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Time Poverty, Work Status and Gender: The Case of Pakistan

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ABSTRACT

Time is an important economic resource that can be spent in a variety of ways. Diverse demands on a person's time may reach a point where the individual may be categorized as time poor. Time poverty may vary across gender, occupational groups, industries, regions, and income levels. The present study focuses on measurement of time poverty and its incidence among these categories using Time Use Survey (TUS) 2007, the first nationwide time use survey for Pakistan. The results of this study provide some important insights into the phenomenon of time poverty in Pakistan and lead to some interesting conclusions. In the entire TUS sample, the incidence of time poverty is 14 percent. Women are found to be more time poor than men whether they are employed or not. A closer look at time use statistics reveals the reason behind this occurrence. There are certain women-specific activities that they have to perform irrespective of their employment status. This additional time burden plays a key role in making them more time poor. Working women are far more time poor as compared to not working women. Thus, while accepting a job, women have to deal with a major tradeoff between time poverty and monetary poverty. People in certain professions and industries are more time poor as compared to people in other professions and industries. These professions and industries generally require extended hours from the workers, while offering low wage rates. This entails a situation of double jeopardy for the workers who tend to be monetary and time poor at the same time. The close association of time poverty with low income found in this study corroborates this conclusion. In the light of these findings, several policy areas emerge where we need to focus. First thing that needs to be done is to generate awareness about a fair distribution of responsibilities between men and women. Government can also play its part in reducing time poverty by enforce minimum wage laws and mandatory ceiling on work hours in the industries which have high concentration of time poverty. Eradication of monetary poverty can also go a long way in this respect by eliminating the need to work long hours at the lowest wage rate just to survive. Improving education also has significant potential in this regard, as high education is found to be associated with low time poverty.

Keywords: Time Poverty, Gender Disparities, Time Use, SNA Activities, Time Use Survey, Pakistan

1. INTRODUCTION

Time is an important economic resource. It may be spent in a variety of ways, but employed persons spend a significant portion of it in the labour market for monetary gains. They still have other demands on their time resource such as self care, home production of goods and services and leisure. These demands on time may reach a point where people may be categorised as time poor. In many developing countries including Pakistan, working women may be more time poor than men because of their household responsibilities. Time poverty may also be related to certain occupations and industries where workers have to work longer hours.

The concept of time poverty is not new to economics literature, though the revival of interest in this phenomenon and efforts to measure it empirically are relatively a recent development. Part of the reason for this renewed interest appears to be the availability of time use data for a number of countries. The publication of the report on Time Use Survey 2007 (TUS) has added Pakistan to the list of such countries [Pakistan (2009)]. Naturally, the availability of this data has rekindled interest in time use research in Pakistan. Since this is the first time that such a dataset has been compiled for Pakistan, the horizon for research has opened virtually unlimited vistas.

The present study focuses on the analysis of the various aspects of time poverty among the employed though, for comparison, it has included the not-working sample as well. The study begins by exploring the analytical framework used to study time poverty in the next section. In Section 3, it describes the dataset and discusses its descriptive statistics. This section also delineates the methodology used in this study and deals with the question of how to empirically estimate time poverty. Section 4 presents the results of the present study regarding time use, time poverty and its determinants. The final section summarises the main findings of this study and in conclusion presents some policy recommendations.

2. ANALYTICAL FRAMEWORK

Defining time poverty is not a straightforward exercise. It is a complex matter that involves a number of theoretical and empirical considerations. Once these issues are clarified, we can move on to the main focus of our study. The incidence of time poverty among the employed itself has multiple dimensions

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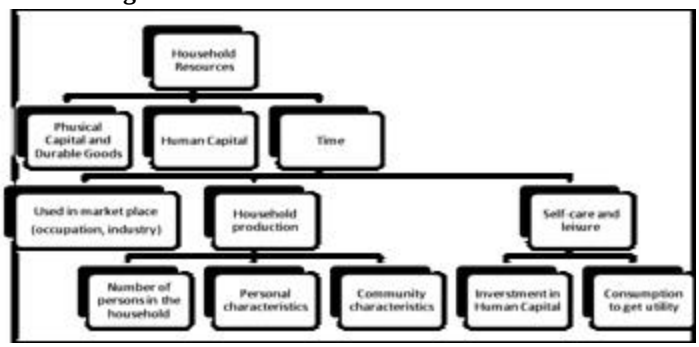
that need to be investigated. Though Vickery's (1977) seminal paper on time poverty is regarded as a major step towards analytically expounding the concept, the antecedents of his work can be found in the classical paper by Becker (1965) who recognised time as a household resource that is used as an input in the production of household goods and services.[1]

To understand the concept of time poverty, it would be instructive to begin with looking at the resources that can be used to enhance the welfare of a household or an individual. As shown in Figure 1, these resources can be divided into three broad categories, namely, physical capital, human capital and time.

The role of physical capital is well known. It generates a stream of revenue over its lifetime that adds to household income. Becker (1975) and Mincer (1974) have highlighted parallels between physical and human capital. According to their theory, investment in human capital also generates a stream of income over the lifetime of the individual. Therefore its role in enhancing the welfare of an individual has marked similarities with that of physical capital and can be easily understood by drawing parallels between the two types of capital.

As noted earlier, time is also an important household resource that can be put to a variety of uses. Since Becker's pathbreaking work, the role of time as an input in household production has been well-recognised. The literature on household production postulates that households combine market goods, time, personal and household characteristics along with other inputs to produce household goods and services.[2] Oates (1977) and Hamilton (1983) have extended this approach by showing that community characteristics must also be included as inputs in the household production function. This implies that if there is complementarity between time and other inputs, i.e. if time can be used more efficiently in the presence of the above mentioned inputs in the household production function, then time poverty will also depend on these variables.

Fig. 1. Household Resources and Their Use



[1]For a more detailed analysis of the economics of time use, see Hamermesh and Pfann (2005).

[2]For an excellent review of literature on home production, see Gronau (1999).

Time can be used in self-care and leisure as well. Self-care and leisure may be regarded as utility enhancing consumption activities, but their role in improving human capital cannot be ignored. Spending time in rest, leisure and taking care of ourselves makes us more productive. Naissance of mandatory leave in business organisations and public holiday on family day, that are becoming more common, are an acknowledgement of this fact.

In addition, time can be used in the market place to directly generate income. The income hence generated has a direct role with respect to monetary poverty. More interesting for us is the fact that employment increases the time used in committed activities which has strong bearing on time poverty. This raises the spectre of the trade-off between monetary poverty and time poverty. One more layer of complexity is added when we recognise the direct substitutability between time and money. This is evident from the simple fact that time can be bought by hiring the services of other persons or by purchasing time saving devices.

