Making Women's Work Count in Pakistan

Measuring the Gendered Economy

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FOREWORD

Led by the aid community, there is continuing conversation on measuring poverty in Pakistan followed by a supposedly erudite discussion on how to end poverty. This discussion amounts to more and more giveaways known as social protection programs, regardless of available resources.

Then there is a rush to build infrastructures which is interpreted to be mostly roads for cars and electricity for air conditioners. The needs of the community, the humanity, society, and research—activities that enhance productivity and the country's competitive advantage.

With these priorities and national debate, the government is constantly looking for resources and ends up in a debt spiral to default while productivity is continually declining, and societal vales and trust are eroding.

PIDE has developed NTA for the federation as well as the provinces presenting detailed estimates of how key economic activities—production consumption savings—are spread over the age structure. In particular, it provides valuable information on productivity and savings across generations identifying possible policy and market interventions for generating greater welfare across generations. It allows us to track and influence the demographic dividend—a mush talk about subject in Pakistan.

In this report PIDE is presenting the National Time Transfer of Account (NTTA) which is how time isallocated across various production activities by gender and generation in both paid and unpaid work

In a life span a person takes education, investment and retirement, fertility and child-rearing decisions and influences the same for the next generation. These interlocking decisions across generations are at the root of many markets to determine welfare and productivity across generations. Public interventions can facilitate such decisions and help develop coordination mechanisms (policies), as well as create tradeable instruments across generations to facilitate financing for these decisions (markets) and allow the development of information exchanges that facilitate generational needs and exchanges (institutions).

Care, housework, and other household services make the family. Yet standard measures of economic activity include these services only if they are provided for pay. Household services are mostly by women provided on an unpaid basis. The current report demonstrates how much household service is provided and received by men and women at different ages by visualizing transfers of unpaid care working time (time transfers). Time transfers are unpaid care work done by someone and consumed by another one.

Women's labor force participation remains low in Pakistan and policy interventions remain a source of debate. NTTA provides a further tool for improving the precision of such interventions.

PIDE is proud to bring research on generational accounting to Pakistan. We developed NTA for Pakistan three years ago and have now estimated the NTTA. We intend to do this on a regular basis. The comprehensive analysis presented in this report aims to guide strategic decision-making processes, ensuring that initiatives are not only relevant but also responsive to the dynamic nature of Pakistan's demographic and economic landscape.

By utilizing this resource, decision makers can effectively identify priority areas demanding attention and investment, including but not limited to education, healthcare, and infrastructure. Additionally, policymakers can employ the insights provided to pinpoint and address specific challenges such as gender inequality, poverty, and unemployment through targeted interventions. This report thus serves as a valuable tool for informed decision-making, empowering the government to tailor initiatives that directly address the nuanced needs of the population.

I am confident that the NTTA report will play a pivotal role in guiding Pakistan's socio-economic policies as well as research.

I extend my sincere appreciation to the team at PIDE, with special recognition for Dr. Durre-Nayab, the principal author of the report, for their commendable effort. Additionally, I express my gratitude to the UNFPA team, especially their Country Representative, Dr Luay Shabaneh, for their dedication in bringing this initiative to fruition. This is an example of international agency and local think tank collaboration that should be celebrated.

PIDE will mainstream research NTTA in Pakistani academia to promote a better understanding of a more comprehensive gendered generational accounting.

Nadeem Ul Haque

(Vice Chancellor, PIDE)

FOREWORD

National Time Transfer of Account (NTTA) provides a comprehensive understanding of the demographic and economic changes occurring in the country with different age structure. It is indispensable for policymakers, researchers, and stakeholders, equipping them with essential information to make well-informed decisions. By offering valuable insights into the ongoing demographic and economic trends, the report becomes an invaluable tool for the formulation of effective policies and programs that directly address the evolving needs of the population.

The comprehensive analysis presented in this report aims to guide strategic decision-making processes, ensuring that initiatives are not only relevant but also responsive to the dynamic nature of Pakistan's demographic and economic landscape.

Tailored for an in-depth examination of the demographic landscape, the NTTA for Pakistan illuminates the temporal dynamics inherent in population structures. This insightful report not only equips decision-makers with the necessary tools and knowledge to understand the evolving age structures but also plays a pivotal role in guiding decisions on resource allocation, social investments, and economic planning. Furthermore, it underscores the significance of leveraging the potential within various age groups, aligning this potential with the overarching national development objectives. By doing so, the report contributes to a nuanced understanding of demographic shifts and facilitates the formulation of policies that resonate with the country's broader developmental goals.

The Government of Pakistan can leverage this comprehensive report to strategically formulate policies and programs that align with prevailing demographic and economic trends. By utilizing this resource, decision makers can effectively identify priority areas demanding attention and investment, including but not limited to education, healthcare, and infrastructure. Additionally, policymakers can employ the insights provided to pinpoint and address specific challenges such as gender inequality, poverty, and unemployment through targeted interventions. This report thus serves as a valuable tool for informed decision-making, empowering the government to tailor initiatives that directly address the nuanced needs of the population.

I am confident that the NTTA report will play a pivotal role in guiding Pakistan's socio-economic policies. I extend my sincere appreciation to PIDE, with special recognition for Dr. Durre-Nayab, the principal author of the report, for her commendable efforts. Additionally, I express my gratitude to the UNFPA team for their dedication in bringing this initiative to fruition. I acknowledge the collective effort that has resulted in this valuable resource, contributing to informed decision-making and strategic policy formulation.

Dr. Luay Shabaneh

UNFPA Representative

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01 INTRODUCTION

Household tasks such as cooking, cleaning, looking after children, and caring for the elderly play a crucial role in the overall well-being of households and society. Childcare is particularly significant as it ensures a future workforce for production and economic advancement. The performance of these tasks is indispensable for sustainable economic growth, but, its importance is not acknowledged as the focus remains on the activities that are considered 'economic' in the conventional definition of work in the labour market. It is also worth noting that those who carry out these duties within households do not receive any monetary compensation, and hence the notion of these being 'non-economic' activities.

Since these activities demand a considerable amount of time, individuals involved in such tasks have limited time left for paid employment, personal leisure, education, or any other pursuit. How household chores are divided among family members can have far-reaching implications for the economic, social, and educational status of each member. Studies (like Craig, 2006, and Bianchi, 2000) have consistently demonstrated that the allocation of household work is closely tied to gender, with women undertaking a larger share of these responsibilities and subsequently dedicating more time to them than men.

The percentage of time spent on housework is likely to be

influenced by household income, primarily for two reasons. Firstly, higher-income households can afford domestic help, which reduces the need for family members to spend extensive time on housework themselves. Secondly, household income influences the type of technology adopted for performing household tasks. Lower-income households are often limited to labour-intensive methods due to budget constraints, while wealthier households can invest in capital-intensive technologies that save time. This implies that individuals from lower-income backgrounds tend to spend more time on housework compared to those from wealthier backgrounds. Consequently, gender disparities in housework responsibilities might be less pronounced in affluent households than in less privileged ones.

The extent of gender inequality concerning the division of housework can vary across different countries, influenced by their level of economic development. It would not be wrong to state that most of these tasks, which remain unpaid and are not included as contributing to the labour market, are performed by women in Pakistan. Housework technology in developing nations like Pakistan might rely more on manual labour and time-consuming methods compared to the more advanced technologies used in developed economies.

Pakistan is a signatory of the SDGs, and achieving those is an aim of the country. The SDG 5 talks about gender equality, for which the target 5.4 states, "*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 valuation of the unpaid work in this study, thus, aims to estimate the magnitude of unpaid work performed in the country and the gender differences found in carrying out such tasks. The study, thus, examines the distribution of housework between genders in Pakistan to shed light on the potential gender disadvantage faced by women. It also aims to provide insights into policies aimed at reducing the time women spend on housework and enhancing their economic empowerment.

A recent research (Neha, Rao Akhtar et al.; 2020) examined how tasks, both paid and unpaid, are gendered and distributed between men and women within the household. Paid work, encompassing the market economy, is generally considered to be a men's activity. Unpaid work, too, can be categorized as economic if it aligns with the United Nations System of National Accounts (SNA) production sectors or non-economic if it falls beyond these sectors (Hirway, 2015). It is important to note that not all unpaid work falling in the prior category is factored into the calculation of the Gross Domestic Product (GDP). As women tend to be more involved in unpaid work of the latter type (that is work that does not fall in the SNA), excluding it from GDP computation significantly underestimates their economic input to national progress.

According to data published in the UN Women's flagship 'Progress of the World's Women 2019-2020' report, for every one hour a Pakistani man spends on unpaid care and domestic work, a Pakistani woman spends 11 hours doing the same. The current study, thus, quantifies and then monetises all such work.

02.
METHODOLOGICAL FRAMEWORK

National Transfer Accounts (NTA)[1] is a framework for studying the age dimension of economic activity by disaggregating national accounts by age and measuring transfers of resources from the working ages, when individuals are earning more, to young and old ages, when they are not. The accounts are comprehensive in that all economic flows that arise as a consequence of the production of goods and services during the year are incorporated into the accounts. National Transfer Accounts classify all flows by the age of the individual. The classification of economic flows by age is the central feature of NTA and essential to its purpose of providing the basic economic data to study the generational economy.

The NTA framework for measuring the generational economy, however, has one serious limitation in extending its approach to

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[1] For a detailed explanation of the NTA methodology, see the manual, United Nations (2013) *National Transfer Accounts: Measuring and Analysing the Generational Economy.*

the measurement of the gendered economy. NTA adds estimates of some transfer flows not measured in national accounts, but these are only the transfers of resources included within the production boundary of national accounts, that is what national accounts currently consider to be part of a nation's production. This, as mentioned earlier, can also include unpaid work of a certain type.

