

Rational approach in Hungarian mineral water market

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Abstract

In the article we examined the elements of classical rationality approach concerning consumer decision-making on mineral waters. We analyzed the different types of utility (functional, emotional, self-expressive) starting from the homeostatic needs. We pointed out that the biological satisfying function of mineral waters is more related with rationality; however the consume of mineral waters is also determined by safety and life style considerations (Fórián, 2006). Some factors behind the demand are examined in this paper: how price, income, product category, quality influence the consumer's decision, then we present a potential view of the optimal choice. We analyze the features of mineral water consumption in Hungary on the basis of primer data.

Keywords: microeconomics, consumer behaviour, mineral water consumption, needs, utility, demand, consumer's choice.

1 Introduction

Among the repertoire of methods in microeconomics we can find the decisions related to consumer behavior. The classical economy stresses the importance of consumers and satisfying of needs. This theory is based on the hypothesis that a person always thinks rational and he makes reasonable decisions (Mátyás, 1996). In neoclassical theories the consumer aims to satisfy his needs in the greatest possible way. His demand is influenced in this way by his knowledge concerning his entire information about the goods and eliminating the factor of uncertainty.

2 Background information

These said above are related to purchase of mineral waters, one of the fmcg. We are analyzing the validity of terms basically used in microeconomy. Hungarian mineral water markets can be defined by a monopolistic competition with many medium size actors. The most important obstacle of entering the market according to the product council can be the regulations of product fees, today only 1% but next year the obligatory refilling rates are 7%. According to the regulation 7% of the bottles sold in the market must be refundable. The small companies will not be able to make the more than 20 million forint investment. Premium (e. g. Theodóra, Szentkirályi) and "price-fighter" private label products are supported by country-wide distribution network and intensive marketing activities. It is very difficult to get a place on the shelves. The most often niche appears in case of brands that can be spread regionally, and appear continuously (Bikfalvy, 2006).

In our country there are circa 100 recognized wells and springs, half of which is bottled. Today consumer oriented approach is common in attitude of companies, due to product differentiating they can influence prices as well. In the market of natural mineral waters there is no product improvement in the classical sense due to legal acts (mineral water regulation). Apart from one or two physical procedures (filtering, sedimenting) mineral waters have to be launched in their natural condition. According to the regulation only carbon-dioxide can be added to the mineral water. The pressure of product differentiating urges the companies to develop their products continuously and carry on intensive marketing activity, that is in most cases communication components: shape and color of the bottle, label, appearance, strengthening brand loyalty etc. Product demand is relatively elastic as there are many substitutes present in the market.

3 Methodology

We use the definitions of classical (neoclassical) theory of economics and try to present that they can be applied in the case of mineral water market in Hungary nowadays. We build up our discussion by using three sources:

- theoretical literature concerning the subject,
- market research data,
- primer results.

We suppose that the consumer being a "homo oeconomicus", aims to satisfy his needs in the greatest possible way. He makes his choice on the bases of utility of goods and also regarding his on preference system, while he negligates other internal and external factors (habits, emotions, situations) (Scitovsky, 1990). Some of the defined axioms:

- limited goods are available,
- economic decisions can be derived from individual choices,
- social and economic phenomena appear in market mechanisms,
- in short term decisions costs and utility, while in long-term decisions yield and risks are concerned by the individual,
- the best choice is when the difference between yield and cost is a maximum, people search for largest yield and they try to eliminate risk.

The rationality conception of microeconomics is quite simplified if we analyze it in a view of psychology. During the analysis of human decisions the following factors should be noted motivations, norms, cognitive procedures etc. Despite the characteristics of rationality based approach we can state that without classical theories the different conceptions could not have developed. The complex definition of consumer decision could not have developed in an interdisciplinary way.

