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BEHAVIORAL ANALYSIS OF NON-DURABLE CONSUMPTION EXPENDITURES: A CASE STUDY OF WAH CANTT

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ABSTRACT

Consumption being the major and stable component of GDP has been the focus of attention by many economists. The present case study is an attempt to develop a Behavioral Consumption Function of household for area of Wah Cantt by using primary data (sample questionnaire). The objective of the study is to empirically test not only the validity of REPIH theory presented by Hall (1978) for overall data set but also for each income level .The study finds that single particular consumption group verifies the Rational Expectations Permanent Income Hypothesis.

Keywords: Behavioral Consumption Function, household, REPIH theory

INTRODUCTION

Consumption being the major and stable component of GDP has been the focus of attention by many researchers. Factors playing their role for determination of household consumption patterns have always been an important area of research to determine accurate policies for price and taxation of different commodities. Non durable commodities are the most important among all consumption patterns. A study of changing consumption patterns of such non durable consumption commodities can help to construct effective policies, particularly, price policies for different food items.

The study of consumption behavior starts from the absolute theory of Keynes (1936). Keynes emphasized that the consumption depends on the absolute level of income which is based on fundamental psychological law. The relative income hypothesis by Duesenberry (1949) suggested that consumers are not concerned with their absolute consumption but with consumption relative to that of the population. Laterly, Modigliani (1966) asserted that consumption depends on the life cycle income as a person tries to smooth his consumption pattern so he is net borrower in earlier periods of his life and saves in middle of his life and dis-saves in last period of his life. Friedman (1963) followed that a person's consumption is determined by his permanent income and income is composed of transitory and permanent component.

Hall (1978) incorporated the Rational Expectations in the Permanent Income hypothesis and formed Random walk hypothesis. This final theory produced by Hall (1978) was empirically tested by different researches such as Campbell (1989), Tolar (1997), Khalid (1994).

For Pakistan, many economists have studied household consumption patterns using time series, and cross sectional data for most of the times. The results showed different consumption patterns among household depending upon their income, age, family size and demographic and geographic variables. The present case study is an attempt to develop a Behavioral Consumption Function of household for area of Wah Cantt.

The present case study has attempted to study the consumption patterns using primary data (sample questionnaires). The model thus to be estimated is behavioral because it not only includes variables that have strong impact on consumption expenditure decisions and theoretically justified but also

these variables have qualitative responses to consumption patterns like quality and quantity of the goods etc.

The results of the study were different from the stated theories and the Behavioral Consumption Function of Tolar(1997). The preferences of the consumers showed no interest in either their previous purchases or consumption levels as suggested by Hall (1978).

The objective of the study is to empirically test not only the validity of REPIH theory presented by Hall (1978) for overall data set but also for each income level. The study proceeds as follows: section 2 review some literature on the topic, section 3 includes data and descriptive analysis, section 4 concludes the study.

2. LITERATURE REVIEW

The proceeding section gives an overview of literature on the relevant topic carried out by different researchers. It also includes research techniques, data sources and the results they drew afterwards.

Siddiquie (1982) analyzed the consumption patterns propounded by the Engle law in terms of income, household size and number of earners. The study showed that the consumption of food and non-food items was strongly affected by the changes in total expenditures and size of households. The study of Cambell; *et al* (1987) followed the Falvin's (1981) lagged model of anticipated changes in labor income and tested it for the logarithmic version of the Permanent Income hypothesis. The results of the study were consistent with the results of Falvin's as both studies found changes in consumption correlated with the lagged information about income.

The consumption patterns in Pakistan using marginal expenditure share and elasticity has been analysed by Burney and Khan (1991) conducting a study on household consumption patterns. Micro data for 1984-85 has been used for this purpose. The study also established existence of structural and behavioral differences in the consumption patterns of urban and rural population. To establish the behavioral and structural differences, in consumption patterns of both the sectors, dummy variables were used. Overall, the evidences showed the observed differences in estimated parameters for urban and rural households, which represent structural and behavioral differences in consumption patterns between the two sectors.

Empirical validity of REPIH by Hall (1978) has been tested by Khalid (1994). Hall's equation was estimated using time series data over the period 1960-62 where statistical significance of any variable other than lagged consumption was taken as evidence against REPIH. Falvin, on the other hand, extended the Hall's model and suggested that significance of the expected income variable other than lagged consumption was considered as evidence against REPIH. The study showed contradictory results as compared to Hall.

