

# The Application of Multiple Variable Methods in the Segmentation of the Domestic Consumer Market According to Value System

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*Abstract: In our present paper we examine the role of the value system and lifestyle as reflected in our primary research carried out among a representative consumer sample. In our opinion the differentiating effect of the individual value system as secondary segmentation criterion can be reflected in the market of life assurance, the basis of our research. By means of factor analysis we created value system structures and with the help of cluster analysis the main criteria of value system-based segments were outlined. As a result of the research we concluded that the individual value system was one of the most determining factors in taking out life assurance. The consumer segments formed alongside the value system have more differentiated attitudes than those of life assurance. Getting to know these groups more thoroughly and deeply offers opportunity for the „suppliers” of the life assurance market to create an effective marketing mix.*

*Keywords: value system, factor analysis, cluster analysis*

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## 1 Introduction

Value system and lifestyle can affect human behaviour as well as consumer behaviour. That can be the reason why the traditional, socio-demographic criteria are not enough for the segmentation of the consumer market and to explore the inner logic of the factors determining consumer behaviour based on the marketing practice these days [2]. The conditions of life and value structures are playing a more and more significant role in the formation of consumer preferences so their segmentation role has also been given a greater emphasis. [1]

In our primary research we examined the role of the value system and lifestyle on a consumer sample. In our mind the differentiating impact of the individual's value system as a secondary segmentation criterion can also be felt on the market of those taking out life assurance, which is the basis of our research, as well. By means of factor analysis value system structures have been formed and using the method of cluster analysis the main criteria of value system-based segments were characterised.

In our opinion the individual's value judgement has an impact on the concept of safety and the need for safety. In our present study we present the differences shown in the comparative analysis of consumer groups formed as a result of multi-variable methods and their willingness for taking out life assurance. The objective of the research is to survey the savings habits and the knowledge and opinion of population of the country about life assurance. In the survey we also examined what the proportion of savings was when compared to total revenue, how well-known the different forms of savings were, why the respondents put aside funds, what forms of life assurance they knew, what they had taken out so far and what factors influenced them in decision making, what the main reasons for the acceptance or refusal of life assurance were.

## **2 The Market of Life Insurance**

### **2.1 Theoretical Framework to Interpret the Life Insurance Market**

Life insurance policies occupy a more and more essential role in the fast changing life of society. Modern world poses a multitude of risks to the sense of security and health of individuals due to the extreme stress and strain, therefore a greater and greater part of the people strives to reduce the risk they and their families face – even though to some extent. The need for security is not a product of the 21<sup>th</sup> Century; it has a prominent place in Maslow's 'need – hierarchy' model as early as in the middle of the 20<sup>th</sup> Century (Maslow 1943). According to this, the aim of the insurance is to protect the policy-holder from the harmful effects of an uncertain future. In insurance four roles must be mentioned: the insurer, the policy-holder, the signatory and the recipient. In most cases, these four roles do not make up four separate participants, because the policy-holder can be the same (Szabó – Viharos, 2001).

There are two great segments in the insurance market: life insurance policies and non-life-insurance policies. In this study we are going to deal with the former.

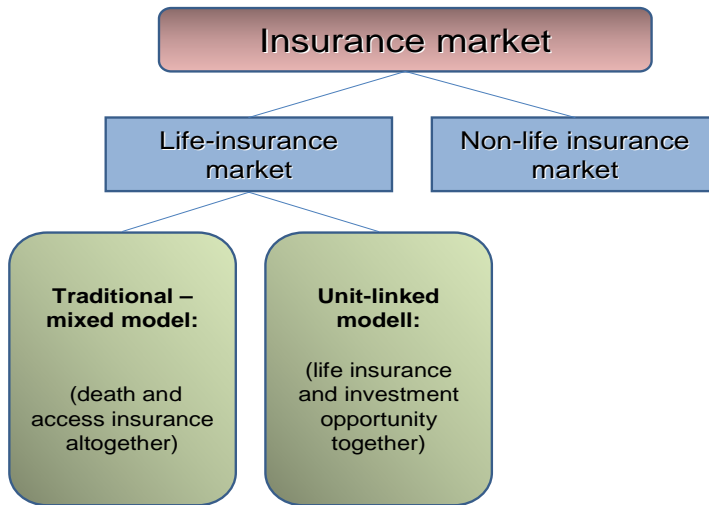


Figure 1  
Segments of the insurance market

Source: Own compilation based on MABISZ (2008)

