TESTING OF REVEALED PREFERENCE HYPOTHESIS AND EXPENDITURE PATTERN

DR.S.GANDHIMATHI*

DR.P. AMGIGA DEVI**

M. Munjureena***

ABSTRACT

The micro economic theories dealt with the relationship between prices, income and consumption. The empirical studies were conducted to test the economic theories from various angles. The earlier studies analysed the consumption expenditure without considering preference hypothesis. But according to Samuelson (1947), choice reveals the preferences of the consumers. His demand theory is based on the preference hypothesis. It means that the consumer chooses the bundle that is preferred from amongst all available bundles for a set of prices and expenditure (Molina 1996). Samuelson explained the observed consumer behaviour and utility maximization based on the strong ordering assumption. Strong ordering assumption means that there is definite ordering of various combinations in consumer's scale of preferences and therefore the choice of a combination by a consumer reveals his definite preference for that over all other alternatives open to him. Thus, under strong ordering, relation of indifference between various alternative combinations is ruled out (Ahuja, 2005). Only a very few studies included preference behaviour of the consumers in the analysis of consumption and utility maximization. Moreover, the studies

* Associate Professor Of Economics, Avinashilingam Institute For Home Science And Higher Education For Women, Coimbatore. Tamilnadu, India

** Professor And H.O.D. Of Economics, Avinashilingam Institute For Home Science And Higher Education For Women, Coimbatore. Tamilnadu, India

*** M.A.(Economics), Avinashilingam Institute For Home Science And Higher Education For Women, Coimbatore. Tamilnadu, India

did not analyse the expenditure of households under strong and weak ordering. Hence the present study tries to analyse the consumer behaviour under both strong and weak ordering. Moreover, the present study was based on consumption behaviour of college students. The consumption preferences of the college students were expected to have high variation depending upon the fashion, brands of the goods and the friend's expenditure. Hence the preference hypothesis was tested for the consumption behaviour of the college students. **T**he preference behaviour of the students reveals that 66 percent of the students offered strong ordering for clothing, 74 percentage for cosmetics, 54 percentage for stationary items, 52 percentage for fast food, 61 percentage of food wear, 35 percentage for entertainment, 53 percentage for telecommunication and 57 percentage for transport. It revealed that more than 50 percentage of the students had preferred strong ordering for all items except for entertainment. The estimated consumption expenditure equation of the students, who preferred strong ordering shows that male education was statistically significant at 10 percent level to determine the consumption expenditure. The co-efficient of the male education in the family was positive. It reveals that the expenditure of the students who preferred strong ordering had increased with increase in the education of the males in the family. In the consumption expenditure equation of the students who preferred weak ordering, age of the students, religion, family income, education of the male and female in the family exhibited statistically in significant relationship with consumption expenditure.

The micro economic theories dealt with the relationship between prices, income and consumption. The empirical studies were conducted to test the economic theories from various angles. Patnike (1995) attempted to analyse the consumption pattern of rural households in Pondicherry. Three hundred and fifty four households were selected. The findings of the study reveals that cereals occupied the major place in the consumption basket. The monthly consumption of cereals for households in schedule caste was lower by 8.9 percent but per capita figures showed a slightly higher by Rs 3.34 over that of non-scheduled caste. The expenditure on other consumption items seemed to be, more or less, equal or slightly higher for non-scheduled caste households. Dayal (1990) reported that the consumption level had increased with increase in the land holding.

The above studies analysed the consumption expenditure without considering preference hypothesis. But according to Samuelson (1947), choice reveals the preferences of the consumers. His demand theory is based on the preference hypothesis. It means that the consumer chooses the bundle that is preferred from amongst all available bundles for a set of prices and expenditure (Molina 1996). Samuelson explained the observed consumer behaviour and utility maximization based on the strong ordering assumption. Strong ordering assumption means that there is definite ordering of various combinations in consumer's scale of preferences and therefore the choice of a combination by a consumer reveals his definite preference for that over all other alternatives open to him. Thus, under strong ordering, relation of indifference between various alternative combinations is ruled out (Ahuja, 2005).

Only a very few studies included preference behaviour of the consumers in the analysis of consumption and utility maximization. The studies did not analyse the consumer behaviour and utility maximization under both strong and weak ordering. Hence the present study tries to analyse the consumer behaviour under both strong and weak ordering.

Moreover, the present study was based on consumption behaviour of college students. The consumption preferences of the college students were expected to have high variation depending upon the fashion, brands of the goods and the friend's expenditure. Hence the preference hypothesis was tested for the consumption behaviour of the college students.

The specific objectives of the study were:

1. To test the extent of strong and weak ordering in the expenditure

preferences of the students.

2. To identify the factors determining consumption expenses of students in both strong and weak ordering

The following null hypotheses were tested:

1.There was no association between selected socio-economic characteristics of the college students and expenditure pattern of students preferred strong and weak ordering.