4 The basic point: the consumer's needs

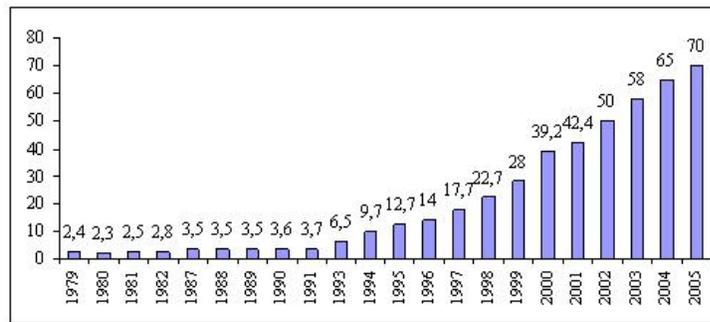
We can start from the fact that the consumer face different kind of needs. These can be the absence of sg or a claim to end a disturbing factor (Tomcsányi, 1993). The categories of needs:

- effective needs: these can be satisfied by products or services (consumer goods fall under this category, e.g. mineral water),
- latent needs: can be carried out, but cannot be fulfilled in economic systems,
- virtual needs: the method of satisfaction is not known.

In the case of mineral water the consumer satisfies physical need by easing his thirst, that is a homeostatic need. The hierarchy of needs by Maslow knows other needs as well, and according to the theory the satisfaction of needs at a higher level comes to pass after the needs below in the pyramid model are completed (Maslow, 1954). Today the mineral water consumption has other aspects connected to the lifestyle and security besides easing thirst (Fórián, 2006). The presence of social aspects asks the use of the neoclassical theory. Microeconomics brings in the concept of utility which is the totality of useful features of a product/services (Stiglitz-Walsh, 2002). We can distinguish functional needs (what can we gain from purchasing or owning a product?), emotional needs (color, form, comfort) and self-expressive needs of a brand (this can create group identity). The purchased products provide satisfaction to the consumer in one sense, so in the case of mineral water consumption easing thirst, the way you feel, need for healthy lifestyle can make the product useful. During purchasing decision the consumer ponders the inner content, appearance, price, type, flavour, stripping, brand name, advertisement etc. By Székely et al (2006) the judgment of a product can be influenced by the consumer friendly shaping of the shop, the marketing activity in a shop. From the "Shopping Monitor" study made by GfK Market Research Company some conclusions can be made close to the subject.

In increasing mineral water consumption the wider choice, the better standard of living have great role. These results were backed by trends (Törőcsik, 2003), which are connected to the press of time, the pressure of performance and efficiency, the diffusion of fitness/body culture, the advertisement based on the promise of youth, the increase of free time and the number of households, that induce the changing lifestyle and consumer customs.

Figure 1: Tendency of annual mineral water consumption in Hungary 1979-2005 (l/capita)



Source: Mineral Water Product Council

5 Types of utility

When we interpret the concept of utility, we can distinguish two kinds of school: the cardinal and ordinal consumer theory (Samuelson-Nordhaus, 2002). According to the former one the consumer is able to judge what kind of satisfaction the certain unit of good causes, that s/he can define in a numbers. During this process s/he has some assumptions, s/he knows her/his preference, strives to maximize the feeling of utility in a rational way, others have not influence on her/his decision, owns all the information. We can define the increase in utility during the consumption on other unit of good, which is called marginal utility, that is relevant in the case of mineral water as well. According to the first law by Gossen increase in mineral water consumption enhances the total utility of the consumer still less. The marginal analysis can be presented by an example: the utility of the first glass/bottle of mineral water is the biggest, later the marginal utility decreases, namely the total utility increases still less. When the consumption becomes regular, it does not cause great increase in feeling of utility, the motivation is avoiding to miss sg.

We know a correspondence in psycho physic that can be connected to the theory of economics. By the sense of Weber-Fechner law the connection between the stimulus and feeling can be described by a logarithmic function, where the decreasing marginal utility appears. Stevens pointed out that the correspondence can be determined by a power function where the index is above one, this would mean the increasing utility in economics. We can find a real example for this in the case of collectors of mineral water bottles or who is addicted to a harmful custom (Hunyadi-Székely, 2003).

