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Fuel wood Collection and Gender Time Poverty: Implications for Development Policy

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Abstract

The term 'gender time poverty' became a buzz word in the development debate after Ester Boserup's publication 'Women's Role in Economic Development'. Since then gender issues are seriously taken into account while formulating a development policy. This study was conducted with the aim to assess the time women spent on fuel wood collection in district Swat, Khyber Pakhtunkhwa, Pakistan. The total sample size for the study was 100 households which were randomly selected from two villages namely Barkaley and Chail. Information from respondents was collected by using semi-structured questionnaire. Descriptive statistics technique was used to analyze the field data. The findings suggest that people in the area were mostly poor and relied on local forest for their domestic energy consumption. Women spent an average six hours per day on fuel wood collection from the nearby woods. Women were intended to spend the same time in income generating activities such as home-based micro-enterprises, knitting and weaving, and poultry farming, etc., if they were provided with any opportunity to save this time. The study concludes that women time poverty is mainly a cause of the excessive fuel wood demand of a household. It is recommended that people in the area should be given access to cost-effective and environment-friendly fuels. Thus the time saved will be used for productive venture which will empower women economically, socially, and politically.

Keywords: Fuel wood collection; gender time poverty; development policy

Introduction

Ignored until recently, gender issues are now seen to be directly relevant to many of the most important variables in development equation such as education, health, productivity of labour, mobilization of capital, enterprises, and ultimately economic growth. Discussion of gender issues recently became an important addition to the development debate after Ester Boserup's landmark publication *'Women's Role in Economic Development'* in 1970. The emergence of gender as an important aspect in the analysis of development process is mainly because of two reasons. *Firstly*, the strengthening of the feminist movements in response to the widespread discrimination against women in developing countries, and, *secondly*, the availability and reliability of gender disaggregated data in developing countries (Anthony et al. 2009).

A serious issue in this regard, which is particularly very common in poor countries, is the increasing proportion of women poverty. Women poverty has many dimensions. Recently, the most important of these is women time poverty which can be defined the unavailability of time for productive work. Most of the time of rural women is spent in non-productive chores (including reproductive as well as community works) such as raring children, caring elderly and sick people, cooking and serving, cleaning, fetching water, collection of fire wood from the surrounding hills, and participation in social festivities. This time could otherwise be utilized in productive works. This paper attempts to assess the gender time poverty due to fuel wood collection and its implication on women economic poverty.

In many developing countries fuel wood collection and use is primarily responsibility of women who allocate ample time to this activity. Kumar and Hotchkiss (2003) estimated that women in the hilly areas of Nepal spent 2.5 hours per day on fuel collection. Similarly, Karekezi et al. (2005) recorded that in Botswana, the average time spent on fuel wood collection was about 3.3 hours. This research found that women sometimes spent up to 6 hours per day on collecting fuel wood.

One of the reasons why women spent more time on fuel wood collection is the large quantity of fuel wood required for a household consumption. The fuel wood is used in traditional cooking stoves having less thermal efficiency and more wood consumption. One of the adaptation strategies is to introduce improved cooking stoves to minimize the fuel wood consumption. Previous research shows that the combustion efficiency increases with improved cooking stove which not only reduces cooking time but also minimizes the fuel wood demand of a household (Berrueta et al. 2008; Johnson et al. 2008). This not only reduces household cash

outlays for fuel wood, but also reduces time spent by women for collecting fuel wood (Garcha-Frapolli *et* al. 2010). A similar study by WHO (2007) highlighted the social, economic, environmental, and health benefits of improved cooking stoves called '*Plancha'* in Guatemala. Beside other benefits, the use of improved cooking stoves also substantially reduced women's time during cooking and fuel wood collection.

Objective of the Study

This study is conducted with the aim to assess gender time poverty and its implication for the development policy. The specific objective of the study is to determine the time women spent on collecting fuel wood from the nearby woods.

Research Methodology

The study was conducted in two villages, namely Barkaley and Chail, in the Swat District – Khyber Pakhtunkhwa, Pakistan. Most of the population in these villages belong to either low or lower middle income class. People in the area live on hills covered with tress and vegetation. The main sources of livelihood are agriculture, labor, biomass selling, etc. People depend on biomass for their domestic energy purposes which they collect from the surrounding forest. The socioeconomic characteristics, demographic structures, topographic conditions, land tenure system, livelihood structures, and living conditions are almost the same in all neighbouring villages of Swat. Therefore, the findings of the study could potentially be generalized to all villages in the area.

