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Time use poverty and gender inequality: empirical evidences from Punjab

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Abstract Time as a precious economic resource is used in a number of activities of human interest across the gender, regions, categories of industries, professional sets and income levels. Present study has focused on the estimation of time use poverty across gender and region (urban and rural) at administrative divisional levels in the Punjab province of Pakistan based on the nationwide time use survey data 2007. Findings show that time use poverty in Punjab is approximately 24 %. The rural households are more time use poor as compared with urban households. Notably, in rural areas, females are poorer as compared to males because females have to participate in home activities as well as socio-economic activities. Conversely, females in urban areas are less time use poor compared with males. Based on findings, some social and economic policies can help in devising gender equitable pattern of socio-economic development in the Punjab and may be applied to other parts of Pakistan. It is imperative to take into account the time used by females at various levels in order to highlight the importance of women. It is expected that findings of this study will be helpful in understanding the issue of time use poverty across the provinces in Pakistan and also other developing countries.

Keywords Time use poverty · Gender · Punjab

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1 Introduction

Poverty is universal phenomena that have been acknowledged worldwide and numbers of studies have been done on various aspects of poverty. Poverty can be viewed from different angles. One perspective is the poverty through the time utilization. This has not been addressed at provincial level by any study done in Pakistan. The importance of time encompassing diverse aspects and interest of human beings is an open secret. Optimum utilization of time besides economic resources is the principle lesson of economics and social life. Poverty has been defined and measured variously, however time use poverty has remained rarely addressed issue. Poverty is not just in monetary terms. Time use poverty is a new term which means time is not efficiently and adequately used that results in poverty. Working women are more timely poor because it's difficult to maintain work-life balance for them and gender inequalities also plays their role in this poverty. The concept of time poverty can be understood by looking at the resources that are used to enhance the welfare of a household or an individual.

Time use poverty is that when a person do work more than 10.5 hrs and thus, called timely poor. Conceptually, time use studies in the developed world have become well engrained, often done at the national scale and produce data that allows comparison across the nations. It is well known fact that an important economic source, time can be spent in different ways; thereby employed persons spend considerable time for monetary gains in the labor market (Burchardt 2010; Antonopoulos and Memis 2010). In order to measure the time poverty, there is a lack of standard procedures and like rest of the literature, present study would use the mean minutes as the poverty threshold to distinguish the data into poor and non-poor (United Nations 2007). Though, the time used in personal-care and relaxation activities are considered as utility increasing consumption/ doings, but it has a major role in improving human capital. Meanwhile physical capital investment is less time demanding as compared to human capital investment. Estimations of the value of human capital investment shows that some kinds of time ventures, for example further schooling years, yield total revenues which are twofold as high as are the conservatively dignified higher salaries from human capital investment.

On the other hand, income can be generated by using time in the market places, which has a direct role in determining the wellbeing with respect to financial poverty. No doubt, in employment, time is mostly used in committed activities and it has strong effect on time poverty. Time in relaxation and self-care makes more productive; thus making strong relationship between financial poverty and time use poverty. At the same time direct substitutability between time and money by buying time saving devices or by hiring service of others, add further complexity (Saqib and Arif 2012).

Time is the crucial economic resource to describe the welfare status of individual or household in various perspectives. Time resource can be employed in multiple ways as an input by the individuals in household production. The importance of time as an input stressed in the theory of household production (Beacker 1965). The basics of the topic incorporates time consumed, specifically time use poverty through work intensity and concerns with human behavioral decorations, while looking for building a body of knowledge to benefit an extensive array of corrections interested in how people use their time.

On the other hand, prevalence of poverty is the fundamental predicament in the developing countries. Being one the foremost socio-economic challenge it accounts for the four-fifth of the entire population to be in the state of poverty. As according to the United Nations Millennium Project, approximately 584 million woman and 114 million children in the world,

are unable to get the basic education. In the same way United Nations Millennium Project (2002) exposed that almost 40 % people out of the 2.6 billion world population were deprived of basic sanitation and one billion people were unable to get the basic necessity of safe drinking water (UN Millennium Project 2002).

Poverty is basically perceived as an inability to get the minimum standard of living or having insufficient money to purchase the crucial necessities of life but well recognized in the recent literature as multifaceted socio-economic dilemma (Khan et al. 2011; UNDP 2010). In the same way, according to World Bank (2008) the state of affairs that one does not having a certain amount of material assets or money, is said to be poor. Thus, in the recent literature, poverty debate has progressed from mere uni-dimensional to multidimensional socio-economic dilemma, while offering the better understanding of poverty (Khan et al. 2011). At the same time, multidimensional view of poverty focus the human welfare through different aspects i.e. ill-health, illiteracy, inadequate housing, gender discrimination, etc. Consequently, one does not have access to the basic necessities and essential services for sustainable life goes beyond the low income to poor health and learning facilities, poor access to clean water, lack of security, inadequate means and opportunity to improve one's life are included in Poverty (Khan et al. 2013a; Smeeding 1997; Stella and Arber 2012). Regardless of the fact that Multidimensional Poverty Index (MPI) is a new measure designed to arrest the destitution of several socio-economic aspects and adjusted with average deprivation gap, but helpless to address the gender related issues at the same time. Keeping in view the multidimensionality and non marketability of some of the attributes, the problem of poverty necessitates to be addressed through the utilization of time; so as to give the adequate view of the welfare level across the region and gender as well.