6 Demand and prices

In the case of demand curve of a consumer the basic law can be found: greater the price of a product lower the quantity and in an other view, start from the theory of decreasing marginal utility the customer is disposed to spend less the increasing quantity of a product (Varian, 2004, Baumol-Blinder, 1991). For the consumer in average the mineral water is not Giffen-goods, where increasing in prices causes an increase in quantity because of the lower level of the product. The consumer does not buy mineral water because he would like to substitute e. g. tonic water with a less valuable water (in the sense of price and content). Presumably he chooses a good quality drink without chlorine instead of tap water. In some cases the snob effect appears: if the price of a product decreases the consumer purchases less. In the sense of Veblen effect the consumer judges the quality of the product on the basis of price.

Thanks to the price competition the price of mineral water does not increase in last years, the lower category mineral water has appeared, the consumption has lost its luxury feature. In the competition not only the discount on greater stripping is typical, but the private label products can be found more often on the market which is peculiar to hypermarkets and they can be classified into the lower price category. Lately the price (corrected by the inflation rate) of mineral water has decreased. Its cause is the increasing share of privet label water in the total turnover. In 2005 every third liter mineral water was sold as private label product and the volume of this will intensify, we can suppose 40 percent in 2006. This is an unfavorable tendency for branded middle category products, because their share will diminish. In the case of premium category products the firms try to sustain their position by product

development and brand building (e.g. Szentkirályi baby drink). Mineral water can be categorized by price:

- Cheap products: mostly simple packed products of hyper- and supermarkets (Mizse (Coop), Balfi (Spar), Kun-aqa (Profi), Pannon Aqua (Tesco), Aquarius (CBA), Szentivánpusztai (Reál). They get more important role on the market, they are present in bigger stripping.
- Middle-category products: it is peculiar to the widest range of mineral water, there are big differences in consumer prices within the category. Most of the domestic branded products belong to this (Szentkirályi, Naturaqua, Danone Vitalinea).
- Premium products: the international mineral water brands are the most expensive, their reputation is the greatest, their appearance is high standard (Evian, Perrier, Vittel).

The consumer's expenditure is the price of the product, which is very important in defining the percept value, when the customer correlates the percept utility of the product to the factor of expenditure. The price is connected not only with price, but can induce prestige consumption (e.g. Evian). Economists consider the consumer's view and define the preserve price. This is a sum of money that the customer would give out for a certain unit of a product, on the basis of his own value. If the consumer would pay more for the certain unit of a product than he can get it on the market, he gets consumer surplus. This is the difference between the market price and the preserve price. The inner relative price comes from an other approach: it is a point of reference, and the consumer compares this with the real price. The reference price is influenced by the past, the new prices, the anticipation and the inflation rate, but the direction of connection is not the same as in the communication concerning prices. We can say: if the reference price is bigger than the real price, that improves the judgment of the brand, if the difference between the prices is small, that has not significant impact on the decision.

Prices are connected with other factors as well. They can be linked to the quality of the product. Without enough information the consumer thinks that the more expensive product has a better quality. The consumers were asked about the aspects of food purchase in the research by GfK Market Research Institute. The most important aspect was the quality of the product. That the product is worth its price is also important. Other essential factors are: the product should be cheap, should not contain artificial materials and the packaging. In the study the rank of aspects was measured on a seven degree scale. On the score of the results we can ascertain that good flavor, freshness, quality are the most important, than come the cheap price and the requirement of natural material, ignoring of preserving material, the appearance of the product (www.gfk.hu, newsletters). The following factors should be considered while extending the brand name: when we apply a brand name to another, the consumer's judgment will be positive only if the features of the new product correlate with the judgment of the brand. The place of production also influences the judgment of the product as well as the prices. It is possible that the origin of the mineral water is important for a person who is proud of his nationality.

