is clear from the above discussion is that men and women differ substantially in the extent of the difference between labour income and consumption by gender during the prime working ages. The life cycle surplus —where labour income is greater than consumption— is only generated for men while the life cycle deficit is shown for women at every age. This difference in the ability of men and women to generate life cycle surpluses in the market economy emphasizes the necessity to include unpaid household production in these estimates to obtain a more complete picture of production and consumption and, by extension, of dependency (Oosthuizen, 2018).

Disaggregation of NTAs by gender emphasizes the gap in the System of National Accounts (SNA) that is affected by the exclusion of non-market services such as unpaid care and housework from the production boundary. This means that aggregates that measure total economic production, such as GDP, disregard the production of non-market services that occurs without remuneration within the household. These services consist of activities such as cooking, doing laundry and caring for others, and are activities in which women around the world tend to specialize in, relative to men. Because of their strong link to national accounts, NTAs also do not take into account these services. In many countries, gender disaggregated NTAs show that men outproduce women over much, if not all, of the life cycle and that, in many cases, women generate little to no surplus over their consumption.[4] As a result gender disaggregated NTAs are incapable of providing a thorough knowledge of the nature of dependency within a society. Furthermore, the extent to which this is a problem varies across countries due to factors such as the extent to which women specialize in these activities relative to men, as well as the extent to which these services may or may not be provided in the market in a particular country.

The objective of this study is to employ the NTTA methodology to address the above-mentioned gap in the measurement of the generational economy in Sri Lanka, using data for 2017. Specifically, age profiles of household production are constructed for Sri Lanka across the life cycle and by gender using time-use data. By applying an appropriate wage to the time spent in these activities, it is possible to combine these profiles with gender disaggregated NTA profiles, which allows the construction of a more complete picture of total production and consumption across the life cycle for men and women.

[4] https://www.countingwomenswork.org/news/2018/6/8/cww-working-paper-no8

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03

DATA AND METHODOLOGY

For the NTTA estimates, the key source of data is the Time Use Survey of 2017, conducted by the Department of Census and Statistics (DCS) in Sri Lanka. DCS conducted the first ever Time Use Survey in Sri Lanka in 2017 to investigate time related behavioral patterns among Sri Lankans. The survey provides various indicators on activity-based time spent by Sri Lankans according to their background information.

The survey was conducted throughout the country by interviewing nearly 17,000 respondents aged 10 and above from 6,440 housing units selected for the 4th quarter Labour Force Survey conducted in 2017. Two paper-based questionnaires were used to record responses: a household questionnaire and a time diary. After filling out the household questionnaire, the time diary was distributed to record activities done by each of them every 15 minutes within a 24-hour period (day).

The second data source is used to derive the wage rates with which the time spent in household production is valued. Wage rates for 2017 are derived from the Labour Force Survey conducted in 2017 by the Department of Census and Statistics, which is an island-wide survey. This 2017 report is based on an annual sample of 25,750 housing units, which also provides national, provincial and district level estimates with stipulated standard errors of labour force statistics as reported in the relevant reference period of each month of the year 2017.

Using Time Use Survey (TUS) data, the key estimation strategy is as follows:

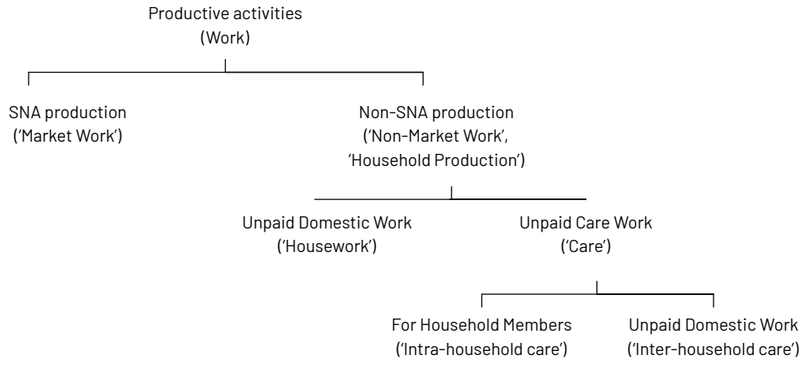
I. Identified Time Use Survey (2017) with a full-time diary survey, conducted by the Department of Census and Statistics, Sri Lanka.
II. Identified time spent on household production activities by age and sex in the TUS, 2017.
III. Found appropriate wages to impute the value of the time spent on those activities (this creates the NTTA production age profile, the equivalent of labor income in NTA) from the Labour Force Survey (LFS), conducted in 2017.
IV. Used appropriate assumptions and TUS data on household composition to impute the age of the consumers of the unpaid care work time produced in the household.
V. Used existing NTA methodology to impute household production time transfers for men and women.

Classification of activities

Figure 3 outlines the terminology used in this paper to describe different types of productive activities (or 'work'). Two types of productive activities are distinguished, namely SNA production or market work, and non-SNA production or non-market work. Non-market work is also referred to as household production. It is important to note that some market work may be done on an unpaid basis, such as working for a family-owned farm, that we might consider to be non-market, but that type of work is defined as inside the SNA production boundary and imputed in existing production measures like GDP.

Therefore non-market work here will not include those activities. Household production consists of unpaid domestic work ('housework') and unpaid care work ('care'), which consists of care for household members ('intra-household care') and care for others outside the household ('inter-household care').

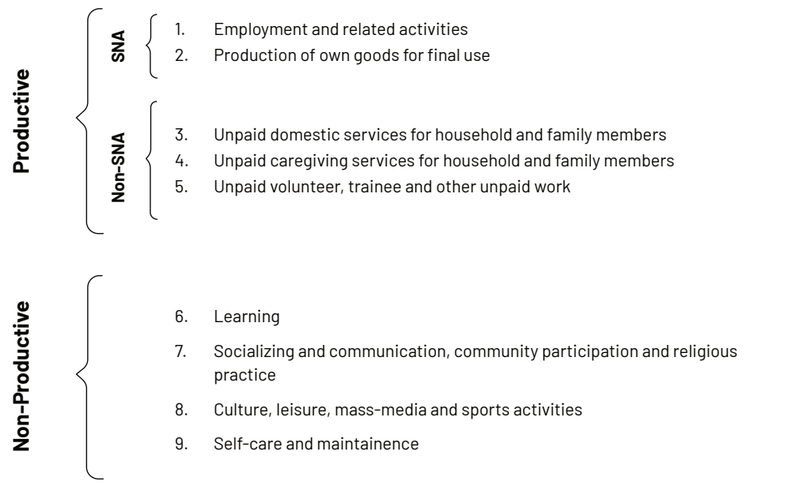
Figure 3.
Types of work



Source: Oothuizen, 2018[9]

Reported activities in TUS 2017 were coded according to the International Classification of Activities for Time Use Statistics (ICATUS 2016 – International Classification of Activities Time-Use Statistics). The ICATUS 2016 has nine broad categories, which aggregate into even broader categories. The categories are consistent with the SNA which underlies the calculation of GDP. The categories are as indicated in Figure 4 below.

Figure 4.
Productive and Non-Productive Activities



Source: Department of Census and Statistics, 2020[5]

[5] Department of Census and Statistics (2020) Sri Lanka Time-Use Survey- Final Report 2017, Department of Census and Statistics, Sri Lanka

Activity category number 1 and 2 falls into the SNA production boundary. Therefore, most part of this is 'counted' in national accounts and the GDP. Activity categories 3 to 5, which cover unpaid household work and unpaid assistance to other households, fall outside the SNA production boundary and they are recognized as 'productive'. They correspond to what is commonly referred to as unpaid care work (UCW). Items 6 to 8 have been regarded as non-productive activities.