The gender dimension of this issue is particularly important for developing countries. In developing countries, tradition assigns certain activities such as cooking and childcare solely or primarily to women, so that they have to perform these activities even if demand on their time increases as they enter the labour market. If we keep this possibility in mind, the answer to the question whether getting a job makes women better off no longer remains a clear cut yes because now the trade-off between time and monetary poverty as well as personal and social preferences comes into play.

The above discussion can be summarised into the following points:

- Time poverty is an important aspect of overall poverty because monetary poverty line provides only a partial measure of poverty.
- It is theoretically possible that some persons could be monetarily rich but time poor and vice versa.
- There are theoretical grounds to believe that both the household and community variables are important determinants of time poverty.
- The gender dimension of time poverty is particularly important for developing countries.

3. DATA AND METHODOLOGY

3.1. The Dataset

This study is based on the Time Use Survey (TUS) 2007 sponsored by the Strengthening PRS Monitoring Project of the Ministry of Finance and conducted by the Federal Bureau of Statistics, Government of Pakistan [Pakistan (2009)]. This is the first nationwide time use survey for Pakistan. The survey was conducted from January to December 2007 and covered a cross-section of 19,600 households. It is representative at national as well as provincial level

with rural/urban breakdown. The year-round coverage of the survey was designed to capture seasonal variation in the time use pattern.

While the survey provides useful information about the household and the community, the prized section of the survey is the diary that records all the activities of two selected persons from each household who are ten years of age or older.[3] The activities are recorded over a period of 24 hours. The entire day is divided into 48 half-an-hour slots and each person is asked about the activities he/she was engaged in during each half hour. An elaborate coding scheme is used to classify the activities reported by the respondents. It is the first time that such a detailed account of time used in daily activities has been made available for Pakistan. Some important details of how this data was used in this study and some of its salient characteristics are described below.

The individuals aged 10 years and above, who filled the diary to report their activities during the past 24 hours, form the unit of analysis for this study. These individuals are grouped into two broad categories, working or employed and not-working or not employed. The subsample of 'employed' persons consists of those who have worked for income or profit at least for one hour during the week preceding the survey. This definition is consistent with that used by the Federal Bureau of Statistics (FBS). The 'not-working' or 'not employed' subsample is the residual category consisting of both the unemployed and those who are out of the labour force. This type of categorisation has recently been used by Kalenkoski and Hamrick (2007) to determine the time poverty thresholds based on the 2005-06 American Time Use Survey.

3.2. Descriptive Statistics

Table 1 shows the socio-demographic characteristics of the total sample as well as for the working and not-working sub-samples separately while the labour market specific indicators of the employed sample are reported in Tables 2 and 3. Fifty two percent of the total respondents who filled the diary are females. The mean age for the total sample is 31 years and the male sample is on average one year older than the female sample. About 40 percent of the sample is drawn from urban areas and more than half were married at the time of survey. There is a gender difference in terms of the proportion living in urban areas and the marital status, but it is relatively small.

As shown in Figure 2, the major difference between males and females is in their participation in the labour market. Whereas more than two-thirds of the males were found employed at the time of the survey, the corresponding figure for the females was only 17 percent. Consequently, while three-quarters of the not-employed sample consists of females, their proportion among the employed sample is only one-fifth (Table 1).

[3]For details of the procedure used to select two individuals from each household, see Pakistan (2009).

Table 1

Sample Characteristics

Sample	Total sample			Not-working/Not Employed			Employed		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
% Female	–	–	51.6	–	–	74.3	–	–	20.5
Mean Age (Years)	30.9	31.4	30.4	28.4	23.7	30.1	34.3	34.9	32.0
% Urban	39.4	40.5	38.4	42.2	45.2	41.1	35.7	38.4	25.0
% Rural	60.6	59.5	61.6	57.8	54.8	58.9	64.3	61.6	75.0
Marital Status									
Currently Married	56.6	53.4	59.7	41.7	16.8	58.3	68.9	69.6	66.5
Unmarried	39.2	44.1	34.5	47.2	79.8	35.9	28.2	28.3	27.6
Others	4.2	2.5	5.7	5.1	3.4	5.7	2.9	2.1	5.0
All	100	100	100	100	100	100	100	100	100

Source: Calculated from the micro data of Time Use Survey, 2007.

Table 2

Distribution (%) of the Employed Sample by Occupation and Gender

Occupation	Working/Employed Sample		
	Both Sexes	Male	Female
Professionals	15.4	18.4	3.8
Associate Professional	6.6	5.5	10.9
Clerks	1.5	1.8	0.3
Service and Workshop	5.2	6.4	0.8
Agricultural Worker	33.0	29.3	47.5
Craft Workers	14.2	13.0	19.1
Machine Operators	4.0	5.1	9.1
Elementary Occupation	20.0	20.7	17.5
All	100	100	100

Source: Calculated from the micro data of Time Use Survey, 2007.