Data were collected primarily from the households. Semi-structured questionnaires were administered to collect primary data. The questionnaire about the household survey included information about the socioeconomic characteristics of the people, available energy sources in the area, the types of cooking practices they were adopting, time allocation by women, etc. From each village, 50 households were randomly selected for interviews. Thus the overall sample size for the study was 100 households. The data were analysed using SPSS. Descriptive statistics techniques were used to analyse the data, the results of which are presented in the below sections.

Results and Discussions

This section deals with detailed descriptive analysis of the field information. The section is divided into subsections which portray a comprehensive overview of the socioeconomic attributes of the population in the study area, their dependence on

different energy carriers, frequency of biomass collection, and average time spent on collecting biomass from the forest.

Total Monthly Income of the Households

Household income plays an important role in a household's fuel choice. The pattern of a household domestic energy consumption changes with increase in the income level (Bhatt & Sachan, 2004), and people move-up the energy ladder from fuel wood to kerosene, charcoal, coal, LPG (liquefied petroleum gas), and natural gas (Barnes & Qian, 1992; Mishra, 2008). However, household with lower income tend to rely on biomass fuels. Table 1 illustrates the monthly income level of the sample households. The table shows that most of the household belong to the low income categories. About 55% of the households had monthly income of 10,000 Pakistani Rupees (PKR) or less. The average family size in the area was 7.92, therefore per capita monthly income of a household was 1263 PKR (USD 0.5) per day. In Pakistan, 22.6% of the population lives on less than USD 1.25 a day (ADB, 2010). Similarly, 30% household had a monthly income of 10001 to 20000 PKR. These figures reflects that majority of people in the area were living below poverty line of USD 1 a day. Hence, people mostly depended on biomass fuels for their inability to purchase modern energy carriers.

Table 1: Total Monthly Income of a Household (in PKR)* in the Study Area

	Barkaley		Chail		Total	
	N	%	N	%	N	%
1,000 – 3,000	2	4.0	9	18.0	11	11.0
3,001 – 10,000	23	46.0	21	42.0	44	44.0
10,001 – 20,000	19	38.0	11	22.0	30	30.0
20,001 – 40,000	5	10.0	9	18.0	14	14.0
40,001 – 45,000	1	2.0	0	0.0	1	1.0
Total	**50**	**100.0**	**50**	**100.0**	**100**	**100.0**

[1] The conversion rate at the time of study was (1 UK Pound = 135 PKR = 1.59 USD)