There is, however, a part of unpaid work that falls outside the production boundaries and is not considered as economic activity. This is unpaid care work, household production, or unpaid household services. We may term it as the "unpaid work" here. Unpaid work (UW) time inputs include productive activity that is not accounted for in the national accounts. UW includes time spent in both direct care activities such as taking care of children, elders, sick or disabled persons, and of the community through volunteer activities, but also the indirect care activities of managing and maintaining a household. Cooking, cleaning, household management and maintenance are some of the activities included as indirect care activities.

To take into account the UW that is not valued in the market economy, we have the National Time Transfer Accounts. The development of the National Time Transfer Accounts (NTTA) is conceptually linked with gender due to the prevalence of women's specialisation in UW production which is outside of the national income. It is premised that simply disaggregating NTA profiles by gender without adding the NTTA data on time use would give a misleading picture of productive activity and contributions to the household.

NTTA ideally requires time-use surveys, either a full-time diary survey or any other type of survey, that contain a comprehensive set of questions that observe many types of activities that cover unpaid non-market activities. While doing the NTTA estimates for Pakistan, it was observed that the only time a time-use survey was conducted in Pakistan was in the year 2007 [2], which is very old. Secondly, while conducting the analysis of NTTA, the corresponding measures for the market economy as captured by the NTA, should ideally be for the same year. Coming from the same year, the comparison between the NTA and NTTA becomes more relevant and meaningful.

Keeping these factors in view, the current estimation uses two datasets:

1. Household Income and Expenditure Survey (HIES) 2018-19, for market-based consumption and income of individuals by age and sex

2. Pakistan Labor Force Survey (LFS) 2018-19, to quantify the value of non-market work performed by individuals by age and sex.

The LFS 2018-19 has a module on unpaid work where information on non-market work, by both men and women is collected. This information includes times spent on unpaid activities like:

- Collection of firewood or cotton sticks for use as firewood for household consumption.

- Bringing water from outside to the

house, taking food from house to farm.

- Making clothes, sewing pieces of cloth or leather, knitting, embroidery, mat and rope making, ginning, spinning and weaving.

- Shopping for household needs.

- Washing, mending or pressing clothes.

- Caring for children.

- Health care of ill persons.

- Helping children do homework or other educating activities.

- Cleaning and arranging the house.

- Other activities which produce goods or services including cooking food at home which are generally available in the market.

- Agricultural operations, such as ploughing, sowing, transplanting rice, picking cotton, collection of vegetables and fruit, harvesting crops, weeding field.

- Processing food, namely milling, grinding, drying seeds, maize or rice husking.

- Livestock operations, such as meat, feeding and milking animals, churning milk, grassing, collection of cow dung and preparing dung cakes.

- Poultry raising, such as feeding poultry

birds, collection & packing of eggs, giving injections or medicine to birds and preparation of feeds.

- Construction work, such as mud plaster of roofs and walls of house and godowns, construction and repair of boundary walls, rooms, etc.

Broadly these above-mentioned activities can be divided into three categories:

- Household production related activities (i.e., cleaning, cooking, collection of firewood, etc.)

- Care work (child and old care)

   and

- Learning (spending time on child education).

The Labour Force Survey also provides wages for all these tasks, making possible the valuation of these UW without using any assumptions or proxies.

Before we go into the details of how each profile is constructed for the estimation of the NTTA for Pakistan, its conceptual summary is presented in Figure 1. The figure shows that productive activities are of two types- market and non-market activities. While the NTA takes into account the work and its value in the market economy, the NTTA covers the other activities, that is the non-market work, hence unpaid, and attempts to give value to it. Putting NTA and NTTA together, we get a more holistic picture of the economy.

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[2] Time Use Survey (2007). Islamabad: Ministry of Finance.

Figure 1

Framework for Determining the Value of Household Production
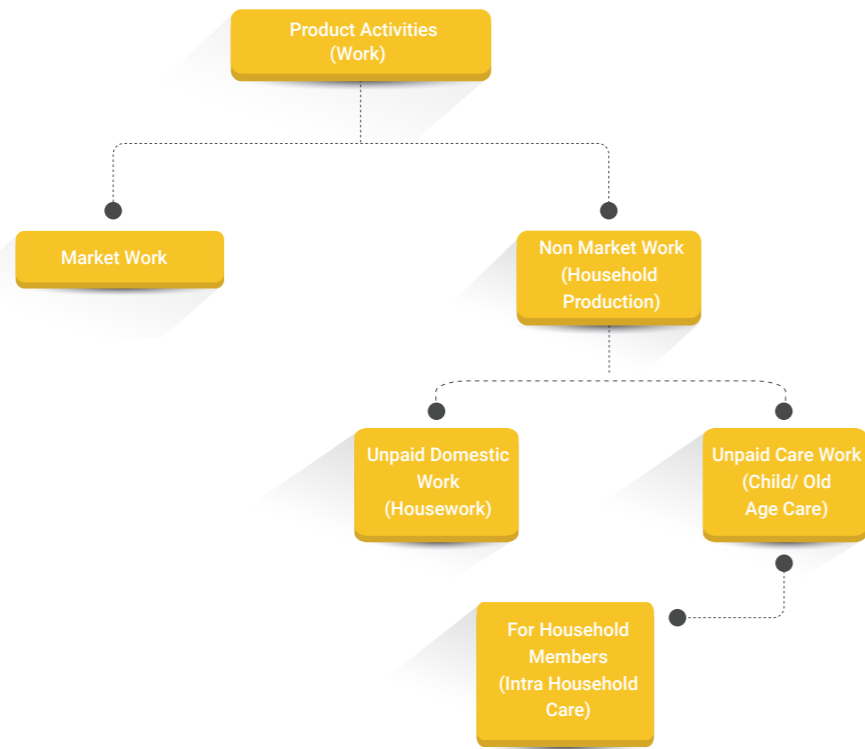
Source: Adapted from Oosthuizen (2018).

The description of each profile estimated in the current study is as follows:

2.1 Economic Life-cycle Input Parameters for the Market Economy

The first step is the estimation of the economic life-cycle account, following the NTA methodology [3]. This includes the two input parameters, namely labour income and consumption. Both the variables are calculated at the individual level for each age using the HIES 2018-19.

Labour income is estimated using two kinds of earnings, namely labour earnings, and self-employment labour income. The present study also gives value to the work of those who reported working but were not paid for their effort, and this estimate becomes part of the self-employment income. Data for per capita labour earnings were taken from the Household Income and Expenditure Survey 2018-19, which has individual-level information for every member's economic activity and income (aged 10 years and above). Using the weights, the analysis is conducted for the entire population, disaggregated by age, at both per capita and at the aggregate level. The estimations so reached are then smoothed using Friedman's Supersmoother as provided by the R statistical package.

Consumption profile consists of two components, private and public consumption. Private consumption is available in the HIES that consists of consumption of food and non-food items (non-durables) at the household level and consumption of education and health at the individual level. For the current objective, the analysis is carried out on:

- *Private consumption* is calculated in three segments education, health and other consumption. The 2018-19 HIES and National Health Accounts 2018-19 datasets provide information for education and health at the individual level, so it is used as it. Other consumption data, including both food and non-food, is collected at the household level in the HIES 2018-19. For estimating private consumption at the individual level, household consumption is allocated to individuals using an equivalence scale based on the technique provided by the NTA manual (UN 2003). The estimations so reached are then smoothed using Friedman's Supersmoother as provided in the R statistical package.

- *Public consumption* is collective in nature. This includes consumptions like agriculture, transport, defence, law and security, justice, administrative expenditures, and infrastructure. These consumptions are allocated to all members equally. Like private consumption, public consumption is also estimated in three segments, education, health and other consumption.

2.2 Unpaid Life-cycle Input Parameters for the Non-market Economy

To put it simply, the unpaid life-cycle deficit is defined as the difference between unpaid production activities and unpaid consumption activities. The two activities are conceptualised as the following:

Unpaid Production is basically an individual's time spent on various unpaid activities, including household production and caregiving. The Labour Force Survey module captures the total hours spent on various unpaid activities. The Labor Force Survey captures the time allocation by everyone aged 10 years and above at the individual level, making the estimation easier. Keeping in view, we have the individual-level time-production data across genders at each age. If there are multiple adults in a household, their individual information is available.   We have divided the unpaid production into general household production (time spent on cooking, cleaning, etc.) and care production (time spent on children, sick and old persons). The analysis is carried out on persons aged 10 and above as the survey does not interview younger children. The following analysis is carried out:

- Average hours spent on unpaid production by age and sex.

- Since it is unpaid work, we use the wages of workers who are working in a similar occupation to quantify the value of unpaid work. Using the wages, we calculate the value of unpaid work performed. The analysis is also conducted on both categories of unpaid production: general household

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[3] For details of the NTA methodology see reference in footnote 1.

production and care production provided by individuals, disaggregated by age and sex.

Unpaid Consumption is basically the individual's time consumed on various unpaid activities. We do not directly observe people consuming the value of the time in the NTTA production account. Instead, we use assumptions to allocate the value of time in production to consumers in the household.

