

Consumption Pattern and Living Standard of Farmers in the Province of Khyber Pakhtunkhwa

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ABSTRACT

The consumption pattern and standard of living are affected by economic efficiency of farms. The economic efficiency is influenced by the agrarian structure of the province. This study focuses on consumption pattern and standard of living of farmers in the province of Khyber Pakhtunkhwa. The main objective of the research study is to identify the consumption level and living standard of farms in the province. For the achievement of this objective, four districts from different four ecological zones of the province were selected on random basis. A sample size of 150 farmers was distributed among the ten sample villages chosen from the selected districts. The regression models/consumption functions have been estimated for the sample households.

The linear consumption function estimated for all the sample farmers has revealed that the autonomous consumption is estimated at Rs.1074 per month, while the marginal propensity to consume (MPC) at 0.70, implying that, on average the farmers consumed 70% of their increased income and the rest is saved. This finding is in conformity with most of the developing countries. The high values of intercepts and MPC are attributed to the large family size at the margin of break even point level of income. Thus the standards of living in terms of consumption is substandard. The 30% savings are the compulsory savings like payments of debts. etc.

Key Words: Consumption Pattern, Living Standard, Agrarian Structure, Economic Efficiency, Consumption Function, Dummy Variables and OLS Method

INTRODUCTION

Basically Pakistan is an agrarian economy. The National Income, Production, Consumption and standard of Living etc. are significantly affected by the agrarian structure. Appropriate agrarian structure may improve the consumption pattern and standard of living in the province of Khyber Pakhtunkhwa. This study seeks answer to the following questions:

- Is the agrarian structure conducive to enhance the purchasing power of farmers in the province?
- What is the level/pattern of consumption of farm households in the sample area?

- Is the standard of living of farmers in KPK up to the standard?

However the specific objectives of the research article are as follows:

OBJECTIVES

An attempt has been made to achieve the following objectives:

- To ascertain the consumption pattern and level, the linear consumption function has been estimated
- To determine the standard of living on the basis of level of consumption
- To assess the item-wise total expenditure and other facilities of the sample households.

HYPOTHESIS

This piece of research has examined the following null hypothesis:

It is assumed that due to smallness of small farms and large in number, “The consumption level of sample households is low and their standard of living is substandard.”

LITERATURE REVIEW

This section focuses on the definitions of consumption pattern and standard of living. Before to analyze the existing situation of consumption pattern and standard of living in the province of Khyber Pakhtunkhwa, a very brief review in this respect has been summarized below:

Consumption:

Consumption is the process in which the substance of a thing is completely destroyed, used up, or incorporated or transformed into something else. Consumption of goods and services is the amount of them used in a particular time period. The consumption of the items like education, health, food items and sanitation etc may improve the standard of living. However the consumption of goods and services are based on age of consumer, which has been discussed as follows:

Mohammad Abdel-Ghany (1997) has considered data on 2,810 elderly households were drawn from the Bureau of Labor Statistics 1990 Consumer Expenditure Survey. Multivariate Tobit analysis was used to examine spending pattern differences between households with a reference person aged 65-74 (young-old) and households with a reference person age 75 and older (old-old). Significant differences in spending were found for expenditures on food at home, food away from home, alcohol and tobacco, housing, apparel and apparel services, transportation, healthcare, entertainment, personal care, and personal insurance. The impact of socio-demographic factors on expenditures by either age group was not uniform.

America is aging. Between 1980 and 1990, the number of elderly (those aged 65 and

over) grew by 22 percent compared with an eight percent increase for the population under age 65 (National Institute on Aging 1992; Taeuber and Ocker 1992). The proportion of elderly in the total population was 11.3 percent in 1980, 12.6 percent in 1990, and is projected to be 14 percent by 2010. Dramatic change in this proportion is expected following 2010 when the baby boomers (those born between 1946 and 1964), who comprised one-third of the American population in 1990, begin reaching age 65 (Hollman 1990; Taeuber and Ocker 1992).