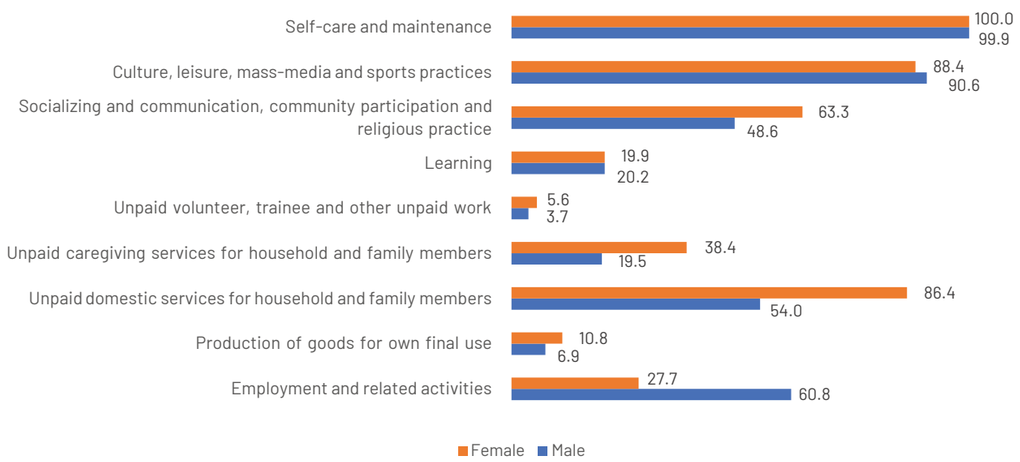
Once relevant activities were identified, the study explored the time use data by age and sex before moving on to the next step of imputing appropriate wages. Age profiles of productive time use alone are crucial to explore in their own right and indicate the degree of specialization by gender in an economy. The time used for activities was estimated at an annual level to be consistent with the annual amounts estimated in NTA. Since the survey represents one week, time used was multiplied by 52. For comparison, an estimate of time spent in non-NTTA activities was included, such as education, sleep, and most importantly paid work. Estimates of time spent in paid work for comparative purposes, were also included as a way to evaluate how much time is spent in work-related activities such as job searching, work-related socializing, and commuting.

04

PARTICIPATION RATES IN NINE MAJOR ACTIVITY CATEGORIES BY SEX

Figure 5 exhibits the participation rate of men and women in SNA production, non-SNA production and non-productive activities. In general, the highest participation rates were noticed for non-productive activities because self-care and maintenance show the participation rate was almost 100 percent for both sexes. This can be anticipated because this category contains sleeping and eating which is common to every single individual irrespective of gender. The next high ranking overall participation rate was for culture, leisure, mass-media and sports practices. The participation rate of men exceeded that of women in employment and related activities which is one of the SNA production activities. This is quite understandable because this is analogous to formal sector employment where there is a substantial difference between men and women. However, figure 5 also reveals that women are more likely than men to participate in all the non-SNA production activities and thus the differences in participation rates between men and women are quite considerable for two of the three non-SNA production activities, specifically for unpaid domestic services and caregiving services.

Figure 5.
Participation rates in nine major activity categories by sex



Source: Author's calculations

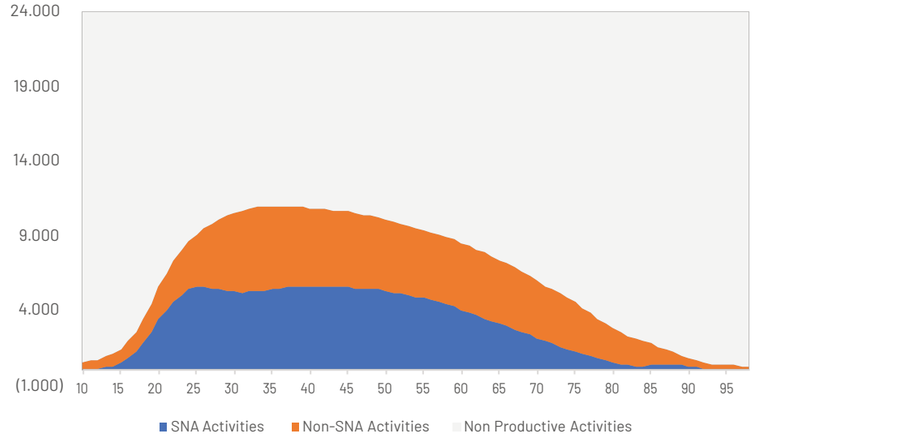
05

ALLOCATION OF TIME ACROSS THE LIFE CYCLE

Gender-Specific Patterns of Time Allocation across the Life cycle

In creating the NTTA, the emphasis is mainly on the difference between market work and non-market work. Furthermore, a range of activities are observed within non-market work or household production. These can be grouped into housework and care. Housework comprises all household production that is not care-related, meaning activities such as cooking, cleaning and household maintenance. Care work involves care of children and adults within the household, as well as care for non-household members and volunteer work.

Figure 6.
Time Use by Age, Sri Lanka, 2017



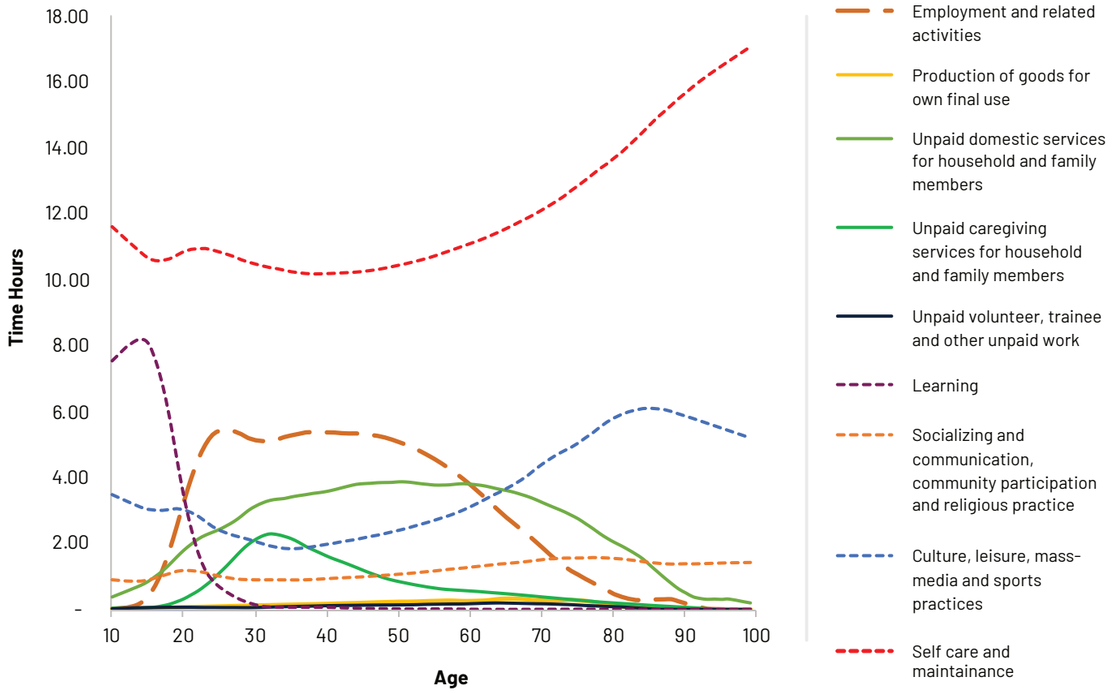
Source: Author's calculations

Figure 6 reveals the average pattern of time use at each age across main activity groups: SNA, Non-SNA and Non-Productive Activities. The first two groups are productive activities while the last one is viewed as non-productive activities. The analysis suggests that for the entire population aged ten years and above, an average of 2.95 hours per day is spent on market work activities, while a further 3.27 hours per day is spent on unpaid household production and 17. 78 hours per day is spent on non-productive activities.