Consequently, insurance is a risk management method, which is employed both by the insurer and by the policy-holder.

In sum, we can say that an unit-linked insurance form combined with investment is more profitable than the traditional model. However, these forms, due to their high capital intensity, are less popular than the traditional comparable forms. Both parties are anxious to handle and minimize risks. The risks run by either party are shown in following risk matrix:

Table 1  
Risk matrix

Source: Dógei (2003)

	INSURER	CUSTOMER
Traditional life insurance	<ul style="list-style-type: none"> <li>• death</li> <li>• investment</li> <li>• premium risk</li> </ul>	<ul style="list-style-type: none"> <li>• death</li> <li>• premium risk</li> </ul>
Unit-linked life insurance	<ul style="list-style-type: none"> <li>• death</li> </ul>	<ul style="list-style-type: none"> <li>• death</li> <li>• Investment</li> <li>• premium risk</li> </ul>

The insurance market, similarly to other markets, has a demand and supply side. The meeting of the two sides is supported by mediators, who are insurance agents or insurance brokers. This study is aimed at analysing the demand side, focusing on the household sector. The actors of the demand and supply side of insurance are shown in the diagram below:

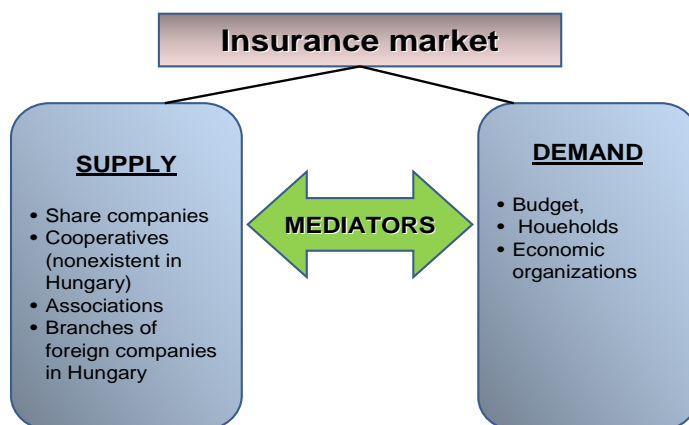


Figure 2

The demand and supply side of the insurance market

Source: Own compilation

## 2.2 Characterization of the Domestic Market of Life Insurance

In compliance with the information given in the introduction of this chapter, we can say that the life insurance market is becoming more and more prominent within the insurance market, which is fully proven by the share in the incomes of the Hungarian insurance companies. The proportion of the year 2002 of 40.9% increased, to a great extent, to 54.7% in 2007, which is explained by the increasing number of environmental risks and potential risk factors. Nevertheless, a number of employers take out a policy for their employees as an „extra provision”. The ratio of the life insurance incomes is shown in the diagram below:

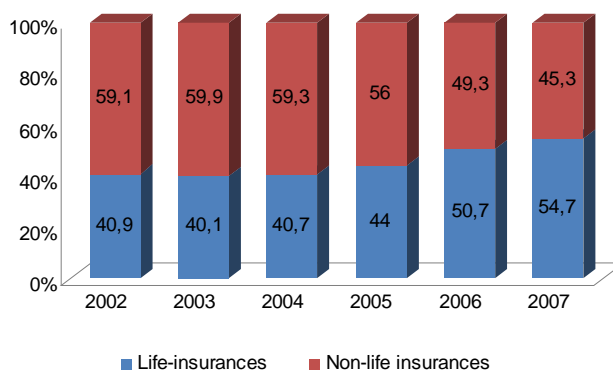


Figure 3

The ratio of life insurance policies in the total income

Source: Based on MABISZ (2004, 2005, 2006, 2007, 2008) own compilation

The headway of the life insurance branch is even more clearly shown by the increase of the earned premiums from this form of insurance:

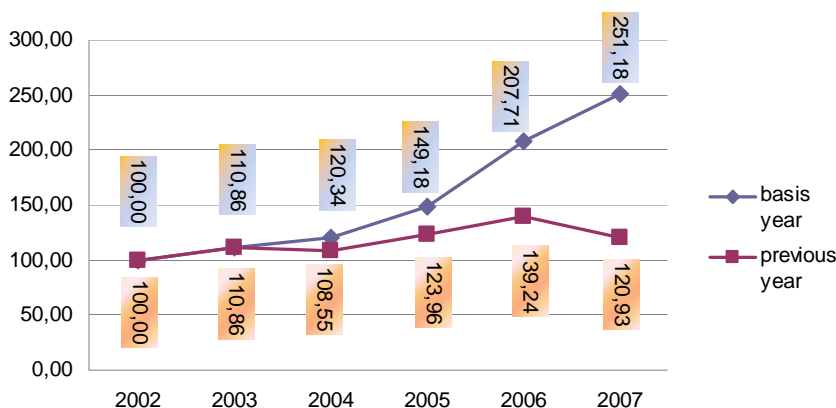


Figure 4

Extent of the increase on the earned premiums for life insurance

Source: Own edition based on MABISZ (2004, 2005, 2006, 2007, 2008)

The amount of the earned premiums on life insurance was only HUF 202,517 million. This value increased about two and a halffold in 2007, so the amount of the end of 2007 came close to HUF 508,680 million. Considering the increase compared to the value of the previous year, an outstanding ratio is with an increase of 40% in 2006. It was a year when the share of the life insurance sector exceeded the value of the non-life-insurance branch. Since 2006 the life insurance branch has been clearly superior within the insurance premium incomes.

An essential rearrangement has also occurred among the participants of the insurance market for the last six years. The biggest actor of the market was the ING, covering more than 28% of the market, which decreased essentially to 23% until 2007.

In 2002, AEGON was second (17%), and Generali-Providencia third (14%). In 2007 AVIVA Insurance was second (11.3), and Generali-Providencia remained third with a greatly reduced market share (10.9%). Further novelties of the last year are the headway of further actors of the market and further intensification of the market competition. Further participants of the top competitors include OTP Garancia Biztosító (10.3%) and AEGON Biztosító (8.5%) fallen back to fifth place. Despite the decrease in the market share no competitor in the market has suffered a decrease in the earned premium from the activities, which is a clear explanation of growing demand for the product.

### **3 The Methodology and Background of the Research**

To survey the knowledge and opinion of the population in Hungary about savings habits and life assurance, a standard questionnaire based on questioning was made in October 2006 that comprised the whole population ensuring representation by gender, age group, residence and the type of residence. As a result, 1220 questionnaires were sent back that could be assessed by using SPSS 13.0 programme.

Among the results of this survey we wish to focus on the practical approach of segmentation possibilities highlighting the connection between life assurance and value system in the present paper.

In the course of the research the adult population of Hungary was regarded as basic multitude. The desired sampling composition was formed according to the 2005 yearbook of the Hungarian Central Statistical Office so that it might be representative of sex and age at the local level, i.e. the main averages of the sample and the basic multitude might coincide.

We compiled the quota form necessary for conscious sampling in compliance with the above-mentioned demographic criteria, whereby it became possible in a face-to-face interview to obtain a population sample representative of age and sex at the regional level. A complete publication of the survey results would extend the size of this paper, so we have to confine ourselves to present partial research results.

During the research the SPSS 11.5 software was used for a statistical analysis of the data.

