AN ANALYSIS OF THE HOUSEHOLD CONSUMPTION FUNCTION APPROACH TO THE CONSUMER BEHAVIOUR

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Introduction to the Traditional Approach

The exposition of the traditional theory of choice is based on the view that consumer derives and maximize utility from the consumption of the goods which they purchase from the marketplace with constraint to the money income. Suppose a consumer consumes a vector of goods x_i (x_1, x_2,....., x_n) with vector p_i (p_1, p_2,....., p_n) then utility U will be derived from the consumption of good x_i

$U = u(x_1, x_2, ..., x_n)$

Subject to the budget constraint I where I is money income of the consumer

$I = \sum_{i=1}^{n} xipi$

The demand for the good x_i will be a function of the real income, relative price and taste of the consumer. The following equation summarised the effect of change in real income and the relative price of the goods on the demand for the good.

$X_1 = d_1(I/p, p_1/p, p_i/p, T)$

Where p is the price index and the T represents the variation in the demand that is not explained by the change in real income and change in relative prices. All three variables i.e., explain the total variation in the demand of the good x_1 and represents the complete scenario of the consumer behaviour. The traditional approach of consumer behaviour explains an important behavioural law that the income compensated change or pure change in the relative price of any good negatively changes the quantity demanded of that good. To broaden the range of applicability economists have modified the consumer choice theory from time to time. For example, the searching for information about the price, qualities and varieties, incorporating the decision making under certainty and formulation of the expectation about the future behaviour of income and price. However, the basic framework of consumer choice was the same in each modification.

Weakness of the Traditional Approach

In the analysis of the survey, we use averages of the group of the cross-sections classified by some set of variables. Since economists are interested in measuring and analysing aggregate response so they use grouped data for the analysis as it can estimate unbiased estimates of coefficients as well as can be used as a way to measure the different problems and error with the independent variables. With the use of grouped data of explanatory variables which increases the explanatory power of estimating equation, one can estimate for example the small part of the variation in demand for specific goods or services with the help of income and prices as an explanatory variable.

However, we consider taste as the variable that explains the demand for goods and services which is not explained by the income and price. But the grouped data do not eliminate the need for taste and systematic effects of many socio-economic and demographic variables on the observed behaviour. However, economists do not have any well-developed theory to formulate the effect of taste and other variables. In other words, the traditional theories that researchers often use to explain the behaviour are not able to assist them in choosing appropriate proxies for the taste to formulate and estimate the effect of these variables on behaviour.

The traditional theory of choice that emphasises the derivation of utility from the consumption of the goods and services purchased in the marketplace formulates the behaviour in terms of monetary price and monetary income. Hence, the application of the theory is restricted to the market sector only where they can easily be quantified in terms of money. Thus, the traditional theory avoided the other behavioural decisions that involve the choices made with the limited resources among the competing ends. Some of the examples of the choices that involve the allocation of scarce resources among the competing ends are decision about marriage, family size, divorce, religion, political party and allocation of the nonmarket time of the consumer. Therefore, these types of choices involve non-monetary factors that are often ignored by economists.

The Household Production Function Approach

The new household production function approach to consumer choice is the fundamental break of the standard theory where the choice is made on the commodity which generates the utility directly. The commodity is not what consumer purchase from the market rather it is directly produced by the consumer unit itself by combining the purchased goods or services from the market and the household's own time. So these commodities are produced through the productive activity by the consumer unit. In this case, the commodity is produced by the nonmarket sector by using the goods from the market sector as input. Therefore the demand curve for the market goods purchased by the consumer will be similar to the derived demand curve of the firms for any factor of production.

We can write the household's utility function as

$U = u(Z_1, Z_2, ..., Z_n)$

Where Z_i refers to the services from and quantity of the commodity Z_i. consumer produces the commodity by using the vector of markets goods x_i and vector of its own time t_i as input. We can write Z_i as

$Z_i = z_i(x_i, t_i, E)$

Where E stands for the vector of variables representing the environment in which production is taking place. In other words, E reflects the technology level of the production or art of the production. The above equation represents the production function constraints of the household.