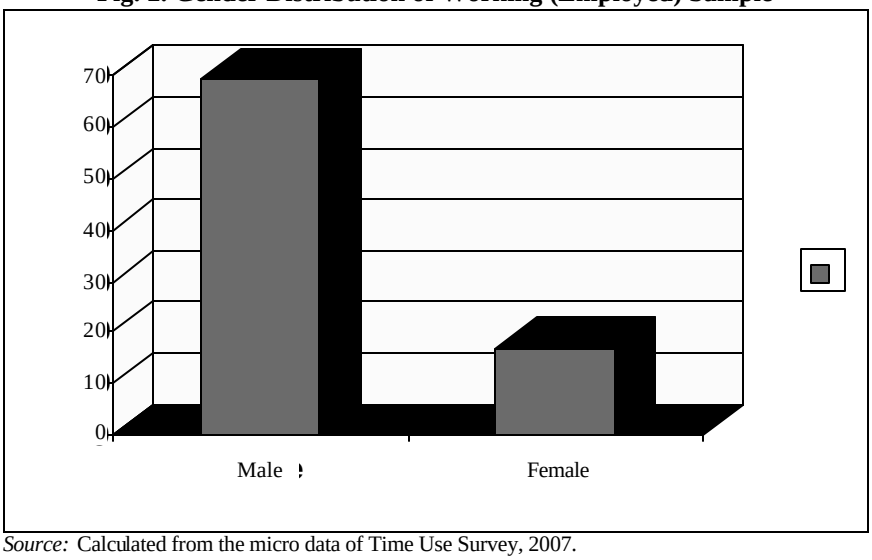
Table 3

Labour Market Characteristics of the Employed Sample

	Both Sexes	Male	Female
Industry			
Agriculture	39.7	35.3	57.0
Manufacturing	12.8	10.8	20.3
Electricity	0.8	1.0	0.1
Construction	6.9	8.7	0.2
Trade	14.8	19.1	2.2
Transport	5.1	6.4	0.3
Finance	1.8	2.2	0.3
Community and Social Services	17.6	17.1	19.5
Undefined	0.3	0.4	0.1
Employment Status			
Employees	44.2	45.7	38.5
Self-employed	34.0	39.2	13.7
Unpaid Family Helpers	17.9	10.4	47.2
Employers	3.9	4.8	0.6
Monthly Income (Rs)			
Upt to Rs 2000	15.1	9.8	35.6
2001-3000	9.4	10.3	5.7
3001-4000	12.5	14.8	3.6
4001-5000	11.3	13.7	2.2
5001-6000	8.6	10.3	2.0
6001-7000	6.3	7.5	1.7
7001-8000	4.7	5.6	1.2
8001-9000	3.2	3.8	0.9
9001-10,000	2.9	3.4	0.9
10,000 or more	9.8	11.6	2.9
Don't Know	0.8	0.9	0.3
Refusal	0.5	0.5	0.3
No Income	14.8	7.7	42.6
Source of Income			
Wages and Salaries	44.2	45.5	38.8
Business	37.0	43.1	13.1
Transfer Income	3.2	2.7	5.0
Other	0.9	1.0	0.4

Source: Calculated from the micro data of Time Use Survey, 2007.

Fig. 2. Gender Distribution of Working (Employed) Sample



Source: Calculated from the micro data of Time Use Survey, 2007.

Another noteworthy gender difference among the not-working persons is in their marital status. Approximately 60 percent of the not-working females are in the 'currently married' category as compared to only 17 percent for the males. This gap is much narrower and in opposite direction among the employed persons, the two figures being 67 percent and 70 percent for women and men respectively. The overwhelming majority of the employed females (about 75 percent) live in rural areas, while this figure for the not-working women is about 60 percent (Table 1). One of the reasons for the higher percentage of working women living in rural areas appears to be their substantially higher representation among agricultural workers (48 percent as compared to 29 percent men; Table 2).

Within the employed sample, the majority of females fall in three occupation groups—agriculture workers (48 percent), craft workers (19 percent), and unskilled (elementary) workers (18 percent). Only 15 percent women are professional or associate professional workers. Employed males are engaged in four major occupational categories: agriculture (29 percent) professionals and associate professionals (24 percent), elementary work (21 percent) and, craft and machine work (18 percent). In terms of industrial classification, women are concentrated in agriculture, manufacturing and, community and social service sectors. In addition to these three sectors, the employed males have a substantial representation in the trade sector as well (Table 3).

The employment status of 46 percent of the employed males is reported as 'employee', while the corresponding figure for women is 39 percent. The

most pronounced gender difference in employment status is found in the 'unpaid family helper' and 'self employed' categories. Compared to just 10 percent of the males, around half (47 percent) of the females are unpaid family workers. On the other hand, 39 percent males are self employed as compared to only 14 percent females.

The gender difference in employment status reflects itself in the monthly income statistics too. More than 43 percent of the employed women reported no monthly income, whereas 45 percent of them were earning a monthly income of Rs 4000 or less. This contrasts sharply with the corresponding figures for the employed males. Among them, the proportion without any monthly income was only 8 percent while approximately 60 percent of them were earning more than Rs 4000 per month. Wages and salaries, and business are the major sources of monthly income for both the employed men and women.

The differences in the characteristics of working and not-working women in terms of age and schooling are presented in Appendix Table 1. It shows that the share of teenagers (10–14 years old) is greater (17.7 percent) among the not-working women sample as compared to the working sample (7.4 percent). Approximately two-thirds of the working women are in their prime age, that is, 15–39 years, while the corresponding share for the not-working sample is 56 percent. The proportion of aged women among the not-working sample is modestly higher (8.4 percent) than among the working sample (4.9 percent). In terms of education, it is interesting to note that the not-working women sample appears to be more literate than the working women sample. However, the share of degree holders is relatively greater among the working women.

3.3. Methodology

This study proceeds in two steps. The first step consists of an examination of the time use pattern of the respondents by the type of activities as classified in the Time Use Survey 2007. The focus has been on differentials in time use pattern by gender, region, work status, and other labour market indicators. The TUS 2007 organises activities of the respondents in three broad categories, namely, System of National Accounts (SNA) activities, extended SNA activities, and non-SNA activities. The SNA activities consist of employment for establishments, primary production activities not for establishments, like crop farming, animal husbandry, fishing, forestry, processing and storage, mining and quarrying; secondary activities like construction, manufacturing, and activities like trade, business and services. Extended SNA activities include household maintenance, care for children, the sick and the elderly and community services. The activities related to learning, social and cultural activities, mass media and personal care and self-maintenance constitute Non-SNA activities.

To proceed to the second stage of the study, which deals with various aspects of time poverty as discussed in Section 1, it is inevitable to operationalise the concept of time poverty. What we need is a working definition of time poverty that makes it possible to estimate a time poverty threshold using our dataset. The estimated threshold can then be used to classify people either as time poor or non-poor. This objective can be achieved by using a methodology that is similar to that used for estimating monetary poverty.

The first thing that needs to be decided in this regard is whether to use an absolute or a relative measure of poverty. Both measures are common in the literature on monetary poverty, though the choice of an absolute measure is a bit more arbitrary. Often a certain level of per adult calorie intake equivalent is taken as the poverty threshold. It is obvious that this threshold is not based on economic or any other kind of theory. Rather it is based on an arbitrary consideration of "minimal" calorie requirements. Unfortunately, things get even more difficult in case of time poverty as there is no agreed-upon level of "minimal" time needed by a person to avoid being time poor. Therefore we have to resort to a relative definition of time poverty that involves using some measure of the central tendency (such as mean, median or mode) of time distribution or its multiple as a time poverty cut-off point.[4] An additional advantage of this approach is that it saves from the trouble of comparing the arbitrarily chosen absolute poverty thresholds for various countries and deciding which one is more relevant for the country under study.