The approximation of welfare level on the basis of time consumed has been universally accepted in academia and well recognized as an adequate measure to address the issue across the region and gender. The conceptual advancement is capable to illustrate the wider and deeper view of poverty dilemma. Though, level of income plays significant role in the determination of welfare status to some extent (Maltzahn and Durrheim 2007) as someone can buy some of the capabilities, which ultimately itself is the reliant of time consumed (Vickery 1977). Parallel to this Ravallion (1994) also criticized the traditional approach as an ill-defined concept to explain the various potential pitfalls particularly in rural areas. According to the findings of Antonopoulos and Memis (2010) the worth of output and its sharing in monetary terms can be deceitful because it does not include the value of non-monetary production that necessitates employing time use poverty.

Time use research quantify the management of instant by people during an average day and considered as the most effective way to show time poverty of women folk and accounts their higher burden of time consuming activities. The consumption of time is also imperative for fulfillment of other demand such as home duties, self-care and relaxation. Consequently, after certain limits these demands may meet the extent/ at a point, where people can be categorized as time poor.

The approximation of time use poverty address the gender related issues which are a common phenomena across the developing world; like as women are solely responsible for children or cooking and they have to spend their time in these activities regardless of increase in demand of their time in the labor market (United Nations 2007). The perception of human time poverty indicates the relationship between poverty and gender discrimination (Sinha et al. 2007); where female are more susceptible to chronic poverty (Kizilirmak and Memis 2009). The presence of sexual harassment in the circulation of earnings, wage discrimination in the labor markets and less control over earned income and credit, makes female more sus-

ceptible to chronic poverty. Across the spheres of life households system, formal and market institutions reserve distribution is often masculinity prejudiced (Chatzitheochari and Arber 2012). Females have weak control over their earnings and choice to work which indicates the lack of women empowerment. Customary in the developing societies, males prohibit their females from outdoor work and also exploit female by using violence or threats, which make it difficult for women folk to convert their proficiencies into incomes or happiness. Thus, gender discrimination directly and indirectly affects the extent of poverty and the poverty reduction. It reveals through the literature that multiple major factors seem to be responsible for the gender discrimination, i.e. women are completely responsible for child nurture and get less chances of employment benefits (Agarwal 1997; Antonopoulos and Toay 2009; Akarro 2008; Andriea 2008; Alam 2011; Anne and Angus 2002). The female poverty exists due to different factors at various levels which arises mainly due to inefficient labor market and politically authorities that establish prejudice i.e. at community level where the rates and responsibilities of men and women affected by societal level or at domestic level, where age and sex unsatisfactory power relations are operated.

Despite of all the social, cultural and racial constraints, even in the societies where women are bread earner, still it is difficult for them to ensure that they have ability of a good decision maker. Their participation in the household, the societal values and freedom affect their ability to speak out in the decisions of family matters (Chatzitheochari and Arber 2012). No doubt, if women make decisions herself, they do not increase their own happiness because they make decisions with respect to family happiness, whereas the structure of the womanly identity involves being selfless (Abdourahman 2010).

The study in hand investigates the extending classifications across the region in general and with respect to gender in particular, at the administrative division level in the Punjab province of Pakistan on the basis of unique Time Use Survey (Government of Pakistan 2009), which was conducted for the first time in the history of country. The present study also estimates the extent of time use poverty across region and gender and identifies the challenges faced by women in different geographical locations of the Punjab province. Though historically, the ideology of time use poverty has theoretical roots in economics but comparatively new additions are the renewals of interest to quantity the phenomena. The spirit of measuring time use poverty is to focus the deficiency of free time because of unequal quantity of time disbursed to working in the free local market and professional employment market work. Though, there is little conversation about a 'standard' estimation of time poverty but most of the methods in time use research construct time budgets on four meaningful categories; contracted Time, necessary time, committed time and free time (Heggeness et al. 2012). The study suggests suitable remedies to curb out the problem, while examining the socio-economic determinants of time use poverty in the Punjab.

2 Methedology

The failure of men and women to enjoy, what they earn to reduce their monetary poverty, has become a common phenomenon across the developing world. The prevalence of monetary poverty has caused many psychological and social problems and also restrained people to do developmental works in their relative fields particularly in the developing countries. The current study estimates the wellbeing level through the utilization of time across gender in the Punjab province of Pakistan.

2.1 Measurement of time use poverty

The measurement of time use poverty follows the FGT class of measures (Foster et al. 1984), where the derivation of the measure works inverse to the traditional assessment for dichotomizing the poor and non-poor. Consequently, the people consuming more time than the prescribed threshold would be identified as poor. The general form of the FGT class of measures is given below:

$$P = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{y_i - z_i}{z_i}\right]^a$$

Where, n is total population, zi is time use poverty line; yi is the total time consumed by individual; and α is the poverty aversion, which varies from 0 to 2, indicating the headcount index, poverty gap index and squared poverty gap index. Alternatively, the headcount index can be calculated as below:

$$H = \frac{q}{n}$$

Where, H indicates the time use headcount index; n is the size of population; and q represents the persons which are time poor.