For general *household consumption* activities (cleaning, cooking, ironing, maintenance, etc.), the time produced is divided equally among all household members. This makes the most sense theoretically because the consumption of these activities is mostly uniform across the household, or at least the data to make finer consumption distinctions are not available. For example, certain age groups in the household may make more mess, requiring more household cleaning to be done, but all household members consume the cleaned house equally, or if not equally then the data to make a better assumption – how much time each household member spent in the household – is not available. We used the wages of those workers who work in similar occupations to quantify the value of unpaid consumption.

Caregiving consumption activities includes the value of time taken by child, old and/or sick family members. The method to calculate childcare consumption is complex, as a child of one year requires a different level of time than a child of 14 years. Our methodology involves following steps in calculating the childcare consumption:

- We estimated childcare for ages 0 to 15 years and elderly care for ages 65 and

above years. Care of the sick is not age-dependent.

- We then identified those households having only one person in the target age group to provide weights to distribute care. In other words, we identified only those households that have a child of up to one year of age, whereas no other child or aged person (aged 65 years and above) is part of the household. The average time spent on childcare by all such households is taken as the proxy of childcare consumption for infant childcare. Similarly, we take only those households having only one child aged 1-2 years with no other child or aged person in the home. The time spent by this household on childcare is taken as the weight for children aged 1-2 years. The same is done up to age 15 years and for the elderly care and that of the sick. It is worth mentioning here that sample was sufficient to identify the households having only one child in various age brackets to estimate an average time allocation to the children and aged persons.

- The average wages of workers who are working in similar occupations in the market economy are used to quantify the value of unpaid care consumption.

## 2.3 Total Lifecycle Input Parameters

The total lifecycle deficit is defined as the unpaid and paid life-cycle deficit. In other words, the total deficit is the sum of deficits achieved through estimations of market and non-market economy, using NTA and NTTA methodology, respectively.

03.
RESULTS

3.1 Time Spent on Market and Non-Market Work

Using the LFS, we calculated the average daily hours spent on market and non-market work. Market work primarily defines the time spent on economic activities that are renumerated, while non-market work is mainly household production activities that are unpaid. Figure 2 shows the life-cycle time allocation of individuals on market-based work on various sorts of employment, i.e., paid work, self-employed and unpaid family help. Men, on average, spend much more time on economic activities, compared to women, and the peak hour allocation is for the ages 30 to 50 years. In Pakistan, female's participation in the labour market is low, limited to only a few occupations and sectors, and they face a high level of underemployment. Given this scenario, it is not surprising to see that they are spending limited hours in the labour market, as compared to their male counterparts (see Figure 2).

Figure 2

Average Daily Hours Spent on Market-Based Work by Age and Sex
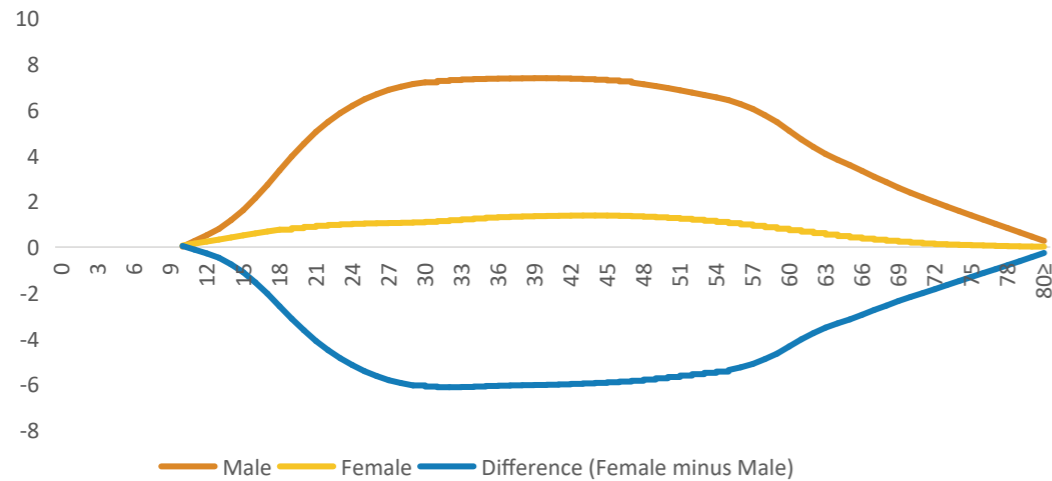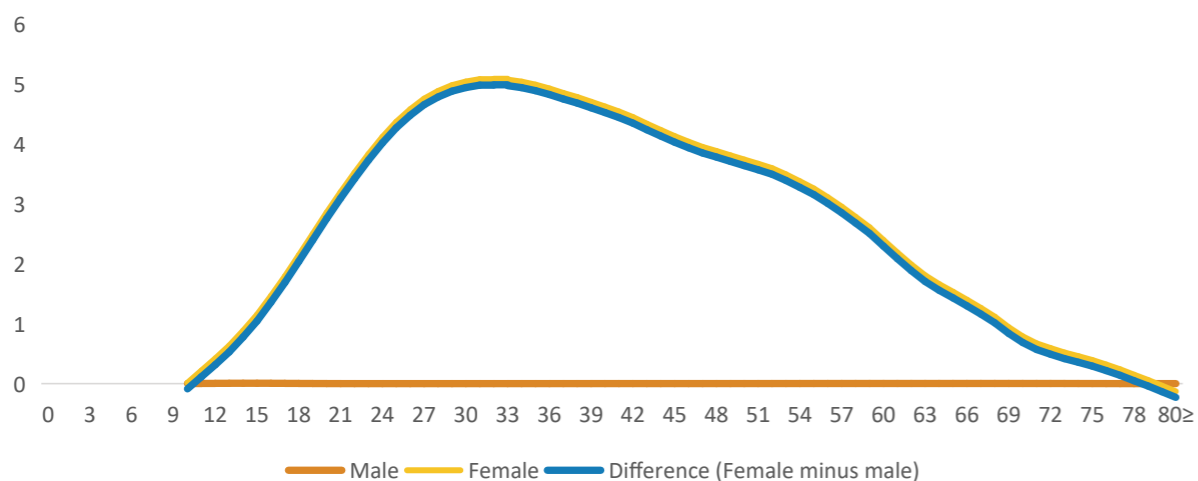

Source: Authors' estimation using the Pakistan Labor Force Survey 2018-19a

Contrary to the pattern we see in Figure 2, women in Pakistan have to spend a significant amount of time on various household activities that are usually not part of economic activity but have an opportunity cost. In a society like Pakistan, men are usually responsible for participating in the labour market and women lead on the domestic work. If we look at the market-based labour participation, women's participation rate is just 22% in Pakistan, and even among those who participate, two-thirds

work as unpaid family workers.

Figure 3 shows the other side of the labour market picture. The trend is more than reversed from what we see in Figure 2, with the females spending huge number of hours on domestic non-market work, and men spending hardly any. The peak daily non-market work hours are for women aged 30 years, declining gradually after that.

Figure 3

Average Daily Hours Spent on Non-Market Based Work by Age and Sex
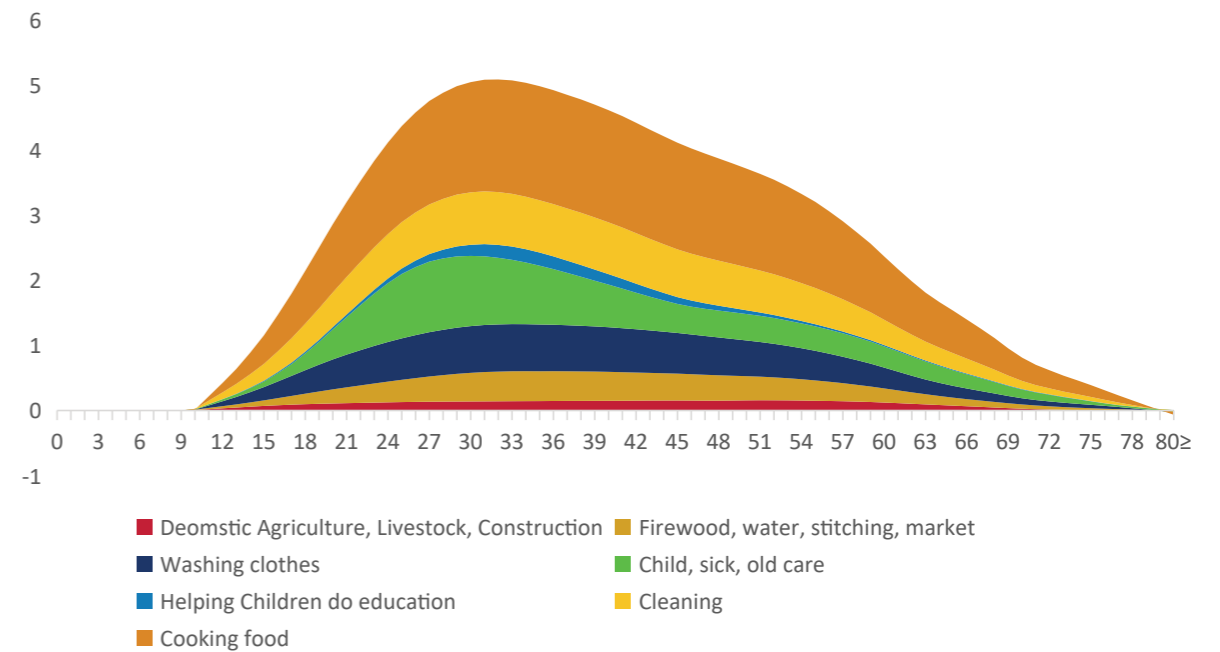

Source: Authors' estimation using the Pakistan Labor Force Survey 2018-19.