Researchers do not agree on the age one is classified as “elderly.” Age 60, 62, and 65 have been used (Axelson and Penfield 1983; Moehrle 1990; Schwenk 1995). Two to four age groupings among the elderly have been employed (Harrison 1986; Taeuber 1983). In this article, elderly households are divided into two groups based on the age of the reference person, defined herein to be the husband in married couple families and the household head in other family types: 65 to 74 (young-old) and 75 and older (old-old). Age 65 is selected because it is the common age of retirement in the United States. The sample is further divided at age 75 in an attempt to balance the sample size of the two elderly categories and to recognize differences in marital status, health status, and financial status that tend to emerge at this age (Crispell and Frey 1993; Culter 1991). The purpose of this article is to test whether there are differences in spending patterns between these two groups of elderly while controlling for the influence of selected socio-demographic variables and to examine the influence of these socio-demographic variables on the significantly different expenditure categories.

Standard of Living:

According to the American Heritage® Dictionary of the English Language, Fourth Edition, updated in 2009. Published by Houghton Mifflin Company the definition of the concept standard.

Standard of living is a level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation.

According to the United Nations Human Development Report 2010, over half of Pakistanis are deprived of basic education and health facilities and live below a respectable standard of living. This report reveals that as many as 51 percent of the population is living in multidimensional poverty and 54 percent is suffering from intense deprivation.

Pakistan's overall ranking in terms of the Human Development Index (HDI) fell by two notches and stood at 125 among 169 nations. Earlier, Pakistan's position was 123. This means that Pakistan is now just two notches from a group of nations with low human development and standard of living.

Of the deprived population, about three out of ten people are suffering from lack of health facilities, five out of ten lack of access to education and at least four out of ten have abysmal standards of living.

The standard of living in Pakistan differentiates and varies between different classes of society. Pakistan is a largely developing country and according to the Human Development Index, is ranked 125th out of 169 countries, near the lower end of “medium human development”.

The statistics have been measured by the Multidimensional Poverty Index which includes indicators of health, education, sanitation and living standards. Pakistan's overall ranking in terms of the Human Development Index (HDI) fell by two notches and stood at 125 among 169 nations. Earlier, Pakistan's position was 123. This means that Pakistan is now just two notches from a group of nations with low human development. S

In a democracy there is scarcely any public question of greater importance than the standard of living of the common people. It is essential to know the actual level of this standard of living, and whether it is improving or deteriorating. There can be two types of standards of living. One is the standard of living of the society as a whole, and the other is the standard of a group within the society. It is perfectly possible for the standard of the society as a whole to be improving, while that of one or more groups within the society is declining. Moreover, if the distribution of economic power in the society is very unequal, it may happen that the group, the standard of which is declining may constitute a very large proportion, even a majority, of the total population.

RESEARCH METHODOLOGY

The province of Khyber Pakhtunkhwa is divided into four ecological zones from climate, irrigation and type of soil point of view. For the purpose of this research article, each zone has been considered as stratum. One district has been selected from each zone/stratum, purely on random basis. It has been also proposed that a sample of 150 farmers from ten randomly chosen villages of selected districts will fairly represent area. A combination of stratified and simple random sampling techniques have been used. The proportionate allocation has been used for the distribution of villages among districts and respondents among sample villages.

The agrarian structure (like farm size, tenure status and irrigation status etc.) plays a very vital role in the economic efficiency of farms, which in turn predominantly influences the consumption pattern and standards of living of the farmers. The more is the economic efficiency of the farms, the higher is the level of consumption and standards of living of the farmers. This study specifically examines the consumption pattern and standards of living of the farmers. For this purpose different consumption functions have been estimated for the sample farmers in the province, which are analyzed in part 'A' of the subsequent section, however, a greater part of standard of living is determined by the level of consumption, hence the estimated consumption functions are also used for the measurement of living standard. while the remaining part of the living standard has been determined in part 'B' of the same section as follows:

Regression Models/Consumption Functions

Consumption function refers to the income-consumption interrelation ship. J.M Keynes propounded the fundamental psychological law of consumption stating that “men are disposed as rule and on the average to increase their consumption as their income increases but not by as much as the increase in their income”. This law identifies the concept of Marginal Prosperity to Consume (MPC), which specifies the fraction of each additional rupee of disposable income received to be spent on consumption. Thus, the greater MPC implies the more consumption and in turn the higher standards of living and vice versa. The vertical intercept of the linear consumption function, indicating the level of consumption at zero level of income, also leads towards rising standards of living with a rise of extent of intercept.