Time poverty gap signifies the unpleasant expanse splitting the population through the time poverty line, with the non- poor being given a space of zero, otherwise 1. By this process the time shortage of the whole population is addressed or it expose the on average quantity of time that would be required to shift all individuals who are time poor or below a given time poverty line through dreamily beset "time transfers". Mathematically it can be explained as below:

$$PG = \frac{1}{n}\sum_{i=1}^{q}\left[\frac{y_i - z_i}{z_i}\right]$$

Where, PG is the poverty gap, y_i is the total time consumed; and z_i is the time use poverty line. It represents that how much lower time is required to get rid of poverty for every time poor person. Thus, the time use poverty gap measure illustrates the simplest way to estimate the time poverty gap. It can be calculated as the product of headcount index "H" of time poverty and time gap ratio "I". Mathematically, it can be derived as:

$$\mathrm{PG} = \mathrm{H} * \mathrm{I},$$

Where I is derived as:

$$I = \frac{y_q - z_i}{z_i}$$

and y_q is calculated as below:

$$y_q = \frac{1}{q}\sum_{i=1}^{q} y_i$$

The average working time of the time poor person is y_i whereas the literature shows that time gap ratio I is not appropriate estimation of poverty. Under some conditions, there is decline of time gap ratio, i.e. if working hours of employed persons decreased, they can reduced the time poverty. In this way, overall time poverty will be declined, when time gap ratio is calculated among the poor person that increased on the other hand. At the same time, poverty

gap can be defined as, the difference between time poor persons and the time poverty line. By taking square of time poverty gap, it becomes square time poverty gap. The square time poverty gap expose the inequality among the poor population, when individual increased their working hours by the poverty line. In other words the squared poverty gap also explained the inequality among the poor individual or household. It can be explained through a following derivation:

$$SPG = \frac{1}{q}\sum_{i=1}^{q}\left[\frac{y_i - z_i}{z_i}\right]^2$$

Time headcount index and the squared time poverty gap works parallel to the time poverty gap. The main focus of the study is to approximate the magnitude of time use poor and specifically point out the typical and special characteristics of time poverty with respect to gender and space as well, at the provincial level.

2.2 Estimation framework

The estimation framework of the study constitutes the two phases. The primal step contains of an inspection of time use design of the defendants by the category of actions as categorized in the Time Use Review 2007; so as to make the comprehensive accountability by gender and space. Therefore, an emphasis has been given on differences in gender time use design, area (rural/urban) failure and work rank pointers. The Time Use Survey 2007 also categorizes actions of the defendants in three comprehensive groups, which are (i) System of Nationwide Accounts (SNA) actions, (ii) Extended System of Nationwide Accounts (ESNA) actions, and (iii) Non- System of Nationwide Accounts (NSNA) events (United Nations 2007). Meanwhile, SNA activities includes, services for formations, main manufacture actions not for formations, like crop agricultural, fishing, animal farming, forestry, storing and dispensation, withdrawal and extracting; subordinate activities like industrial, building, and events like trade, facilities and business. Similarly, ESNA activities comprises of household up keeping, care for children, the sickening and public facilities. In the same way, Non- SNA actions include knowledge, societal and ethnic activities, mass broadcasting and individual care and self-maintenance. The classification of females group by profession comprises of; Skilled agricultural and fishery workers, unskilled (Elementary occupations), and Expertise and associated trade workers as illustrated in Appendix.

The second phase of the study emphasizes the identification process to distinguish the data into poor and non-poor. The identification segments address the several questions i.e. derivation of cutoff point (time use poverty line) through the variety of activities. According to Bardasi and Wodon (2006) and Lawson (2007), 1.5 times of the median time used in several activities be taken on average as threshold and multiplied with week days for deriving the weekly poverty line. Thus, the calculated poverty line was around 10.5 h (630 min) at the national level. The assessed threshold (10.5 h) is being employed to categorize people which are time deprived or non-poor. The time use assessment of poor is analogous to traditional measure of uni-dimensional poverty, while identifying those people as poor who consume more time than the estimated time use poverty line.

2.3 Selection of study area and specification of data

Punjab province is the home of almost 7,36,21,000 people (National Instituten of Population Studies 2009) and consists of eight administrative divisions during the period of study, whereas the capital territory Islamabad has been treated as a separate administrative division.