We mentioned above the kind of non-market work performed by individuals that form the basis of estimating the NTTA. Figure 4 presents the average allocation of time on those seven main non-market activities by women. For the entire population aged ten years and above, an average of 2.8

hours per day are spent on non-market work activities, while a further 3 hours are spent on market-based activities. Women allocate their longest time in kitchen for cooking food, followed by cleaning home and washing, and child/old care.

Figure 4

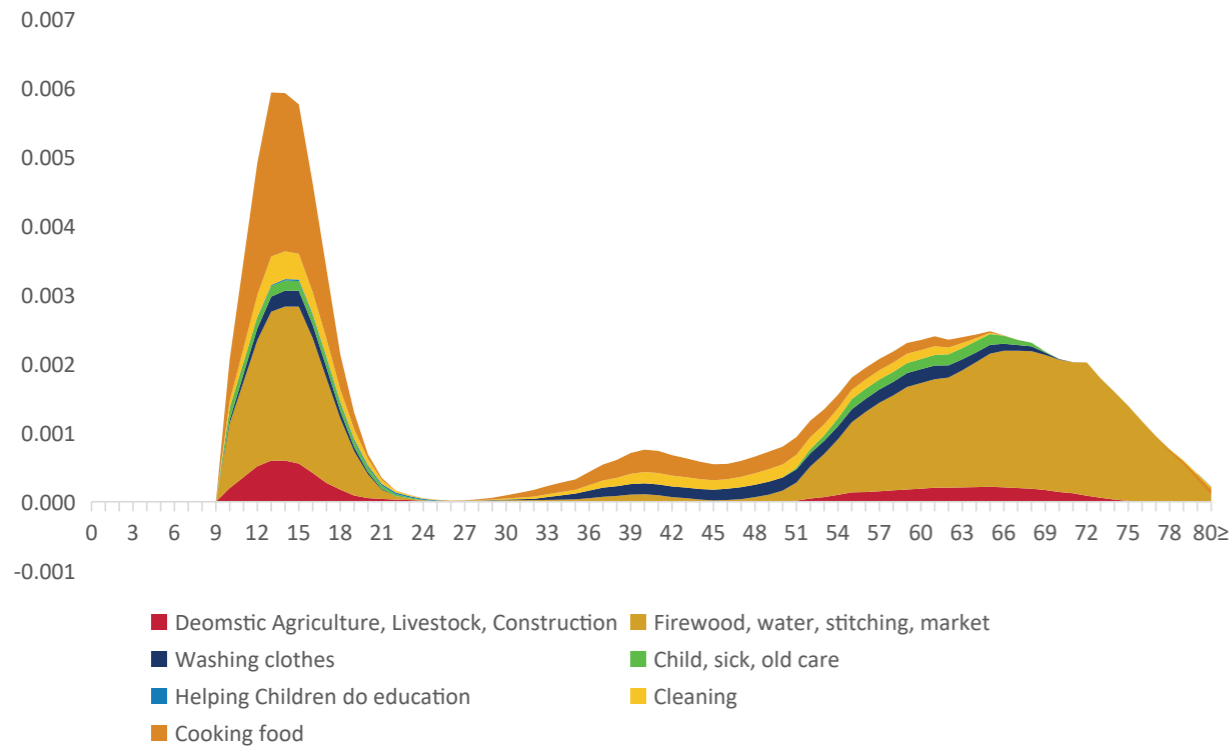**Average Daily Hours Spent on Various Non-Market Activities by Age for Women**

Source: Authors' estimation using the Pakistan Labor Force Survey 2018-19.

Contrary to what we see in Figure 4 above for women, the trends are on the opposite pole for men. Average daily hours spent by men in various non-market activities are negligible, as can be seen in Figure 5. The time spent is so small that it goes into three digits on the right side of the decimal point. For certain activities, no time is spent at all. There are certain spikes in the male production data. One may see that the male aged 9-15 years and 51-72 years are

spending more time on household non-economic activities. The reasons are multiple; in younger ages, a male child may be asked to bring water, collect firewood and he might be tasked to go in market for certain domestic errands. The same is true in older age, when people retire or withdraw from economic activities, and allocate more time to non-economic activities.

Figure 5

Average Daily Hours Spent on Various Non-Market Activities by Age for Men

Source: Authors' estimation using the Pakistan Labor Force Survey 2018-19.

Note: Take consideration of the scale on the y-axis. The 'hours' spent are negligibly small.

Figure 6

Average Daily Hours Spent on Three Major Categories of Non-Market Activities by Age for Women

Source: Authors' estimation using the Pakistan Labor Force Survey 2018-19.
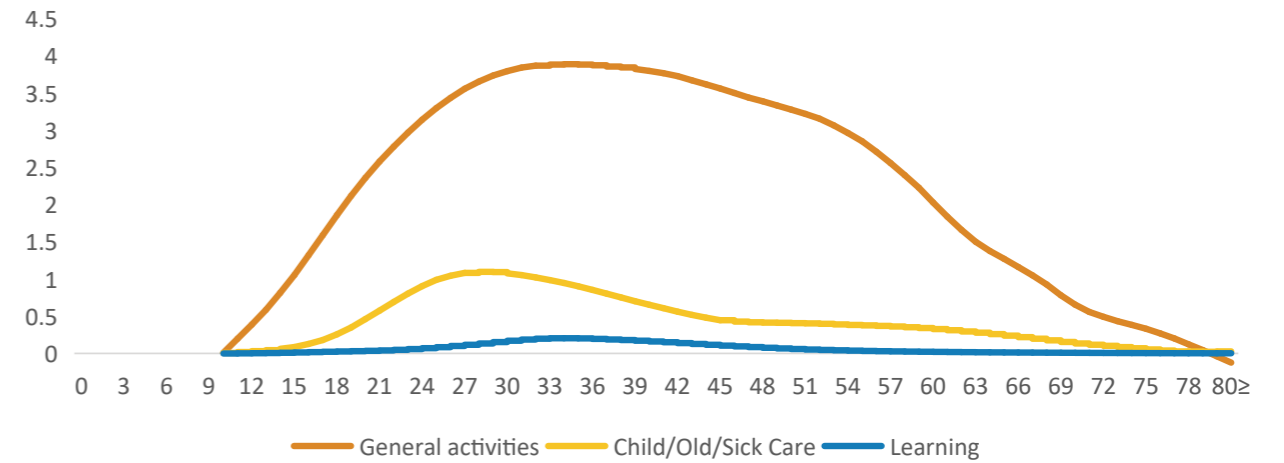
Figure 7

Average Daily Hours Spent on Three Major Categories of Non-Market Activities by Age for Men

Source: Authors' estimation using the Pakistan Labor Force Survey 2018-19.

Note: Take consideration of the scale on the y-axis. The 'hours' spent are negligibly small.

As discussed earlier, for an easier comprehension, we divided the allocation of non-market work into three categories: general household production (i.e., cleaning, cooking, etc.); child and old care; and learning (spending time on children education). Figure 6 and 7 show the average allocation of daily hours by women and men on these three non-market based production activities, respectively. Males mostly spend their time on general household production activities, with the highest time allocation estimated for the younger age cohorts (Figure 7). This could be due to activities like bringing water, collection of firewood and other minor domestic tasks performed by the younger men in the household. The trend for women is the same in allocating time on the three activities, that is they spend the most time on general activities, followed by care work, and the least on learning activities (see Figure 6). Worth noting here, however, is the amount of time spent by each gender on these activities. Women spend many times more time than men.
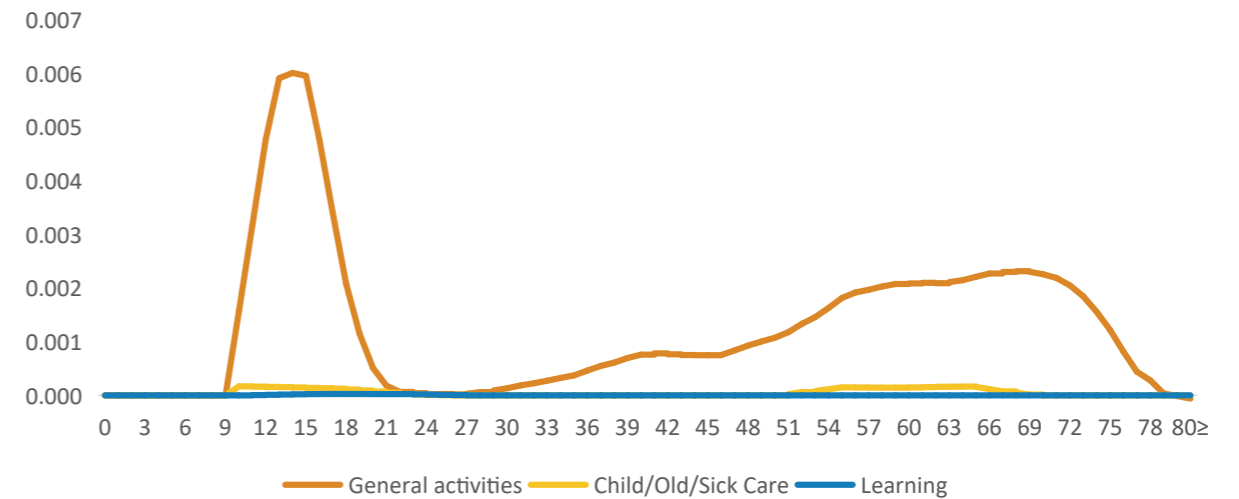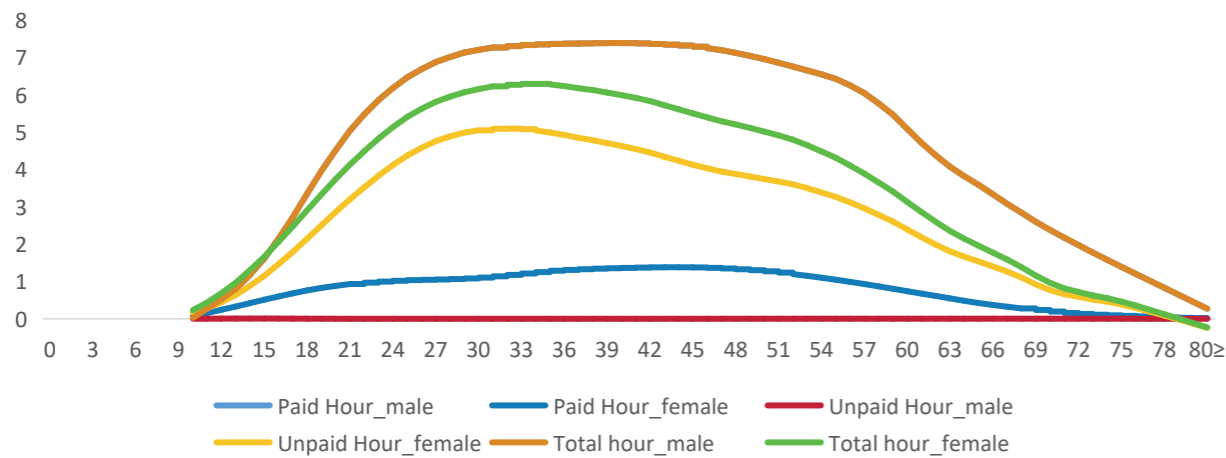
Figure 8 summarises the pattern of **unpaid production** in Pakistan. The figure shows that although women spend limited hours, and labour, in the market economy, their time is diverted to non-market economy which is not given any value, monetary or otherwise, in the conventional economic contribution. The present study shows that time spent by women on work is close to men's when we take a holistic view by taking into account