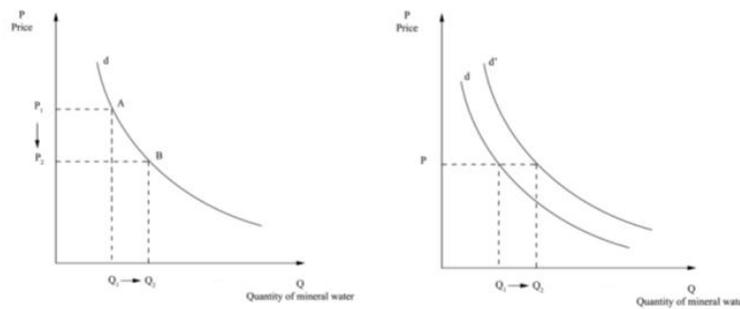
Price is only one of the elements of rationality based decisions. The ability to purchase is also influenced by the disposable income (Harlow, 2001). We examined the frequency of mineral water consumption in Hungary on the basis of primer data by GfK Hungarian Market Research Institute (Customs in consumption, 1989-2005). The results have proved that besides qualification, the effort towards healthy life, the disposable income within regions is also essential in mineral water consumption. Those who are younger than 49, have degree, are active - especially the entrepreneurs, managers, intellectuals - and the students emerged from the consumers. Those who are active, drink mineral water 4.5 days a week on average, while the inactive only 3 days a week. The consumption is considerable in households where the income is above 110,000 HUF/month.

Directly proportional to income the daily consumption also increases. The possibility that someone does not drink mineral water decreases when the income is higher. Usually 200,000 HUF is a dividing line considering the frequency of the mineral water consumption.

We can illustrate the effect of changes in price by moving on the demand curve, while the demand curve moves when there is a change in the income. The demand grows when the income increases and thus the demand curve moves in the right direction. The demand decreases when the price of a substitution product increases and in this case the demand curve moves in the left. If there is a greater increase in supply than in demand, the price decreases.

Mineral water is a normal product, so we suppose that when income grows consumption increases (Ernyei, 2003). In case of some products - such as inferior goods - the relation is just the opposite. These goods that satisfy essential needs are eligible to fulfill comfort feeling. After this let us discuss the consumption of luxury products. At the beginning a product can be essential and later on it can become a luxury product or just the opposite, after regular consumption it becomes essential. After trying out mineral water, the purchase can be continuous and the consumer does not change mineral water for tap water anymore.

Figure 2: Shifting in the Demand Curve. Increase in Demand.



There are other factors that move the demand curve as well (Tollison, 2002). Among others these are taste, appearance, change in image and promotion. When a product with good taste appears the demand curve can move to the right. The change is similar if the price of a substitute product increase, e.g. in case of common water, rich water, soda water, refreshing water etc. One of the most typical factors influencing the growth in demand is the number of consumers. Recently the demand for carbonated and still mineral waters has multiplied. In our opinion that is due to the change in quantity of the consumption per capita, on the other hand due to the appearance of new consumers.

The shape of the demand curve is basically influenced by elasticity. This cote shows us in percentages the change in quantity caused by one percentage change in the price of the product (Solt, 2001, Lipsey, 1990). We can speak about elastic demand if the measure is above one, the demand is non-elastic if a percent change in the price causes less than one percent change in the quantity. In this case the demand curve becomes steeper. It can happen that the demand of a product is elastic in one case and non-elastic in another. It should be mentioned that cheap, middle-category mineral waters react more flexible to the changes in price. In consequence of the product-fee order regulating the proportion of refilling in 2007 the prices of the private label products will increase about 15-20 HUF. The demand of premium products is rather non-elastic, the changes in price will not cause essential decrease in quantity.

Some of the factors influencing price elasticity (Reketye, 2004):