The issue of the choice of a poverty index comes next. We use the headcount index, which gives the proportion of people who are time poor. The results presented using this index are easy to grasp, even by a non-professional. In addition to being simple and straightforward, it belongs to the FGT class of poverty indices that possess certain desirable properties.[5]

Which are the activities that make people time poor if they exceed a predetermined limit is another question that has to be dealt with. While it is easy to exclude activities such as leisure and vacationing from this list, much more thinking is needed to decide on the activities that belong to it. The literature on time use describes these activities in such terms as "necessary or committed activities" and time spent in these activities as "non-free minutes" [Kalenkoski and Mamrick (2007)]. Clearly, a closer look at the data is in order at this point.

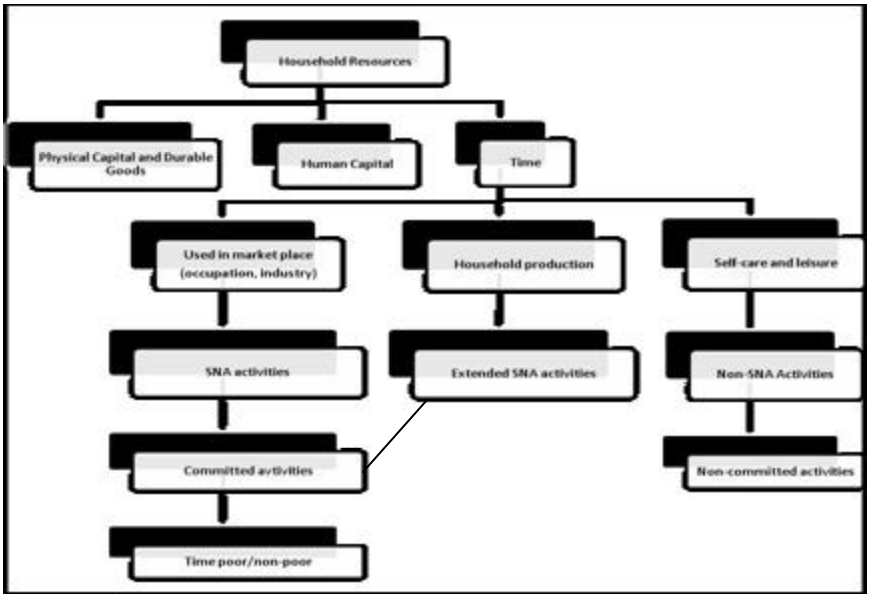
As noted above, the time use survey data organises activities performed by the respondents in three broad categories, namely, SNA, extended SNA, and non-SNA activities. A careful scrutiny of the list of the activities falling under each of the three broad categories reveals that the first two categories consist of what we may safely call committed activities. Therefore we add time spent by

[4]This definition is relative with respect to different time distributions and must not be confused with the measures of relative poverty that take into account the wellbeing of other people in the neighbourhood.

[5]For more detail on FGT indices of poverty, see Foster, Greer and Thorbecke (1984).

the respondent in SNA and extended SNA activities to calculate the total time spent by her/him in necessary or committed activities. Figure 3 shows the link between the concept and the empirical definition of poverty as discussed above.

Fig. 3. Towards an Empirical Definition of Time Poverty



A poverty line or threshold that is used to calculate the headcount index is often defined as a multiple of the median time spent by an individual in committed activities. Following Lawson (2007) and Bardasi and Wodon (2006), we use 1.5 times the median time spent in SNA and extended SNA activities as our time poverty line. Based on this methodology, the time poverty line is computed as 10.5 hours (630 minutes). The time poor are those who have spent more than 10.5 hours in a day on the committed activities (SNA+ex-SNA).[6]

4. RESULTS

4.1. Time Use

Table 4 sets out data on the time use patterns for the full sample as well as working and not-working subsamples separately, controlling for gender and rural-urban areas. The male sample that filled the diary spent on average 5 and a half hour a day in SNA activities. In contrast, the female sample spent 5 hours in ex-SNA and only 1 hour and 15 minutes in SNA activities. Men spent about half an hour more in non-SNA activities as compared to women.

[6] Using same methodology, Bardasi and Wodon (2006) have reported a time poverty line of 70.5 hours per week for Guinean adults (age 15 years and older).

Table 4

Mean Time Spent (Hours:Minutes) on Different Activities by Work Status, Gender and Rural/Urban

Sample	Total Sample			Employed only			Not-working		
	SNA	Ex.SNA	Non-SNA	SNA	Ex.SNA	Non-SNA	SNA	Ex.SNA	Non-SNA
Total Sample									
All	03:15	02:55	17:50	06:58	01:22	15:40	00:32	03:54	19:34
Male	05:21	00:32	18:07	07:32	00:32	15:56	00:24	00:32	23:04
Female	01:15	05:10	17:35	04:42	04:39	14:39	00:34	05:16	18:10
Rural Areas									
All	03:25	03:03	17:32	06:44	01:34	15:42	00:44	04:16	19:00
Male	05:27	00:31	18:02	07:22	00:32	16:06	00:34	00:29	22:57
Female	01:35	05:21	17:04	04:41	04:52	14:27	00:48	05:27	17:45
Urban Areas									
All	02:58	02:43	18:19	07:22	01:02	15:36	00:14	03:46	20:00
Male	05:13	00:33	18:14	07:49	00:32	15:39	00:13	00:35	23:12
Female	00:44	04:52	18:24	04:44	03:59	15:17	00:16	04:58	18:46

Source: Calculated from the micro data of Time Use Survey, 2007.

Some more details emerge as we look at the time use statistics separately for the working and the not-working sample. In the not-working sample, both males and females spent an average of around half an hour in SNA activities. The real gender difference is observed in the remaining two categories. On ex-SNA activities, the not-working male sample spent only half an hour as compared to more than 5 hours spent by the not-working females. The not-working men spent about 5 hours more than women in non-SNA activities.

The employed males spent 7 and a half hours in SNA activities while the corresponding time for the female sample was less than 5 hours. On ex-SNA activities, the employed males spent an average of only 32 minutes in 24 hours whereas the female sample used up, on average, 4 hours and 39 minutes of their day on these activities. The gender gap in the employed sample in the time spent in non-SNA activities was substantially smaller as compared to that in the not-working sample.

A comparison of the time use pattern of the working, and not-working samples reveals that employed males spend almost the same small amount of time (32 minutes) in ex-SNA activities in both cases. In contrast, despite having to work around 5 hours a day in the labour market, the women's lot in terms of shouldering the responsibility of ex-SNA activities is not changed substantially after accepting employment. The time spent by them in ex-SNA activities is reduced, on average, from 5 hours and 16 minutes to 4 hours and 39 minutes, a gain of just 37 minutes. This lends credence to the view that some activities in the developing countries are considered to be women specific which they have to perform, whatever else they may or may not be doing.