market and non-market activities together. For all population aged 10 years and above, men spend 4.7 hours on market and non-market work, whereas women spend 3.5 hours on market and non-market work.

hours, compared to 1.2 hours care to a child for ages 3 to 5 years. As the age of child increases, parents have to allocate less time

on his/her care; however, as the age of an old person increases, old care work consumption goes up.

Figure 8

Unpaid Production: Average Daily Time (in hours) Spent on Market and Non-Market Work by Age and Sex

Source: Estimated from Pakistan Labor Force Survey 2018-19

Figure 9

Unpaid Consumption: Average Daily Time (in Hours) Consumption on Non-Market Activities by Age and Sex

Source: Estimated from Pakistan Labor Force Survey 2018-19

This brings us to the **unpaid consumption,** and Figure 9 shows the consumption of NTTA time. We do not directly observe people consuming the value of the time in the NTTA production account. Instead, we use assumptions to allocate the value of time in production to consumers in the household. As mentioned in the methodology section above, for general activities within the household (cleaning, maintenance, etc.), the time produced is divided equally among all household members. For age-targeted care activities in the household, however (childcare, sick, or eldercare), we allocate the time to children (aged 0 to 15 years) and the elderly (aged 65 years and above). Here, we

use the age-targeted care method by identifying the households having only one person in the target age group (i.e., only one child of zero age, no other child or old person) to provide weights to distribute care.
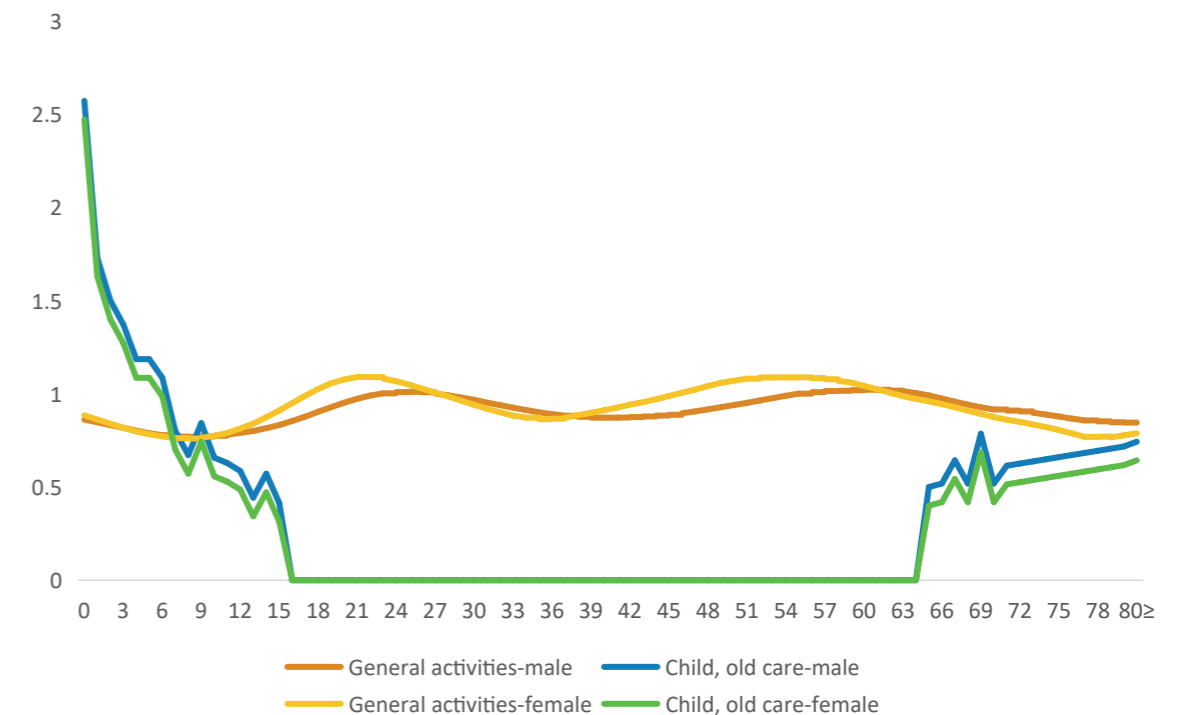
Figure 9 shows that the trend is almost the same for the two sexes when we consider general consumption and care consumption[4]. On average, men and women daily consume one hour for general activities (cleaning, cooking maintenance, water bringing, collection of firewood, etc.), one hour for childcare (aged 0 to 15 years), and 0.64 hours for old care (aged 65 years and above). A child of age up to 2 years, require daily around 2

3.2   Giving Value to Paid and Unpaid Work

In the discussion above, we talked about work in market and non-market economy, and how one is monetised and other is not. In this section we:

- Estimate labour income and consumption in the market economy, by age and sex, using the NTA methodology. We do this using the HIES 2018-19 microdata.
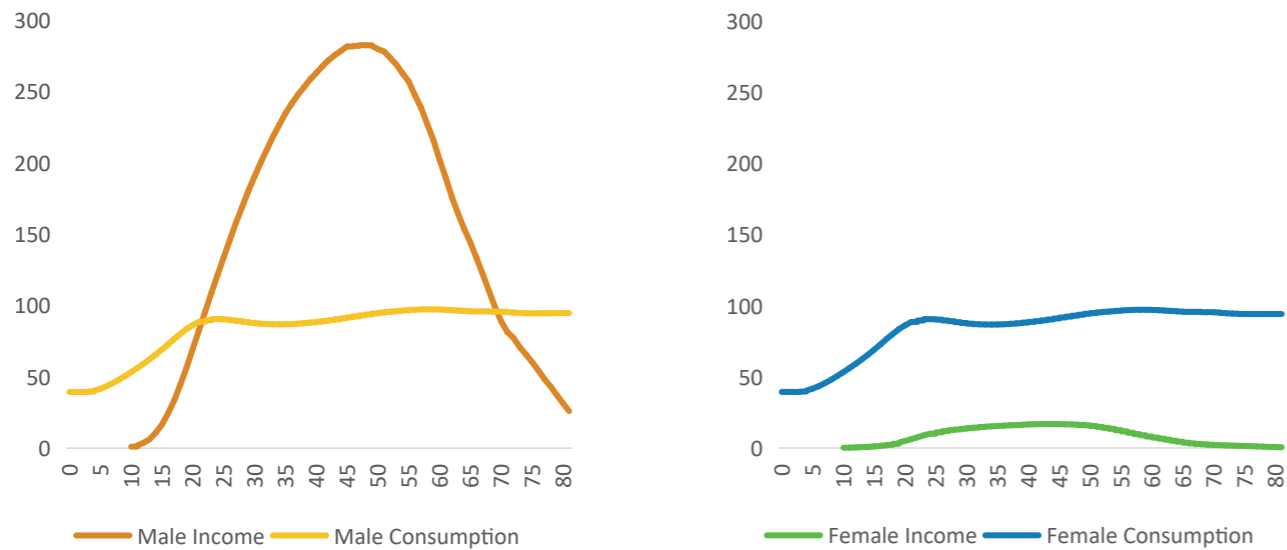
- Give monetary value to the unpaid work produced by individuals in the non-market economy. The time spent on each such work is already estimated by age and sex, in the aforementioned discussion, and LFS 2018-19 wage microdata is now used to give monetary value to all the non-market work.

[4] The consumption of time is to be almost same for the two sexes because consumption is allocated equally. Time allocated to caregiving for the elderly or a child is the same irrespective of gender. As explained in the methodology, the time is allocated equally to consumers of care work and general activities (cooking, washing).

