Demand and Utility: New Methodology

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Abstract

In paper consider the impact of information and advertising on consumer behavior and the process of productive differentiation formation. Advertising, television, radio, magazines and direct mail as major constraints of mass media may act as sources of information. Economics modernization aimed at accelerated development of the knowledge intensive industries, which contribute to Russia's entrance at the world economy; the reset of manufacturing base of Russian economics; development of import substitution industries and limited participation in international labor specialization.

Keywords: quality, profits, heterogeneous goods, product demand and grade

1. Introduction

The study of the demand, in our opinion, is to comprise a specific line related to the construction of a consumer behavior model. The latter describes actions of a particular socio-economic group. Hence, the model is to comprise general characteristics of certain patterns in consumer behavior in the given market environment.

By the development of a society, human wants change towards the increase of consumption as well as towards the grade improvement. Thereby, providing high grade and quantity standards of the indispensable goods. The systematization within the consumer behavior research views the market environment as an object of study containing numerous internal and external cause-effect relations (Bagautdinova, 2012; Melnik, 2013).

R. Shmalenzy notes that "the consumers' choice is predetermined by an array of factors. It may rest on personal, family or friends' experience, salesmen or specialists advice, data on prices and product properties that comes from public information sources".

2. Method

Advertising is known to affect purchasing as well. On these grounds, one should consider foreign authors who provide wide range of advertising information.

According to Shmalenzy, the majority of developed nations, the USA in particular, possess the considerable total value of advertising expenses that reach 2.1% GNP and is equal to $6 mlrd. For example, in 2006 Great Britain, the country with relative economic strength spent more than 25% of the overall advertising expenses on the TV advertisement, more than 14% on direct mail and about 11% on mass media.

Let us consider the impact of information and advertising on consumer behavior and the process of productive differentiation formation. Advertising, television, radio, magazines and direct mail as major constraints of mass media may act as sources of information.

According to the structure of allocation of advertising costs, commodities such as food, beverage, cosmetics, etc. cover more than 27% of expenses. Durable goods such as household appliances comprise 21.4%. Several firms that establish commodities nomenclature domineer within both sectors (Bolton, 1999).

Purchasing such-like the goods consumers try to avoid mistakes and not to pay a heavy price as afterwards. This results in well thought out decisions which lead to obtaining sufficient information on the wide spectrum of goods available in the market. Therefore, advertising campaigns strive to provide consumers with the essential data.

Advertising statistics Yourbook, 2006 (NTC Publications, 2006) contains the detailed information on the allocation of advertising costs between several sectors. Figure 1 illustrates an advertising impact on the high grade product sales flow.

An impact of advertising signal quality on the sales flow is reflected in 4 periods of time.

The durable goods' signals were transmitted within T1, T2 period. The figure shows the direct impact of advertising signals on the sales flow as indicated throughout and after signals transmission. The quest rises from Q1 to Q2.As time goes by (after T3 point) the direct impact of advertising decreases and fades at T4 as illustrated by dash-and-dot line.

New consumers, however, keep purchasing the goods that are out of their regular market basket thus leading to the slow decrease of rather high sales level (as compared to pre-advertising sales). As a result sales reach stable point (at T5 time period). In such a case sales performance does not reach starting point at Q1 because new consumers are likely to adhere to new product at length. This long term impact is reflected as sales increase from Q1 to Q2.

The user value is determined by acceptable grade of product, i.e. its utility with regard to the price. The more advertising signal contributes to the acceptance of goods grade, the higher is the level of utility.

The analysis proves signaling to be targeted at the product grade support. The latter would provide long-term consumption dynamics. Successful brands also owe to long-term sequential advertising signals of the firm. High grade brand image requires extended production. Having reached high status, brand may keep its reputation and attract large number of customers in the long run.

Figure 1 demonstrates advertising impact on the low grade purchasing that stands until T3 point with the same costs. After that, however, the direct impact of advertising decreases significantly. Receiving new market signals (as opposed to less preferable advertising ones) new consumers will not purchase the goods by low grade manufacturer.
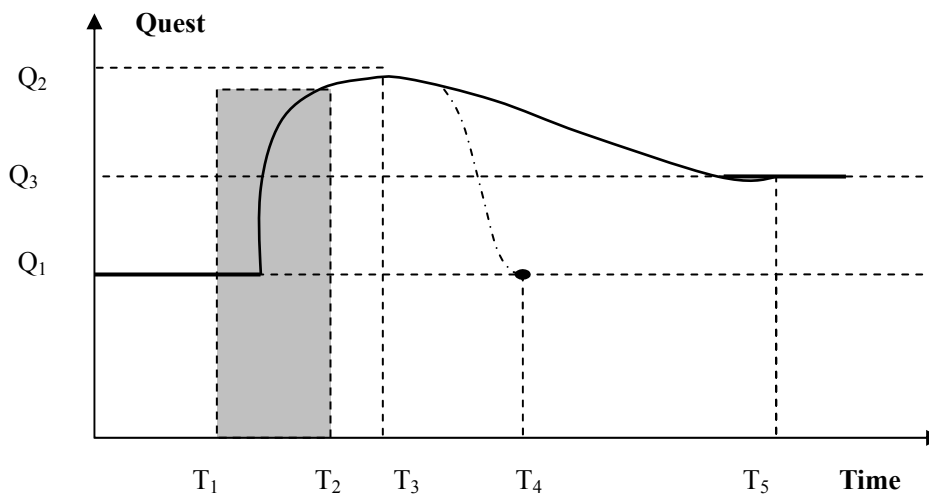