The overall result is that women end up working more hours than men whether they accept paid work or not. Not-working women spend about 5 more

hours in SNA and ex-SNA activities combined as compared to not-working men. This gender gap persists in the working sample, though it is reduced to 1 hour and 16 minutes. Men also have more free time that they spend in non-SNA activities in both the cases though this gender gap is much smaller in the working sample.

While the time used in SNA and ex-SNA activities by the males is almost the same in both rural and urban areas, women living in rural areas spend more time on both the types of activities as compared to those living in urban areas. They also have less time available to them for non-SNA activities as compared to their urban counterparts. This rural-urban divide in the time spent by women in SNA and ex-SNA activities combined on the one hand and non-SNA activities on the other prevails both among working and not-working sample, though the gap is much wider among the working women. A working woman living in the rural area spends, on average, more than double the time in SNA and ex-SNA activities as compared to a woman living in the urban area.

Tables 5–7 show the time use data by three labour market indicators of the employed sample, namely the occupational class, industry and employment status, and gender and rural-urban areas. Service workers and plant/machine operators, who mostly work in the informal sector,[7] spent on average 8 and a half hours in SNA activities, approximately 2 hours more than the time spent in SNA activities by professional and clerical workers. The latter usually work in the formal sector where the number of working hours is fixed, whereas those employed in the informal sector usually work longer hours. This difference persists in rural as well as urban areas. Male workers spent on average more time in SNA activities than their female counterparts in all occupational categories. Moreover, male professional and agricultural workers had relatively more free time than the workers in other occupations.

Table 5

Mean Time Spent on Activities by the Employed Sample by Their Occupation

	SNA			Ex-SNA			Non-SNA			Male			Female		
Occupation	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	SNA	Ex-SNA	Non-SNA	SNA	Ex-SNA	Non-SNA
Managers	08:34	08:15	08:04	00:39	00:34	00:32	14:47	15:11	15:24	08:23	00:26	15:11	04:38	04:09	15:13
Professionals	06:23	06:12	06:07	01:06	01:04	01:04	16:31	16:44	16:49	06:27	00:48	16:45	04:31	02:53	16:36
Ass. Professionals	05:26	05:31	05:34	01:47	01:47	01:47	16:47	16:42	16:39	06:08	00:43	17:09	04:38	03:31	15:51
Clerk	06:49	06:56	07:00	00:39	00:41	00:42	16:32	16:23	16:18	06:58	00:35	16:27	04:28	03:02	16:30
Service Workers	08:28	08:28	08:28	00:30	00:35	00:39	15:02	14:57	14:53	08:34	00:29	14:57	05:11	03:42	15:07
Agri-workers	06:03	06:02	05:45	01:56	01:56	01:55	16:01	16:02	16:20	06:45	00:32	16:43	04:21	05:16	14:23
Craft Workers	06:31	06:50	07:09	02:09	01:45	01:21	15:20	15:25	15:30	07:51	00:32	15:37	04:11	04:57	14:52
Plant and Mach-operator	08:27	08:34	08:42	00:28	00:27	00:26	15:05	14:59	14:52	08:34	00:27	14:59	08:15	02:14	13:31
Elementary Occup.	07:28	07:34	07:44	01:05	01:03	01:00	15:27	15:23	15:16	07:49	00:33	15:38	06:23	03:25	14:12

Source: Calculated from the micro data of Time Use Survey, 2007.

[7]The Labour Force Survey defines the informal sector on the basis of the type of enterprise and the number of persons working in the enterprise. The TUS 2007 reveals that the service workers and plant/machine operators are primarily engaged in the informal sector.

Table 6

Time Spent by Industry

Industry	Total			Rural			Urban			Male			Female		
	SNA	Ex-SNA	Non-SNA	SNA	Ex-SNA	Non-SNA	SNA	Ex-SNA	Non-SNA	SNA	Ex-SNA	Non-SNA	SNA	Ex-SNA	Non-SNA
Agriculture	06:15	01:49	15:56	06:15	01:50	15:55	06:04	01:43	16:13	06:52	00:30	16:38	04:45	04:59	14:16
Manfu.	06:49	01:55	15:16	06:24	02:28	15:08	07:10	01:26	15:24	08:02	00:31	15:27	04:16	04:50	14:54
Elect. Gas	06:30	00:42	16:48	06:21	00:41	16:57	06:34	00:42	16:44	06:26	00:40	16:54	08:00	03:10	12:50
Constr.	07:44	00:36	15:40	07:44	00:37	15:39	07:44	00:34	15:42	07:45	00:35	15:40	04:41	03:47	15:32
Trade	08:38	00:30	14:52	08:46	00:33	14:41	08:32	00:28	15:00	07:04	00:23	16:33	05:20	04:04	14:36
Transport	08:24	00:36	15:00	08:15	00:38	15:07	08:33	00:33	14:54	08:25	00:34	15:01	06:52	02:40	14:28
Finance	07:28	00:33	15:59	07:26	00:30	16:04	07:29	00:33	15:58	07:26	00:32	16:02	08:37	01:08	14:15
Com. Social. Ser	06:30	01:22	16:08	06:30	01:20	16:10	06:28	01:24	16:08	07:00	00:42	16:18	04:47	03:39	15:34

Source: Calculated from the micro data of Time Use Survey, 2007.

Table 7

Time Spent (Hours:Minutes) by Employment Status

Employment Status	Both Sexes			Males			Female		
	SNA	Ex. SNA	Non-SNA	SNA	Ex. SNA	Non-SNA	SNA	Ex. SNA	Non-SNA
Employee	07:18	01:11	15:31	07:44	00:33	15:43	05:20	04:04	14:36
Self-employed	07:21	00:52	15:47	07:36	00:33	15:51	04:25	04:27	15:08
Unpaid Family Helper	05:07	02:59	15:54	06:09	00:23	17:28	04:15	05:12	14:33
Employer	08:13	00:31	15:16	08:20	00:25	15:15	04:30	03:27	16:03

Source: Calculated from the micro data of Time Use Survey, 2007.

In terms of industrial classification, workers engaged in trade, transport and construction sectors spent more time in SNA activities than those working in other sectors. This pattern of time use is not influenced much by gender or region.

Overall, the female unpaid family helpers spent 3 hours more in a day on committed activities than the male unpaid family helpers. The situation of women working as employees or self-employed was not much different. Unpaid family helpers spent less time on committed activities than other three categories of workers. However, a glance at the gender distribution of time reveals that female unpaid family helpers spent a lot more time in ex-SNA activities than their male counterparts (more than 5 hours vs. only 23 minutes). This resulted in female unpaid family workers spending more time in committed activities than any of the remaining three groups of workers. It appears from these simple statistics that in Pakistan (rural and urban areas alike) the participation of women in the labour market does not reduce their time commitment for ex-SNA activities. Males spend little time in ex-SNA activities, which, in Pakistani culture, appear exclusively to be for females. Although women spend much less time than men in SNA activities, their overall time spent on committed activities (SNA+ ex-SNA) is greater than the time spent by their male counterparts in these activities.