3.2.1 Income-Consumption Profiles in Market Economy Using the NTA Methodology

The economic lifecycle account is composed of consumption, labour income and the difference between the two—the lifecycle deficit-surplus. It is worth mentioning here that consumption includes both private and public consumption. Using the NTA methodology, the per capita lifecycle deficit is estimated for both the sexes at each age. Taking the estimation further, aggregate income-consumption, and deficit/surplus, profiles are calculated for both the sexes at each age.

Figure 10 presents the average per capita

consumption and labour income for both men and women throughout their lifecycle. The difference among the two is the life-cycle deficit or surplus, whatever the case may be. The graph for men indicates that the younger cohort tend to consume without generating labour income till the age of 10 year and meet the consumption by age of 29. This deficit is usually fulfilled by the household members who have a surplus income. Moreover, they reach the highest level of earnings at 49 years of age. Thus, consumption is higher than income at the younger and older ages. On the other hand, since female labour force participation is quite limited in the market economy, their consumption remains higher than income at all ages.

Figure 10

Per Capita Annual Labor Income and Consumption by Age and Sex (Rs.'000)

Source: Authors' estimation using Household Income and Expenditure Survey 2018-19 microdata.

Figure 11 presents the estimates for the aggregate labour income and consumption

for both the sexes at each age. For both sexes, the finding largely reflects the

distribution of population at various ages as one may see that the high consumption in early ages (till age 20) is mainly due to the fairly young population of the country. The figure shows that the male population of

Pakistan is able to manage a surplus income after early 20s till under 70 years[5]. Female population, on the other hand, has a deficit at all ages when we take into account only the market economy.

Figure 11

Aggregate Annual Labor Income and Consumption by Age and Sex (Rs. billion)
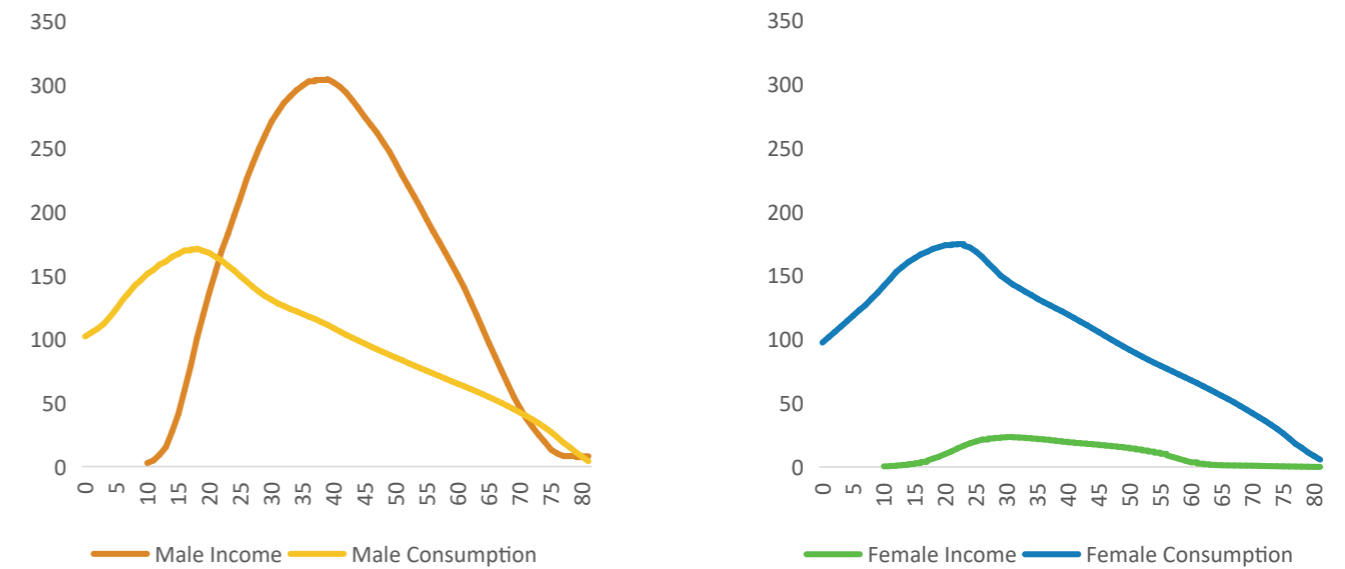
Source: Authors' estimation using Household Income and Expenditure Survey 2018-19 microdata.

3.2.2 Production-Consumption Profiles in Non-Market Economy Using the NTTA Methodology

This brings us to monetise the production and consumption in the non-market economy for both men and women at all ages. 'Production' in NTTA can be equated to 'income' in NTA, while 'consumption' carries the same connotations in both.
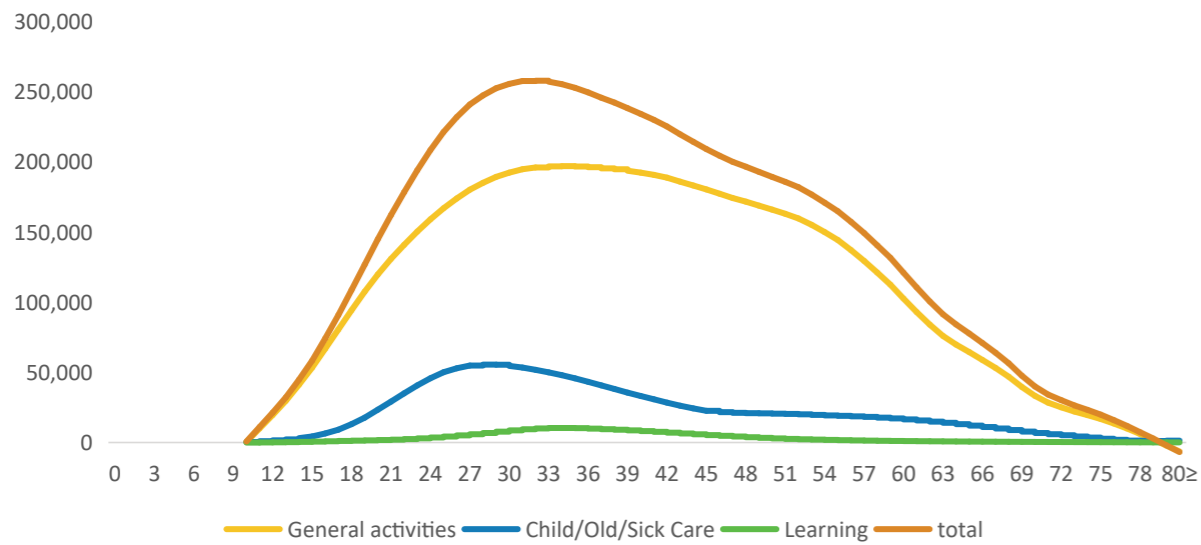
Production in Non-Market Economy

The per capita annual production value for women's non-market work is many times more than their work's value in the market economy. The average produced by women, according to the estimates of the current study, is a total of Rs. 140,000 with Rs. 113,000 coming from general activities, Rs. 22,000 from care work and Rs. 3,200 from learning activities.

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[5] It is worth mentioning here that the HIES dataset collects information on all sources of income, including primary employment, secondary employment, and money coming from any other source.

Figure 12 shows the production by women in the non-market economy to peak in late 20s to early 30s before gradually declining. Home-making, child rearing and elderly care,

all tasks are the focus of women during these ages and the profiles in Figure 12 reflect these trend.

Figure 12

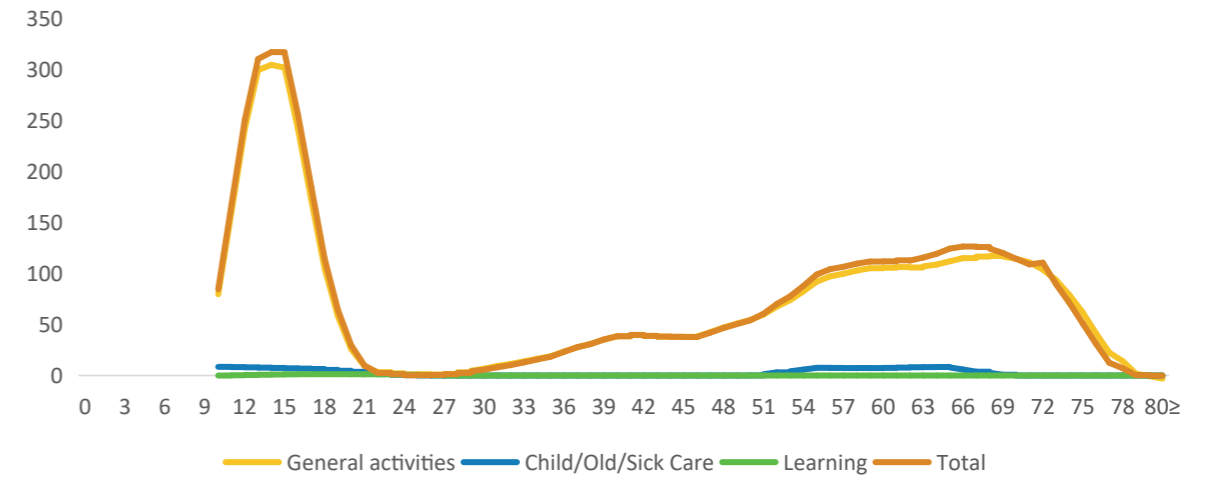**Per Capita Annual Production Value from Non-Market Work by Age for Women (Rs.)**

Source: Authors' estimation using Labour Force Survey 2018-19 microdata.