The Province has 36 districts of different population sizes, consisting of 110 Tehsils (Sub-unit of the district). The area of Punjab is 2,05,344 km^2 (National Instituten of Population Studies 2008). Being a major contributor of agriculture output at the national level, the selected area is also considered the home for multiple industries and factories and thus the majority of the entire population has at least affiliation with the province mainly through earning avenues or something else. The Punjab province of Pakistan is selected for the present study, mainly because of four reasons. First, to the best of our knowledge, no preceding studies have investigated the issue of poverty on the basis of time utilization in this province. Secondly, it is the unique effort to identify the problem with respect to gender which arises mainly due to wage differentials, feudal system etc. across the space. Third, there is suspected higher variation in the extent of poverty across the region (Rural and Urban) and Administrative division due to primacy of few big cities i.e. Lahore, Rawalpindi, etc. Conversely, since 2005, the province has been under frequent flooding situation, excessive rainfall, devastating internal security and heavy inflow of internally displaced persons (IDPs) due war against terror in the neighboring area particularly in Federally Administered Tribal Area (FATA), resulting in higher poverty in the province compared to other provinces of Pakistan (Rasul et al. 2012; Khan et al. 2013b). Lastly, the province under consideration is the largest unit by population in Pakistan.

The study employed the nationally representative unique data set of time use survey which was conducted for the first time during 2007 in Pakistan. The data was officially collected by Federal Bureau of Statistics, Statistical Division, Pakistan, in collaboration with the World Bank and publically released during 2009. The survey is the principal nationally time use review for Pakistan comprising January to December 2007 and enclosed a cross-section of 19,600 families. The structure of the information given in data is mainly bifurcated into regions i.e. urban and rural (Appendix Table 3). The gender as well as activity based sampling distribution is also being explored in the Appendix Tables 4 and 5. In addition to the time consumed survey hold sufficient data regarding demographic and socio-economic characteristics of individuals (Appendix Table 7). Although the survey contains valuable information at individual and household level, but the specific accounts are awarded to the winning units to consider all the actions of two nominated people from every one household, who are 10 years of age or elder. The actions of 24 hours are logged in this survey (Appendix Table 8). Round the clock time is divided into 48 segments of half an hour each (United Nations 2007). Every group is alienated further in three activities; so as to make up the formation of 144 activities in a day and each individual is asked about the actions he/she was involved throughout each partial period. Similar provincial information was extracted from the nationwide survey data and a comprehensive scheme has been used for the classification of activities which were reported by the respondents.

3 Empirical results

The results of study have been compiled in two segments, where one of the compositions illustrates the magnitude of time use poverty across the region (rural and urban) with respect to gender and space. On the other hand, second group of results explain the extent of time use poverty on the basis of specific activities groups.

Table 1 exposes the overall provincial and regional (urban and rural) view of time use poverty across the gender in Punjab. The overall Time use poverty index in Punjab was nearly 24 % that is in line with the earlier findings of Khan et al. (2011), Arif (2006), Anwar and Qureshi (2002); etc. The regional (urban and rural) classification exposed that urban time use poverty was around 21 %, whereas rural was slightly higher as 25 %. On average rural

Table 1 Profile of time use poverty across the divisions in Punjab

Region	Total	Male	Female
Punjab	23.5	23.6	23.5
Urban	20.2	24.0	16.5
Rural	25.8	23.2	28.0
Islamabad	19.1	21.8	16.5
Urban	18.1	21.9	14.3
Rural	20.3	21.8	18.9
Rawalpindi	16.7	17.6	15.9
Urban	15.5	19.0	12.3
Rural	17.7	16.4	18.7
Sargodha	18.2	14.6	21.3
Urban	15.9	15.9	15.9
Rural	19.6	13.7	24.6
Faisalabad	25.9	27.1	24.6
Urban	24.6	28.2	20.9
Rural	26.8	26.3	27.3
Gujranwala	20.2	22.8	18.1
Urban	19.6	23.9	15.9
Rural	20.6	21.9	19.6
Lahore	20.5	25.0	16.1
Urban	17.9	24.8	11.2
Rural	22.8	22.8	20.5
Multan	28.6	24.8	31.9
Urban	21.6	25.5	18.2
Rural	31.6	24.5	38.0
DG Khan	28.3	23.0	33.2
Urban	22.9	26.0	20.0
Rural	30.0	22.1	37.4
Bahawalpur	34.7	32.4	36.7
Urban	28.5	30.5	26.4
Rural	37.7	33.4	41.3

time use poverty was more as compare to urban mainly due to lack of earning avenues and other socio-economic deprivation, which was similar the earlier findings of UNDP (2010), Khan et al. (2013a), Khan et al. (2013b). In the same way higher magnitude of poverty in the rural segment was also estimated by Khan and Saboor (2011), Khan et al. (2011), Qureshi and Arif (2001). Contrary to this, urban male segment was more timely poor as compare to rural male as 24 % urban male and maturely 23 % were rural male poor. The results in Table 1 indicates that rural female time use poverty was more as parallel to urban female in Punjab mainly because of the limited earning avenues (Arif 2000; Arif and Farooq 2012; Chaudhry 2009; Fan et al. 2005). Inverse to this urban male were more time poor as compare to female but in rural side female were more time poor, which was parallel to the earlier findings of Sharif and Rahman (2009).