It is quite clear from Figure 7 that self-care and maintenance increases as age advances. On average, 49.8 percent of the day is used for self-care and maintenance activities. When culture, leisure, mass-media and sports practices are examined, we find that 15 percent of the day is used for such activities, but the time use pattern clearly varied by age.

At younger and older ages, involvement in these activities is higher than workforce ages. Learning is dominated by younger ages as they are the persons who are involved in schooling and higher education. Unpaid domestic services for household and family members as well as unpaid caregiving services for household and family members account for 10.3 and 2.9 percent of the day respectively. The former spreads across the life cycle but has a peak during the workforce ages. The latter is dominated by younger ages having a peak around 32 years of age. For employment related activities 11.7 percent of the time of the day is used and dominated during the workforce ages as seen in Figure 7.

Figure 7.
Time Use Activities by Major Categories and Age, Sri Lanka, 2017



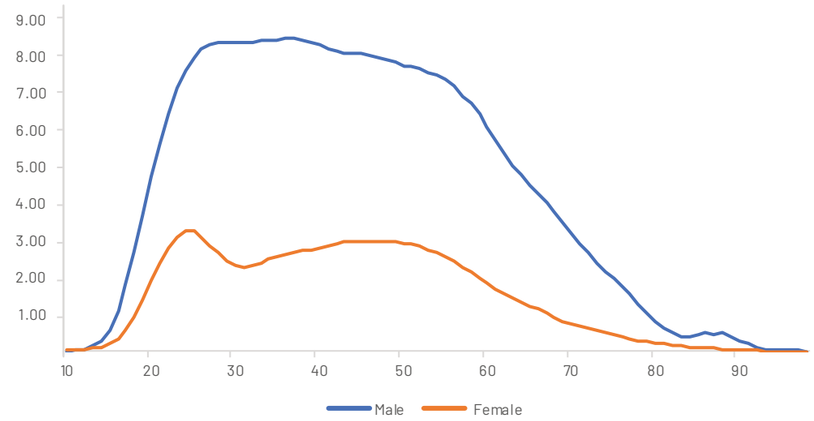
Source: Author's calculations

5.1. Gender-Specific Patterns of Time Allocation across the Life cycle

5.1.1. SNA Productive Activities

Figures 8 and 9 show time used for SNA production activities by gender.

Figure 8.
Time spent on employment related activities by Gender

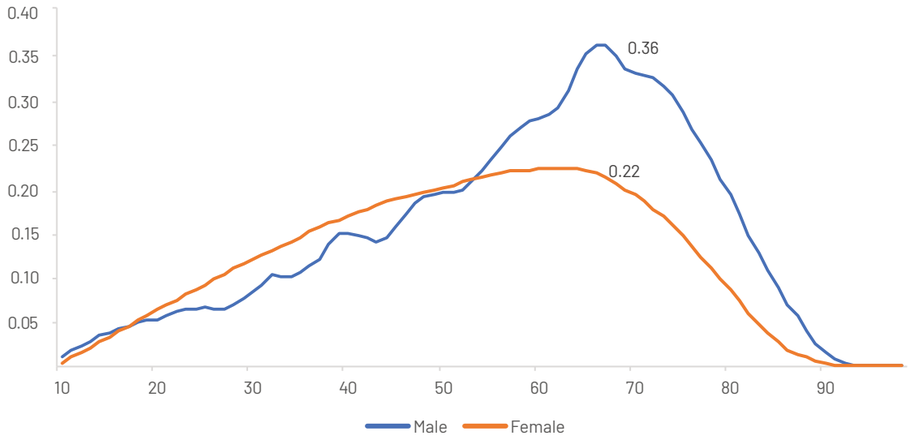


Source: Author's calculations

Figure 8 reveals that allocation of time to SNA production or market work goes along with the anticipated pattern, connected to labour force participation rates.[6] Time spent for employment related activities is very low during the school ages and gradually rises in the prime working ages, and then falls to low levels again during the older ages. However, the most noticeable difference is the magnitude of the time use pattern in SNA activities by gender although the pattern does not show any significant difference by age. It further shows that men spend more time in employment related activities than women at almost every age. The analysis suggests that men spend 4.46 hours per day in employment related activities compared with 1.48 hours for women. As a result, the peak in time allocated to market work is significantly higher for men (8.51 hours) than for women (3.12 hours). The two-peaked pattern of women's time in employment suggests that younger women may start off in employment but then leave to some extent when caregiving responsibilities for children increase.

[6] Dissanayake, Lakshman and Manori Weeratunga (2017) Changing Nature of the Labour Force in Sri Lanka: Predicting Occupational Structures of Major Industry Groups, International Journal of Advanced Research and Review, 3(2): 16-26

Figure 9.
Time spent on production of goods for own final use by Gender



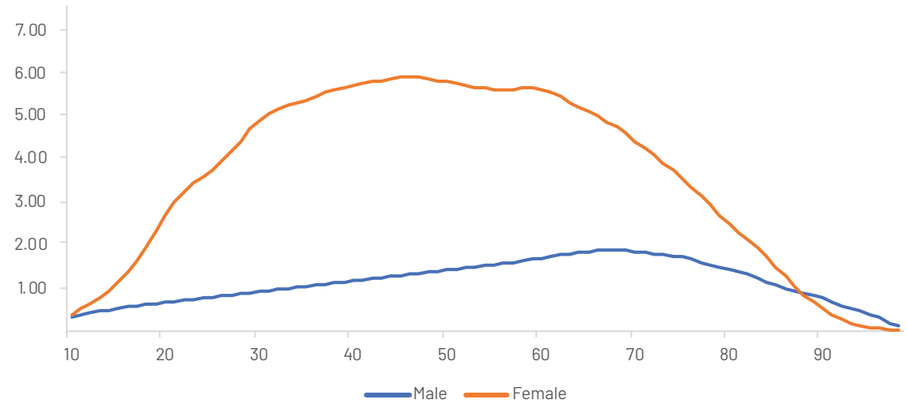
Source: Author's calculations

Figure 9 shows that time spent for production of goods for own final use gradually rises to usual terminal ages in the workforce for both sexes and then there is sharp decline towards older ages. It is also interesting to observe that time used by women for production of goods for own final use exceeds men, especially at primary working ages showing that women's engagement is more in informal sector employment compared to men. However, the most notable feature is the significant gap in time used by gender created from the early fifties, favouring men. This suggests that men tend to get engaged in production of goods for their own final use, especially after they retire from their formal employment activities. Note, however, that the vertical axis range for this chart is much smaller than for Figure 8, indicating that engaging in production of goods for own final use for both sexes is substantially lower than for those who engaged in employment related activities. The analysis discloses that men spend only .15 hours per day in comparison with .12 hours for women.