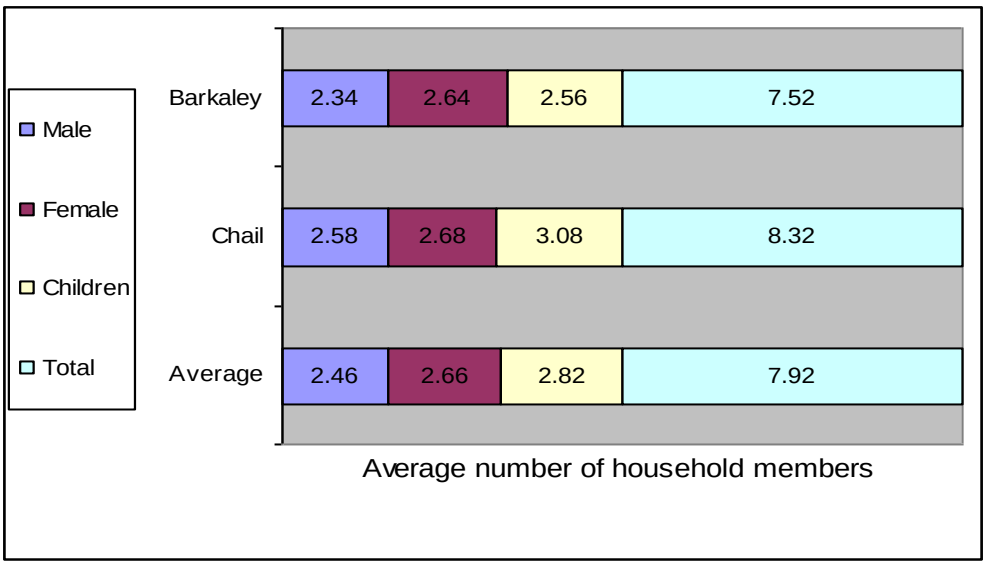
Source: Field Survey, 2010

Average Family Size in the Research Area

Large family size is another characteristic of the traditional village system in most parts of the developing world. Family size determines the quantity of fuel wood demanded by a household. The larger the family size, the more will be fuel wood

consumption, and vice versa. The average household size in the research area was 7.92 which nearly correspond to the national average family size in Pakistan noted as 7.5 (PDS, 2007). In Barkaley, the average family size was 7.52 compared to 8.32 in Chail (Figure 1), which shows that the family size in remote areas is larger as compared to the relatively less remote areas. Hence, larger family in these areas means more wood consumption, and thereby more time spent on its collection.

Figure 1: Average Family Size in the Study Area



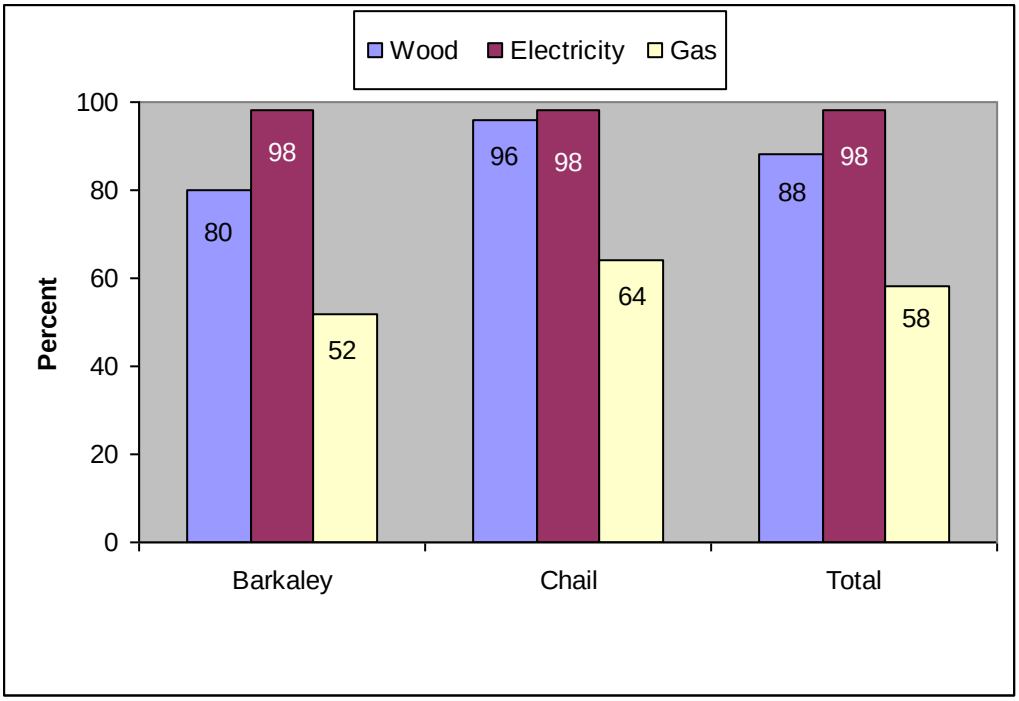
Notes: N = 100
Source: Field Survey, 2010

Access to Various Energy Sources

Rural people in developing countries have access to multiple sources of energy such as woody and non-woody biomass, coal, charcoal, LPG (liquefied petroleum gas), CNG (compressed natural gas), LNG (liquefied natural gas), and kerosene (Barnes & Floor, 1996; Mishra, 2008). People use one or more of these fuels for a variety of purposes like cooking, boiling water, space heating, and lighting (Jan et al. 2012). The findings of this research confirmed that biomass, electricity, and gas (LPG) were the major sources of energy available in the area (Figure 2). These findings, however, do not reveal the intensity and frequency of use of a particular source of energy. The detailed analysis of energy consumption in the area depicted that utilization of electricity and gas was very limited. Although 98% households had access to electricity from the national grid, its use was limited only to lighting purposes for its high tariffs. The use of gas was limited for its limited availability.