Specification of the Consumption Function

Multiple factors determine the aggregate consumption of the farm households. For this study a few determinants of the total monthly consumption “C” (dependent variable) have been taken into account. The most important among these is the net farm household income (in Rs. Per month) “X₁”, the rest of the explanatory variables are family size “X₂”, number of literate members “X₃”. The three dummy variables “D₁”, “D₂” and “D₃”, or farm size, tenurial status and mechanization respectively are also included in the model. The large farm is represented by unity and zero otherwise, owner farmer is denoted by one and otherwise by zero, while mechanized farm is represented by one and zero otherwise. In this way the numerical values of the dummy variables “D₁”, “D₂” and “D₃” for farm size, tenurial status and mechanization respectively are also included in the model. The large farm is represented by unity and zero otherwise, owner farmer is denoted by one and otherwise by zero, while mechanized farm is represented by one and zero otherwise. In this way the numerical values of the dummy variables “D₁”, “D₂” and “D₃” have been obtained. Thus the consumption function for the sample farmers become as follows:

$$C = f(X_1, X_2, X_3, D_1, D_2, D_3)$$

and the linear mathematical form is as under:

$$C = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 D_1 + \beta_5 D_2 + \beta_6 D_3 + U$$

Where “ β_0 ” is the autonomous consumption, “ β_i ” are the respective co-efficients and “U” the residual term indicating the influence of all those factors which have not been included in the model. As is obvious from the very nature of the variables, the total consumption is positively related to the explanatory variables. Thus the expected signs of all the parameters estimated would be positive.

It has been assumed that the different types of the agrarian structure viz. farm size, tenure status and mechanization state would affect consumption differently. Therefore, in addition to the above mentioned dummy variables model for all the sample farm households, eight other consumption function for each category and one for all

- households without dummy variables have also been estimated.

Estimation and Verification of the Consumption functions

Although the explanatory variables “ X_1 ” and “ D_1 ” are related to each other and are not truly exogenous, but since they are also not perfectly linear related, therefore it is assumed that there is no “multicollinearity” among them. Similarly it is also assumed that the problems of “heteroskedasticity” and “autocorrelation” do not exist. Without applying any appropriate test for the detection of these econometric problems and the assumption of non-existence is one of the limitations of this study. Since, there is a single-equation model for each category of farm, hence the Ordinary Least Squares (OLS) method has been used for the estimation of the model. Holding the usual assumptions of the OLS method, the parameter estimates “ β_1 ” would be “blu” (best, linear and unbiased) and consistent.

So far as the verification of the models is concerned, the results displayed in the subsequent section indicate that all the models are statistically significant. In all case, the coefficients of determination, R-squares have been greater than 0.5, hence the FITS have been good. Higher values of F-ratios have also suggested that the estimated models are overall significant. The standard errors verify that the individual parameter estimates are statistically significant. Differences between the parameter estimates of the consumption functions on small and large farms, mechanized and non-mechanized farms and on farms operated by owners and tenants are tested, applying the Chow F-ratio test mentioned earlier. The differences in all cases are statistically significant.

Interpretation of the Consumption Functions

Applying the OLS method, the dummy variables model of linear consumption function for all sample households has been estimated. The results obtained are as follows:

$$\hat{C} = 1074 + 0.70X_1 + 94.5X_2 + 47.4X_3 + 13.3D_1 + 12.6D_2 + 14.9D_3$$

(5.30) (0.21) (1.76) (2.09) (1.01) (2.50) (1.10)

$$R^2 = 0.59, \quad F^* = 122.3, \quad Ee^2 = 385.4$$

Figures in parentheses are the standard errors of the respective parameter estimates. R-square, the co-efficient of determination has indicated that 59 percent variation in consumption is due to the explanatory variables included in the model. The autonomous consumption on average is Rs. 1074 per month, while the marginal propensity to consume is 0.70, which implies that on average sample farmers have consumed 70% of the increased income and the rest is saved. The situation is in conformity with most of the developing countries. The standard of living in terms of consumption is not unusual. The data has revealed that the family size and the number of literate members (students)

have had a remarkable impact on the consumption of farm households. The co-efficients of dummy variables have indicated that mechanization (D3) has relatively greater influence on the consumption as compared to the farm size (D1) and tenure status (D2). The relevant figures are 14.0, 13.3 and 12.3, respectively.