METHODOLOGY

The present study is mainly based on the primary data; the college students were selected as a sample unit. College students have young and fresh mind and their consumption decisions were expected to be entirely different from the other group of consumers. Their expenditure preferences were expected to have high variations and it could be determined by the changes in the fashion, changes in the brands of the commodities and the friends' consumption preferences etc. Hence the college students were identified as the sample unit. The Avinashilingam University for Women was selected for the study due to the convenience of the investigator. A Sample of 5 percent of the population in the University was selected as the sample unit. The 5 percent of the population around 100 students were randomly selected based on random number table. Hence the sampling technique adopted in the study was convenient random sampling.

All the 100 students were classified as the students who preferred strong ordering and weak ordering based on the past and present consumption preferences. If the students those who preferred same variety or brand or amount to spend between past and present time period, their consumption preference was classified as strongly ordered. If the students preferred different variety or brand or amount to spend between past and present, their consumption preferences were classified as weak ordered. In the post stratification, there were 43 students who preferred strong ordering and 57 students who preferred weak ordering.

COLLECTION OF DATA AND PERIOD OF STUDY

The survey method was used to collect information from the sample students. Interview schedules were used to collect information on the socio-economic characteristics of the students, extent of strong and weak ordering, expenditure pattern of the students etc. A pilot study was conducted to identify the information gap in the scheduled. The final interview schedule was

modified based on the pilot study. The final survey was conducted with the restructured schedule.

The period of the study was 2006-2007 and the final survey was conducted in the month of December, 2007

ANALYTICAL TECHNIQUES AND SPECIFICATION OF THE MODELS

A critical analysis of the methodologies adopted in the studies on consumption function and demand function revealed the exclusive application of the regression analysis to estimate the relationship between socio-economic characteristics of the households and the consumption expenditure.

The estimation of expenditure function for the students who preferred strong and weak ordering based on ordinary linear regression analysis could create selectivity bias. Hence endogenous switching regression analysis was employed to identify the factors determining consumption expenditure. Simple percentage analysis was employed to analyze the extent of strong and weak ordering etc.

Details of the specification of the model and estimation techniques are as under.

ENDOGENOUS SWITCHING REGRESSION ANALYSIS FOR ESTIMATING EXPENDITURE EQUATION

An endogenous switching regression model frame work was used to test the relationship between students consumption expenditure and selected socio-economic factors. For the endogenous switching model, one can assume two regimes for any observation;

Relevant structure is

$$Y_i^s = \beta^s x_i + v_i^s \quad \text{if } \gamma' z + \varepsilon_i > 0$$

$$Y_i^w = \beta^w x_i + v_i^w \quad \text{if } \gamma' z + \varepsilon_i \leq 0$$

where the switching equation is the standard probit estimation of whether the students preference is strongly ordered or weak ordered. Hence the above equations were the reduced form expenditure equation.

The implied expenditure equation for the students who preferred strong ordering was

$$Y_i^s = a^s x_i + {}_{\ell s}\varepsilon\ \sigma_s\ \lambda\ (\alpha)$$

The expenditure equation for the students who preferred weak ordering was

$$Y_i^w = a^w x_i + {}_{\ell w}\varepsilon\ \sigma_w\ \lambda\ (\alpha)$$

Where Y=amount of expenditure in the past and the present (in Rs) X_i = Age of the students, religion, family income, male education and female education in the family. ${}_{\ell s}\varepsilon$ = correlation between expenditure equation of the strong order preference students and expenditure preference equation. ${}_{\ell w}\varepsilon$ =correlation between expenditure equation of the weak order preference students and expenditure preference equation.

RESULTS AND DISCUSSION

PERCENTAGE OF STUDENTS PREFERRED STRONG AND WEAK ORDERRING

An attempt was made to analyse the percentage of the students preferred strong and weak Ordering. The table -1 shows the percentage of students preferred strong and weak ordering.

TABLE-1

PERCENTAGE OF STUDENTS PREFERRED STRONG AND WEAK ORDERRING

Items	Percentage of students preferred Strong ordering	Percentage of students preferred Strong ordering	Total
Clothing	66	34	100
Cosmetics	74	36	100
stationary items	54	36	100
Fast food	52	48	100
Foot wear	61	39	100
Entertainment	35	65	100
Telecommunication	53	47	100
Transport	57	43	100

The preference behaviour of the students reveals that 66 percent of the students offered Strong ordering for clothing, 74 percentage for cosmetics, 54 percentage for stationary items, 52 percentage for fast food, 61 percentage of food wear, 35 percentage for entertainment, 53 percentage for telecommunication and 57 percentage for transport. It revealed that more than 50 percentage of the students had preferred strong ordering for all items except for entertainment.

The above analysis reveals that higher percentage of the students stick on the same variety of product.

