

Measuring and Modeling the Domestic Empowerment of Rural Women in Pakistan

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Abstract

Exploring the empowerment status of women is a complex phenomenon especially within the multi-cultural and regional society of Pakistan, and it remains the focus of interest for investigators. The authoritative position of women is mainly dependent on a series of many different factors particularly when subjects under study are from rural areas. So, in this situation, the statistical studies reinforce towards the utilization of dependence methods. However, in this paper we have not only constructed the authoritative index as an indicator of authority status of ever-married women belonging to the desert area of Pakistan but also have modelled the authority status at aggregate as well as component level using multiple dichotomous logistic regression in connection with Stepwise Likelihood Ratio Method (SLRM). Among the respondents, 33.50 percent have no authority status of any kind. The mean age of the respondents is 32.86 years. The average annual family income of the respondents is approximately PKR 9,900. We have found that the age of the respondent, education of the respondent, education of the respondent's husband, livestock ownership of the household and family size are the most significant determinants of authoritative position of ever-married women in the Cholistan rural area of Pakistan.

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1. Introduction

According to 1998 report of Pakistan Population Census Organization (PCO), 67.50 percent of the total population is village-oriented or rural resident, where the extended family is the basic functional unit. Only women constitute half of the population in these functional units. But in the case of leadership, the family patriarch directs the affairs of the family, protects its interest and exacts complete obedience from the family members as religious and ethical obligation (Nyrop et al., 1971). Ultimately, rural women have the lower empowerment status than men. United Nations Development Program (UNDP) in 1994 defined empowerment as *a process which redistributes power from powerful to the powerless*. But defining domestic empowerment status of rural women is a complex phenomenon in the context of Pakistan, where her decisions are tabooed by male members of the family. Many studies in different formulations like Mahmood and Khan (1985), Deaton (1989), Shaheed (1992), Sathar and Lloyd (1993), Hadded (1999) and Ilahi and Grimard (2000) have been conducted in Pakistan to determine the status of women but there is a lack of quantitative measurement technique(s) about the exploration of rural women's domestic authority status.

The main objectives of this paper are: (i) to develop a mechanism for measuring the levels of rural women's domestic empowerment in terms of authority status in the context of Cholistan desert area in Pakistan, (ii) to develop an authority index for measuring the level of rural women's domestic empowerment, and (iii) to statistically investigate the factors that have the influence on the domestic empowerment status among the women in Cholistan.

2. Material and Methods

Cholistan desert, an extension of the Great Indian Desert, lying in the South of Punjab, is spread over an area of 26,000 km having 1.2 million human populations with a density of about 3.73 persons per km. This study utilizes data on ever-married women under age 50 years currently living in Cholistan. In conducting this survey a two-stage probability sample design was used. The universe consisted of the sampling frame of all rural enumeration blocks prepared

by the Federal Bureau of Statistics (FBS) using the 1998 census list of clusters in Cholistan. At the first stage, a systematic sample of enumeration block was drawn. At the second stage, a sample of household was selected within an enumeration block. Thus, a total of 182 households were selected of which 170 were successfully interviewed. Finally, 221 ever-married women under age of 50 years in these households were identified as eligible for the individual interview and the interviews by going door to door were completed for 200 or 90 percent of them. The interview schedule was a structured questionnaire in which women answer the questions in the absence of any male member of the household.

3. Indicators of Rural Women Domestic Empowerment

The assessment about the accuracy of measurement of rural women's domestic empowerment depends on the selection of appropriate indicators. These indicators must present the following facts:

- a) Women in the rural areas of Pakistan are unaware of their rights. Cholistan women fall in the same category where they do not exercise their rights.
- b) Performing hard tasks in the area for household like collection of water, fuel wood and management of livestock.
- c) An average Cholistan woman is more deprived in the usage of social and economic resources of the area e.g. health facilities, education, family planning measures, decision making authority and ownership of land and livestock along with the rights of their sale and purchase.

So a multidimensional nature of rural women domestic status is considered to formulate four major and most suitable indicators of her domestic empowerment about the authority to take decisions. These include decisions about sending female children to schools, about using contraceptive measures, about purchase of household items and decision about medical treatment of children.