Figure 1. An advertising impact on purchasing

Expenses are subdivided in 3 main categories.

Expensive goods, such as furniture, household appliances and other durable products belong to 1st category. Purchasing such-like the goods consumers try to avoid mistakes and not to pay a heavy price as afterwards. This results in well thought out decisions which lead to obtaining sufficient information on the wide spectrum of goods available in the market beforehand. When advertising products companies mean to provide customers with information required (only their goods considered).

The 2nd category includes new products that are to penetrate into the market.

The 3rd one comprises unstable customer base products (child care serves as an example).

On the one hand, advertising notifies customers of products availability on the market and contributes to new products market penetration. On the other hand, it may deprive both customer and society as a whole. It happens

because advertising aims at compelling the customer to purchase the product. Customers, in their turn, fail to possess complete information and may be disoriented by the lower grade of the purchased product as compared to similar less advertised ones. The repurchasing compensates advertising negative impact.

2007 statistical yearbook contains information on Russian companies' advertising activity relevant to our topic. Herein we only state 2006 contracts structure on goods and services types (overall number of 3694 agencies' contracts percentage) made by publicity agents: imported and domestic food-12,1%; imported and domestic nonfoods-30,1%, services-39,1%; others-9,8%.

Thus, the price and advertising have direct influence on consumer behavior. The study of advertising embedded information deforms consumer rational behavior model to the largest degree. This results in the informational differentiation of essentially homogeneous goods (as cleansers, beer, drinks, etc.).

Let us consider several view points on advertising. Presumably, advertising delivers valid information on the availability, price and grade of the product (its location and characteristics). The information retrieval and delivery are assumed to require certain costs, advertising expenses, for example. These tend to be goods in quest.

Let us analyse information influence on the product's grade differentiation, i.e. study the correlation between customers' information and product's grade differentiation. Should producers fail to deliver direct information to consumers, the latter acquire it by means of consumption. Previous consumption types predetermine various products' divers grade information of at a given instant. Thus, knowing the grade of 1 product consumers may not perceive others as absolute quality substitutes (Sarkin, 2014, Brown, 2007).

The research held above allows us to illustrate the correlation of the high and low grade goods quest and the knowledge extent and awareness degree (Figure 2).
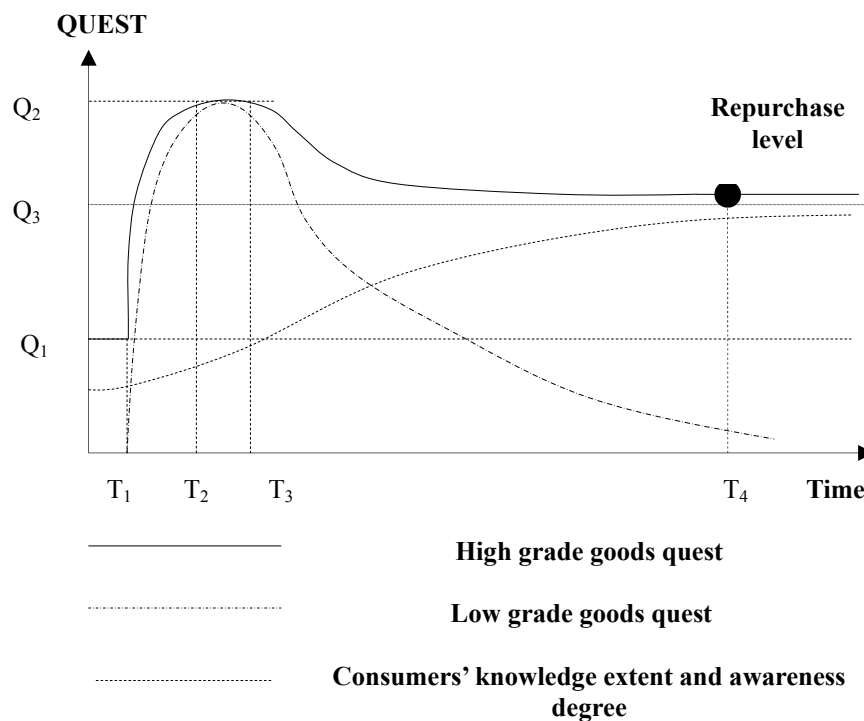

Figure 2. The correlation of the high and low grade goods quest and the knowledge extent and awareness degree

The information reaches consumers by means of advertising that rationalizes their choice by cutting quest expenses. It also contributes to the choice among an array of brands which leads to product differentiation reduction.