5.1.2. Non-SNA Productive Activities

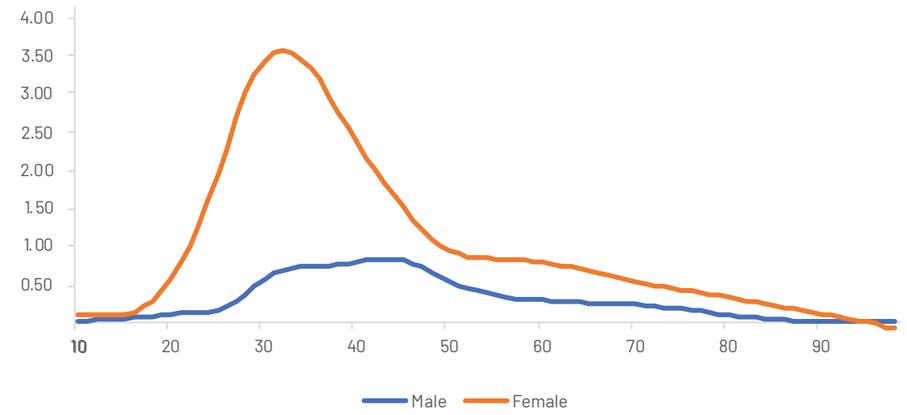
Figures 10 to 12 indicate that women's engagement in non-SNA activities is substantially higher than that of men at almost every age. This means that allocations of time to non-SNA activities seem fairly different. Figure 10 shows that for the population aged 10 years and over, women spend 3.61 hours per day in unpaid domestic services for household and family members, more than three times the 1.14 hours of men. In the case of unpaid caregiving services for household and family members, women spend 1.02 hours per day while men spend just .29 hours per day. The peak age of this type of activity for women in their early 30s is the same as the "dip" in employment-related activities. Time spent for unpaid volunteer, trainee and other unpaid work by women is .11 hours per day and it is only .07 hours per day for men. Overall, women spend more hours for unpaid domestic services for household and family members compared to other non-SNA productive categories.

Figure 10.
Unpaid domestic services for household and family members by Gender



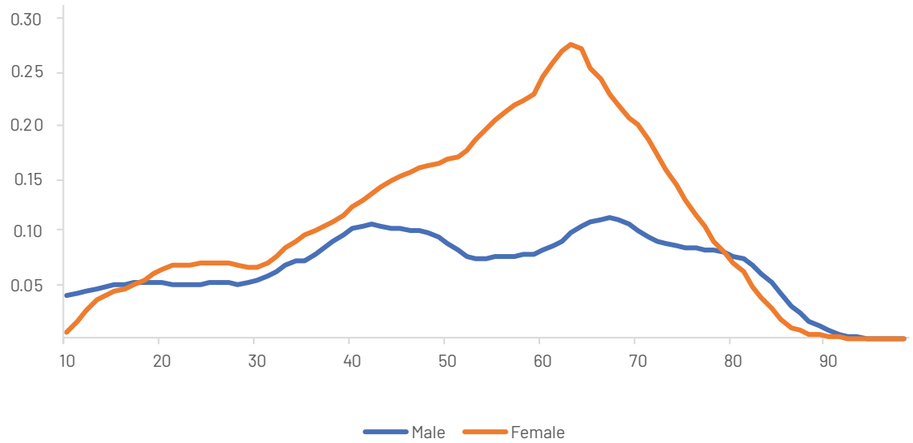
Source: Author's calculations

Figure 11.
Time use for unpaid caregiving services for household and family members by Gender



Source: Author's calculations

Figure 12.
Time use for Unpaid volunteer, trainee and other unpaid work by Gender

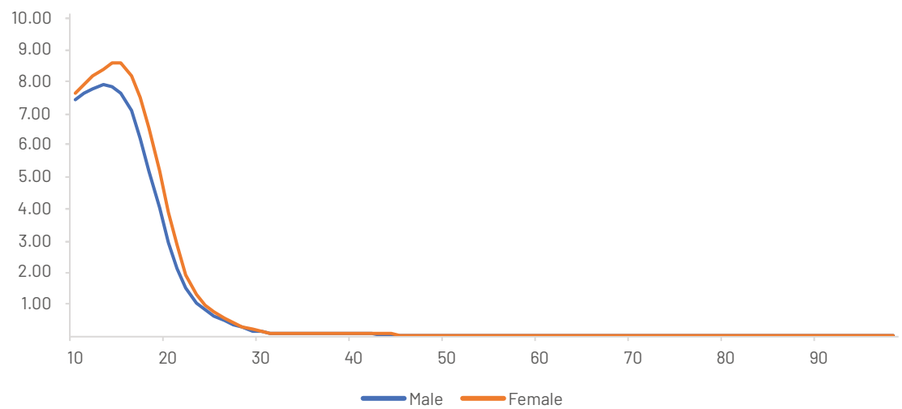


Source: Author's calculations

5.1.3. Non-Productive Activities

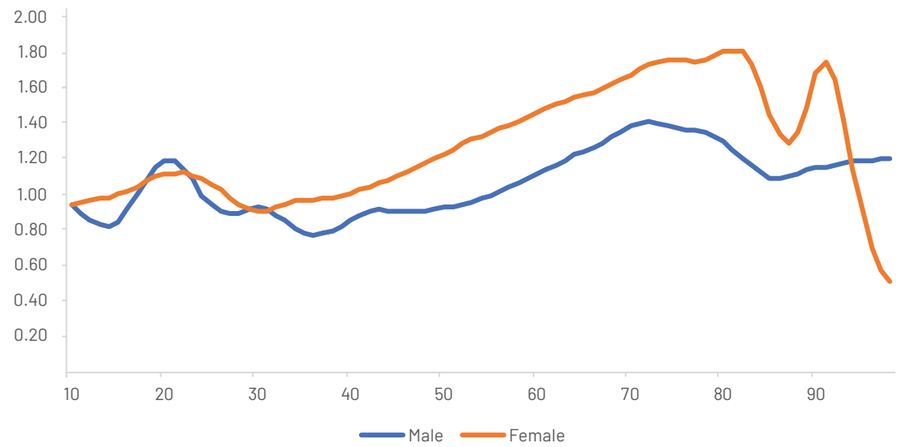
Figures 13 to 16 exhibit the time used for non-productive activities by gender. Figure 13 reveals that learning related activities are dominated by the younger age groups until about age 30 years while females have higher participation in learning. It is quite interesting to note that women have higher use of time for socializing, communication, community participation and religious practice while both genders show an increasing trend by age. Time used for culture, leisure, mass media and sports is being dominated by men but women started to dominate especially at the extreme elderly ages. This pattern is very similar even for the time for self-care and maintenance as depicted in Figure 16.