It is worth focusing on women who spent some time in SNA activities (Table 8). On average these women spent more than 3 hours with virtually no difference in rural and urban areas. However, there was significant difference in this regard between the working and not-working women. In urban areas, the former spent an average of 5 and a half hours in SNA activities while the latter used only one hour and 41 minutes. The working rural women spent on average 5 hours in SNA activities as compared to 2 hours and 10 minutes used by the not-working sample. Overall, working women give considerable time to their labour market activities.

Table 8

Time Spent (Hours:Minutes) by Women in SNA Activities

	Urban	Rural	Total
Working	05:29	04:56	05:04
Not-working	01:41	02:10	02:03
Total	03:14	03:16	03:15

Source: Calculated from the micro data of Time Use Survey, 2007.

4.2. Time Poverty

The time use patterns of both the working and not-working samples are reflected in the time poverty statistics. The last row of Table 9 indicates that time poverty is 14 percent for the entire TUS sample. As expected, the employed people (male as well as female) are more time poor than those in the not-working category, mainly because the latter, in general, did not spend time in SNA activities (see discussion in the previous section). This difference is quite large in both urban and rural areas. Time poverty is substantially higher among not-working as well as working women as compared to men in the respective categories. Working women are hugely more time poor as compared to the not-working women (36.8 percent versus 10.2 percent respectively).[8]

Table 9

% Time Poor by Work Status, Gender and Rural-Urban Areas

	Working/Employed			Not-working/Not-employed			Total Sample		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Urban	23.2	22.4	27.9	5.6	0.5	7.6	12.3	14.9	9.8
Rural	22.2	16.6	39.8	9.2	0.5	12.1	15.0	12.1	17.7
Total	22.5	18.9	36.8	7.7	0.5	10.2	14.0	13.2	14.7

Source: Calculated from the micro data of Time Use Survey, 2007.

[8] This raises the question whether getting a job is a bane or bliss for women. The answer depends on the resulting tradeoff between monetary and time poverty and its valuation by women. Moreover, if time poverty is computed from the time used for the SNA activities only, the incidence of poverty among women is negligible, less than 2 percent.

In urban areas, 12.3 percent people are time poor, while for the rural areas this figure is 15 percent. Time poverty in rural areas is higher among females than males. The opposite is true for urban areas. Within the employed sample, 22.5 percent people are found time poor, with no major difference between rural and urban areas. However, time poverty among the employed female sample is double the time poverty among the corresponding male sample. The difference in rural areas is around two and a half times. In urban areas, although more females are time poor than males, the difference is just 5 percentage points. As noted earlier, it is due to the fact that female participation in the labour market brings hardly any change in their time allocation for activities related to household maintenance, care of children and the elderly.

In Pakistan, only a few studies have estimated the money-metric poverty incidence across the occupational groups. The general conclusion of these studies is that the level of poverty is higher among unskilled (elementary workers), skilled and service workers than that among other occupational categories. The time poverty data presented in Table 10 show higher incidence of time poverty among services workers, machine operators and workers in elementary occupations than among the clerical, professional and agriculture workers. This implies that unskilled and skilled workers along with the service workers are at the receiving end of both monetary and time poverty.

In the male employed sample, time poverty is less than 10 percent among the associate professionals, clerical workers and agriculture workers, whereas one-third of the service workers and plant/machine operators are time poor. The incidence of time poverty among females is much higher than that among their male counterparts in all categories of occupations except professional and service workers. A noteworthy point is that approximately half of the employed women in elementary, skilled and semi-skilled occupations are time poor. These differences in time poverty across occupations persist in rural as well as urban areas. The case of female agriculture workers is interesting. Table 10 shows that 41 percent of these women are time poor whereas only 9 percent of their male counterparts fall in this category.

Table 10 also shows the data on time poverty across the type of industry where the sampled workers were employed. High incidence of time poverty was observed in trade, transport and manufacturing sectors for both male and female workers. In the agriculture sector, time poverty among women was four times higher than that among men. It corroborates the time poverty data across the occupational categories discussed above.

One important lesson from the analysis of the time poverty data across the occupational and industrial classification is that low paid occupations and sectors get more time of the workers. So these workers are poor in money-metric terms as well as in terms of time use. They work for longer hours and get low wages, insufficient to sustain a decent living standard. Rural women working in the agriculture sector are particularly in a disadvantageous position in terms of time poverty.

Table 10

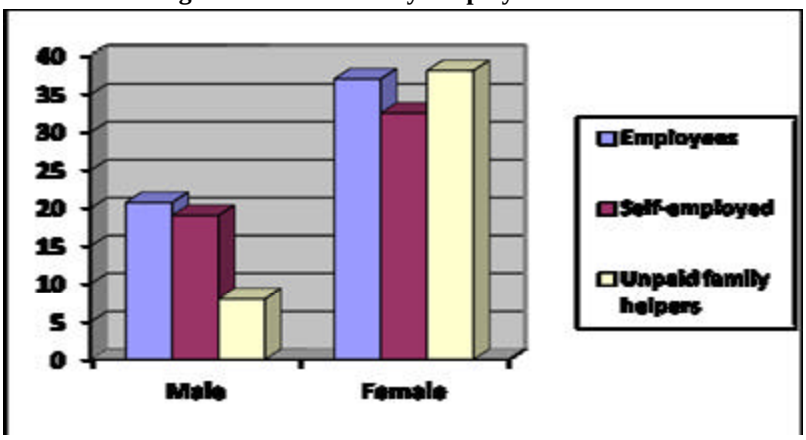
Incidence of Time Poverty (% Poor) by Occupation (Employed only) and Industry

Occupation/Industry	All Areas			Rural Areas	Urban Areas
	Both	Male	Female		
Occupation					
Manager	27.9	27.8	39.4	32.2	25.5
Professional	12.5	12.8	11.1	14.4	11.7
Associate Professional	12.8	9.4	19.4	12.2	13.1
Clerks	10.0	9.6	20.4	11.3	9.4
Service Worker	33.6	34.1	19.2	33.0	34.1
Agriculture	18.5	9.3	40.5	18.5	19.9
Craft Worker	24.3	20.1	35.3	26.5	22.1
Machine Operator	32.7	32.6	59.9	31.6	34.0
Elementary	23.6	20.6	43.2	24.3	25.2
All	22.5			22.2	23.2
Industry					
Agriculture	19.5	10.0	42.3	19.4	21.4
Manufacturing	27.7	22.4	24.9	31.5	23.4
Electricity	13.8	12.6	66.7	18.2	11.6
Construction	17.6	17.5	33.3	17.6	17.5
Trade	32.0	31.9	27.5	34.3	30.6
Transport	32.4	32.3	40.0	32.9	31.8
Finance	16.9	16.7	22.2	12.5	17.7
Services	18.1	16.7	22.9	18.4	17.9
All	22.5			22.3	23.2

Source: Calculated from the micro data of Time Use Survey, 2007.