- In case of mineral water it is characteristic that there are numerous products that satisfy similar needs, provide similar satisfaction. So it is possible if the price of a product increases, the consumer buys another product belonging to the similar category, e.g. soda water, carbonated refreshing water or beer.
- The specific characteristics of products as well as the functions of the product limit the substitutionability because of the product differentiating behavior of market factors. The trace element content of mineral water can change: the rich Magnesia, Jodicum or the diminished natrium content, heart friendly Vivian, "Óbudai Gyémánt", baby or child friendly waters. The form, appearance of the bottle (Evian, Visegrádi), flavour (Szentkirályi rose flavoured, Mattoni lemon, orange, grapefruit, Apenta grape, orange, sour-cherry, raspberry, elder, Jana strawberry-guava, lemon and lime etc.), bottle with sport cap, refundability, brand can be those factors that effect elasticity.
- The cost of changing one kind of mineral water to another is not big, it is a consequence of a simple consumer's decision. Because the consumer can easily find another product in similar price category, the reaction can be flexible.
- Although the mineral water satisfies essential needs, compared to common water - that is available for everybody to satisfy physiological needs - it points towards higher expectations that does not support the non-elastic consumer behavior.
- The quality of the product, the image of the brand are basic points for consumers. It often occurs that the consumer buys a product because he knows its price, he is satisfied with it and he does not change if the price increases. It is imaginable that the product choice is not the best, there can be more tasteful, cheaper, refundable etc. mineral water, but the choice corresponds to the needs (the theory of sufficient choice).

We can interpret the factors influencing price sensitivity are similar to elasticity. Price sensitivity describes the consumer's relation to prices where a certain product stands in the centre of analysis. One of the decisive elements is the quality, we can show the relationship between price and quality by means of value map (Rekettye, 2004). If there is harmony between the perceived price and the perceived quality, the consumer chooses between different quality and price categories according to his needs. The price which does not correspond to the perceived quality causes dissonancy. This phenomenon occurs in case of mineral waters, but it is not the same for every consumer. There are people who perceive the price of the private label cheap products real, while the consumers who have higher standards become suspicious and ask the real value of the product. Reckoning the present consumer customs, and the substitutionality of the product we can suppose that in case of mineral water the demand curve is not so steep, the consumers react more flexible to an increase in price.

7 The best choice

In the other approach of utility (ordinal), a person can rank products according to utility, but can not count or estimate the proportion of utility (Solt, 2001). We suppose that the consumer who is about to make choice can compare the baskets of goods, set up a ranking on the basis of his preference system. During preference ranking the consumer considers all possibilities, makes an order by reason of consequences, and chooses the best option. The neoclassic theory forms an axiomatic system, the arrangement is the following:

- completeness (the consumer can compare all the optimal combination of goods),
- transitivity (if the consumer prefers a basket of goods to another and this is better than a third one then he prefers the first to the third),
- continuity (the preference is continuous in mathematical sense),
- independence (the utility and the likelihood of results is independent).

It is a common observation if we buy in greater volume or give out a bigger amount of money, our decision will be more rational in case of a one element purchase than in case of a basket of goods.

The choice can be illustrated by the indifferent curve and the cost line in the ordinal model (Kopányi, 2002). The indifferent curve represents combinations of goods which are equal to the consumer, i.e. provide the same utility. The cost line is a set of basket of goods that can be bought from the same amount of money. To maximize his needs the consumer chooses the basket which has the biggest utility spending all the disposable income. This is the point of contact of these functions. Changes in income or price influence the position of this point. It should be mentioned that the shape of the indifferent curve depends on subjective factors. In case of normal goods (mineral water) increase in income or decrease in price enhances consumption.

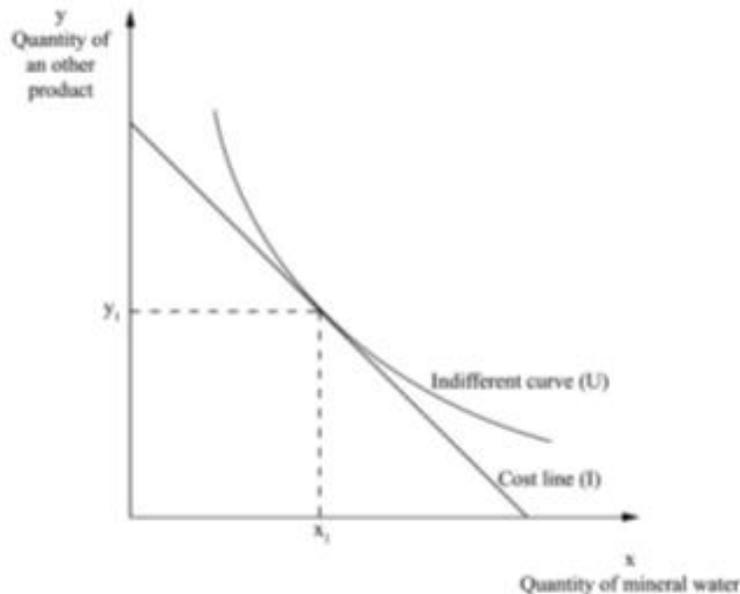
During decision making the consumer makes an effort to choose the option which provides the largest net outcome. The net outcome can be determined by taking into consideration the expected benefits, costs and the added risk. In case of consumer goods the cost can be the price, while the expenditures connected to inquiring, getting information, insufficient familiarity, the lack of authenticity can be risk. Certainly because of the barriers the consumer can not make completely objective decision, there is a chance of making a mistake.