The sub-group analysis of time use poverty illustrates the view at the administrative division level comprising of eight units (including the federal area, Islamabad). Time use poverty in Islamabad was around 19 % along with 18 % time use poverty in urban and 20 % in the rural area. The rural group was more time poor in contrast to urban alike rest of the

area,s at various level (Khan et al. 2013a, b, 2011). In Islamabad male were more time poor as compare to female i.e. 21.8 % poor but female were around 16.5 %. On the other hand urban male poor were approximately in the same proportion as rural male which were around 21.9 % urban male and 21.8 % rural male were poor. Female time use poverty in Islamabad was estimated around 16.5 %. In Islamabad rural female time use poverty was more as parallel to urban female because urban female time use poverty was 14.3 % and rural female time use poverty was 18.9 %. In Islamabad male were more time poor as compare to female in urban and rural areas.

The extent of time use poverty in Rawalpindi was estimated around 16.7 %. The rural segment was more time poor 17.7 % in contrast to urban, where extent of poverty was 15.5 %. In Rawalpindi male were more time poor as compare to female as 17.6 and 15.9 % respectively. Similarly, urban male were more timely poor as compare to rural male as 19 % urban male and 16.4 were rural male poor. In Rawalpindi rural female time use poverty was more as parallel to urban female because urban female time use poverty was 12.3 % and rural female time use poverty was 18.7 %. In Rawalpindi male were more time poor as compare to female in urban but in rural area female are poorer.

Time use poverty in Sargodha was estimated around 18.2 %. While urban time use poverty was 15.9 % and rural is 19.6 % that expose the higher extent of poverty in the rural segment. In Sargodha female time use poverty was more in contrast to male i.e. 14.6 and 21.3 % respectively. Urban male were more timely poor as compare to female time use poverty as 15.9 % and rural female time use poverty was 24.6 %. The regional view (urban and rural) was estimated around 15.9 % for urban male and 13.7 % for rural male poor. In Sargodha rural female time use poverty was more as parallel to urban female which was around 15.9 %.

It reveals through the results that the extent of time use poverty in Faisalabad was 25.9 % along with 24.6 and 26.8 % respectively in the urban and urban region, which indicates the higher magnitude in the urban area. At the same time 27.1 male and 24.6 % female were poor on the basis of time utilization. Urban male were more timely poor as compare to rural male as 28.2 and 26.3 % correspondingly. In Faisalabad rural female time use poverty was higher as parallel to urban female having the 20.9 % corresponding to the 27.3 % magnitude of rural female. Urban male were employing more time as compare to female folk but in rural area female were more time poor.

The results indicates that the extent of time use poverty in Gujranwala was 20.2 % along with regional contribution as 19.6 and 20.6 % respectively, which exposed that rural time use poverty was more as compare to urban. Male group experienced 22.8 % time use poverty and 18.1 % was female timely poor, where urban male were more timely poor as compare to rural male as 23.9 % urban male and 21.9 % were rural male poor. In Gujranwala rural female time use poverty was more as parallel to urban female as urban female time use poverty was 15.9 but rural female time use poverty was 19.6 %. Urban and rural male were more time poor as compare to female.

The results exposed that the sub-group Lahore experienced 20.5 % time use poverty. Around 17.9 % was urban time use poverty and rural time use poverty was 22.8 %. Thus indicating the higher rural time use poverty as compare to urban. In Lahore, male group experienced around 25.0 % timely poorer but female time use poverty was 16.1. Rural male were more timely poor as compare to urban male as 24.8 % urban male and 25.1 were rural male poor. In Lahore rural female time use poverty was more as parallel to urban female indicating the 11.2 % rural female time use poverty and rural female time use poverty was 20.5 %. Urban and rural male were more time poor as compare to female segment.

The results indicates that in Multan time use poverty was 28.6 %, whereas urban situation was 21.6 % and rural was 31.6 %. The rural segment experienced higher magnitude of time

use poverty as compare to urban. In Multan male time use poverty was 24.8 % male but the female was 31.9 %, which expose that the extent was poverty for the female folk was higher. Urban male were more timely poor as compare to rural male as 25.5 % urban male and 24.5 were rural male poor. Multan have faced more time use poverty in rural female as parallel to urban female as urban female time use poverty was 18.2 % and rural female time use poverty was 38.0 %. Urban male were more time poor as compare to female but in rural side female were more time poor as compare to male.

Time use poverty in D.G. Khan was 28.3 %, whereas urban time use poverty was 22.9 % and rural was 30.0 %. The extent of rural time use poverty was more as compare to urban area. Urban male were more timely poor as compare to rural male as 26 % urban male and 22.1 were rural male poor. Female time use poverty in D.G. Khan was 33.2 %. In D.G. Khan rural female time use poverty was more as parallel to urban female. Thus, urban female time use poverty was 20.0 and rural female time use poverty was 37.4 %. Urban male are more time poor as compare to female but in rural side female are more time poor.

