

AN ANALISYS OF CONSUMERS' EXPENDITURES ON HIGH-TECH PRODUCTS

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Abstract: *High – tech products are gradually adopted by consumers, who become to consider them indispensable. Their acquisition requires each time a pretty significant financial investment and a serious decision with a high perceived risk. In this paper we intend to analyse some financial issues related to high-tech products purchased by consumers from Brasov city in 2009, such as: the amount of money spent on high tech products, the financial sources used, the connections between expenditures and consumer's characteristics.*

Key words: *high-tech products, marketing research, expenditures, financial sources.*

1. Introduction

Globally, the high tech industry is a key factor contributing to economic growth. This increase is determined by the appearance of new products that are used not only in industry but also by the end users. Once the transition to the digital age, consumers have quickly adapted to the new conditions, and have mastered the ability to use the Internet, computers, mobile phones, GPS systems, etc..

High-tech industry promises to solve complex problems arising with the transition to the digital age. Using new technologies could lead to improved people's living standards, increase business efficiency, and solve problems of society. High-tech goods have characteristics that require a certain behavior of users. Next we will try to give a definition of high technology products from multiple

perspectives and then will be shortly presented their main features.

2. Characteristics of high-tech products

Currently, the technology is in constant motion. Accelerating change and the inevitability of future shock, information explosion and accelerated wear of scientific knowledge, the impact of proliferation, diversification and continuous improvement of technological products, require a new technology education and mentality, both in terms of consumers and producers. [7]

The concept of "high technology" refers to an industry that produce technology or technology-intensive industry. One of the definitions (given in 1982 in the United States Congress) characterizes high-tech industry as "the industry involved in creating, developing and introducing new products and/or innovative manufacturing

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processes through the systematic application of scientific and technical knowledge." [9]

The "high-tech product" is defined rather by the perception that consumers have about it [2], perception which is guided by several concepts:

- The product is not yet well understood or easily accepted as a solution to a particular problem
- There is no certainty about how this product will solve a problem.
- The resources required to develop this product is provided by highly qualified specialists
- The company producing these products has a technological orientation.

Similarly, the high-tech product is an innovation in the field, referring to a new product that aims to provide value both for the producer and consumer and to solve a series of problems.

High tech industry includes industries like [5]: information technology, hardware components (physical), software, telecommunications and Internet infrastructure and consumer electronic products such as audio or video products, entertainment products or games, etc.

The defining characteristics of high-tech products are [8]: a shortened product life cycle, a high risk in respect of changes in user behavior, indispensability of infrastructure, a lack of clearly defined industry standard, the uncertainty regarding the functionality of the product.

3. Methodological considerations on the conducted marketing research

The theme of the quantitative marketing research is "Attitudes, opinions and behaviors of people in Brasov on the purchase of high technology products for household consumption"

Marketing research has been conducted on a sample survey which aimed to knowledge the buying behavior of people in Brasov regarding the high-tech products. The investigation was based on a questionnaire consisting of 49 questions. The interview method applied was the face-to-face interview.

The process of data collection was carried out between September 1st to October 15th, 2010. The population considered in this research consists of all persons aged 15 years residing in the city of Brasov. To get results as true to life, we chose a random sampling that gives each individual equal probability of being sampled. Group sampling was conducted in steps, combined with systematic sampling.

The main objectives related to research theme are: Identifying the types of high technology products held in Brasov households, determining the reasons for purchasing high-tech products, identification of financial resources for acquisition of high technology products; determining whether economic crisis will influence the purchase decision of high-tech products in the future.

4. The analysis of consumers' expenditures on high-tech products

The study showed that the best interest of Brasov consumers in 2009 in terms of high tech products, included: audio products, cameras, while mobile telephony products have been sought in a much lesser extent.

In most cases were purchased audio products and photos - video (26.5%), household appliances (22.6%) and IT (22.4%), as shown in the chart below (figure 1).