3.1 Domestic Empowerment Index at Individual and Aggregate Level

In this section an attempt has been made to develop and measure the domestic empowerment (DE) index considering all the indicators at individual and aggregate level. Let Y_{ij} be the empowerment status for the i th empowerment indicator of the j th respondent which takes value 1 if the domestic decision is

taken by the woman and zero otherwise. Then the DE index for the i th category is calculated using the formula:

$$DE_i = \frac{\sum_{j=1}^n Y_{ij}}{n} \quad (3.1)$$

This ranges from zero to 1 indicating no empowerment status to fully empowerment status at individual level, respectively. At the aggregate level, DE can be calculated by using this relationship:

$$DE = \sum_{i=1}^4 DE_i \quad (3.2)$$

This index ranges from zero to four.

4. Logistic Regression Analysis

Logistic regression analysis in connection with Backward Stepwise Wald (BSW) and Likelihood Ratio Stepwise (LRS) procedures were carried out to determine the most influential factors of domestic empowerment status. This regression model was used to describe the relationship between dependent or response variable(s) and a set of independent variables. In our study, the response variable was domestic empowerment status of Cholistani women at individual and aggregate level. Out of 200 women, some responded "No = 0" and others "Yes = 1". When the explanatory variables have two categories and if one category is presented by zero then the logit model is equivalent to the log-linear model and logit model for logistic regression will give the same results.

Following Agresti (1995) and Hosmer and Lemeshow (1989), let Y_i denote the dependent variable for i th observation which takes value 1 if the i th individual has domestic empowerment and zero otherwise. Consider a collection of multiple p independent variables which will be denoted by the vector $\mathbf{Z}' = (z_1, z_2, z_3, \dots, z_p)$ and the vector of respective coefficient is $\boldsymbol{\beta}' = (\beta_1, \beta_2, \beta_3, \dots, \beta_p)$, where the variables are qualitative or quantitative. Let the conditional probability be denoted by $P(Y_i = 1 / Z) = \pi(Y)$.

Then the logit of the multiple regression model is given by the equation:

$$g(Z) = \beta_0 + \beta_1 z_1 + \beta_2 z_2 + \dots + \beta_p z_p \quad (4.1)$$

In this case,

$$\pi(Y) = \frac{e^{g(Z)}}{1 + e^{g(Z)}} \quad (4.2)$$

and

$$\Pr(Y_i = 0 / Z) = 1 - \pi(Y) \quad (4.3)$$

However, the logarithm of the ratio of $\pi(Y)$ to $1 - \pi(Y)$ turns out to be simple linear function of Z , that is:

$$\text{logit } \pi(Y) = \beta' z \quad (4.4)$$

The above equation (4.4) expresses the log-odds of the occurrence of an event as a linear function of the independent variables. The logit is thus the logarithms of the odds of success, that is, the logarithm of the ratio of the probability of success to the probability of failure. It is also called the logit transformation of $\pi(Y)$ and equation (4.4) is the linear logistic model.

In our study, we have considered the following independent variables:

Z_1 = Age of the respondents which takes value 1 if age of the respondent is 35 years and above or zero otherwise

Z_2 = Per capita income (PCI) of the respondents which takes value 1 if PCI is 25,000 PKR and above or zero otherwise

Z_3 = Education of the respondents which takes value 1 if respondent has the primary or above education and zero otherwise

Z_4 = Education of the husband of the respondent coded as 1 if having primary or above education or zero otherwise

Z_5 = Livestock ownership by the household coded as 1 if owned ten and above livestock or zero otherwise

Z_6 = Land ownership by the house hold coded as 1 for the owned land or zero otherwise

Z_7 = Number of Alive sons of the respondents coded as 1 if respondent has more than two sons or zero otherwise

Z_8 = Family size including respondent coded as 1 for the size of more than 5 persons or zero otherwise

Z_9 = Total number of earning members in the family of respondent which takes value 1 for more than 2 earning members or zero otherwise whereas the DE status is taken as the dependent variable