The gender dimension of time poverty can be understood more clearly from the employment status data than from any other labour market indicators. Figure 4 shows a vast difference between males and females in the incidence of poverty in all three categories of employment status: “employees”, “self-employed” and “unpaid family helpers”. The time poverty among the female ‘unpaid family helpers’ is around five-folds the time poverty among their male counterparts. In the case of employees, the gender difference in time poverty is around 10 percentage points, favouring the male. This difference is even greater for the self-employed category.

Fig. 4. % Time Poor by Employment Status



Source: Calculated from the micro dat a of Time Use Survey, 2007.

The finding that low paid occupations are associated with high incidence of time poverty is further reinforced by the monthly income data. Table 11 shows that the lower the monthly income the higher the incidence of time poverty. For the employed sample, the incidence of time poverty among those who earn a monthly income of Rs 10,000 or more was 16 percent as compared to 28 percent among those who earn Rs 2000 or less per month. In most of the income groups, women were found to be more time poor than their male counterparts in rural as well as urban areas. Education was found to reduce the incidence of time poverty, particularly among college and university graduates. In addition, the lowest gender gap in time poverty was found among these graduates (Appendix Table 2).

Table 11

% Time Poor by Income Per Month (Rs)

Income Per Month	Total			Rural			Female		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
Upto 2000	29.8	16.5	39.7	29.2	15.3	44.3	24.2	19.7	28.7
2001–3000	23.6	21.7	36.9	21.5	19.2	43.6	28.6	28.5	29.1
3001–4000	22.8	22.1	33.9	21.2	20.4	35.7	26.3	25.9	31.3
4001–5000	23.2	22.6	37.0	20.9	20.2	46.4	27.4	27.1	31.1
5001–6000	21.5	21.7	17.2	19.3	19.1	23.1	24.5	25.3	13.2
6001–7000	29.4	20.2	24.1	19.8	19.8	20.7	21.4	20.9	28.0
7001–8000	17.7	16.9	32.5	13.4	12.3	35.0	22.4	22.0	30.0
8001–9000	16.6	16.2	23.3	13.6	12.5	31.3	20.0	20.3	14.3
9001–10000	17.8	17.9	16.7	13.6	13.6	12.5	21.9	22.3	16.2
10001 or more	15.8	15.3	24.0	12.9	11.0	30.4	17.3	17.0	21.9
Don't Know	22.1	19.8	45.5	14.8	12.7	33.3	38.5	35.1	199
Refused	22.7	24.2	11.1	17.3	17.0	20.0	34.8	42.1	0

Source: Calculated from the micro data of Time Use Survey, 2007.

Note: 18 percent of the employed sample has no monthly income.

4.3. Determinants of Time Poverty

The analysis carried out in the previous subsection primarily focused on the incidence of time poverty by gender, the place of residence and labour market indicators. There are several other individual, household and community level variables that can be associated with time poverty. Due to data limitation, it is not possible to examine the relationship between time poverty and all these variables. Focusing on individual level socio-demographic and labour market characteristics of the sampled persons who filled the diary, this section has carried out multivariate analyses to examine the relationship between time poverty and some of these characteristics. The dependent variable is time poverty which takes the value 1 if the sampled person is time poor; otherwise it takes the value 0. Since the dependent variable is binary, logistic regression rather than OLS is used for the multivariate analysis. Four models have been estimated. Model 1 is based on the total sample (working and not-working persons) while models 2 and 3 are estimated separately for the male and female samples. Model 4 has included only the employed sample to analyse the relationship between time poverty and labour market indicators including occupation, industry, employment status and income.

Three independent demographic variables, age, sex and marital status are included in the regression analyses while the level of educational attainment is used to study the relationship between time poverty and human capital. The place of residence represents the influence of community variables on time poverty. Four labour market indicators, occupation, industry, income and employment status, are included in model 4 to understand their correlation with time poverty. The operational definition of all these variables and results of the four models are presented in Table 12.[9]

Model 1 includes the entire TUS sample. The results of this model corroborate the bivariate analysis carried out in the previous section. All variables included in this model have an independent and significant effect on the probability of being time poor. The employed persons are more likely to be time poor than those not employed/not-working. It is mainly because the not-working sample spends less time on the committed activities, particularly those falling under the SNA activities category. Moreover, the economically active women use their time in household maintenance and child care in addition to SNA activities. Estimation results of model 1 also show that overall, women are more likely to be time poor than men. As discussed earlier, the underlying cause behind this finding is their time use pattern. Age has a negative and significant relationship with time poverty. It is an unexpected relationship since the increase

[9]The decision to join the labour market (and the number of hours to be supplied) itself depends on a number of other variables including wage rate. To the extent that this may introduce endogeneity in the present context, the coefficients of the regression models that include employment status as an explanatory variable should be interpreted with care.

Table 12

Logistic Regression: The Determinants of the Poverty

Dependent Variable Time Poor = 1

	Model 1 (Full Sample)	Model 2 (Male only)	Model 3 (Female only)	Model 4 (Employed only)
Constant	–2.759*	–5.514*	–2.927*	–1.329*
Age (years)	–0.029*	–0.012*	–0.044*	–0.016*
Gender (male=1)	–1.046*	–	–	–1.009*
Place of Residence (urban=1)	0.065**	0.440*	–0.346*	0.079**
Employment Status (employed=1)	1.848*	3.785*	1.701*	–
Marital Status (married=1)	1.684*	0.515*	2.685*	0.962*
Education (below matric=1)	0.247*	0.231*	0.192*	0.179*
Occupation (service workers, machine operators/unskilled=1)	–	–	–	0.189*
Employment Status (unpaid family helpers=1)	–	–	–	–0.078
Industry (transport, trade and manufacturing=1)	–	–	–	0.079*
Monthly Income (below the minimum wage of Rs. 7000=1)	–	–	–	0.283*
N				
– 2 log Likelihood	37815	18308	19507	15959
	26269	12470	13009	15812

Source: Calculated from the micro data of Time Use Survey, 2007.