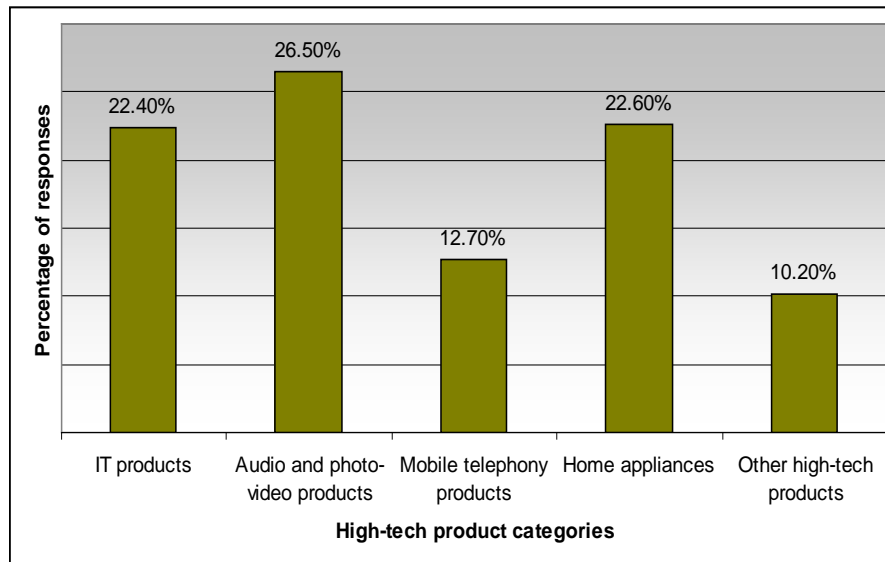


Fig. 1. Categories of high-tech products purchased in 2009 by Brasov consumers

2009 is considered the first year of economic crisis in Romania. The effects of the crisis were felt in the IT sector and in that of durable goods. The crisis has determined the consumers to change their purchasing behavior and consumption behavior.

It has been conducted an analysis of high-tech products expenditure of households from Brasov in 2009. Analyzing the responses of subjects who purchased high-tech products in 2009 it has been found that the minimum amount allocated to these acquisitions is 200 ron and the maximum is 20,000 ron. From this information it appears that in 2009 was spent an average of 2682.64 ron per household on high technology products.

It has been used the analysis of variance (ANOVA) to investigate whether respondents' income influenced the amount spent on high-tech products in 2009. This analysis is a method that implies the existence of cause-effect relationship between a metric dependent variable and one or two independent nominal variables.

The analysis considered three groups of net monthly income: less than 2000 ron, 2001- 4000 ron, over 4001 ron.

Following the test, it was accepted that respondents' income influenced the amount spent on high-tech products in 2009.

Because the analysis of variance may also consider the simultaneous influence of several independent variables on the dependent variable, will be considered in addition to the three income groups, which influence the expenditures of high technology products, and three age groups of respondents - group 15-29 years (young) group 30 -59 years (adults), group 60 years and over (elderly).

These results lead to the conclusion that income levels influence the purchasing behavior of consumers in terms of high technology products. Age, however, does not constitute an impediment to the purchase of high tech products.

A large part of household high-tech products were purchased in 2009, the year marked by economic crisis. Because bank loans have not been obtained in an easy

way as in 2008, when the “credit based on Identity Card” was well-known, people who wanted to buy high-tech products have turned to personal savings or bonuses from salaries, at the time they had access to them.

More than half of respondents (57.5%) say they usually buy high-tech products

from personal savings, and 24.4% of subjects allocate the bonuses from salaries for purchasing products in this category.

Only 13.5% contracted bank loans to buy high technology products and 3% borrowed from other sources. Graphic expression of the results is contained in figure 2.

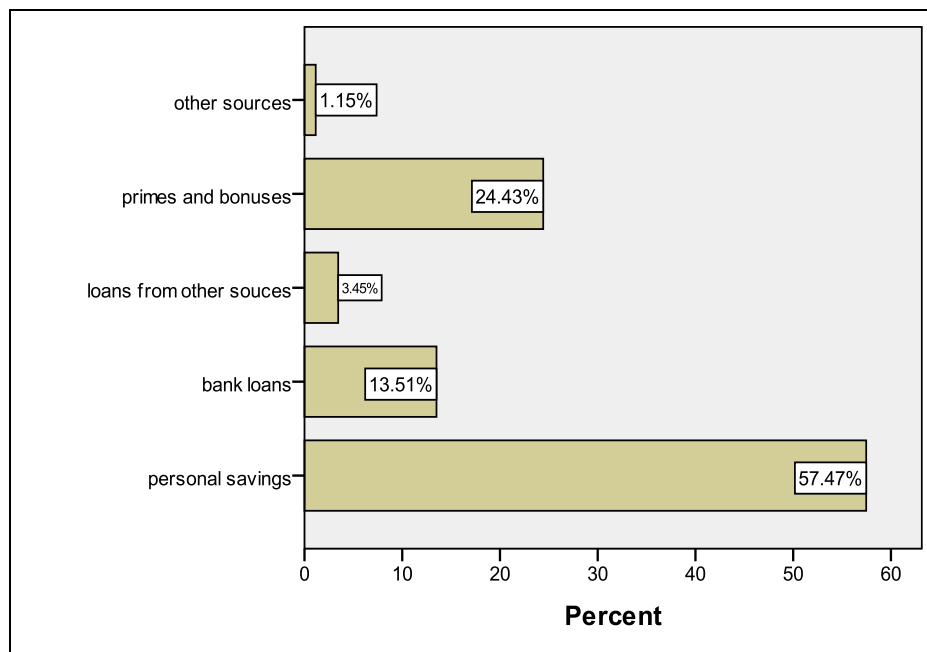


Fig. 2. *Main financial sources used by consumers for high-tech products acquisition*

After obtaining these results it has been analyzed if there is a connection between respondents' age and financial sources used. Chi square test was applied and concluded that respondents' age affects the financial sources used.