Figure 13 presents the per capita annual production value for men in the non-market economy, and we see that they contribute little to it. It might skip the attention, so it is worth mentioning that the gender difference

is huge, with the men's production value in non-market economy staying in single or at the maximum triple digits, while that of women remain in double to six-digits (see Figure 12 and 13)

Figure 13

Per Capita Annual Production Value from Non-Market Work by Age for Men (Rs.)
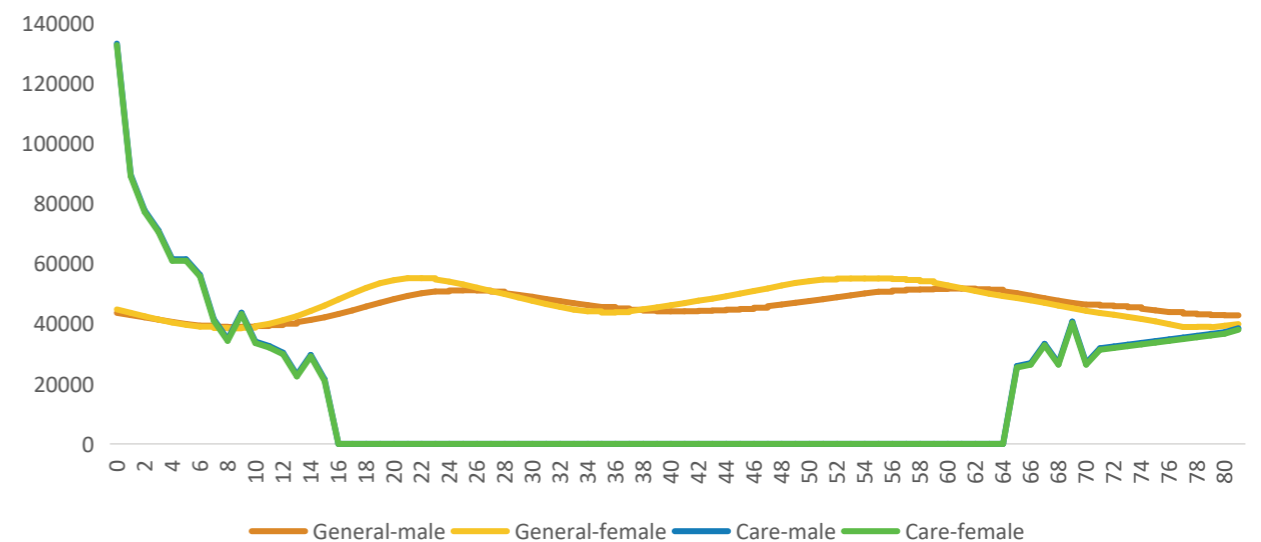

Source: Authors' estimation using Labour Force Survey 2018-19 microdata.

Consumption in Non-Market Economy

According to the estimates achieved by the current study, the average consumption value of general activities (cooking, cloth wash, maintenance of home, etc) is approximately Rs. 47,000 per annum for both the sexes. The average consumption value of childcare is around Rs. 53,000 per annum and that of the elderly around Rs. 33,000/.

Figure 14 presents the per capita consumption value for men and women from general activities and care work, at each age. Gender differences, as one would expect, are not found in the consumption value of non-market work, including caregiving and general activities. The methodology is designed in a way that only the age-sex composition of population can have an impact on the estimated values (see Figure 14).

Figure 14

**Per Capita Annual Consumption Value of Non-Market Work by Age and Sex (Rs.)**

Source: Authors' estimation using Labour Force Survey 2018-19 microdata.

Aggregate Production and Consumption in the Non-Market Economy

Figure 15 shows the aggregate production and consumption values for both the sexes in the non-market economy. Juxtaposing Figure 15 with Figure 11, we see that in the market economy while it is the men who have a higher income value, it is the women who produce much more value in the non-market economy. In non-market work, women are able to produce a surplus value from production activities from age 15 to 65 years. On the other hand, there is a consistent deficit for men across all ages in the non-market economy.

Figure 15

Aggregate Annual Value of Production and Consumption from Non-Market Work by Age and Sex (Rs. billion)
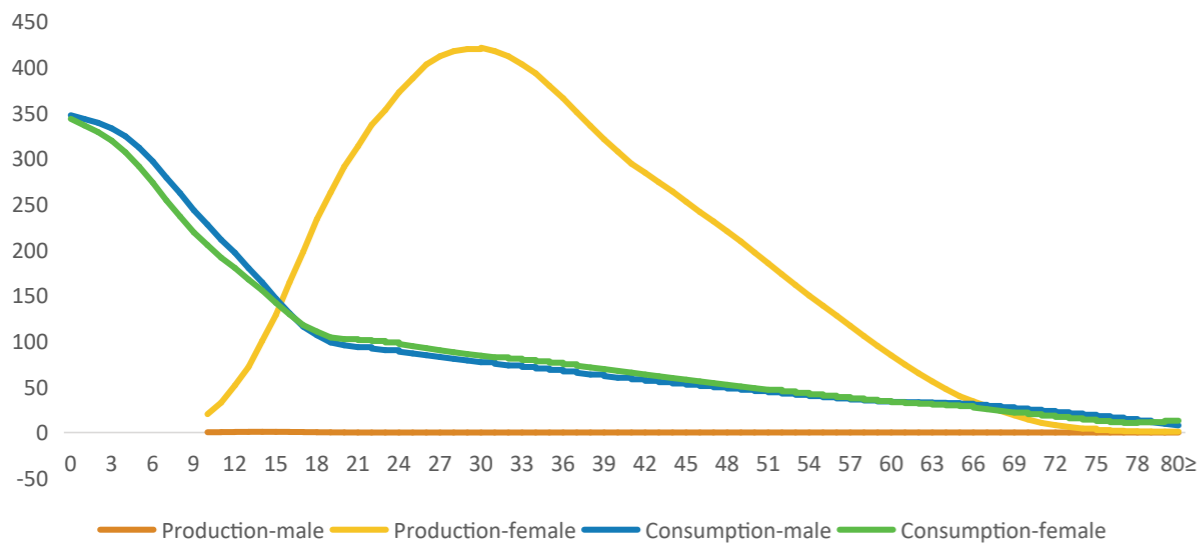
Source: Authors' estimation using Labour Force Survey 2018-19 microdata.

3.3   Putting NTA and NTTA Together

Market and non-market productions put together provide us with a holistic view of how actors contribute in an economy. Figure 16 provides six aggregated production/income profiles by age, namely:

i.   Male NTA: aggregated male income at each age in the market economy

ii.   Female NTA: aggregated female income at each age in the market economy

iii.   Male NTTA: aggregated male production at each age in the non-market economy

iv.   Female NTTA: aggregated female production at each age in the non-market economy

v.   Male NTA + NTTA: sum of the male aggregated income plus production at each age in the market and non-market economy

vi.   Female NTA + NTTA: sum of the female aggregated income plus production at each age in the market and non-market economy

While looking at the aggregate value of market-based work, in Figure 16, we see males having a much higher aggregate value than female workers; however, the reverse holds true for the NTTA where female production value is much higher than their male counterparts. Figure 16 also shows that when we take a holistic view of market cum non-market production value, women in Pakistan surpass men.

Looking at the age patterns for the six profiles, we find similar trends, with different magnitudes, for all of them (see Figure 16). The working age cohorts are able to produce more value for both NTA and NTTA across genders. The value declines considerably for the children and elderly, as both age groups have limited participation in both market and non-market activities.