Thus, the high grade product utility has been found to reach its maximum under less consumption than low grade product. The cumulative utility function under high constant grade level rises at a faster pace with the increase of consumer goods unit and reaches its maximum under less consumption than low grade product.

Moreover, it has been proved that for two persons the same utility may be reached under different prices depending on the price and amount of product grade information. This happens due to the insufficient information, i.e. 2 consumers pay different price for equal grade. That is why utilities have at least 1 common point or line within price-grade-quantity dimension. This is true for zero informational transactional costs, i.e. information is free.

Consider the case of a washing machine, the purchase of which will cost 500 euro. If he pays cash, the structure of his momentary costs will not include any uncertainty, the sum will be equal to 500 euro. But washing machine can be broken. It is possible that in two years he will have to pay for its repair 100 euro. It's impossible to predict these things but if it happens, he will have to pay the price, just like he had to pay 500 euro when buying a washing machine. In other words, when he buys a washing machine, the full price he will have to pay for the product during the period of its use, is uncertain [9].

If the costs of this washing machine are uncertain, the benefits of its purchase and use are also uncertain. Perhaps the reason of his desire to buy a washing machine was an analysis of the brochure of the manufacturer or the watching TV or magazine advertising, etc. But after temporary using of this product the consumer may find its advantages and disadvantage, which were not suspected. For example, the machine does not dry his clothes as he counted on it, furthermore, the car makes much noise, it leaks, the machine door is closed too tightly and so on, thus the purchase of durable goods is associated with the uncertainty. The same can be said about the acquisition of property, regardless of whether it is physical property (e.g., estate property) or about financial property (e.g., shares). In the case of purchase of the property the uncertainty is associated with the future price of it, the direction of change of which the consumer cannot know exactly.

In economy based on knowledge, regarding durable goods, i.e. «experience goods» and «search goods», the main issues are demand, supply, and selection of goods, information, and knowledge. Furthermore, the peculiarity of the market of mentioned goods is a typical case when the buyer evaluates the quality of the goods statistically and the seller knows the quality of each item individually. Demand for durable goods QD mostly depends on two factors-the price p, and the average quality of g, i.e., the function of demand depends on two variables QD = Q (p, g). As a supply S, and the average quality of the product depends on the price, in other words, g = g (p) and QS=QS (p). By reducing the prices usually the quality and supply are decreased.

High quality goods (k) and low quality goods (n) have respective market shares have υkS and υnS which are probabilities and, hence, there is the following correlation: υnS = 1-υkS. Market supply of goods is formed from two groups with high and low quality level described weighted sum of two functions of supply

$$QS(p) = υkSQkS\ (p) + (1-υkS)\ QнS\ (p) \qquad (1)$$

where market shares are weighting coefficients

QkS = QkS (p), if g0 ≤ g ≤ 1 и QнS = QнS (p), if 0 ≤ g ≤ g0 are functions of supply of high quality goods and low quality goods.

Consumers don't know at the moment of purchase about both the level of quality of the purchased product and its market share. They make a selection among goods of different quality formed by mixing them in certain proportions to the total number of goods. Owing to that they have to make their own version of the market shares of mentioned goods of high quality υkD and low υ quality нD to which the demand is formed.

$$QD(p) = υkDQkD\ (p,\ gk) + (1-υkD)\ QнD\ (p,\ gн) \qquad (2)$$

where market shares are weighting coefficients

QkD = QkD (p, gk), if g0 ≤ g ≤ 1 и QнD = QнD (p, gн), if 0 ≤ g ≤ g0 are function of demand of high-quality and low-quality goods.

An inequality of market share of the offered and consumed goods of high quality υkD≠ υkS or low quality υнD≠ υнS forms a market asymmetry of information between producers and consumers.

In our view, the level of asymmetry of information on the market shares can be reduced on the basis of distinguishing high-quality producers and low-quality producers by consumers according their price and advertising signals of quality. This supposition is a consequence of the fact that the producers have no reliable way to provide consumers with this information before they decide to make a purchase. Factors of initial decision of producers to sell goods are the price (p), with which the product appears on the market and the sum of expenses A, additionally spent on advertising, regardless of the optimal level of information to potential consumers about the existence of the price and the quality of goods.