So, the analysis goes deeper searching for the connection between respondents' age and financial resources used for the acquisition of high technology products. It has been used factorial analysis of correspondences, shown graphically in Figure 3.

Factor analysis of correspondences aims to describe the relation between two nominal variables in a small space. This

analysis can describe relations between variables, which could not be captured using chi square test. [1]

The analysis results are as follows:

- The responses of young people aged 15-19 years and 20-29 years are concentrated around the option "personal savings", showing that they succeed in saving to purchase high technology products.
- People aged between 30-39 years have focused their responses on the option "bank loan" which shows that their incomes are not sufficient but they are willing to take a loan. Generally, their

- total net household income does not exceed 2000 ron.
- People aged 50-69 years have purchased high-tech products more from salary bonuses, especially people aged 50-59 years.
 - People over 70 years claim that borrows from other sources.

The effects of economic crisis are felt in the purchasing behavior of high technology products in a fairly high degree. Research revealed that three quarters of respondents believe the current economic crisis affects their decision to purchase new high-tech products.

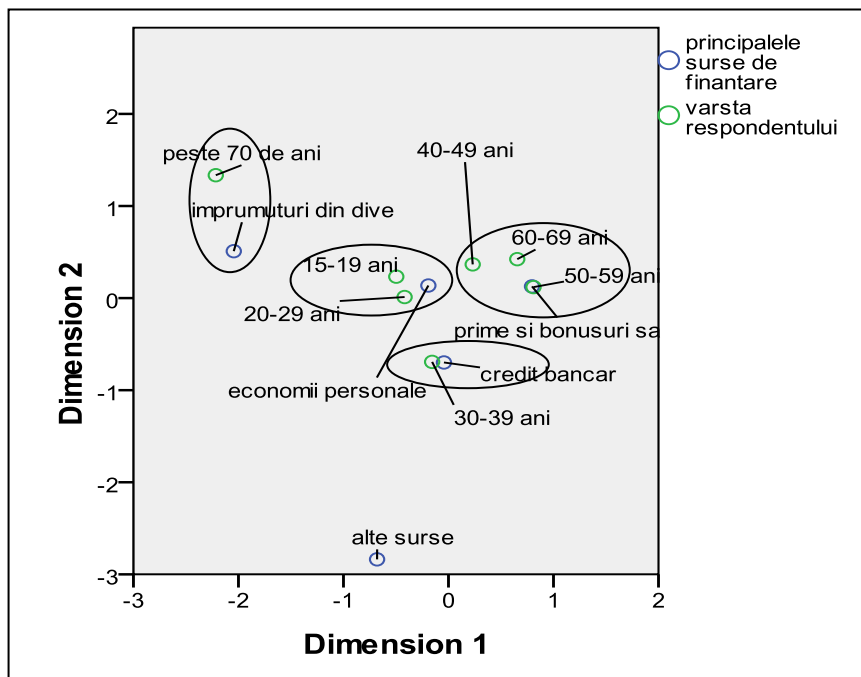


Fig. 3. Factor analysis of correspondences between respondents' age and the financial sources used for the high-tech products acquisition

Conclusions

High tech industry is constantly changing. The rapid pace of developing innovations in this area leads to a rapid change of consumer behavior in this market.

After the completion of marketing research for the purchasing of high technology products for household consumption conducted in Brasov, a number of issues emerged as:

- A consumer preference shown for high technology products from the audio range in 2009; this preference may

change, heading towards IT products, since many manufacturers have focused on creating innovations in this direction.

- The average amount spent per household in these products in 2009 was 2682.64 ron; this average amount may change in future due to many factors, such as: economic crisis, the pace of developing new products, market competition etc.
- The main financial sources used by consumers in Brasov to buy high-tech products are personal savings, largely observed behavior in young people, up to 29 years.

- Also, many consumers claim that the economic crisis affects their purchase decisions of future high-tech products.

It should be noted that the purchase and consumption behavior of high-tech products, expressed in 2009-2010 may change substantially in the next period, beginning with 2011.

On the Romanian market are available more and more high-tech products. The high-tech manufacturers developed their distribution system to provide access to the products for all consumers. The research showed that the consumers are willing to spend to own high-tech products.

It could change both the consumers' purchasing reasons and financial resources they will use. Also, professional obligations could determine them to buy and use high-tech products which currently they do not have in mind.

The most important element that must be taken into account by all the players on the high technology market is that these products are more and more accepted by an increasing number of consumers who recognize the benefits and consider them indispensable.

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