Y_1 is the decision about sending female children to school which is coded as 1 if decision is taken by the respondent or zero otherwise

Y_2 is the decision about using contraceptive measure coded as 1 if decision is taken by the respondent or zero otherwise

Y_3 is coded as 1 if the decision about the purchase of household is taken by the respondent or zero otherwise

Y_4 takes value 1 if decision about medical treatment of the children is taken by the respondent or zero otherwise

Y_5 is the aggregate empowerment index indicator which is coded as zero if absolutely respondent has no empowerment status or 1 otherwise

5. Results and Discussion

In order to see the extent about the level of empowerment status, it is important to elaborate the economic, demographic and reproductive behaviour of the respondents. Table 1 shows the demographic as well as socio-economic characteristics of women in Cholistan. The average age of the respondents was 32.86, approximately 33 years. In Pakistan, the mean age at first marriage among ever-married women is 18 years (Pakistan Reproductive Health and Family Planning Survey, 2000-01). In this study, the mean age at first marriage is 15 years, which is less than the minimum legal age at marriage in Pakistan. Education influences contraceptive behaviour. It facilitates a shift towards a conjugally oriented relationship in which the husband and wife are more likely to take into account the interest of the other sex and of conjugal unit as a whole (Mason, 1997). Education of women is the most widely used measure of their relative status and autonomy (Jejeebhoy, 1995; Jeffery and Basu, 1996). In the Pakistani context, women education has been found to be a strong explanatory factor for differences in contraceptive use, infant mortality and children's schooling level (Sathar, 1988). Education is hardly associated at all with the perception of economic autonomy and decision making inside or outside the home. This is the first indication that female education, perhaps because of its low overall attainment level in rural areas, is not a strong indicator of women status as was the case in urban Pakistan (Sathar and Mason, 1993). In this study, educational attainment of the respondent is very poor. This is because of living in

a rural desert area. Ninety four percent of the respondents never attended a school whereas 21 percent of the respondent's husband has ever attended the school.

Respondents showing average annual household income suggest that they are having very low status in income profile because they earn income which is very low than the defined national poverty line. The evidence of income distribution shows that the average annual household income was PKR 9,893 (approximately US \$12 per month). The average number of children ever born was 5.28 or approximately 6, and surprisingly more than forty percent of the respondents have three alive sons. There are 6.10 or approximately 7 as the average number of family members of the respondents. Within the household, only twenty six percent of the respondents have their own land. The information about the use of contraceptive suggests that only 16.39 percent of the respondents have ever used any contraceptive method.

Table 1: Cumulative Percentage Distribution of the Respondents by Background Characteristics

Characteristic	Cumulative %
<i>Age</i>	
Less than 20 Years	7.0
20-24	17.0
25-29	36.5
30-34	53.5
35-39	67.0
40-44	82.5
45 and above	100.0
<i>Annual Per Capita Income (PKR)</i>	
Less than 12,000	74.5
12,000-24,000	93.5
24,000-36,000	96.0
36,000 and above	100.0
<i>Level of Respondent's Education</i>	
No schooling	94.5
1-4 year schooling	94.5
5-9 year schooling	99.0
10 year and above	100.0

<i>Husband's Level of Education</i>	
No schooling	79.5
1-4 year schooling	81.5
5-9 year schooling	87.5
10 year and above	100.0
<i>Livestock Ownership of the Household</i>	
Less than 5	0.5
6-10	43.5
11-15	91.0
16 and above	100.0
<i>Land Ownership of the Household</i>	
No land ownership	74.0
Land ownership	100.0
<i>Respondent's Alive Sons</i>	
No son	21.0
Less than 3	56.0
3 and above	100.0
<i>Family Size</i>	
Less than 5 members	30.5
5-9	94.5
10 and above	100.0
<i>Total Number of Earners in the Family</i>	
Less than 2 earners	73.0
2-4	96.5
5 and above	100.0
<i>Contraceptive Use</i>	
Ever used	16.39
Never used	100.0

Non-availability of contraceptive measure and fear of illness are the key reasons comprising almost fifty percent of non-users of contraception. Further, twenty nine percent of these non-users had a strong fear of illness when any method is used. The empowerment status of women in Cholistan is not only affecting women in this area but also the future generation as well. To make a comprehensive assessment of empowerment status the scale of percent DE has been portioned into five major categories: a value of zero percent indicating completely no empowerment status, a value less than twenty five percent presents

weak empowerment status, a value greater than twenty five percent and less than fifty percent shows a joint or moderate empowerment status, a value greater than fifty percent but less than seventy five percent indicates a strong empowerment status, and finally a value greater than seventy five percent confirms the full empowerment status of ever married women in Cholistan.