*Employment at 5 percent or less level of confidence.

**Significant at 10 percent or less level of confidence.

in age adds responsibilities in term of marriage, child care, and involvement in the labour market activities. A possible reason for this could be the help older people receive from the younger people, either on account of their superior position in the hierarchy of the household or because of the physical limitations imposed by old age. The significant and positive relationship between time poverty and being married shows that marriage increases the use of time on committed activities. Model 1 shows a positive and significant relationship between time poverty and having no education or having education but below the matriculate level. It means that 10 or more years of education enable individuals to have more free time for activities like personal care and rest.

The results of Models 2 and 3, in which the analysis is carried out separately for the male and female samples, show no major qualitative change in the findings except that living in urban areas has a positive relationship with male time poverty. In the case of the female model, this relationship turns out to be negative. It shows that males living in urban areas and females living in rural areas are more time poor than their counterparts. It is largely because of the involvement of rural women in farm activities.

In order to learn about the relationship between time poverty and labour market indicators, Model 4 has been modified to include only the employed sample. In this model, age, sex, marital status, education and place of residence have signs similar to those in model 1. The positive and significant relationship between time poverty and working as unskilled labourers, service workers and plant/machine operators shows the hard work of these manual workers. It has been shown earlier that these workers, who are mainly males, spend little time in ex-SNA activities and work long hours in the labour market which makes them time poor. Although working women use relatively less of their time in the labour market, they take all kinds of responsibilities at home. This dual burden on the sampled women contributes to their time poverty. They are left with relatively little free time for personal care and rest. The employment status did not turn out to be statistically significant.[10]

The industry in which a worker is employed, is a strong correlate of his/her time poverty. Workers engaged in trade, transport and manufacturing sectors are more time poor than those engaged in other sectors including agriculture, service and construction sectors. The monthly income also gives a similar message; the workers in low income groups are more time poor than the workers in high income groups.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Availability of time use data is relatively a recent phenomenon in Pakistan. This has allowed us to measure time poverty and look at its incidence across gender, occupational groups, industries, regions, and income levels. The study also uses multivariate regression analysis to examine the relationship between its various determinants. The results of this study provide some important insights into the phenomenon of time poverty in Pakistan and lead to some interesting conclusions.

The first important finding of this study is that women spend more time in committed activities than men whether they are employed or not. As a result, women are more time poor than men in both the circumstances. A closer look at time use statistics indicates the reason behind this occurrence. It appears that there are certain ex-SNA activities that are women specific probably due to socio-cultural reasons. Women have to perform these activities irrespective of their employment status, while Pakistani men are not usually involved in them. This substantially increases the time spent by women in committed activities. Since men spend little time in ex-SNA activities, they have more time available for non-SNA activities including leisure and personal care as compared to women.

[10] This could be due to the fact that unpaid family helpers, by definition, receive no income for their work, so that the effect of this category has been captured by the income dummy.

The finding that women generally spend more time in committed activities and are more time poor as compared to men has two noteworthy implications that are likely to influence school enrolment decision of the females. According to the human capital theory, the decision to enrol in school depends, among other things, on the opportunity cost of education. The monetary value of the hours worked at home is one of the components of this opportunity cost. Since women work more hours at home as compared to men, their opportunity cost of getting enrolled in a school is likely to be higher. However, a cancelling factor is simultaneously at play. Women are also more time poor as compared to men because they work more hours at home. Hence, assuming that time poverty results in reduced labour productivity and workers are paid in the labour market according to their marginal productivity, women would earn less as compared to men for working the same hours. Consequently, another component of opportunity cost of education, which consists of the monetary value of the forgone work in the labour market, would be smaller for women. The net effect of these two influences on female school enrolment can only be determined empirically. However, the data requirements for such an empirical study, that entail generating a single dataset that combines information that is available separately in time use and labour force surveys, are almost forbidding.

Another interesting result of the study is that working women are far more time poor as compared to not-working women. This raises the seemingly intriguing issue of whether expanding job market for women through economic and noneconomic measures would make them better off? The answer lies in plain and simple economics. While accepting a job, women have to deal with a major trade-off between time poverty and monetary poverty. The choice of accepting or rejecting the job offer depends both on the degree of trade-off and personal preferences of the decision maker.

People in certain professions such as unskilled, skilled and services are found to be more time poor as compared to people in other professions. Same is true for some industries like trade, manufacturing and transport. These professions and industries generally require extended hours from the workers, while offering low wage rates. This catches the workers in a situation in which they are both monetary and time poor at the same time. The close association of time poverty with low income found in this study corroborates our conclusion.

In the light of these findings, several policy areas emerge where we need to focus. The first thing that needs to be done is to generate awareness about a fair distribution of responsibilities between men and women. If this can be done, a significant portion of the gender gap in time poverty is likely to be eliminated.

Government can also play its part in reducing time poverty. The line of action is to enforce minimum wage laws and mandatory ceiling on work hours in the industries which have high concentration of time poverty. Eradication of monetary poverty can also go a long way in this respect by eliminating the need to work long hours at the lowest wage rate just to survive. Improving education also has significant potential in this regard, as high education is found to be associated with low time poverty.

Appendix Table 1

Socio-demographic Characteristics of Women

Age	Working	Not-working
10–14	7.4	17.7
15–19	11.1	13.2
20–24	13.7	12.5
25–29	14.8	12.0
30–34	13.9	10.3
35–39	11.2	8.0
40–44	8.4	6.0
45–49	7.3	5.0
50–54	4.7	3.7
55–59	2.6	3.2
60+	4.9	8.4
All	100	100
Highest Class Passed		
No Formal Education	71.8	54.8
< Primary	5.0	9.3
Primary	5.7	14.2
Middle	2.8	7.9
Matric	5.2	7.3
Intermediate	3.5	3.9
Degree and Above	6.1	2.6
All	1001	00

Source: Calculated from the micro data of Time Use Survey, 2007.

Appendix Table 2

% Poor among the Employed Sample by Education and Gender

Education	Both Sexes	Male	Female
No Formal Education	26.9	18.7	41.1
Below Primary	20.6	19.8	25.6
Primary	21.6	20.7	30.8
Middle	21.8	21.2	32.2
Matriculation	20.7	19.7	30.2
Intermediate	16.1	15.0	23.9
Degree and above	13.6	13.0	16.4
All	22.5	18.9	36.8

Source: Calculated from the micro data of Time Use Survey, 2007.

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