Figure 13.
Time use for learning by Gender



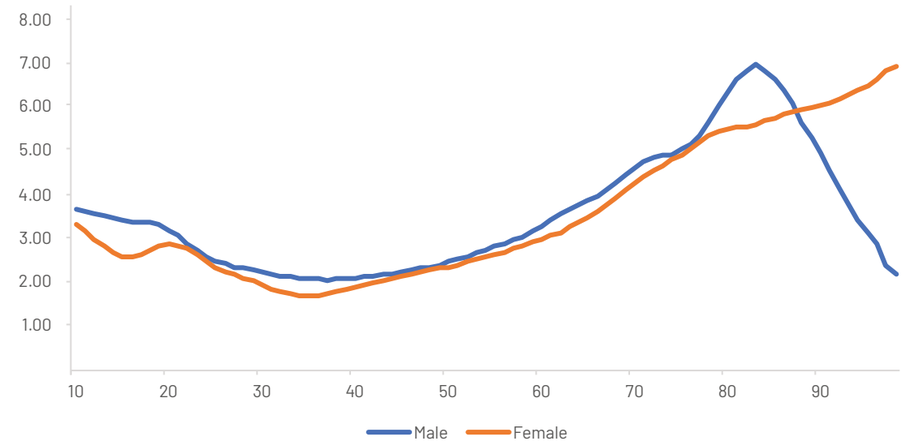
Source: Author's calculations

Figure 14.
Time use for socializing and communication, community participation and religious practice by Gender



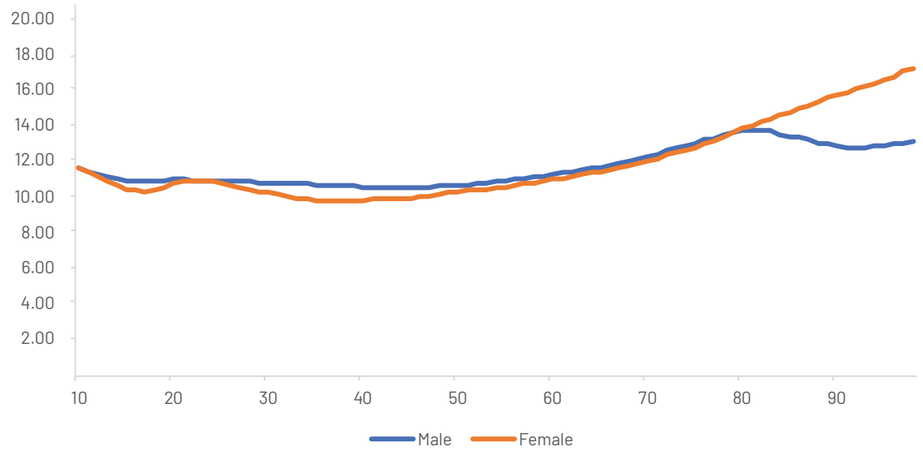
Source: Author's calculations

Figure 15.
Time use for culture, leisure, mass-media and sports practices by Gender



Source: Author's calculations

Figure 16.
Time use for self-care and maintenance by Gender



Source: Author's calculations

06

IMPUTATION OF WAGE TO PRODUCTIVE ACTIVITIES NOT INCLUDED IN NATIONAL INCOME

National income includes the total value of production, which is determined in the market when the produced good is bought by someone for a certain price. The inputs to production are labor and capital. The value of the labor inputs is indicated by wages and the value of the capital services is what is remaining from selling goods after the labor has been paid. To make NTTA comparable to NTA based on national income, it is necessary to value what is produced in the time spent (Abraham and Mackie, 2005). When it comes to services, it is more difficult from a data perspective, compared to the usually more available wages by occupation. In the case of valuing outputs of time, it is necessary to have an additional data source on the price and quality of each output activity.

Following NTA's attention on measurement, the "specialist replacement" method was used to value time inputs, meaning if the person had to pay someone else to perform each task, how much would it cost? An appropriate wage for persons in the market performing each activity mentioned earlier was found. LFS 2017 is able to give average wages by job or occupation, and it is likely much simpler to use these tables than the microdata from the surveys. However, the present study carried out a micro-survey as a supplementary source. A separate household questionnaire with a time diary was designed and data were collected from randomly selected sample of 150 households only to fill gaps in wage data. All household members who were aged 10 years and above in the sample were interviewed. Data were collected by well-trained research assistants. This survey is mainly used to estimate specialist replacement wages for unpaid domestic work. This is in line with the work of Donehower (2014).

Although valuing time is on either pre-tax or post-tax basis, NTTA accounts are based on pre-tax imputed wages. Pre-tax values are relevant to questions involving the total cost of care. Ultimately, there is an issue of whether to adjust wages for potential differences in productivity either by sector or by the age of the person performing the unpaid care work. NTTA does not adjust estimates for differences in quality or efficiency in home versus market production, or for potential differences in efficiency by age. This is mainly because there is no feasible empirical method for determining their magnitude that can be applied on a cross-national basis.

07

ESTIMATING AGE SCHEDULES

7.1. Production

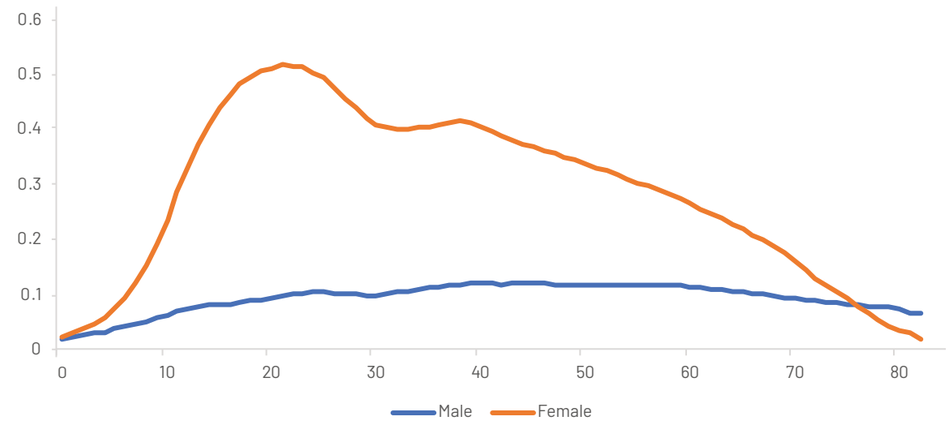
After activities are identified and wages are assigned to those activities, the average wage weighted time spent in each group of activities, by age and sex, is the NTTA age schedule for production of that activity. Zeros are included in the average for people who do not perform a particular activity. TUS 2017 collected information only from persons 10 years and over by assuming that younger children do not engage in home production activities or if they do it is sufficiently unproductive as to be not worth valuing in terms of a wage.

In order to construct the Household production profile, the Labour force Survey 4th quarter 2017 data set was used along with Time Use survey (TUS) carried out in the same period (4th Quarter 2017). Before merging the two datasets, Diary information was used to identify the activity code level. The TUS data accounted for three main activities that a person would perform in a day. Those are SNA activities, non-SNA activities, and non-Productive activities. For the construction of Household production and consumption profiles, we considered only the non-SNA activities, which is also divided into three main activities called non-SNA-1, non-SNA-2, and non-SNA-3. Non-SNA-1 accounted for the activities related to unpaid domestic services for households and family members (major category 3 of ICATUS 2016). In this study, these activities are denoted as Housework activities. Non-SNA-2 accounted for the activities related to unpaid caregiving services of households and family members (major category 3 of ICATUS 2016). This is called Care Activity. This care activity was further divided into two main areas namely, Child Care and Adult Care. Within these two types of care activities, two subdivisions are important in the calculation of household activities. Those are care work offered for household members (Intra-household care) and non-household Members (Inter-household care). The mean time spent for non-SNA-1 (unpaid housework) for age by sex was calculated separately, age ranged from 10 years to 99 years as TUS data were collected from individuals aged above 10 years. After constructing the profile tables, the data were further smoothened by using R- supersmooth function (supsmu weighted by age).

Production was grouped into domestic work and unpaid care work at household level while market production was calculated separately. At household level, women's engagement in domestic household work and unpaid care work significantly dominates over men as shown in Figures 17 and 18. It is also discernible from Figures 10, 11, and 12 that engagement of women in domestic housework is greater than involvement in unpaid care work. It is important to note that men are more engaged in unpaid care work compared to their involvement in domestic work and this is greater during the ages 40 to 59 years. However, younger women are more loaded with unpaid care work.