DETERMINANTS OF CONSUMPTION EXPENDITURE PATTERN OF THE STUDENTS

To identify the factors determining consumption expenditure in the past as well as in present, endogenous switching regression analysis was employed. In the endogenous switching regression analysis, the consumption expenditure equation for both groups of students who preferred strong and weak ordering were estimated simultaneously. The factors such as age of the students, religion, family income, male and female education in the family were hypothesized as the determinants of consumption expenditure. The estimated consumption expenditure equation in the past is shown in table-2

TABLE-2

ESTIMATED ENDOGENOUS SWITCHING REGRESSION MODEL FOR CONSUMPTION EXPENDITURE IN THE PAST

Variables	S	W
Constant	8429.626483 (.208)	-15321.52067 (-1.027)
Age	362.5244317 (.218)	125.470235 (2.185)**
Religion	4244.311786 (1.072)	1483.265503 (.293)
Family income	-2498.114877 (-.745)	-183.1238713 (-.027)
Male education in the family	6192.372667 (1.683)*	-748.6685225 (-.111)

Female education in the family	1357.851221 (.396)	247.1156713 (.055)
Variance parameters		
σ (s)		12264.62538 (4.297)***
ℓ (s,u)		-.9997551012 (-136.329)***
σ (w)		4068.525755 (2.819)***
ℓ (w,u)		-.1177491826 (-.025)
Loglikihood function		-1053.286

Source: Field Survey, 2007.
*** =Significant at 1% level
** =Significant at 5% level
* = Significant at 10% level
S =Students preferred strong ordering
W =Students preferred weak ordering

The estimated consumption expenditure equation of the students who preferred strong ordering reveals that education of the male in the family was statistically significant at 10 percent level. All other factors such as age of the students, religion, family income and female education turned out to be insignificant in determining the consumption expenditure. The co-efficient of the male education was positive. It implied that higher the level of male education in the family, higher would be the consumption expenditure of the students who preferred strong ordering.

The estimated consumption expenditure equation for the students who preferred weak ordering indicates that age of the students was statistically significant factor in determining the consumption expenditure. All other factors were turned out to be statistically insignificant. The co-efficient of the age of students was positive. It means that higher the age, higher could be the consumption expenditure.

The selectivity variable 'ℓ' indicates that there was no significant selectivity bias in the expenditure equation for those students who preferred weak ordering. (t*(ℓ) =-0.025).

But 'ℓ' was statistically significant (t*(ℓ)=-136.329), there was selectivity bias in the expenditure equation of those students who preferred strong ordering.

The estimated consumption expenditure equation in the present is shown in table-3.

TABLE-3

ESTIMATED ENDOGENOUS SWITCHING REGRESSION MODEL FOR CONSUMPTION EXPENDITURE IN THE PRESENT

Variables	S	W
Constant	31757.70222 (1.744)*	27853.28233 (.687)
Age	-563.9020738 (-.776)	314.8020173 (.138)
Religion	920.3717038 (.477)	-6026.022685 (-.699)
Family income	-1345.546628 (-.736)	3830.400564 (.568)
Male education in the family	2778.151016 (1.708)*	-6238.921937 (-.462)
Female education in the family	571.8102909 (.314)	-847.4749784 (-.111)
Variance parameters		
σ (s)	6705.973224 (5.468)***	
ℓ (s,u)	-.9303397952 (-3.121)***	
σ (w)	13387.28695 (1.541)	
ℓ (w,u)	-.9754769361 (-18.621)***	
Loglikihood function	-1069.535	

Source: Field Survey, 2007

*** = Significant at 1% level

* = Significant at 10% level
S=Students preferred strong ordering
W=Students preferred weak ordering

The estimated consumption expenditure equation of the students in the present, who preferred strong ordering shows that male education was statistically significant at 10 percent level to determine the consumption expenditure. The co-efficient of the male education in the family was positive. It reveals that the expenditure of the students who preferred strong ordering had increased with increase in the education of the males in the family.

In the consumption expenditure equation of the students who preferred weak ordering, age of the students, religion, family income, education of the male and female in the family exhibited statistically in significant relationship with consumption expenditure.

The selectivity variable ℓ was statistically significant in the student's expenditure equation at present. It indicated that there was significant selectivity bias in the expenditure equation of the students.

CONCLUSION

To conclude, the preference behaviour of the students reveals that 66 percent of the students offered strong ordering for clothing, 74 percentage for cosmetics, 54 percentage for stationary items, 52 percentage for fast food, 61 percentage of food wear, 35 percentage for entertainment, 53 percentage for telecommunication and 57 percentage for transport. It revealed that more than 50 percentage of the students had preferred strong ordering for all items except for entertainment. The estimated consumption expenditure equation of the students, who preferred strong ordering shows that male education was statistically significant at 10 percent level to determine the consumption expenditure. The co-efficient of the male education in the family was positive. It reveals that the expenditure of the students who preferred strong ordering had increased with increase in the education of the males in the family. In the consumption expenditure equation of the students who preferred weak ordering, age of the students, religion, family income, education of the male and female in the family exhibited statistically in significant relationship with consumption expenditure.

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