The data analysis was carried out with single-variable (frequency distribution, average, dispersion) and with multivariable statistical methods (factor and cluster analysis). From among the multivariable methods, the aim of the factor analysis presented above in this paper was to investigate the relations based on the interrelation between the variables and the reduction of the number of the variables with the least possible loss of information. (Sváb, 1979) Thus it was possible to draw conclusions from the transformed multitude identical to the original multitude. (Lehota, 2001) With this procedure, the questions of what common components or factors were hidden behind a certain variable, and, also, what the relationship was like between the variable groups, were answered. The different factors influence the changes in the same variable with different weighting, and, as well, the same factor exerts an influence of different weight on the different variables, which defines the factor weight. In the course of the factor analysis, we determined the number of factors with orthogonal rotation, within this with the varimax procedure.

A major aim of the research programme was to become acquainted with the relations of the value system-based groups with life insurance. For this, the

observation units were arranged into homogeneous groups with a cluster analysis. For the development of a systematized structure of value system-based attitude patterns the K-means clustering procedure was adopted. The aim of this procedure is to create groups, whose members are similar to each other by a particular criterion, and simultaneously, the differentiation between the groups is ensured. In the course of the K-means procedure, we determined the number of the clusters in advance, and the respondents were distributed among these groups by the algorithm according to the characteristics of their value system. On the basis of the variance analysis we examined whether a significant deviation could be found between at least two clusters in the case of the contributing value factors. We examined the criteria that influenced the respondents among the sociodemographic characteristics. As a result of this, the groups could also be characterized according to the primary segmentation criteria presented above.

## **4 The Results of the Research**

### **4.1 The Esteem of Value Factors**

The value system of the respondents in our survey was examined based on the Rokeach value structure successfully applied in sociologic research by using some of its elements. During our research we started from the assumption that common values or the value system were determinant for human behaviour, including consumer behaviour, to a great extent. The value system of the individual is a big influence on the way of selecting a certain service, i.e. on the character of the attitude towards a life insurance policy as well (Horváth – Fürediné Kovács – Fodor, 2005).

The sociological and antropological theories, which provide a basis for the exploration of the inherence between the factors determining consumer behaviour, suggest close relation between the value system and consumer behaviour (Boedekker, 1996).

During the comprehensive analysis of the value judgement of the individual we made use of the Rokeach value system (1973), one of the best known in marketing science from the methods measuring value adopted in psychology. In compliance with this, we compiled a value list, which was also tested during the test interview of the questionnaire. Based on the experiences of the test interview, a final list was made for assessment.

The ranking order of the factors presents well that the traditional values of safety, calmness, well-balanced life lead by pushing all hedonistic values in the background – as presented by the systematic results of Table 1.

Table 2  
Mean values of ranking value factors

From: survey results, 2006 (N=1220)

Value factors	Sample mean
<b>Traditional values</b>	
Health	4,87
Family happiness	4,58
Happiness	4,5
Calm, balanced life	4,49
Inner harmony	4,36
Good human relationships	4,34
Peaceful world	4,2
True friendship	4,2
Financial well-being	4,16
Freedom	4,06
Moral acknowledgement	4,02
Taking care of others	4
Source of pleasure for others	3,96
Thriftiness	3,62
<b>Hedonistic values</b>	
Comfortable life	3,96
Affording something good	3,87
Plenty of leisure time	3,63
Enjoyable life	3,41
Career, professional success, self fulfilment	3,41
Hobby	3,15
Exciting life	2,73

## 4.2 Factor Analysis of Values

To find out which values make up correlating factor groups, factor analysis was carried out based on the value estimates of the respondents and, as a result, three well separable factors were outlined (Table 3):

- the group of „*traditional-classical*” values,
- the system of „*hedonistic*” values and
- the group connected to the values of „*maturity, financial well-being*”.