The concept of rationality is not always true (MacFadyen, 1986, Elster, 1990), because of indefinability of opinions (there is not enough proof to justify the opinion about the probability of the outcome of acts), the alternatives are often not comparable or they are indifferent (none of them can be preferred). The action is rational according to the normative theory if it corresponds to consumer's conviction, can be formulated in axiom-system. According to the critics of this model the decision has mistakes in uncertain circumstances, it has cognitive causes. The narrative theory requires that the consumer should know all alternatives, be able to calculate the consequences of these alternatives and compare them on the basis of utility.

Herbert Simon developed his own theory related to the problem of rationality: it states that the decision making ability meets with obstacles, it puts the strength on the deficiency of consumer choice (Simon, 1982). In his view rationality is limited if we do not know all the alternatives, the information for decision are not available, we can not estimate the probability of happening of exterior events and can not judge the consequence of decision exactly. The limited rationality is explained by heuristic rules, when a person is influenced by his experiences in his choice. The consumer builds up a model which sometimes works properly, but not always. It is in need of correction, but not suitable for search of the best solution.

According to Katona (in Hunyady-Székely, 2003) the usual behavior is typical in the majority of decisions. The consumer does not take notice of the problem, does not consider the alternatives of acting. They spend a lot

Figure 3: Indifferent Curve and the Demand.



on the basic consumer goods. Repeated purchasing in little sum is typical and consumer habits can be formed. We can not speak about thorough consideration, the previous satisfaction or the group of effect often contributes to the habitual behavior.

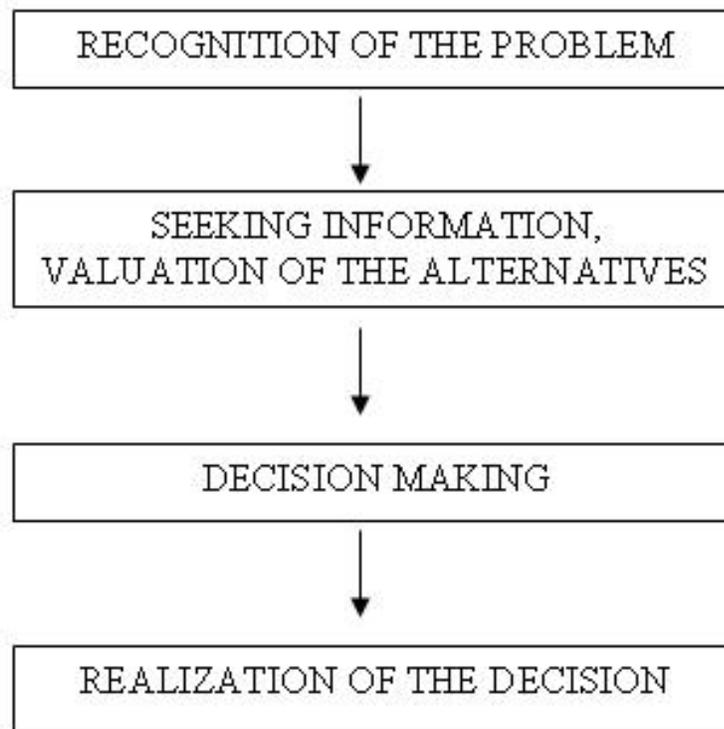
8 The decision making process during buying

We distinguish between simple and complex consumer choices with regard to purchasing. Rational motives can be found in case of the latter one where the consumer chooses concerning a lot of influencing factors and alternatives, in economic sense this choice is the best (Zoltayné, 2005). Consumer decision can be reckoned as a short-run decision, but the customer ponders his consume in the long term. The available benefits present themselves during years, so we can interpret the result of choice in the long run, healthy life style due to mineral water consumption.