Consumers maximize their utility function subject to production function constraints and available time constraints of the household given as

$T = t_w + \sum_{t=1}^{n} t_i$

As well as the budget or income constraint

$I = \sum_{t=1}^{n} p_i x_i$

Where t_w is time spent in the labour market and t_i is time spent in producing Z_i while x_i and p_i are the price and quantity of the good purchased in the market to produce Z_i. The household's time constraint and income constraint can be represented in one single equation called household's full income constraint given as

$S = wT + V = \sum_i (wt_i + p_i x_i)$

Where V stands for household's nonwage income and w is the constant wage rate. The magnitude of the full income constraint will be independent of the time allotted to the income-earning activities of the household.

Application of the Household Production Function Approach

The household production approach incorporates the concept of production into the theory of consumption. It implies that since households always attempt to minimize costs to produce commodity and maximize their utility so they will now respond to the prices and productivity of the market goods used as a factor to produce commodity as well as to the change in commodities relative shadow price and change in full real income. Therefore if the price of some factors of production decreases the households will shift their production process towards the commodities and techniques that will use those factors of production intensively.

As household always try to minimize the cost of production, if the productivity of any factor of production increases and the prices remain constant the relative use of those factors in production will increase and the relative price of the commodities using those factors will decrease which will further increase the consumption of those commodities. The increase in the productivity of the factors will also raise the full real income of the household and consequently, the consumption of all the commodities with positive income elasticity will increase. Thus the change in the productivity of the factors of production has several responses on the production and consumption of the commodities. This is also to be noted that the demand for the factors of production whose productivity has increased will rise only

when the combined effect of substitution in both production and consumption, as well as the effect of the raise in the full real income, will outweigh the productivity effect of the factors. If the combined effect of substitution will be outweighed by the productivity effect then in that case the absolute change in demand for those factors will fall.

There are several implications of the household production functions that include magnitudes of cross-price elasticities, rationalization of the diminishing marginal utility of income assumption, interpretation of functional separability and justification of using the household as a unit of observation. Following are some categories of the applications of the household production function.

1. Allocation of time

The allocation of working as well as the non-working time have a greater impact on the behaviour of the household and welfare of the household. It is said that non-working time is nowadays very important to the economic welfare than working time. This is one of the best implication of the household production function where the allocation of time between different activities is studied to know the behaviour of the consumer. In the allocation of time household behave as a consumer as well as a producer where they produce commodities by combining market goods and time to maximize their utility and minimize their cost. Here household produces subject to resource constraint which is also called full income consisting of income and time constraint and the price of the commodity is measured by the sum of input cost of market goods and time inputs.

The allocation of the time theory shows how the change in earnings, goods price, other incomes and productivity affect the allocation of time. According to this theory if the full income remains unchanged the time will become more expensive and the time allocated to consumption will be reduced. In this case, the input goods will be substituted for the time input and the production of a commodity that uses goods intensively will be substituted for the production of commodities that use time intensively.

The analysis of Jacob Mincer on the labour force participation of married women is a good implication of the household production function. Mincer analysed the decision-making process of married women to participate in the labour force and how they allocate time between housework and market work.

2. The use of the non-market time

The household production function approach can intuitively be applied in activities that consist of non-market time as a large proportion. There are many examples where the non-market time has been considered as an essential component, first, the demand for the mode of transportation in the production of intercity visit. R. Gronau explains the value of time in passenger transportation and its implication on the demand for air travel. He explains how the

urban commuters choose the tradeoff between the time and the money cost of the transportation. he found the difference in choosing the mode of transportation based on the time of travelling whether they travel during working time or the holiday. Here travel cost consists of two costs the paid out travel cost and the time cost. The second example is the study of John D. Owen where he analyses the demand for leisure and recreational time. The consumers not only sell their time labour market but also purchase the time in terms of various services that can save the time of the consumer. For example, the demand for the various services advisors, consultants and demand for fast and instant foods are the result of the fact that time is a scarce factor. Therefore the demand pattern of these goods and services would be quite different if consumers do not consider time as a scarce factor of production or resource.

The satisfaction that consumer gets from the consumption of the market goods directly depends on the time that is required to alter and consume those goods. Consumers generally do not demand the goods and services that require more time in consuming and making those goods and services consumable. Therefore the use of time seems to be very important in knowing the consumption behaviour for most of the goods and services.