Table 3  
Factor groups of values

From: survey results, 2006, N=1220 (KMO index: 0.78, explained cumulative variation: 72.03%; varimax rotation)

Values	Factor groups		
	Factor 1 factor weight	Factor 2 factor weight	Factor 3 factor weight
Harmonic life	0.767	0.300	0.212
Peaceful life	0.758	0.121	0.222
Taking care of others	0.756	0.114	0.239
Source of pleasure for others	0.745	0.170	0.248
Happiness	0.723	0.372	0.297
Good human relationships	0.721	0.365	0.106
Family happiness	0.695	0.079	0.382
True friendship	0.688	0.496	0.081
Calm, balanced life	0.620	0.062	0.513
Moral acknowledgement	0.600	0.465	0.237
Exciting life	0.034	0.827	0.036
Enjoyable life	0.095	0.807	0.281
Career	0.312	0.738	0.023
Hobby	0.284	0.714	0.053
Plenty of leisure time	0.254	0.602	0.466
Freedom	0.442	0.476	0.304
Affording something good	0.163	0.362	0.331
Comfortable life	0.211	0.326	0.747
Financial well-being	0.341	0.401	0.583
Thriftiness	0.115	0.050	0.422
Health	0.274	0.057	0.379

In the group of „*traditional--classical*” values there are such classical values where rather the dominance of communal, social values is more decisive than that of individual objectives. The main point is the group of values emphasising the importance of families, friends and social life.

The group of „*hedonistic* values” can also be well characterised where there are the factors of exciting, pleasurable life dominating together with the experience-oriented ones.

Here the dominance of rather short-term objectives is discernible and we meet fresh, dynamic values that significantly differ from the „*traditional-classical*” values.

It is interesting to note that freedom was interpreted in two different ways by the members of the sample as it can either belong to both of the group of „*hedonistic*” and „*traditional-classical*” values at the same time regarding its factor weight. All this can be explained by the difference in interpretation, so it refers to the fact that it can both mean natural freedom as a „*traditional*” value and an attribute to human life as well as an experience-individual oriented one emphasising the freedom of the individual, in which case it can be classified as a „*hedonistic*” one in our mind.

The group of values connected with „*maturity, financial well-being*” outlines another dimension of „*traditional*” values in which we can find the system of values in connection with financial stability, calmness, being well-balanced, health and financial life dimension referring to security and long-term effects. Instead of experience-oriented values, we can find the ones highlighting break-out of the rat-race of everyday life, purity, calmness and stability.

### **4.3 Cluster Analysis Based on the Value-System Structure**

To examine whether there is a group-forming dimension outlined based on the value system as a secondary segmentation criterion, cluster analysis was carried out among the members of the sample. As a result, three clusters could be defined in the examination of the value system as a result of the analysis corresponding to the three factors. The segments were termed as:

- „Family-centred, aiming at security”
- „Hedonistic”
- „Caring well-off.

Regarding the three clusters, well-distinguished characteristic value structures can be found that can be described by divergence from the main average of the sample mean with a number of specific differences and even from one another with regard to certain factors.

#### **4.3.1 The Characterisation of the Segment Termed „Family-centred, Aiming at Security”**

The first cluster consists of those family-centred aiming at security. They regarded comfortable, calm, balanced life, thriftiness and family happiness more important than the mean sample. At the same time, when compared to the sample, they underestimated exciting, enjoyable life, career, success and hobby. The group is rather characterised by a traditional, clear, classical, mature value system.