Table 2 shows that there is a clear existence of empowerment status irrespective of the degree of extent under the context of different indicators. In this study, completely absent empowerment status is not observed, although the degree of extent of empowerment status varies considerably. First of all, 35.1 percent of the respondents in the 14-31 year age group have no daughters; a value of thirty percent DE about sending female children to school shows moderate empowerment status. In our society, in rural areas, men play main role over women in deciding whether they use any family planning method. So, on empowerment issues relevant to contraceptive measures, men participations are very much obvious, a value of fifteen percent showing a weak empowerment status of women on this indicator. There is nearly strong empowerment of the respondent's decisions about the purchase of household items and moderate empowerment status about the children's medical treatment.

Table 2: Domestic Empowerment Index

Empowerment indicators	%age DE
Sending female children to school	30
Using contraceptive measures	15
Purchase of household items	45
Medical treatment of children	33
Aggregate DE	1.23

The results of the logistic regression analysis are shown in Table 3. The most significant factors that influence women empowerment status are age, education, husband's education of the respondent followed by livestock ownership of the household, number of alive sons and family size of the respondent. Decision of sending female children to schools indicates 4.5 times more domestic empowerment among the educated women as compared to non-educated ever-married women of Cholistan. Domestic empowerment on the use of any contraceptive measure is 4.55 times more among the educated women than the non-educated women in Cholistan. Age also plays a significant role on the

contraceptive use as is clear from Table 3 that empowerment status on the use of contraceptive measure is 2.34 times as frequent among 35 year or more old women than among the women of age under 35 years. Similarly, husband education, livestock ownership, number of alive sons and family size turned out to be positively associated with the DE status of the women living in Cholistan. A similar type of results are obtained if we use the Backward Stepwise Likelihood Ratio method or the Backward Conditional Stepwise method for the determination of the most influential factors effecting the DE status of rural desert area ever-married women in Pakistan.

Table 3: Logistic Regression Analysis using Backward Stepwise Wald Method

Y_i	Z_i	Coefficients	S.E	Significant	Odds Ratio
Y_1	Z_3	1.50	0.65	0.02	4.49
	Constant	-0.94	0.16	0.00	0.39
Y_2	Z_1	0.85	0.47	0.07	2.34
	Z_3	1.52	0.74	0.04	4.55
	Z_4	1.58	0.47	0.00	4.87
	Constant	-2.75	0.42	0.00	0.06
Y_3	Z_4	-1.22	0.58	0.03	0.29
	Z_8	-0.76	0.38	0.05	0.49
	Constant	-0.83	0.29	0.00	0.44
Y_4	Z_3	1.90	0.72	0.00	6.70
	Z_5	-0.84	0.35	0.01	0.43
	Z_8	-0.89	0.32	0.00	0.41
	Constant	0.28	0.34	0.40	1.33
Y_5	Z_4	0.73	0.44	0.09	2.07
	Z_5	0.75	0.40	0.06	0.47
	Z_7	0.65	0.31	0.03	0.52
	Constant	1.46	0.40	0.00	4.29

6. Conclusion

In this study, rural women DE status has been explored statistically using only 200 ever-married respondents living in the Cholistan. Although the sample size may not be enough to draw a decisive conclusion, it is expected that this study would provide some indication of the DE of rural women living in Cholistan.

Additionally, the information generated in this article would help the policy makers to adopt the effective strategies involving free provision of education, giving cost incentives to the factories using dairy products and asking them to go in this area and fetch livestock produce, and an establishment of livestock market in the area of Cholistan.

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