Consumption patterns in Pakistan have also been estimated using time series data by Burki (1997). By using Almost Ideal Demand System (AIDS) technique and data from 1972-1992 the results showed that there was an exogenous growth in non durable food items demand irrespective of the movements in their prices and growth. Study emphasized that the policy makers should focus on own price elasticities to predict impact of taxes.

Tolar (1997) estimated a consumption function that was behavioral in nature and comparable with REPIH for Australia. The variables, thus, obtained in time series manner were estimated through OLS Ordinary Least Square method. Results showed that the data produced week evidences against Hall's REPIH. Secondly, behavioral Consumption Function a MPC of 0.185.

Jappelli, *et al* (2010) reviewed different approaches to estimate how consumption responds to income changes emphasizing the methods of the most relevant approaches and empirical results. Analyzing income shocks with Auto Regressive Moving Averages (ARMA) scheme it found that a consumption reaction to permanent shocks was much higher than that of transitory shocks. Recent developments in literature of the dynamics and impacts of earnings and wages on consumption choices over the life

cycle have been discussed by Meghir, et al (2010), by understanding the labor market risks. The study confirmed that consumption in equality rises rapidly than income inequality

In a similar study, Farooq, *et al* (1999) used AIDS technique derived from "Complete Demand System" approach.. The study was conducted on a sample of 177 households in rice-wheat zone. The parameter estimates showed that all own price elasticities were highly significant and income elasticities were positive and statistically significant. The study of Murphy, *et al* (1999) showed that the debt burden of the households' is significant in forecasting the future growth of consumption expenditures. Using time series data for the United States from 1960-97, they found that there was a significant negative relationship between debt service and future spending of households.

Attanasio, *et al* (2006) proposed a methodology to analyze time series properties of individual consumption expenditure, income and interest rates. Data has been taken from UK Family Expenditure Survey and Euler equation estimated by OLS technique. Results showed that consumption changes are correlated to lag consumption shocks. A study by Rao (2007) compard proportion of consumer of Permanent Income Hypothesis between developing and developed countries by using the technique of Campbell and Mankiw. The study thus concluded that Permanent Income Hypothesis consumers are 40% more in Australia than Fiji.

Deng *et al* (2008) made analyses of consumption behavior of urban residents in China. Using instrumental variable technique and data from 1986-2004 the study find out that there was excess sensitivity of consumption during economic transitional period.

Johnson, et al (2004) analysed income tax rebates to estimate the casual effects of these rebates on households consumption expenditures. Postelwaite, *et al* (2004) studied consumption patterns related to risks preferences. A paper by Malcolm, *et al* (2006) studied the effects of dividends on investor's consumption using micro data sets. REPIH's strong assumption being the absence of the liquidity constraints has been studied and tested by Kohara; *et al* (2006).

3. DATA AND DESCRIPTIVE ANALYSIS

The following chapter contains information regarding data and descriptive analysis. Section 3.1 contains data, describing the technique for data gathering and arranging. Section 3.2 gives a through descriptive analysis using pie charts and bar diagrams showing relationship between different factors of consumption expenditures.

3.1 DATA

Survey data has been employed for estimation by using survey questionnaire. A total sample of hundred households were chosen using a systematic sampling technique, which is stratified cluster sampling. The population in the locality was divided into two broad strata public and private. These strata were then surveyed for their choices regarding their consumption patterns for non-durable goods. The questionnaire was employed to determine which variables are important in the household's non durable expenditure decision making. For this purpose, households were questioned on what pieces of economic information they decide about their expenditures on non-durable goods.

3.2 DESCRIPTIVE ANALYSIS

The factors have been analyzed that affect consumption expenditure decision first. Later each factor's relationship with different consumption classes is analysed to get a complete overview of consumer decisions.

3.2.1-Consumer Decision:

For general analysis of consumption expenditure decision making, consumers were asked for their family size, number of family members who earn, their residential place, purchasing patterns, their income levels (including assets income and liabilities to be paid), and role that they think price plays in their decision making process. Responses of the households were as follows:

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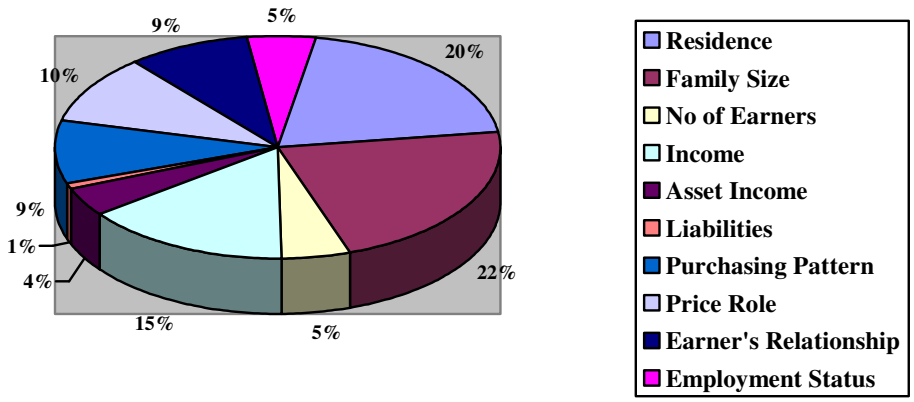
Table 3.2.1 Consumer Decision

FAMILY SIZE	INCOME	RESIDENCE	PURCHASING PATTERN	PRICE ROLE	EARNER'S RELATIONSHIP
22%	15%	20%	9%	10%	9%

Foot Note: Number of Earners, Employment Status contributes 5% while Asset Income and Liabilities Contribute 4% and 1% respectively.

3.2.1 Consumer Decision



Illustration

The consumer decisions are illustrated through diagram and table for analytical purposes. Over all from table and diagram it is obvious that the major impact on household's consumption decision is of family size. Consumption decisions are strongly influenced by size or number of the family members. Income stands out to be the third largest factor affecting consumption decisions which shows presence of absolute income hypothesis consumers in economy. It is backed by factor residence which is 14% compared to 15% of the income. Price has a minor role is that is only 10% while earner's relationship with the household and purchasing pattern share equal role, that is 9% each. On the other hand employment status and number of earners in family share 5% role in affecting the consumption decision. The least affective factor is liabilities with 1% showing that consumption is hardly affected by the liabilities.

3.2.2-Purchasing Factor: The seven purchasing factors that were asked for their effectiveness on consumption expenditure decisions were previous purchases, price, quality, quantity, (quality and quantity) both, need of the hour, time utilization and others. Their responses were gathered qualitatively by the simple decision rule. However, the results from their responses were as follows:

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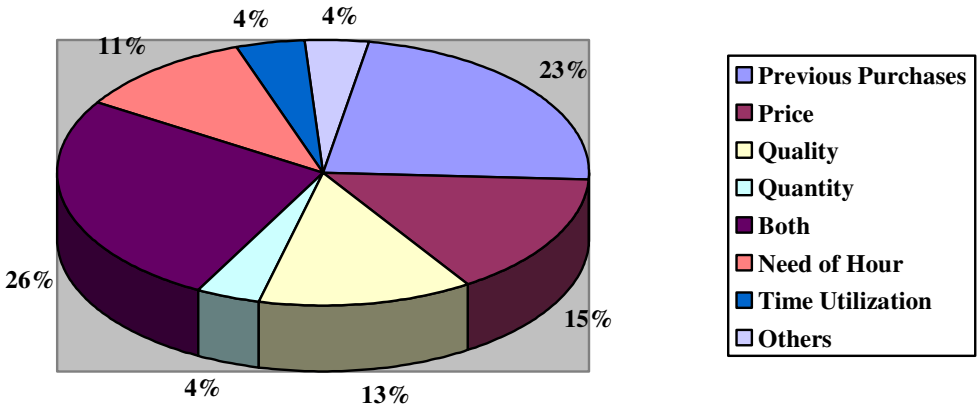
Table 3.2.2 Purchasing Factor

BOTH	PREVIOUS PURCHASES	PRICE	QUALITY	NEED OF THE HOUR
26%	23%	15%	13%	11%

Foot Note: Quantity, Time Utilization and Others contribute 4% in the consumer decision.

3.2.2 Purchasing Factor



Illustration

The above diagram and pie chart shows purchasing factors separated from other factors to observe their role and effectiveness. Among these factors the variable (both) quality and quantity has a major impact on consumption decision with 26%. Second major factor is previous purchases with 23% effectiveness. Previous purchases factor being proxy for acceptance of Rational Expectations Permanent Income Hypothesis, which stands out to be 23 % rejecting the presence of theory .Quality and quantity separately affect consumption decision with 13% and 4% respectively. Price, on the other hand shares 15% role.