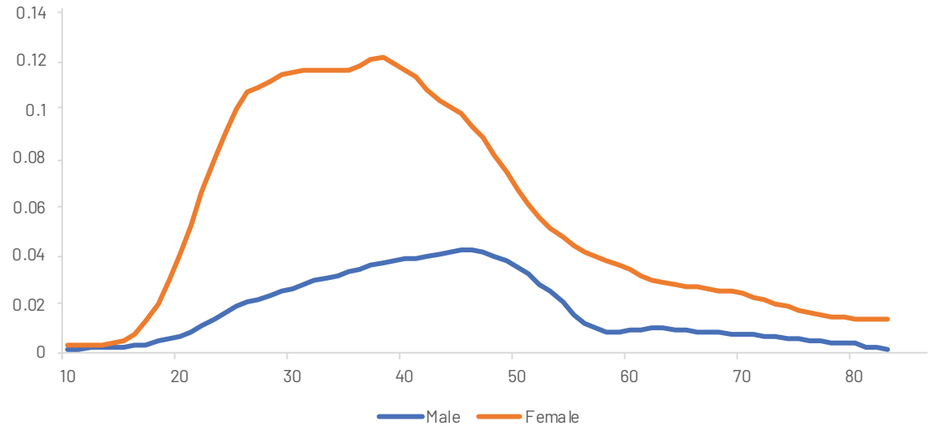
It is important when comparing the time-based estimates in previous figures with monetary-based estimates in this section to remember that they are valued by different imputed wages. While the total time spent on unpaid housework is much greater than on unpaid care work, the imputed wages bring the monetary estimates into a closer range. Monetary estimates are shown relative to the average annual income of a peak-working-age person (ages 30-49) and so can be thought of as the value of one indicating a working person's annual income.

Figure 17.
Domestic work by gender



Source: Author's calculations

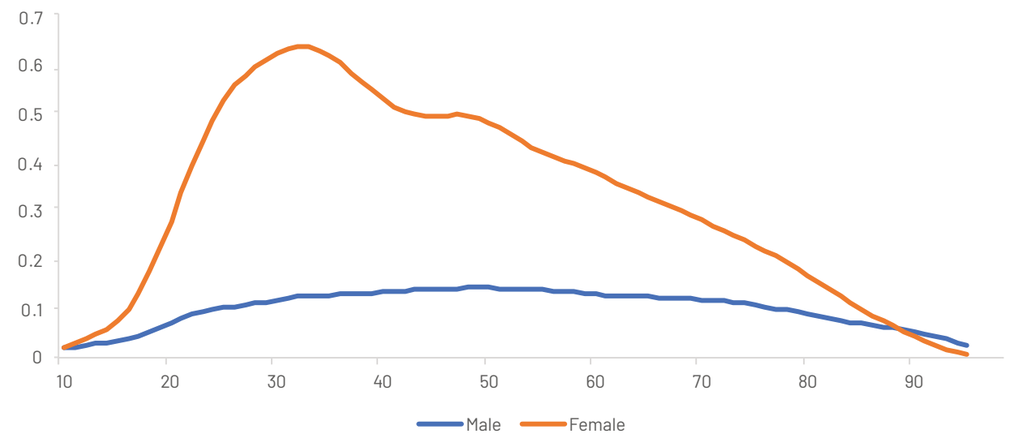
Figure 18.
Unpaid care work by gender



Source: Author's calculations
Note: Profiles are standardized by dividing through by the average labour income for 30- to 49-year-old ('peak labour income'); this average equals one income unit.

Figure 19 exhibits the total household production, which is a combination of both domestic and care work. It reveals that women's engagement in total production activities at household level is significantly greater than men throughout the life cycle. In absolute terms it is about four times higher than men's contribution to household production activities. This also shows values of such contribution by women in monetary terms which has not been shown before in any analysis.

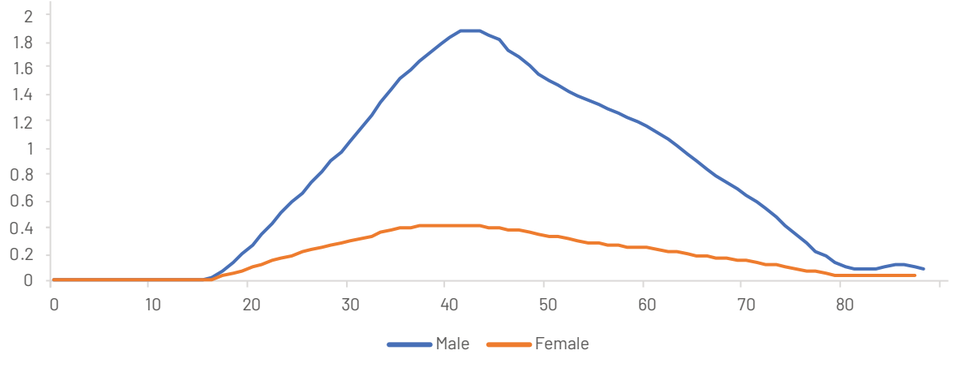
Figure 19.
Total household production work by gender



Source: Authors' calculations
Note: Profiles are standardized by dividing through by the average labour income for 30- to 49-year-old ('peak labour income'); this average equals one income unit.

Figure 20 reveals that market production is dominated by men and women's contribution is significantly lower. One can argue that women's contribution is lower for market production mainly because they have been constrained by the amount of household production activities they are performing, which has prevented them from engaging in market production activities. Unfortunately, such activities have not been taken into account in SNA production activities and have been ignored so far.

Figure 20.
Market production by gender



Source: Authors' calculations
Note: Profiles are standardized by dividing through by the average labour income for 30- to 49-year-old ('peak labour income'); this average equals one income unit.

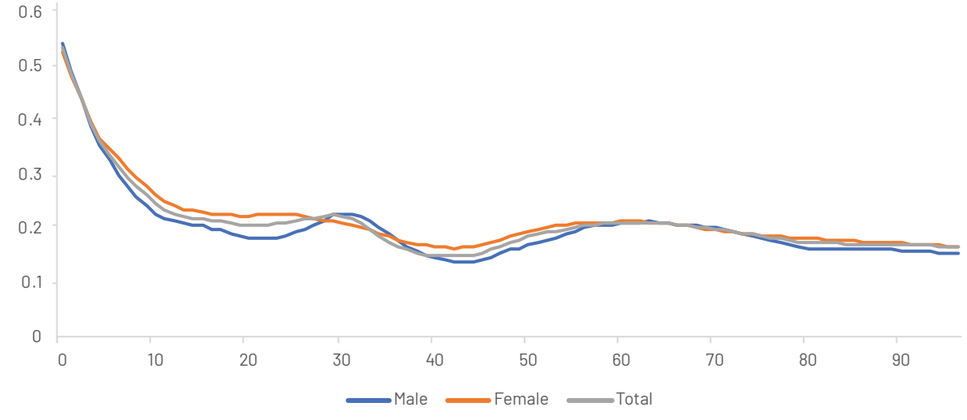
7.2. Consumption

It is absent in the time use surveys that people consume the value of the time in the NTTA production account. Therefore, assumptions are made in the NTTA methodology to allocate the value of time in production to consumers in the household. For general activities within the household (unpaid domestic services for household and family members), the time produced is divided equally among all household members. This treats these activities as collective services that deliver the same value to all members across the household.