The value of time for an individual differs at different stages of life and it affects the production of the commodity by changing the combination of the factors of production. In the student, lifetime has not very much value and individual prefers the production of time-intensive commodities and market goods and services seems to be scarce form them. While at the age of 30 and above time seems to be a scarce factor of production in comparison to market goods and services. The case again changes in the older stage of life when time again becomes a less scarce factor of production. So the time-saving behaviour and selection of the mode of production of the commodity by an individual depend on the different stages of life.

3. The choice of the destination

The choice of the different destination for a household depends on the monetary cost and income of the household. The household production approach to the destination choice by John Odland presents the value of the time cost of the destination choice. According to him the choice of the destination not only depends on the monetary cost of the travel but also on the time cost of the travel. Further, he considered the characteristics of the alternative destination in determining the choice of the destination. If the characteristics of the travel as well as the goods and services, the income, characteristics of the place, travel cost, and the taste of the household change, the choice of the destination of the household will change. It is also analysed by him that if the constraints of change the change in the set of the destination will happen within the boundary of the feasible region. Therefore the household chooses a set of destination to maximize its utility under the given constraints of available time, cost of the travel. Any change in the given circumstances can lead to the addition or deletion of the destination from the set.

4. The importance of human capital

With the introduction of time into the analysis of consumer behaviour, the human capital embodied in the individual consumer becomes an important variable to analyse the productivity of the time and decision of the individual in investing in the human capital. The productivity of non-market time, as well as the effect of the human capital on the non-market production, affect the decision of the individual about the investment in the human capital. Thus the investment in education, health and human capital incorporates the consumption returns as well as the non-market benefits that can be derived from the investment. The human capital rises the full real income by raising the value of time as well as the productivity of the non-market consumption activities. The other researchers also emphasise the role of schooling and health capital and its returns on schooling and the demand for medical services. The human capital investment also shows the effect of various environment in which non-market production takes place. The recent development in the quality of life approach to measuring the development is the result of the understanding of the household production approach where it emphasises the role of difference in climate change and other demographic factors in decision about the non-market production.

5. Analysis of labour supply and other social issues

The household production function approaches better analyses the complicacy of the supply of labour decisions. Some of the researchers analysed the relation between the labour supply decision of the husband and wife that depends on the many variables like wage rate, number of children, age, wealth etc. L. Ehrlich used the household production function approach to check the response of criminal activities probability of apprehension and punishment while N. K. Komasar used this approach to study the criminal victimization rate. A.S. Leibowitz used this approach to check the allocation of time by the parents specifically mothers on the pre-school investment in young children.

6. Analysis of marriage and fertility

Backer in his paper the theory of marriage explains the use of the household production approach in the decision about the marriage. He analysed the incentives to marry and the optimal shorting of the marriage mates by the different characteristics of the mate and the interaction between the marriage and fertility behaviour. A. Freidan analysed the propensities of the marriage using this framework. This theory has also implications on the timing of marriage, divorce and the nature of organisational forms of ono-market production. R. J. Willis analysed the demand for the children using this approach in the United States.

Conclusion

Although this approach i9s relatively new it has very diverse use to the consumer behaviour and consumption theory. The household production function approach put greater emphases on the change in the price and income of the household but it reduced the importance of the taste in determining and interpreting consumer behaviour. However, the household production function approach has strengthened the traditional approach of consumer behaviour by incorporating the various constraints on the behaviour of the household and it reduced the reliance on the taste and preferences in observing household's or consumer's behaviour. The alteration made by this approach is considered desirable because it suggests and yields a variety of additional prediction about the behaviour with a strong base to the theory. The household production function approach has expanded the applicability of the theory of consumer choice into the non-market sector which not only gives a clear picture of the consumer choice but also opens many additional dimensions of the consumer choice.

The approach can deal with the production of many commodities like good health, children, marriage, choice of the mode of transportation as well as the choice of destination indicate the usefulness of this approach in research. Thus the household production function approach transformed the consumption theory from a sterile area of economics to the exciting one.

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