In the course of mineral water consumption the stages of the decision model are: the recognition of the problem, seeking information, valuation of the alternatives, decision making and the realization of the decision (Hofmeister-Tóth, 2003). It should be noted that purchasing after the product is chosen and first consumed are routine buying. The problem is derived from the dissonance between the perceived and reachable situation, which was defined as needs before (Kindler, 1996). Feeling the want of something was connected to the satisfaction by drinking mineral water which arouses the claim to satisfy the needs. The potential customer gathers information to reach his aims. According to the rational theory complete information is needed to make decision that is not realizable, so the choice is made by using limited information (Kotler, 2002). The valuation criterion can be far-reaching which contains the utility gained by consuming the product, the price of the product and the disposable income in the sense of this approach. The choice is made on the basis of price-income as a last limit and the reachable highest utility, followed by purchase.

The recognition of a problem comes from the difference between the real and desired situation. This causes tension, because there is difference between these two situations, so cognitive difference rises. In case of consumer goods buying the products solves the dilemma. In the background of seeking information can be found that tension enhances the consumer to get more information to solve the problem. The method is inner or outer seeking. The first notion means searching information from complete mass of information, uses so much from them which is eligible to the suitable choice. After this the consumer compares the alternatives, considers the features using information, then sums up and compares.

Figure 4: Decision process (Hofmeister-Tóth, 2003).



9 Discussion

The price is often a crucial factor during consumer decision-making, therefore we analyzed both the effect of price concerning demand, and both the factors that effect price elasticity. In relation with the price sensory we underlined that prices inadequate to perceived quality can cause dissonancy: certain consumers think that private label cheap products are real, while consumers with high standards can become suspicious. We supported the theory of Harlow (2001) with our analyses based on consumer data, in other words the capability of purchasing is influenced by the price and also the disposable income. Our research on the primer data of Gfk in 2005 verified that frequency of mineral water consuming is largely determined by qualifications, health consciousness, wealth of regions and income.

In case of consumer decisions related to mineral water it can be said that ordinary behavior is typical that is no real decision-making, it is rather a repeated purchase. On the other hand we stated that we concern consumer decisions short term decisions, however permanent mineral water consume - as a need of healthy life style - means a long term attitude. The rationality conception of microeconomics is quite simplified if we analyze it in a view of psychology. During the analysis of human decisions the following factors should be noted as well as culture, motivations, norms, cognitive procedures.

10 Summary and conclusion

We observed the elements of classical rationality approach, and the role they play during decision making in case of mineral water in Hungarian market. It is possible to see, that both the Gfk and the Hungarian research-makers pointed out that in case of mineral water consumption (Hungary) the growing living-standards, wider choice, in addition healthy nutrition play an important role. This approach is reflected in the increasing consumption of mineral waters while in the 90's the amount/capita/year was 2-3 litres, today (2006) it is approximately 80 liters. The results from our study indicated that considering demand and price the consumer buys a mineral water not because he wants to replace the carbonated drinks with a less valuable, but he wants to buy a guarantee quality drink. The importance of price draws attention to the fact price also means quality during decision-making.

When examining Hungarian mineral water market experienced that as a result of price competition the price of mineral waters has not increased in the last years, and the lower category mineral waters have appeared furthermore the consumption has lost its luxury feature. In 2005 every third liter mineral water was sold as private label product and the volume of this will intensify, we can suppose 40 percent market share in 2006. However, price is only one element of rationality based decisions. The ability to purchase is also influenced by the disposable income. We examined the frequency of mineral water consumption in Hungary on the basis of primer data. The results have proved that besides qualification, the effort towards healthy life, the richness of regions, and income is also essential in mineral water consumption.

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