Next, we consider the processes of forming a consumer demand according price signals of quality.

Suppose that all consumers are identical to "taste" and have preferences of utility U = Θg-p, if they buy the product at the price p with the quality level g and taste Θ, and U = 0 is otherwise. Consumers at the moment of purchase can't differentiate high-quality and low-quality goods, or gradations of their quality. These goods are the same for them. That's why we can talk about the demand of this product, consisting of two or more levels of quality. Incompleteness of information about a product leads to that consumers have to use their knowledge about the level of quality which different types of goods can be had, and information about that how often customers buy these goods in the market. For example, the high price signalizes about high quality and conversely. Under such conditions, consumer demand is studied and realized by consumers taking into account of prognostics the probability of the presence vk –high quality goods (index-k) and vн -low quality goods (index-h).

Notoriously, the producers of low quality goods can also increase the price of their goods to the level of prices of high-quality goods. This situation is connected with the study of additional factors increasing the reliability of information about the existence of share of high-quality goods. Therefore, in the process of decision whether to purchase this or that product under uncertain conditions consumers should be more informed about the quality.

3. Conclusions

Domestic goods consumption is to be encouraged and manufactures expanded to provide country' economic growth. The most essential here is a balanced quest encouragement considering manufacturing expansion within economics. The extra domestic demand would result in development of inflation and positive effects loss.

The government provides favourable environment for consumer market to function. The series of reforms in government economic and social policies and certain measures to influence the demand would maintain the role of consumer demand within economic growth.

The modern economics literature covers several strategies to develop Russian manufacture. Those are: economics modernization aimed at accelerated development of the knowledge intensive industries, which contribute to Russia's entrance at the world economy; the reset of manufacturing base of Russian economics; development of import substitution industries and limited participation in international labor specialisation, etc. For the goals of our research, however, an issue of Russian manufactory system development needs to be viewed from the point of consumer activity increase.

The held research, in our opinion, highlights priority guidelines within encouragement of our country's consumer demand. Those are: 1. the understanding of quality as a national issue; 2. the development and application of administration and grade improvement methods at all economic levels and government's potential participation in the price regulation sphere; 3. the development of competitive relations within all branches of economy; 4. An application of new technologies and support of innovations, as the mainspring for grade and productivity; 5. the impact on manufacture structure and market's competitive environment (by an application to large-scale structural reconstruction of economy), and government's social obligations funding.

Let us formulate the general conclusion according to the abovementioned.

"The grade institutions are to be established at a rapid pace to provide effective increase of consumer activity in Russia and guarantee consumer rights protection in conditions of insufficient grade information. Moreover, set of measures aimed at goods grade increase is to applied to and coordinated by the country's economic facilities".

The expansion of consumer demand within knowledge based economy is determined by the directly-proportional quantity demand growth of consumers' knowledge, grade information reliability. The information and knowledge influence consumers' choice and cause different forms of consumers' market behavior.

Knowledge develops consumer behavior by reduction of the risk of low grade products purchase within specific market niche. It also increases utility, i.e. purchase benefits from sufficient information.

The information quality includes a combination of properties that reflect the validity of information on economic resources, civil standards, manufacturers, etc. and information capability to transform into knowledge. The quantity of information is a measure that is marked by the decrease of market uncertainty of socio-economic information that influences consumers' choice.

The utility that consumers obtain is directly dependent on their knowledge quantity and degree of awareness. The goods and services knowledge consumers get in the course of information processing stipulates businesses' decision that influences consumers' utility. The higher is the awareness, knowledge grade and objectivity, the more rational is the decision and the higher is the utility.

The amount of information and knowledge distribution within consumers occurs due to the decrease of market competitiveness degree, and conversely, the knowledge distribution increases at the higher competitiveness.

The manufacturers imperfect markets competition leads to knowledge and information distribution control that causes information asymmetry, i.e. the market situation that opens knowledge and information only to businesses as compared to perfect markets competition. The consumers' information support mechanisms involve elimination of the information asymmetry by means of television programmes, propaganda, etc.

The consumers demand theory extension in conditions of information asymmetry that determines modern economy's business activity, needs scientific grounding in order to expand consumers activity and the consumers rights protection. The developed nations' transition into post-industrial epoch, i.e. the information economy or the knowledge-based economy, stipulates new correlations that are different from industrial economy.

The information remains the most significant and modern factor of economic systems development. It causes new scientific research of consumer behavior including new factor of information that raises new questions on the knowledge and information influence on the consumer behavior in the modern economy. The information as a consumption factor determines new correlations between the rest of consumption factors. It specifies the certain grade product purchase.

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