In the case of age-targeted care activities in the household (childcare, adult care, or eldercare which come into the category of 'unpaid caregiving services for household and family members'), the regression approach, similar to what was used in estimating age schedules for private health and education consumption in the NTA accounts, is the default method to allocate unpaid care work activities to consumers. However, the present study uses more accurate information available from TUS 2017 as it contains data indicating exactly which household members (because unit of analysis is individual household members who are 10 years and above in each household taken for the TUS sample) were being cared for during that activity. These were used to make a direct allocation of the time produced to the consumer of that time.

For care work carried out for persons outside of the household, as the TUS indicates the recipient of the care, the consumption was assigned to the target age group. When all of the production is allocated as consumption, then producing the age-and sex- profiles is a matter of taking the age-and sex-specific average amounts. Consumption of non-market production is highest for infants and is estimated to be around 75 percent of peak labour income. Following a rapid decline, it remains, however, between 22 percent and 33 percent of peak labour income for cohorts aged between 12 and 46 years. For most cohorts in their sixties and seventies, consumption is higher around 30 percent of peak labour income, but falls again to under 30 percent for those aged 75 years and older as shown in Figure 21.

Figure 21.
Household consumption by gender



Source: Authors' calculations
Note: Profiles are standardized by dividing through by the average labour income for 30- to 49-year-old ('peak labour income'); this average equals one income unit.

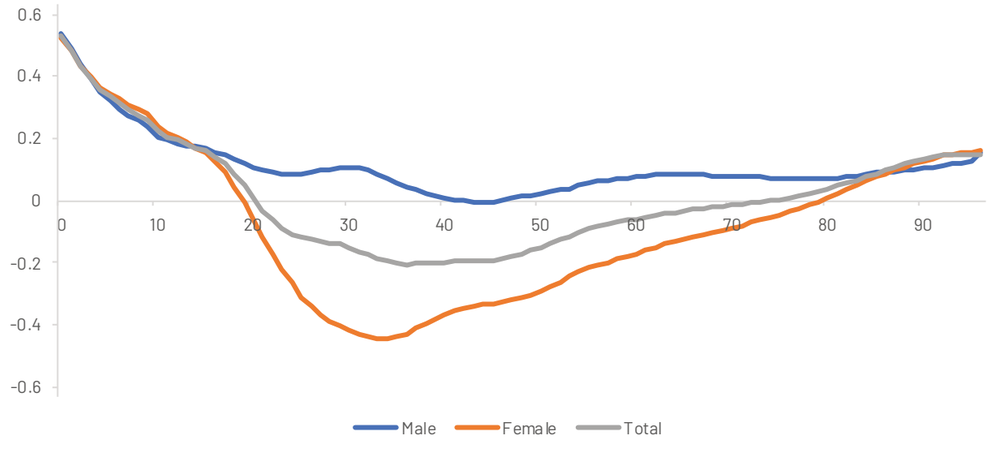
7.3. Transfers

The study examined not just production and consumption age profiles, but also the transfers. Total transfers of unpaid care work are the difference between consumption and production because there is no way to store unpaid care work in an asset and consume it later. We assume it must be consumed the moment it is produced and thus all unpaid care work consumption is a transfer inflow, and all unpaid care work production is a transfer outflow.

Inter-household transfers (between households) contain all of unpaid care work production that is direct care for non-household persons, including volunteering, is an inter-household transfer outflow. All of the consumption of care provided to non-household persons, including volunteering is an inflow. Intra-household transfers include unpaid care work that is direct care for household members, and a portion of the general household activities that are not produced and consumed by the same person. This means that if a person spends one hour making dinner for a family of four including himself, he produces an hour of cooking time, and each family member consumes 15 minutes. However, the person who did the cooking transfers only 45 minutes of that hour because 15 of the minutes was for his own consumption, which does not involve a transfer.

Merging production and consumption profiles reveals large transfers to children, ranging between 77 percent of peak labour income at age zero and 20 percent at age 16. On average, cohorts become net producers at age 20 and only return to being net consumers again at 75 years of age. Male cohorts, however, are never net producers: net transfer inflows fall below two percent of peak labour income between the ages of 18 and 28, but never turn negative (indicating net transfer outflows). Female cohorts, in contrast, make net transfers from age 18 to late age 70: net transfer outflows rise to more than 40 percent of peak labour income during their late twenties and remain above 20 percent until age 60 (figure 22).

Figure 22.
Net transfers by gender

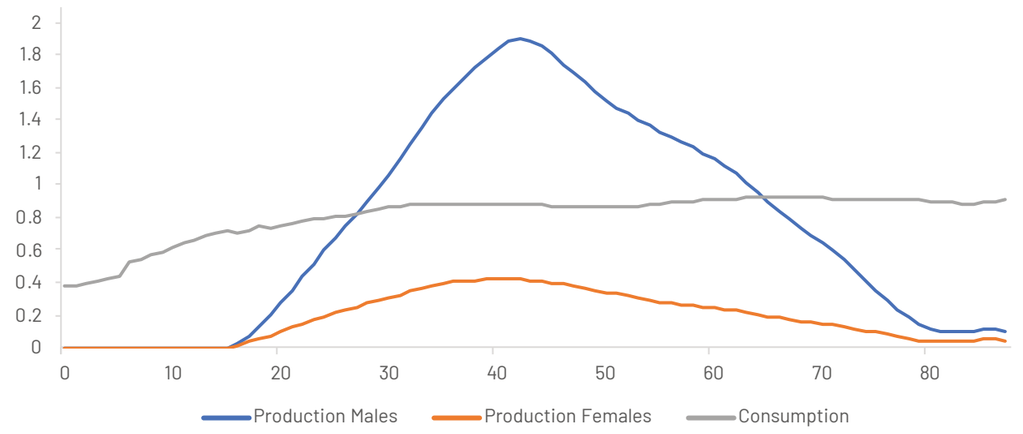


Source: Authors' calculations
Note: Net transfers are calculated as consumption less production.

08

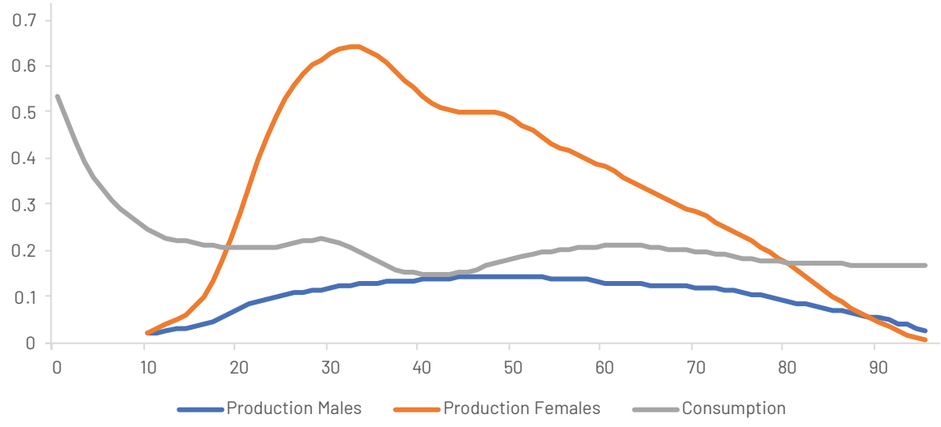
COMPARING PRODUCTION AND CONSUMPTION IN THE MARKET AND HOME

Figure 23.
Production and Consumption in the Market by age and gender, relative to average market labour income age 30-49 years



Source: Authors' calculations

Figure 24.
Production and Consumption at Home by age and gender, relative to average market labour income age 30-49 years



Source: Authors' calculations

It is quite important to combine both production and consumption profiles and examine how they differ by gender and age. Figures 23 and 24 show that in the market production activities, men dominate and accrue higher income compared to household production where men have the least involvement compared to women. Women's involvement in unpaid care work and domestic work has given rise to higher household production by women but the income (if paid) that they can accrue will be very much lower than in the market production as shown in Figure 24.