3.3 Relationship Of Consumption To Purchasing Factors:

In the following section relationships of different determinants of consumption expenditures with different consumption classes have been analysed. These are the same seven determinants that were analysed previously. Now their relationships to consumption are analysed separately.

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3.3.1-Consumption to Previous Purchases:

CONSUMPTION	PREVIOUS PURCHASES	PERCENTAGE
650-5085	(17) 2	11.76%
5085-9520	(28) 12	42.85%
9520-13955	(30) 19	63.33%
13955-18390	(14) 10	71.42%
18390-27260	(8) 3	37.5%
27260-45000	(3) 0	0%

3.3.1 Consumption To Previous Purchases

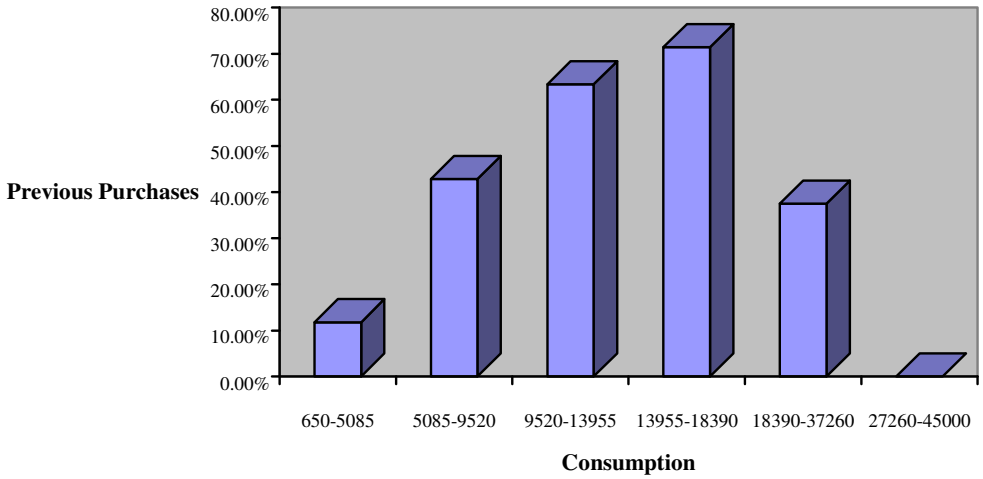

Illustration:

For the lowest consumption level only two out of seventeen chose previous purchases as a factor affecting their consumption decision thus formulating 11.76% of the decision. The highest percentage (63.33%) affecting consumption decision is lying with the middle consumption intervals, where nineteen out of thirty households choose previous purchases as affecting factor. So we can say that this particular consumption class verifies the presence of Rational Expectations Permanent Income Hypothesis. On the extreme, none of household lying in highest consumption level chooses previous purchases rejecting the theory. This in turn shows that consumption decisions of the households in highest consumption intervals are not affected by their previous purchases.

3.3.2-Consumption to Price Level:

CONSUMPTION	PRICE LEVEL	PERCENTAGE
650-5085	(17) 3	17.64%
5085-9520	(28) 9	32.14%
9520-13955	(30) 7	23.33%
13955-18390	(14) 6	42.85%
18390-27260	(8) 4	50.00%
27260-45000	(3) 0	0%

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3.3.2 Consumption to Price

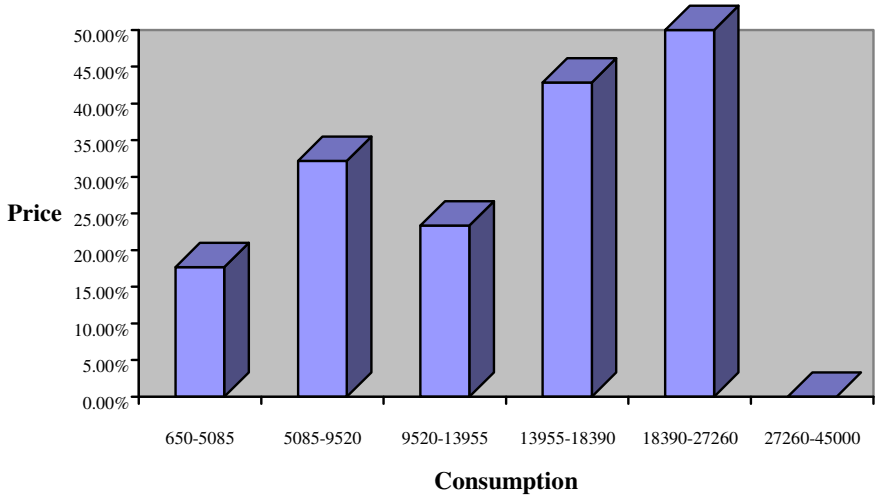

Illustration:
Second factor affecting the household's consumption decision is price of the good. Most affected consumption decision from prices is the second highest class of consumption which is 50.00% ranging consumption from almost 19000 to 28000 per month. This shows that price mostly effects consumption decisions of those households that consume a major portion of their income in consuming no matter how high their income would be. Here too the households belonging to highest consumption levels are not affected by price of the good. One reason could be of their high levels of income.