Time use poverty in Bahawalpur was 34.7 %, while urban time use poverty was 28.5 % and rural was 37.7 %, which was relatively higher than the urban segment. Rural male were more timely poor as compare to urban male as 30.5 % urban male and 33.4 % were rural male poor. Female time use poverty in Bahawalpur was 36.7 %. In Bahawalpur rural female time use poverty was more as parallel to urban female i.e. 41.3 and 26.4 % respectively. At the same time urban male were more time poor as compare to urban female but in rural area female were more time poor as compare to male. Across the province, it reveals through the results that magnitude of time use poverty remained higher as compare to the urban area, which is parallel to the earlier studies whether based on expenditure approach or multidimensional poverty index and conducted at regional, provincial and national levels in Pakistan (Husain 2004; Khan et al. 2011; Naveed and Islam 2010; Anwar and Qureshi 2002; Haq and Bhatti 2001; Khan et al. 2013b; Arif 2006; Khan et al. 2013a).

The activity based view of time use poverty classify the various activities into some groups i.e. System of National Accounts (SNA) actions, Extended Coordination National Accounts events varies in the Punjab province. It reveals through the Table 2 that Time Use Poverty in Punjab in SNA activities was around 10 % and in Extended SNA activities was approximately 6 %. On average, time use poverty was more in SNA activities as compared to Extended SNA activities. Male time use poverty in Punjab in SNA activities was almost 20 % and in the Extended SNA it was 0.2 % as compared to 0.8 and 10.4 of the female segment respectively. In the SNA activities male was more timely poor as compare to female. At the same time, in Extended SNA activities female are more timely poor. Urban time use poverty in SNA was higher as compare to rural in Punjab mainly due to the limited infrastructure, employment opportunities, etc.

Total time use poverty in Islamabad in SNA activities was 8.4 % and in Extended SNA activities was 5.6 %. The extent of time use poverty was more in SNA activities as compared to Extended SNA activities. Male time use poverty in Islamabad in SNA activities was around 16.9 % and in Extended SNA was 0.5 % as compared to 0 and 10.6 of female. Thus, in SNA activities male was more timely poor as compare to female, but in Extended SNA activities female were utilizing more time. On average rural time use poverty in SNA was more as compare to urban in Islamabad.

In the same way, overall time use poverty in Rawalpindi in SNA activities was 6.6 % and in Extended SNA activities was 6.1 %. Interestingly, time use poverty was approximately same in SNA and Extended SNA activities. Male time use poverty in Rawalpindi in SNA activities was 14.2 % and in Extended SNA was 0 % as compared to 0.2 and 11.3 of female . Thus, in SNA activities male was more timely poor as compare to female, whereas in Extended

Table 2 Profile of Time Use Poverty SNA and ESNA activities in Punjab

	Total	Male	Female
SNA	9.7	19.6	0.8
Urban	9.8	19.5	0.7
Rural	9.6	19.7	0.8
ESNA	5.6	0.2	10.4
Urban	5.3	0.2	10.1
Rural	5.7	0.1	10.6
Overall	23.5	23.6	23.5
Urban	20.2	24.0	16.5
Rural	25.8	23.2	28.0

SNA activities female were more time use poor. Urban time use poverty in SNA was more as compare to rural in Rawalpindi but in Extended SNA activities rural was more timely poor.

Total time use poverty in Sargodha in SNA activities was 6.3 % and in Extended SNA activities was 6.5 %. Male time use poverty in Sargodha in SNA activities was 12.8 % and in Extended SNA was 0.3 % as compared to 0.6 and 12 % of female. So in SNA activities male was more timely poor as compare to female. In Extended SNA activities female are more timely poor. Similarly, urban time use poverty in SNA was more as compare to rural in Sargodha but in Extended SNA rural area was more time poorer.

Total time use poverty in Faisalabad in SNA activities was 11.7 % and in Extended SNA activities was 5.8 %. So the extent of time use poverty was high in SNA activities as compared to Extended SNA activities. Male time use poverty in Faisalabad in SNA activities was 23.6 % and in Extended SNA was 0.2 % as compared to 0.5 and 11.0 of female, which indicates that in SNA activities male were more timely poor as compare to female. Inverse to this, in Extended SNA activities female are more timely poor. Urban time use poverty in SNA was more as compare to rural in Faisalabad.

Total time use poverty in Gujranwala in SNA activities was 8.3 % and in Extended SNA activities was 7.5 %. The magnitude of poverty in SNA activities was more than the Extended SNA activities. Male time use poverty in Gujranwala in SNA activities was 18.4 % and in Extended SNA was 0 % as compared to 0.2 and 13.5 of female. So in SNA activities male was more timely poor as compare to female. But in Extended SNA activities female were more time use poor. At the same time urban time use poverty in SNA was more as compare to rural in Gujranwala.

Total time use poverty in Lahore in SNA activities was 10.4 % and in Extended SNA activities was 4.0 %. So time use poverty was more in SNA activities as compared to Extended SNA activities. Male time use poverty in Lahore in SNA activities was 20.2 % and in Extended SNA was 0.1 % as compared to 0.7 and 7.8 of female. Thus, in SNA activities male were more timely poor as compare to female. But in Extended SNA activities female were more timely poor. Likewise rural time use poverty in SNA was more as compare to rural in Lahore.