Table 4  
The value structure of the clusters<sup>1</sup>

From: survey results, 2006

Value factors	Cluster 1	Cluster 2	Cluster 3	Sample mean
Freedom	3.65	<b>4.24</b>	4.11	4.06
Enjoyable life	<b>2.66</b>	<b>4.22</b>	3	3.41
Exciting life	<b>1.61</b>	<b>3.67</b>	<b>2.37</b>	2.73
Comfortable life	<b>4.37</b>	<b>4.16</b>	<b>3.54</b>	3.96
Calm, balanced life	<b>4.68</b>	<b>4.23</b>	4.65	4.49
Health	4.88	<b>4.58</b>	4.96	4.87
Good human relationships	3.82	4.26	<b>4.72</b>	4.34
Plenty of leisure time	3.28	<b>4.07</b>	3.39	3.63
Financial well-being	4.2	<b>4.32</b>	4	4.16
Moral acknowledgement	3.48	4.05	4.29	4.02
Affording something good	3.49	<b>4.25</b>	<b>3.66</b>	3.87
Thriftiness	<b>4.23</b>	3.47	3.55	3.62
Source of pleasure for others	3.81	<b>3.76</b>	<b>4.39</b>	3.96
Taking care of others	3.88	<b>3.74</b>	<b>4.46</b>	4
Family happiness	<b>4.74</b>	4.32	<b>4.89</b>	4.58
Career, professional success, self fulfilment	<b>2.11</b>	<b>4.01</b>	3.63	3.41
Hobby	<b>2.1</b>	<b>3.69</b>	3.3	3.15
Peaceful world	4.12	3.92	4.7	4.2
Happiness	4.25	4.46	<b>4.82</b>	4.5
Inner harmony	4.06	4.22	<b>4.82</b>	4.36
True friendship	3.55	4.3	<b>4.63</b>	4.21

#### 4.3.2 The Characteristics of the Value Judgement of the “Hedonist” Segment

The members of the second cluster follow hedonistic values. They prefer enjoyable life rich in adventures and for them financial well-being is more important than average to afford themselves something good. Career, plenty of leisure time and hobby are all the most overestimated factors in this group when compared to the mean of the sample. At the same time, the somehow contradictory things to the instant enjoyment of life, namely, comfortable, calm and balanced life were judged to be less important than average. Those who prefer

<sup>1</sup> Cluster 1 = The value structure of the clusters „Family-centred, aiming at security” (N = 1220)

Cluster 2 = Value structure in the segment of „Hedonists” (N = 478)

Cluster 3 = Value structure in the group of „Caring well-off” (N=488)

self-remuneration and individual features belong to this group. It is proved by the fact that taking care of others and giving a source of happiness for others are less important than average for this group.

#### **4.3.3 Value System Specifications in the Case of the Segment "Caring Well-Off"**

In the „caring well-off” cluster we can see those aiming at security and who are socially sensitive. The members of the sample have a lot in common with those in the first cluster with a mature value system but in this group values like the source of enjoyment for others, peaceful, harmonic family life and friendship are significantly overestimated. This is the most socially sensitive cluster. Self-remuneration and making individual lifestyle exciting and enjoyable are pushed in the background and communal values are emphasised instead of the individual ones.

#### **4.4 The Demographic Characteristics of the Groups Formed on the Basis of Thevalue System**

The group “Family-centred, aiming at security” is typically (51.2%) made up by families living with a child or children older than 19 years old so adults. Mainly the middle-aged group and the representatives of the older generation over 60 (49%) make up this second segment.

Half of the family-centred group (50.4%) possess secondary school degree who typically (42.5%) live on a monthly net income of 60-100 thousand Ft.

These demographic characteristics predestine the value system that characterise this sample group. We think this group is the potential target market of life assurance. This is also supported by the fact that the proportion of those with life assurance is the highest here (60%).

The value system preferred by the “Hedonist” cluster is in accord with the demographic features of the cluster: typically, the members of the group represent young people. It is also proved by the proportion of 59.8% of the age group between 18-39. This situation in life can also explain the fact that this cluster is primarily the group of young people seeking adventure and self-remuneration who live for themselves rather than for the others.

In the „Hedonists” while examining the proportion of gender we can state that men are overrepresented (55.6%). A unique criterion in the cluster is the fact that one-fifth of its members do not possess self-supporting income. This can be explained by the age of the members as almost 40% is made up by young males between 18 and 29. That is why we think this cluster cannot be regarded as the potential base of life assurance. We can find the highest female dominance (57.8%) in the cluster “Caring well-off”.