3.3.3-Consumption to Quality:

CONSUMPTION	QUALITY	PERCENTAGE
650-5085	(17) 3	17.64%
5085-9520	(28) 11	39.28%
9520-13955	(30) 6	20.00%
13955-18390	(14) 4	28.57%
18390-27260	(8) 0	0%
27260-45000	(3) 1	33.33%

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3.3.3 Consumption to Quality

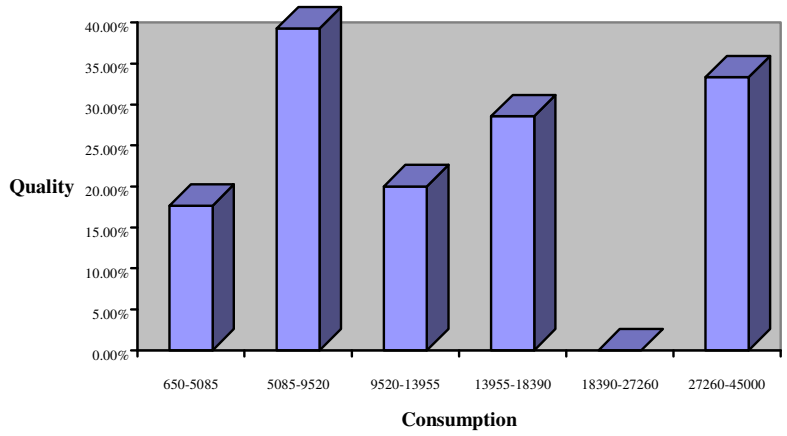

Illustration:

The results of quality factor are different. They contribute only 17.64% share in the decision making of lowest interval consumption. Quality however is mostly preferred by the classes with high consumption levels which are 39.28% and 33.33% for the two classes having high consumption levels. Its impact is 28.57% and 20% for the middle order consumption classes. On the other hand, it does not have any role to play for the consumption class ranging from almost 19000 to 28000.

3.3.4-Consumption to Quantity:

CONSUMPTION	QUANTITY	PERCENTAGE
650-5085	(17) 1	5.88%
5085-9520	(28) 2	7.14%
9520-13955	(30) 2	6.66%
13955-18390	(14) 2	14.28%
18390-27260	(8) 1	12.5%
27260-45000	(3) 2	66.66%