Figure 16

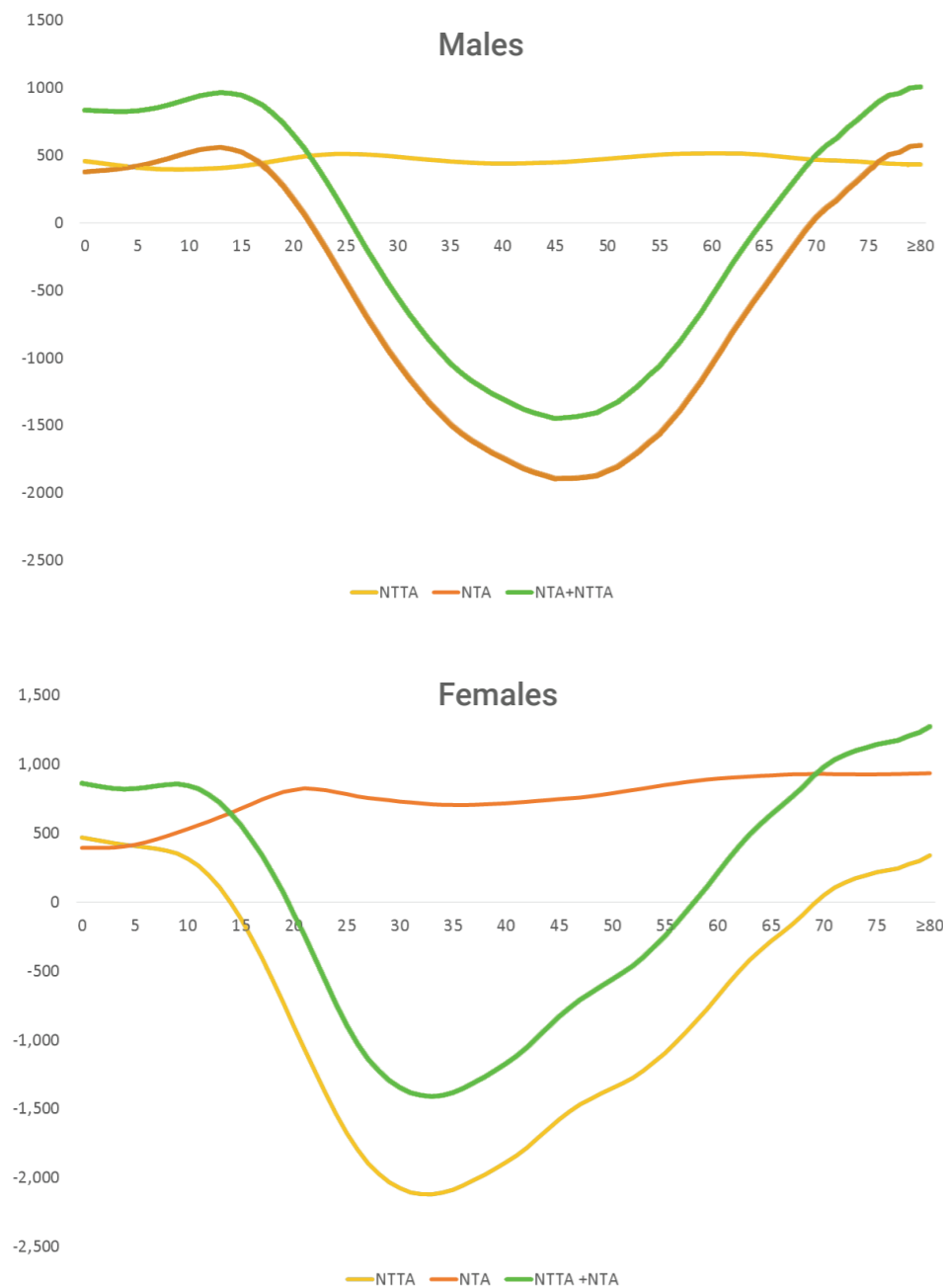**Aggregate Income/Production of NTA and NTTA by Age and Sex (Rs. billion)**
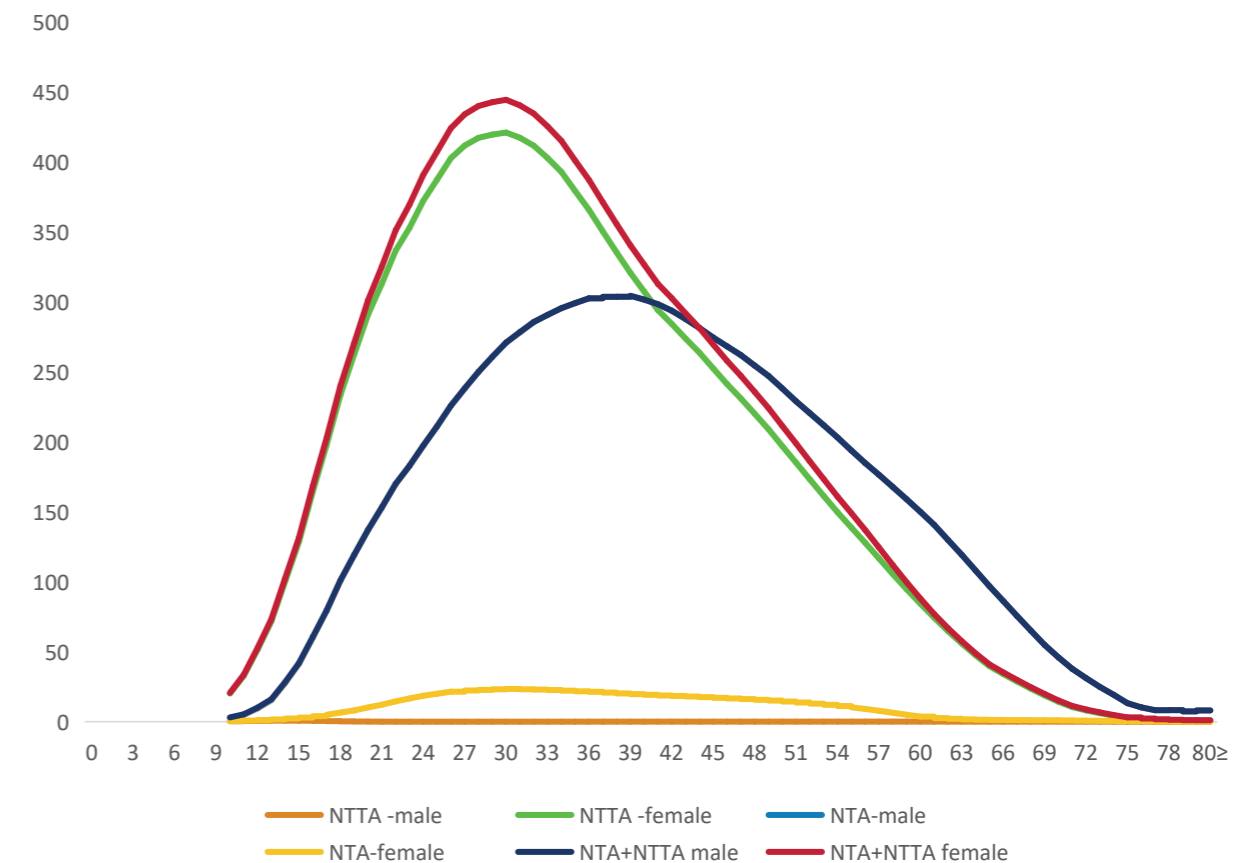
Source: Authors' estimation using Labour Force Survey 2018-19 microdata.

3.4 Deficit- Per Capita and Aggregatte: Market and Non-Market

Figure 15 shows the aggregate production and consumption values for both the sexes in the non-market economy. Juxtaposing Figure 15 with Figure 11, we see that in the market economy while it is the men who have a

higher income value, it is the women who produce much more value in the non-market economy. In non-market work, women are able to produce a surplus value from production activities from age 15 to 65 years. On the other hand, there is a consistent deficit for men across all ages in the non-market economy.

The age composition of a population has serious implications for all facets of life, be it health, education, employment or infrastructure needs. Aggregate amounts in NTA and NTTA methodologies are an effective means of including the population structure into account. Figure 17 showed increased deficits at early and older ages. Because of the young age structure, we see in

Figure 18, the deficit is huge during childhood. Aggregate amounts are a product of per capita profiles multiplied by the number of individuals at that age. It is, therefore, not surprising to observe burgeoning deficits at early ages in Pakistan. Likewise, per capita deficits are substantial at older ages, but with a young population, the aggregates are not that high for the elderly.

Figure 17

Per-capita Lifecycle Deficit for Market and Non-Market Activities by Age and Sex (Rs. '00)

Source: Authors' estimation using LFS 2018-19 and HIES 2018-19 microdata sets.

Figure 18

Aggregate Lifecycle Deficit for Market and Non-Market Activities by Age and Sex (Rs. billion)

Source: Authors' estimation using LFS 2018-19 and HIES 2018-19 microdata sets

04

CONCLUSIONS AND IMPLICATIONS

There is a constant refrain in Pakistan that women to not 'work', and that their participation in the labour force continues to remain low. Such statements ignore the contribution of women to non-market economy, specifically the household economy. The NTTA framework, building on the NTA methodology, helps quantify this unaccounted work done by women. It allows us to give value, most importantly pecuniary value, to household production and care economy. It would not be wrong to state that the cost of childcare borne by women, estimated through NTTA, is also the hidden cost of child-bearing that does not get accounted for in any estimation otherwise.

The findings of this study also throw light on Pakistan's ability, or lack of it, to achieve the SDG 5.4, as discussed earlier in this report. Without recognising and valuing unpaid care-giving and domestic work we cannot achieve gender equality in the labour market. It

is truer in the scenario when the market is so gendered, as the results of the current study have shown. The NTTA methodology provides the measurement tool through which these issues can be measured and monitored over time.

Findings of the current study show that women are burdened with the responsibilities of housework and care of the children and elderly from a very young age. In this scenario, it is not surprising to see low enrolment and high drop-out rates for them in attaining education. Childbearing and childcare starts in their early twenties, limiting their probability of joining the labour force or continuing work in case they are able to join. With the high fertility levels in Pakistan, young women are involved in caring for their younger siblings as well, as can be seen from Figure 6, where childcare starts at the age of 12 years for girls, as do general activities. Housework and caring responsibilities, thus, impact the education of girls and young women, having negative repercussions for gender equality in all facets of their lives.

For women in Pakistan to have equal opportunities to grow and prosper as individuals there is a need to acknowledge their contribution to the well-being of the population. There is a need to break out of the gender roles in society, the labour market and within the household, where tasks are assigned according to gender. There is a need for a conversation to move away from the norms that perpetuate the idea that men are for outdoor economic activities and women for indoor housework and caregiving.

Estimates in the present study for the market and non-market economy show a very gendered scenario. The NTA and NTTA trends show almost similar trajectories, albeit with a gender role reversal between the two. While men produce more in the market economy (NTA), it is the women who out-produce them in non-market economy (NTTA). Without societal and mindset change regarding gender roles, this is hard to change. One important way of achieving this is to have dialogue and policy interventions that take the load off from the women, and encourage men to take a more active role in activities currently considered as 'female tasks'.

Lower fertility can also go a long way in changing things for women for all ages. Childcare takes time not just of the mother, but also the female siblings who have to share their mother's load in taking care of the young. With fewer children, women in the household can have more space to pursue education and participate in the labour market- the one that is paid, recognised and contribute to their and the country's growth directly.

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