To compare the equality between parameters of the consumption functions on small and large forms, separate functions have been estimated and the results are presented in Table I below

Table 1. Results of the Estimated Consumption Function by Farm Size

Farm Size	Results			
A) Small Farms	$\hat{C}_s = 417 + 0.91X_1 + 37.8X_2 + 6.9X_3$			
	(2.31)	(0.04)	(1.71)	(0.81)
	$R_1^2 = 0.67$	$F_1^* = 136.8$	$\sum e_1^2 = 329.6$	
B) Large Farms	$\hat{C}_L = 1045 + 0.72X_1 + 95.5X_2 + 60.1X_3$			
	(5.03)	(0.11)	(1.96)	(2.07)
	$R_2^2 = 0.61$	$F_1^* = 133.4$	$\sum e_2^2 = 348.2$	
C) All Farms	$\hat{C}_p = 733 + 0.82X_1 + 67.2X_2 + 13.9X_3$			
	(1.76)	(0.05)	(1.03)	(1.00)
	$R_p^2 = 0.65$	$F_p^* = 134.7$	$\sum e_p^2 = 348.2$	

Figures in parentheses are the standard errors

The Chow F-ratio suggests that the parameters of the two types of consumption functions are statistically significant at 5

The data indicate that the autonomous consumption (consumption at zero level of income) of the large farmers have approximately been two times the autonomous consumption of the small farmers. Clearly the standard of living in former case is twice of that in the later case. The MPC (0.91) of the small farmers when are compared with MPC (0.72) of the large farmer, indicate that the small farmers have been just in the neighborhood of “break even” point of income. In other words they have been operating their farms on the subsistence level. The co-efficient of “X3” on the large farms has approximately been ten times higher than the corresponding figure on the small farms. It infers that the fraction of spending on education has been significantly lower on the small farms. The family size “X2” has added to the consumption of the large farmers at the rate of 95.5, which is more than two and a half times of the small farmers. The results of the pooled consumption function have indicated average of the two extremes of the

Table 2. Results of the Estimated Consumption Function by Tenure

Tenure	Results
A) Owners	$\hat{C}_o = 996 + 0.75X_1 + 82.3X_2 + 33.6X_3$ <p style="text-align: center;">(1.07) (0.02) (1.13) (0.97)</p> $R^2 = 0.62 \quad F^* = 115.3 \quad \sum e_o^2 = 341.6$
B) Owner-cum-tenants	$\hat{C}_{oT} = 803 + 0.79X_1 + 85.4X_2 + 10.1X_3$ <p style="text-align: center;">(3.51) (0.10) (0.76) (1.01)</p> $R_{oT}^2 = 0.65 \quad F_{oT}^* = 131.9 \quad \sum e_{oT}^2 = 320.8$
C) Tenants	$\hat{C}_T = 401 + 0.96X_1 + 35.2X_2 + 4.9X_3$ <p style="text-align: center;">(2.11) (0.07) (0.86) (0.89)</p> $R_T^2 = 0.68 \quad F_p^* = 138.1 \quad \sum e_T^2 = 318.5$

Figures in parentheses are the standard errors

The intercepts of the consumption functions estimated for owners, owner-cum-tenants and tenants have been Rs. 996, Rs. 803 and Rs. 401 respectively. Obviously the first category is enjoying relatively higher standard of living as compared to the last category. The respective MPCs are 0.75, 0.79 and 0.97, which indicate that owners are in a position to save 25

So far as the impact of mechanization on consumption irrespective of farm size and tenorial status is concerned, table 7.3 indicates that autonomous consumption of the non-mechanized farm households has been one-third of the autonomous consumption of the mechanized farm households. The respective levels are Rs. 364 and Rs. 1102 per month. The MPCs indicate that the farmers on the non-mechanized farms have earned income nearly equal to the break even point (zero saving level income), while mechanized farmers could save 33

Table 3. Results of the Estimated consumption Function by Mechanization State

Mechanization	Results
A)-Non-mechanized Farms	$\hat{C}_{NM} = 364 + 0.97X_1 + 36.3X_2 + 1.9X_3$ <p style="text-align: center;">(1.36) (0.12) (1.02) (0.61)</p> $R_{NM}^2 = 0.73 \quad F_{NM}^* = 155.6 \quad \sum e_{NM}^2 = 203.7$
B)-Mechanized Farms	$\hat{C}_M = 102 + 0.67X_1 + 93.4X_2 + 34.6X_3$ <p style="text-align: center;">(3.97) (0.08) (1.11) (2.07)</p> $R_M^2 = 0.57 \quad F_M^* = 109.8 \quad \sum e_M^2 = 422.4$

Figures in parentheses are the standard errors

Other portion of standard of living

There are two main indicators which determine the standard of living. The first examined in the preceding section have been the marginal propensity to consumption and the level of consumption; the second are comprising of the item-wise expenditures and provisions enjoyed by the households. An attempt is being made to analyze the later indicator in this section.