Thereby, people primarily relied on woody biomass fuels for domestic consumption purposes because of its accessibility and affordability.

Figure 2: Use of Different Sources of Energy in the Study Area



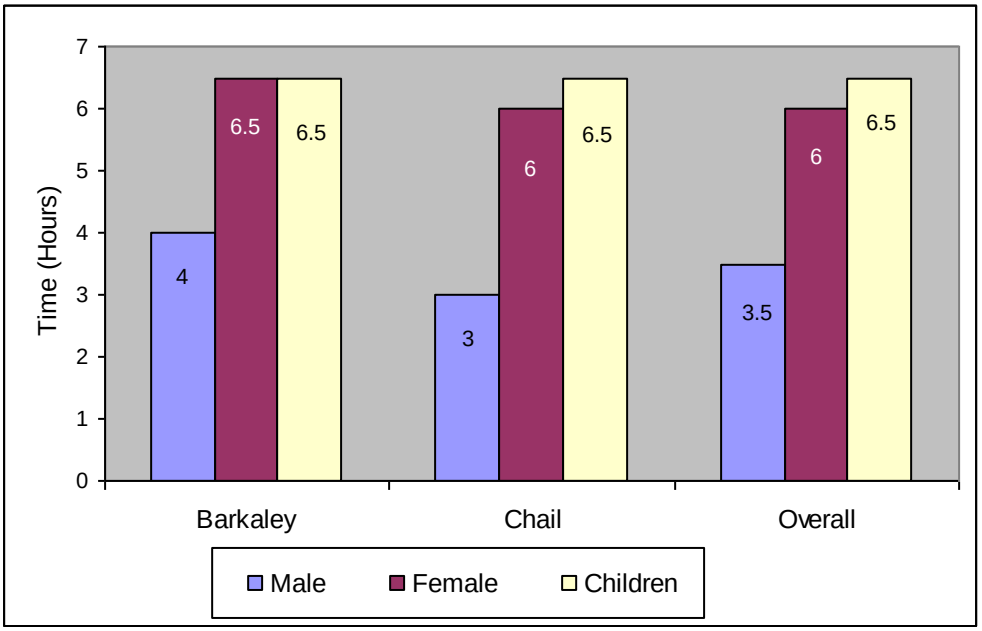
Notes: N = 100
Source: Field Survey, 2010

Frequency of Biomass Collection and Time Spent per Trip

The forestland was quite close to the research villages, especially Chail. The average distance of the forest, from both villages was about 3 to 5 kilometers. The frequency of biomass collection, as reported by respondents, was mostly weekly. However, collection on daily basis was also observed. The frequency of biomass collection depended on a household's quantity demand for fuel wood. The Figure 3 provides village wise details of average time spent per trip (in hours) in the area. As clear from the figure, children and female spent more time per trip than men. The average time spent by male was 3.5 hours compared to 6 hours and 6.5 hours by female and children respectively. In the areas where female are primarily responsible for fuel wood collection, females' time spent on biomass collection is a serious household management issue. It has been observed that in areas where biomass is replaced by other fuels; the time saved by female has been utilized for

productive household activities such as agriculture and micro-enterprises, etc. (Masera et al. 2007)

Figure 3: Average Time Spent per Trip (in hours)