In Multan, total time use poverty in SNA activities was around 10.3 % and in Extended SNA activities was 5.4 %. In SNA activities as compared to Extended SNA activities time use poverty was more. Male time use poverty in Multan in SNA activities was 20.6 % and in Extended SNA was 0.3 % as compared to 1.1 and 10.1 of female .So in SNA activities male was more timely poor as compare to female. Inverse to this, female were more timely poor in Extended SNA activities. Rural time use poverty in SNA was more as compare to urban in Multan.

Total time use poverty in D.G. Khan in SNA activities was almost 10.0 % and in Extended SNA activities was 2.6 %. so time use poverty was more in SNA activities as compared to Extended SNA activities. Male time use poverty in DGKhan in SNA activities was 19.2 % and in Extended SNA was 0.1 % as compared to 1.3 and 4.9 of female .So in SNA activities male was more timely poor as compare to female. But in Extended SNA activities female were more timely poor. Urban time use poverty in SNA was more as compare to rural in DG Khan.

Total time use poverty in Bahawalpur in SNA activities was approximately 14.5 % and in Extended SNA activities was 5.8 %. So time use poverty was more in SNA activities as compared to Extended SNA activities. Male time use poverty in Bahawalpur in SNA activities was 28.4 % and in Extended SNA was 0.3 % as compared to 2.4 and 10.6 % of female. So in SNA activities male was more timely poor as compare to female. On the other hand, in Extended SNA activities female were more timely poor. On average rural time use poverty in SNA was more as compare to urban in Bahawalpur.

The activity based classification and the regional (urban and rural) bifurcation of the study reveals the higher proportion of time use poverty in the rural segment than that of urban. At the same time gender-wise activity based division indicates the complex view of the problem. The time use poverty index of the women folk shows the lower index in urban than rural segment, whereas for the male group, it was higher in urban than rural area.

Therefore it is suggested to address the key socio-economic attributes through adopting a holistic strategic approach at various level, particularly with respect to the women folk and rural segment as well. In the light of above facts, the planners may also plan to improve the pushing supplementary factors to mitigate the gender and regional biases across the sub-groups, i.e. improve earning avenues and wage rate, mitigate household sizes and its dependency ratio, initiation of non-farm employment opportunities in the rural sector (Khan et al. 2013b; Fan and Chan-Kang 2005 and Fan et al. (2005). There is dire need to initiate war footed measures to secure the female segment by giving them ownership rights, financial assistance, and adequate wage rate and strictly implement the rules to avoid sexual harassments. Consequently, this strategic approach may result in better earning avenues and subsequent improved access to educational, housing and health facilities in the long run (Arif 2000; Chaudhry 2009; Arif and Farooq 2012), while reducing the regional and sub-group contribution to the overall poverty index in Punjab in the gender perspective. Moreover, an effective marketing structure, will also contribute to enhance income margins of rural people, while removing regional (rural and urban) inequality in the province (Hussain and Routray 2012; Khan et al. 2013a).

4 Conclusion

The instance of poverty is a well-known fact in the developing countries that must be addressed seriously and adequately; so that the benefits of economic development reach at the door step of poor people. This study has explored the time use poverty in the Punjab Province of Pakistan. The results show that the incidence of time poverty in Punjab was around 24 %. The study also concludes that males and females are generally equally time poor. However, rural males are poorer than urban males. Women in the rural areas have been found poorer than males in the rural areas of the province. Males in the Punjab are more time use poor in System National Accounts Activities (SNA); females are more timely poor in Extended National Account Activities (ESNA) mainly because males spend more time in regular economic activities but female are engaged in household and some socio-economic

activities. In socio-cultural activities male of Punjab consumed (1,075 min) more time as compared to female (1,056 min). The study has observed significant variation of time use poverty across the various areas of Punjab. Male time use poverty in Bahawalpur is 34 %, 28 % in Multan and D.G. Khan, nearly 26 % is in Faisalabad, 20 % in Lahore and Gujranwala, 18.2 % in Sargodha and 16.7 % in Rawalpindi.

Being a pioneering study on time use poverty in the Punjab, following are the potential policy implications and prescriptions.

1) Wage rate for women is rationalized in the Punjab and other provinces of Pakistan, to realize the appropriate wage rate for women folk in various activities across the administrative division as well as region in Punjab.
2) Equitable gender pattern of socio-economic development is devised; so that the productive potential of both male and females is realized in the Punjab and other parts of the country.
3) Time used by the females is considered seriously in order to enhanced the status and importance of women.
4) There is dire need that poverty and related aspects particularly gender discrimination is addressed appropriately; so that genuine and rational grievances of the faire sex or redressed.

Appendix

See Tables 3, 4, 5, 6, 7, 8 and 9.