Item-wise Expenditure

A detailed information has been obtained on item-wise expenditure of the farm households. For determining standard of living, all those items have been categorized in five main categories, and their percentages by farm size and tenure have been calculated which are enumerated in the Table.

Table 4. Percentages of Item-wise Expenditure of the Sample Households by Farm size and Tenure

S. No	Farm Size/ Item-wise Expenditure	Owners	Owner cum tenants	Tenants	All Tenures
A	<u>Small Farms</u>				
i	Food, Clothes and shelter	43.42	41.86	39.77	41.68
ii	Health	8.25	7.02	5.00	6.76
iii	Education	7.90	6.45	4.75	6.37
iv	Custom/Tradition	21.15	22.14	24.25	22.51
v	Other Items	19.28	22.53	26.23	22.68
B	<u>Large Farms</u>				
i	Food, Clothes and shelter	48.50	45.52	43.61	45.79
ii	Health	13.20	12.48	11.13	12.27
iii	Education	15.18	13.50	12.19	13.62
iv	Custom/Tradition	9.57	12.25	14.00	11.94
v	Other Items	13.55	16.52	19.07	16.38
C	<u>All Farms</u>				
i	Food, Clothes and shelter	45.96	43.55	41.69	43.37
ii	Health	10.73	9.75	8.07	9.52
iii	Education	11.54	9.98	8.47	10.00
iv	Custom/Tradition	15.35	17.19	19.13	17.22
v	Other Items	16.42	19.53	22.64	19.53

The data indicate that in case of all tenures on all farm sizes, 43.73% of the expenditures have been spent on basic essentials like food, clothes and shelter. Only 10% and 9.52% of the spending have incurred on education and health. A very significant amount of 17.22% has been spent on customs/traditions, which is absolutely an uneconomic expenditure.

Evaluating critically the situation on the small and large farms, the high percentages of spending on food, clothes, shelter and education, and the corresponding lower percentages of spending on custom/traditions and other items by the large farms, clearly indicate their better standards of living.

The same trend has been witnessed in favour of the owner farmers in comparison with the tenant farmers.

Consequently, because of better efficiency of the large farms managed by owners farmers the standards of living have enhanced; in case of the small tenants they have been found deteriorating.

Provisions

Provisions of certain facilities like, radio/tape-recorder, television, dish-antenna, refrigerator, air-conditioner, motor car, etc. are also among the determinants, of the standards of living.

CONCLUSION

The linear consumption function estimated for all the sample farmers has revealed that the autonomous consumption is estimated at Rs. 1074 per month, while the marginal propensity to consume (MPC) at 0.70, implying that, on average the farmers consumed 70% of their increased income and the rest is saved. This finding is in conformity with most of the developing countries. The high values of intercepts and MPC are attributed to the large family size at the margin of break even point level of income. Thus the standards of living in terms of consumption is substandard. The 30% savings are the compulsory savings like payments of debts. etc.

The co-efficient of dummy variables used for farm size, tenurial status and mechanization state have been 13.3, 12.6 and 14.9 respectively. This means that those types of farming have had a significant impact on the level of consumption and the standards of living.

The autonomous consumption of the small farmers has been approximately half of the autonomous consumption of the large farmers. Clearly large farmers are enjoying high standards of living as compared to the small ones. The higher MPC (0.91) of the small farmer has indicated that they are nearly earning at a break-even point of income, or below the subsistence income level.

In terms of consumption, the pure owners are relatively at a advantage than the pure tenants. Similarly the households of the mechanized farms are more better off than the non-mechanized farm operators.

The proportion of spending on basic needs (food, clothes and shelter), education and health have been 45.79, 13.62 and 12.27 respectively on the large farms, while the corresponding figures on the small farms are 41.68, 6.37 and 6.76.

Regarding spending on various items the same difference has been found between the pure owners and pure tenants as is recorded in the case of the large and small farms.

The percentage of expenditure on uneconomic pursuits like customs / traditions has been significantly higher (22.68) of the small than of the large farmers (11.94).

The majority (70.50%) of the small tenant farmers have had radio / tap-recorder only,

the 8.50% of the large owner possessed radio/tape-recorder with television and refrigerator. With regard to the household's provisions, the small and tenant farmers have been more worse than the large and owner farmers.

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