Another criterion is that a significant part of the group is city dweller and member of the group of the middle aged who typically raise their child (children) older than 19. The members of this segment live under better than average financial circumstances as it is proved by the fact that one-third of the group live on a monthly net income of 100-150 thousand Ft and a further one-third on 150-200 thousand Ft.

*The need for taking care of others* can be the main *motivating basis* for taking out life assurance. We think it so because in this sample *the proportion of those with life assurance is outstandingly high* (68%).

#### **4.5 Differences, Discrepancies between the Clusters**

In our esteem the *Hedonist* group is the sharpest contrast to the followers of traditional, secure values of those who think of tomorrow like the “Caring well-off” and “Family-centred, aiming at security” groups.

In contrast with the more mature age groups they *do not wish to invest, save*, rather they live for today and prefer instant presents so it is not surprising that *the proportion of those with life assurance is the lowest here* (48%).

However, the members of the “Caring well-off” and “Family-centred, aiming at security” groups have a lot in common. Both groups *judged the classical, traditional values important* but, on the other hand, in the case of the third group the priority of social sensitivity and giving a source of enjoyment to others are exceptionally high so they also can be regarded socially sensitive to the greatest extent in relation to the two emphatic groups.

In our opinion these two groups are open to the service of life assurance on offer to the greatest extent as knowing themselves as well as the others in safe appears as the greatest criterion at these groups.

We think the clusters outlined on the basis of this value system have special criteria that correlate with their attitude to life assurance, namely, their openness or reservation to it. Furthermore, in our mind, *on the market of life assurance characterised by a more and more intense competition monitoring the groups that can be well characterised by the value system can be an important objective in marketing as the value structure of these segments predestine the range of marketing activities ranked to be effective in their case.*

In our research we wanted to find out what factors influence consumers when taking out life assurance as well as what the motives are behind their decision. In our mind the value ranking of the individual is one of the most important determining factors so we want to utilise the opportunity given by this value-system-based classification in the segmentation procedure. The consumer groups outlined by this secondary segmentation criterion can be described by a peculiar

value structure that highlights the motivation system of taking out life assurance and thus can help get to know the range of marketing activities suiting the single group's demands and expectations the best. In our opinion the segmentation based on value system and lifestyle as a secondary segmentation criterion very significant in target market marketing can be well matched to characterise consumer market, too and, as a consequence, to outline certain client groups in the peculiar market of life assurance. To find out which values make up correlating factor groups, factor analysis was carried out based on the value estimates of the respondents and, as a result, three well separable factors were outlined: the group of „traditional-classical” values, the system of „hedonistic” values and the group connected to the values of „maturity, financial well-being”.

After the factor analysis a cluster analysis was carried out to make groupings based on the value system of the respondents and, as a result, well-structured groups showing similarities regarding value system preferences were obtained and three clusters could be defined matching the three factors: the cluster of “the hedonists”, the segment of “family-centred, aiming at security” and the group of “caring well-offs”.

*As a result of our research these latter two groups are the most open to services offered by taking out life assurance as knowing themselves as well as the others in safe appears as the main motivating criterion in these segments. As a matter of fact, the motivation for safety is the most influential factor when taking out life assurance.*

Anyway, safety motivation is the most influential and decisive factor when taking out life assurance as it is also supported by further results of our research.

### **Conclusions**

In our present paper we examine the role of the value system and lifestyle as reflected in our primary research carried out among a representative consumer sample.

In our opinion the differentiating effect of the individual value system as secondary segmentation criterion can be reflected in the market of life assurance, the basis of our research. By means of factor analysis we created value system structures and with the help of cluster analysis the main criteria of value system-based segments were outlined.

As a result of the research we concluded that the individual value system was one of the most determining factors in taking out life assurance. The consumer segments formed alongside the value system have more differentiated attitudes than those of life assurance. Getting to know these groups more thoroughly and deeply offers opportunity for the „suppliers” of the life assurance market to create an effective marketing mix

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