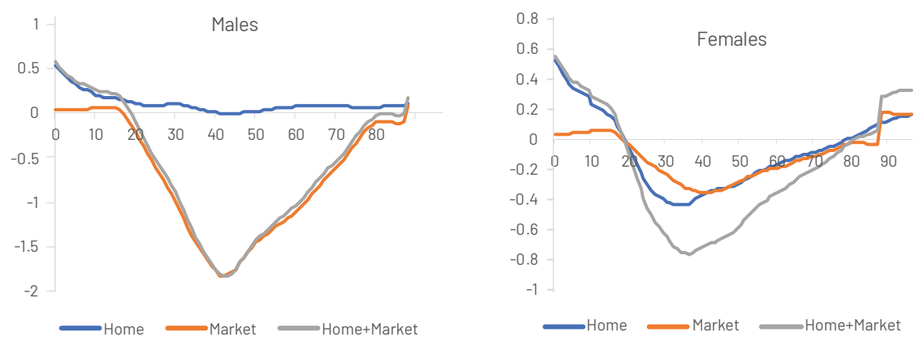
8.1. Life Cycle Deficit

One of the important concepts of the NTA is that of the life cycle deficit (LCD), which is the difference between consumption and labor income along the life cycle. These are shown in Figure 25 for males and females separately. In NTA calculations, life cycle deficit involves market production and consumption, but the same concept can be extended to cover production and consumption in the home. The impact of "counting women's work" on the overall life cycle deficit can be seen when both NTA and NTTA profiles are taken together. [7]

The graph for females in Figure 25 shows that life cycle surplus is increased when home production is added to the market production. This is mainly because of the contribution made by unpaid care work and domestic work. This contribution spreads from age 20 to around 75 years as seen in the life cycle surplus generated by home production alone. However, life cycle deficit generated by not having enough labour market involvement by women has made their consumption higher than what they have earned. Therefore, it is very important to improve the labour force participation of women. In the case of males, involvement in household production has not made any significant contribution to make any change in the life cycle surplus. Note, though, that a higher valuation for unpaid care and housework than what is provided by a market-based wage imputation would create more similarity in the picture of surplus created by men versus women.

When market alone is considered, children are costly in terms of the deficit of consumption over production that they must receive in the form of transfers from parents, other family members or members of society, but so are elders. However, if home production is considered, older persons do not get much more expensive because they themselves are doing a great deal of unpaid care and housework. This is seen for both men and women. This puts the prospect of future population ageing in a different perspective than if only market goods and services are considered in valuing the cost of young or old dependents.

Figure 25.
Life Cycle Deficit in the Market and Home by Age and Gender



Source: Authors' calculations

[7] https://static1.squarespace.com/static/5994a30fe4fcb5d90b6fbeab/t/5babf7f8c830253c9d11121e/1537996799368/Country+Report+03+-+Vietnam.pdf

09

CONCLUSION

NTA portray the generational economy within a given country, unfolding how societies produce, consume, share and save across the life cycle. Nevertheless, disaggregating NTAs by gender discloses considerable differences in the patterns of production between men and women. It was shown that the gap in labour income is particularly large between the ages of 30 to 60 years. With the use of NTTA methodology, this study proved that these differences are a true reflection of reality where the measure of 'production' is incomplete because of the exclusion of unpaid services from the SNA definition of production.

From the present analysis, it is very clear that current measures of the economy seem imperfect because of their inability to incorporate a significant amount of production and consumption of unpaid services taking place within the household. The NTTA methodology allows us to quantify gender inequality and household production, comprising differences between men and women in market production involvement and related wages, the probable constraints created by household responsibilities to women's participation in the labor force, and the excess total work time that most women spend relative to men. This study is significant in terms of Sri Lanka's aim to achieve the Sustainable Development Goals specifically SDG 5 (to achieve gender equality and empower all women and girls') and SDG Target 5.4 (to 'recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate').

The analysis proves that unpaid care and household work represent a significant proportion of total output within Sri Lankan society—roughly 36 percent of GDP in 2017 and in particular, more of this work is performed by women than men. This contribution has never been considered as a contribution made by women to the Sri Lankan economy. Young women are more burdened with responsibilities of care and housework than young men, but both groups are devoting considerable amounts of time on caring for others.

This study explored the patterns of time-use across the life cycle by gender. Gender specialization in productive activities is found to be significant in Sri Lanka. At every age, males are found to spend more time than females in market work activities, while the opposite is true in terms of both housework and care. As a result, the peak in time allocated to market work is significantly higher for men than for women. The analysis further revealed that while women spend more time than men in acquiring human capital, gender-based attitudes about proper work for women may be holding them back from deploying more of that human capital in market labour rather than household production. This holds back overall labour force productivity and economic growth. It is quite interesting to note that women have higher use of time for socializing, communication, community participation and religious practice while both genders show an increasing trend by age. Time use for culture, leisure, mass media and sports is dominated by men but women start to dominate at the oldest age groups.

The study also showed that time spent on production of goods for own final use gradually rises to usual terminal ages in the workforce for both sexes and then there is sharp decline towards older ages. It was also observed that time use by women for production of goods for own final use exceeds men, especially at primary working ages by showing that women's engagement is more in informal sector employment compared to men. However, most notable feature is the significant gap in time use by gender created from the early fifties, favouring men. This suggests that men tend to get engaged in the production of goods for own final use, especially after they retire from their formal employment activities

The present analysis uncovered that consumption of non-market production is highest for infants and is estimated to be around 75 percent of peak labour income. Following a rapid decline, it remains, however, between 22 percent and 33 percent of peak labour income for cohorts aged between 12 and 46 years. For most cohorts in their sixties and seventies, consumption is higher around 30 percent of peak labour income, but falls again to under 30 percent for those aged 75 years and older. Overall this study demonstrated that children are costly and perhaps this may have been one of the factors affecting fertility decline in the country. Furthermore, when market alone is considered, children seem costlier in terms of the deficit of consumption over production that they must receive in the form of transfers from parents, other family members or members of society. However, if home production is considered, older persons do not get much more expensive because they themselves are doing a great deal of unpaid care and housework. This is seen for both men and women. This puts the prospect of future population ageing in a different perspective than if only market goods and services are considered in valuing the cost of young or old dependents.

Most importantly, the study examined not just production and consumption age profiles, but also the transfers. Combining production and consumption profiles revealed large transfers to children. On average, cohorts become net producers at age 20 and only return to being net consumers again at age 75. Male cohorts, however, are never net producers: net transfer inflows fall below two percent of peak labour income between the ages of 18 and 28, but never turn negative (indicating net transfer outflows). Female cohorts, in contrast, make net transfers from age 13 to age 80: net transfer outflows rise to almost 40 percent of peak labour income during their late twenties and remain above 20 percent until age 60.

When the difference between consumption and production along the life cycle is analyzed by gender, it was found that life cycle surplus for women is increased when home production is added to market production. This is mainly because of the contribution made by unpaid care work and domestic work. This contribution spreads from age 20 to around 75 years of age as seen in the life cycle surplus generated by home production alone. However, the life cycle deficit generated by not having enough labour market involvement by the women has made their consumption higher than what they have earned. In the case of men, involvement in household production has not made any significant contribution to making any change in the life cycle surplus.

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