3.3.4 Consumption to Quanity

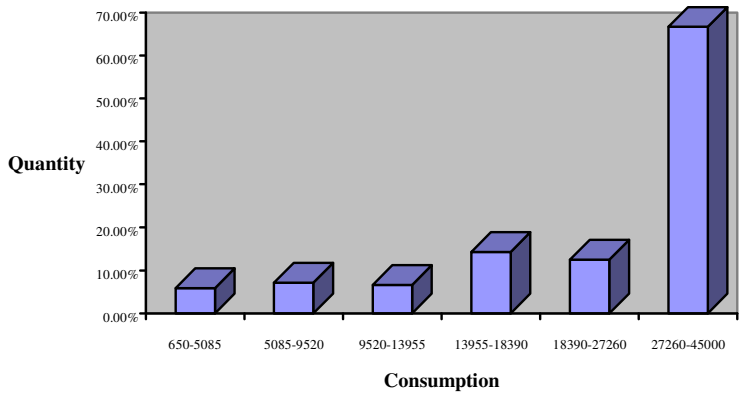

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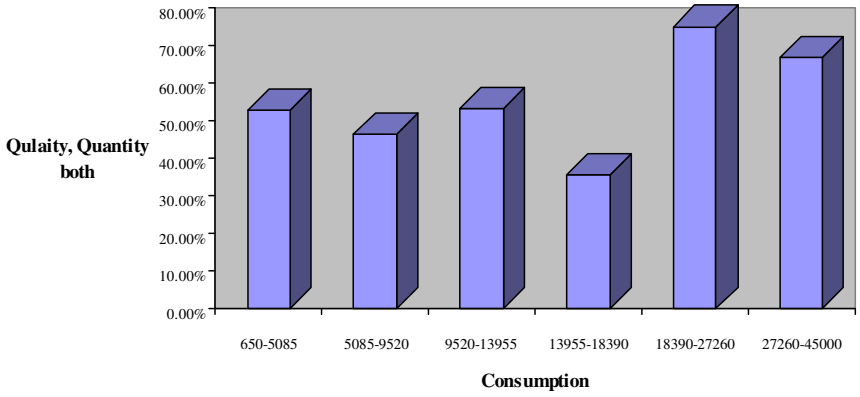
Illustration

Results of the quantity factor are quite unexpected . The general notion is, quantity is mostly preferred by the classes having low income and consumption streams. But the results are different in a sense that quantity is mostly preferred by the higher consumption classes. It is 66.66% for the consumption class ranging from 28000 to 45000. It is least preferred by the lowest consumption class, which is 5.8%.

3.3.5-Consumption to Both Quality And Quantity:

CONSUMPTION	BOTH	PERCENTAGE
650-5085	(17) 9	52.94%
5085-9520	(28) 13	46.42%
9520-13955	(30) 16	53.33%
13955-18390	(14) 5	35.71%
18390-27260	(8) 6	75.00%
27260-45000	(3) 2	66.66%

3.3.5 Consumption to Both



Illustration

Results for the factor including both quality and quantity are most significant. Their preference level for all consumption classes lies above 30%. The highest percentage of preferring both quality and quantity is 75%. The highest consumption class chooses the factor both at 66.66%. Minimum percentage is however 35.71% preferred by the middle order consumption class. This is an evidence that consumer prefers both quality and quantity at the same time while making any kind of consumption decision.

3.3.6-CONSUMPTION TO NEED OF THE HOUR:

CONSUMPTION	NEED OF THE HOUR	PERCENTAGE
650-5085	(17) 3	17.64%
5085-9520	(28) 8	28.57%
9520-13955	(30) 7	23.33%
13955-18390	(14) 3	21.42%
18390-27260	(8) 1	12.5%
27260-45000	(3) 0	0%

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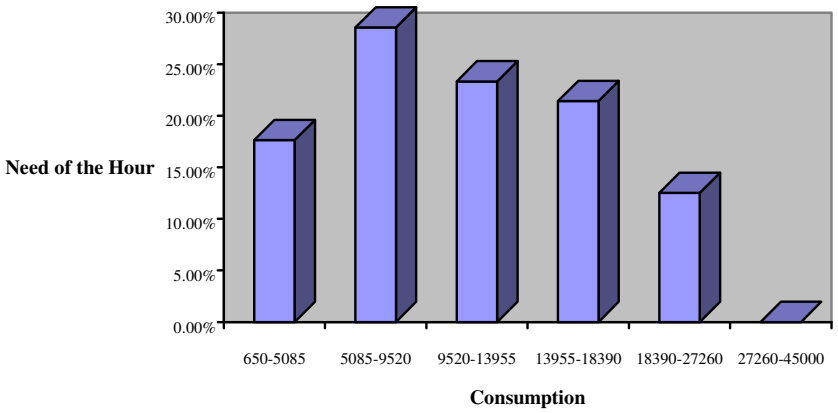
3.3.6 Consumption to Need of the Hour



Illustration

Need of the hour has no role to play in decision making of the higher class of consumption. However, it plays a significant role in consumption decisions of middle order consumption class which is 28.57%, 23.33% and 21.42% respectively. For the lowest consumption class its percentage is 17.64% showing that need of the hour has been a choice for the lowest consumption classes too.

4. CONCLUSION

The study tries to test the validity of rational expectations income hypothesis (Hall 1978) by using behavioral consumption function (Tolar 1997). The study is not only to tests the validity of REPIH but also study the relationship between different preferences of consumers to their income and consumption patterns for which primary data of Wah Cantt has been used. Questionnaire technique has been used to trace the factors which play a major role while making consumption expenditures, with sample of 100 respondents. The results have not supported the presence of Random Walk Hypothesis of REPIH for the consumers here. The results however showed that consumers here prefer quality and quantity together while making their consumption decisions.

This research will open new ways of research on the actual and perceived quality standards for the non-durable goods particularly basic food items.

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