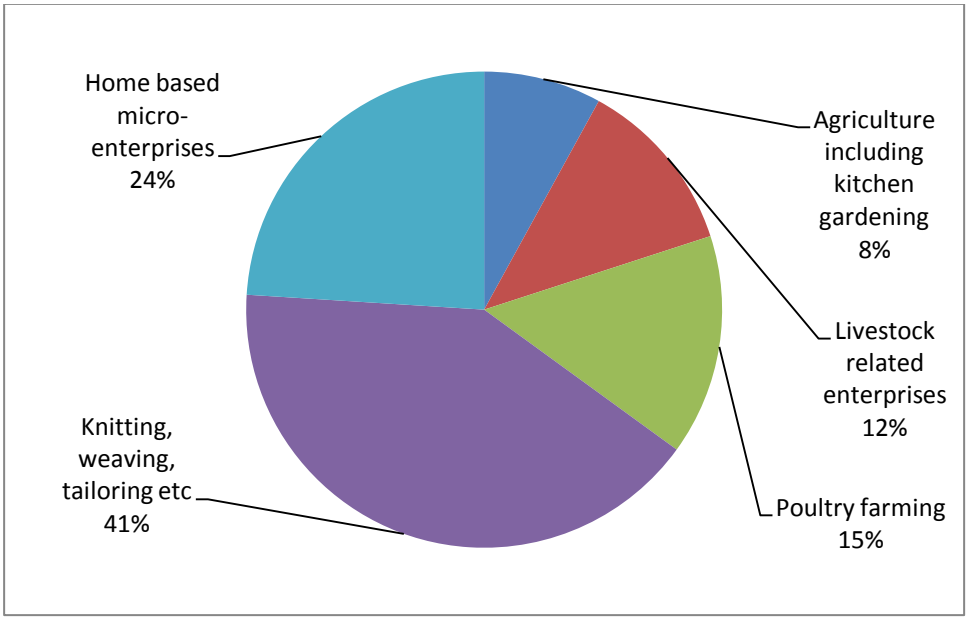


Notes: N = 100
Source: Field Survey, 2010

Respondent's perception about utilizing saved time

The present study provides empirical evidence that women in the research area spent 6 hours a day on collection of fuel wood. This contributes to the overall gender time poverty in rural areas. Other elements of gender time poverty, such as raring children, taking care of the sick and elderly, fetching water, etc. are not taken into account in this study. After getting response to the question that how much time women spent on collecting fuel wood, the perception of respondents was recorded that how they will utilize the saved time if they were provided clean energy technology (improved cooking stoves) and other clean fuels at affordable cost. Figure 4 illustrates details of how respondents will spent their time saved by utilizing easily available clean energy carriers. The figure shows that 41% respondents noted that they will utilize the saved time in knitting, waving, and tailoring. It is evident from the previous literature that rural women mostly involve in embroidery and knitting if they are provided any opportunity (Jan & Saleh, 2011).

Figure 4: Perception of respondents regarding utilization of saved time



Notes: N = 100
Source: Field Survey, 2010

Similarly, 24% recorded that they will use the saved time in home based micro-enterprises such as shop keeping. The remaining respondents reported that they will use the saved time in poultry farming, livestock farming, and kitchen gardening. This shows that women can be proactively involved towards contributing in the household income pool if they have time and opportunity.

Conclusions

Women in many developing countries spent most of their time in unproductive and otherwise exhaustive activities such as raring of children, taking care of sick and elderly, fetching water, and collecting fuel wood. They do not get ample time to participate in productive works. Resultantly their contribution in the household economic spheres in negligible. This is one of the major causes of gender divide and discrimination. The situation becomes more severe in traditional societies such as the one in the research area. The findings of this study confirmed that women in the research area spent 6 hours a day on fuel wood collection. This activity does not only consume ample time of women but their enough energy as well. Women collect fuel wood from the nearby forest because of its affordability and any time availability. The traditional practices of fuel wood consumption, however, increases fuel wood demand of a household and thereby more time is spent on its collection.

One of the cost-effective strategies is the dissemination of the improved cooking stove programs. Improved cooking stoves are known for their increased thermal efficiency and decreased wood consumption. Studies have confirmed that improved cooking stove programs have helped in reducing cooking time, minimizing fuel wood demand, reducing household fuel wood expenditure, and reducing time spent by women for fuel wood collection (Berrueta et al. 2008; Johnson et al. 2008; Garcна-Frapolli et al. 2010). Women in the research area were intended to utilize the saved time due to any intervention in productive works such as knitting, weaving, and tailoring, micro-enterprises, livestock and poultry farming, and kitchen gardening. This will help women to become more empowered in the household as well as in the community. Thus it is recommended that government and development agencies should make efforts to fulfill households energy requirements in a cost-effective and environment-friendly manner so that to reduce their dependence on fuel wood. This will significantly reduce women time poverty and ultimately their social and economic poverty.

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