Table 3 Profile of regional sampling distribution in Punjab

Division	Total	Sample	
		Urban	Rural
Punjab	17,092	6,807	10,285
		(39.8)	(60.2)
Islamabad	810	441	369
		(54.4)	(45.6)
Rawalpindi	1,809	819	990
		(45.3)	(54.7)
Sargodha	1,614	629	985
		(39.0)	(61.0)
Faisalabad	2,205	949	1,256
		(43.0)	(57.0)
Gujranwala	2,758	1,169	1,589
		(42.4)	(57.6)
Lahore	2,549	1,209	1,340
		(47.4)	(52.6)
Multan	2,261	689	1,572
		(30.5)	(69.5)
DG Khan	1,456	361	1,095
		(24.8)	(75.2)
Bahawalpur	1,630	541	1,089
		(33.2)	(66.8)

Table 4 Profile of sampling distribution with respect to Gender in Punjab

Division	Total	Sample	
		Male	Female
Punjab	17,092	8,092	9,000
		(47.3)	(52.7)
Islamabad	810	403	407
		(49.8)	(50.2)
Rawalpindi	1,809	829	980
		(45.8)	(54.2)
Sargodha	1,614	755	859
		(46.8)	(53.2)
Faisalabad	2,205	1,073	1,132
		(48.7)	(51.3)
Gujranwala	2,758	1,229	1,529
		(44.6)	(55.4)
Lahore	2,549	1,273	1276
		(49.9)	(50.1)
Multan	2,261	1,067	1194
		(47.2)	(52.8)
DG Khan	1,456	703	753
		(48.3)	(51.7)
Bahawalpur	1,630	760	870
		(46.6)	(53.4)

Table 5 Profile of respondents with respect to activities

Activities	Total	Sex of selected person in Punjab	
		Male	Female
Personal care	15,122	7,249	7,873
Work in establishments	121	92	29
Primary production	169	99	70
Work in non establishment	96	89	7
Household maintenance	383	35	348
Care of persons	272	38	234
Community services	4	2	2
Learning	240	126	114
Social and cultural	594	309	285
Mass media use	91	53	38
Total	17,092	8,092	9,000

Table 6 Profile of income source and Percentage Share of Respondents in Punjab

Main source of persons income	Total	Male	Female
Wage/salary/piecework pay/commission	3,238 (100.0)	2,435 (75.2)	803 (24.8)
Earnings from own	2,885 (100.0)	2,601 (90.2)	284 (9.8)
Govt. grants/support	112 (100.0)	89 (79.5)	23 (20.5)
Investment	14 (100.0)	10 (71.40)	4 (28.6)
Money from other household members	309 (100.0)	113 (36.6)	196 (63.4)
Remittance	213 (100.0)	45 (21.1)	168 (78.9)
Compensation (from ex-spouse or father of children	10 (100.0)	4 (40.0)	6 (60.0)
Other	119 (100.0)	100 (84.0)	19 (16.0)
No personal income	10,192 (100.0)	2,695 (26.4)	7,497 (73.6)
Total	17,092 (100.0)	8,092 (47.3)	9,000 (52.7)

Table 7 Profile of major income groups of Respondents in Punjab by total monthly income from all sources

Monthly personal income	Total	Sample	
		Male	Female
Up to Rs.2,000	1,536	622 (40.5)	914 (59.5)
Rs.2,001–Rs.3,000	797	645 (80.9)	152 (19.1)
Rs.3,001–Rs.4,000	1,109	1,004 (90.5)	105 (9.5)
Rs.4,001–Rs.5,000	895	828 (92.5)	67 (7.5)
Rs.5,001–Rs.6,000	654	601 (91.9)	53 (8.1)
Rs.6,001–Rs.7,000	433	393 (90.8)	40 (9.2)
Rs.7,001–Rs.8,000	306	275 (89.9)	31 (10.1)
Rs.8,001–Rs.9,000	194	174 (89.7)	20 (10.3)
Rs.9,001–Rs.10,000	134	109 (81.3)	25 (18.7)
Rs.10,001 or more	753	669 (88.5)	84 (11.2)

Table 7 continued

Monthly personal income	Total	Sample	
		Male	Female
Don't know	52	46	6
		(88.5)	(11.5)
Refusal	37	31	6
		(83.8)	(16.2)

Table 8 Weekly profile of respondents for maintaining diary of selected person

Days of work	Total	Male	Female
Monday	2,841	1,322	1,519
	(16.6)	(16.3)	(16.90)
Tuesday	2,970	1,430	1,540
	(17.4)	(17.7)	(17.1)
Wednessday	2,973	1,406	1,567
	(17.4)	(17.4)	(17.4)
Thursday	2,509	1,195	1,314
	(14.7)	(14.8)	(14.6)
Friday	2,207	1,008	1,199
	(12.9)	(12.5)	(13.3)
Saturday	1,125	602	523
	(6.6)	(7.4)	(95.8)
Sunday	2,467	1,129	1,338
	(14.4)	(74.0)	(14.9)
Total	17,092	8,092	9,000
	(100.0)	(100.0)	(100.0)

Table 9 Structure of activities with groupings

S. No	Groups	Activities
1	Scheme of Nationwide Accounts (SNA) Actions	1-Work for Establishment
		2-Primary Production
		3-work for not Establishment
2	Prolonged System of Countrywide Accounts (ESNA) Actions	1-Household Maintenance
		2-Care of persons
		3-Community services
3	Non- System of National Accounts (Non-SNA) Actions	1-Learning
		2-Social and cultural
		3-Mass media use
		4-Personal care

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