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## THE INFLUENCE OF QUALITY VARIABLES ON LOYALTY EFFECT OF NON-LIFE INSURANCE COMPANIES' CUSTOMERS

**Abstract:** *The aim of the article is to present ways of measuring customer loyalty. The results of this analysis allowed us to differentiate institutional clients of insurers' services depending on the power of their loyalty. On the basis of this measurement we presented a tool that enables us to indicate the most and the least loyal groups of clients taking into account some assumed features. The article is based on the authors' research conducted from May to July 2003 on the sample of 739 economic entities.*

**Keywords:** *customers loyalty, insurers', variables, selected methods for measuring customer loyalty, loyal groups.*

**JEL:** D 01, D 12

### Introduction

Shaping customer loyalty is closely related to the marketing activities of an enterprise. Insurance institutions, when selling an insurance service (each insurance company offers a range of mandatory insurance, property insurance, third party liability insurance [5,7,19], financial insurance, life insurance companies offer life assurance policies combined with investment funds, dowry insurance, personal accident insurance and others), created in order to compensate for the negative effects of fortuitous events, must be prepared that in their marketing activities they should draw customers' attention to other features of the service as a product than a product manufactured by some industrial enterprise [8,9,18]. Planning such product as insurance service is a slightly different process than in case of material goods as we do not have to take into consideration such means of effect as for example: package, shape, color or labeling of the product. [2] By taking appropriate action it can positively influence the number of regular customers. [21] An enterprise must adjust to its external situation – it must be shaped by the market. The specificity of insurance services marketing determines the use of some and the resignation from other marketing tools [11], [12].

These days, possession of a group of loyal clients is of key importance for economic entities. Research has proved that it is cheaper to retain an existing customer than to attract a new one. Therefore businesses introduce programs which retain their customers, they analyze the causes of keeping contacts and try to discover as many preferences of their clients as possible. However, a crucial aspect allowing companies to achieve success is improving the effectiveness of attracting new clients and probability of retaining them. If possible, when obtaining new clients companies should pay special attention to groups of customers where such a situation will be most probable. Therefore, before they send their sellers out in order to attract clients, businesses should show them what clients (possessing some specific features) will hold the promise of a long-term cooperation.

Galileo (1564-1642), famous physicist, astronomer and philosopher, once said: *'Measure what's measurable and make measurable what's non-measurable'*. The philosophy contained in this well-known adage may also be related to the issue of measuring customer loyalty. This article presents the way of measuring customer loyalty and on the basis of this measurement we present a tool allowing us to indicate the most and the least loyal group of clients taking into account certain assumed traits. The article is based on the authors' research conducted from May to July 2003 on a sample of 739 economic entities which have their registered offices in the Podkarpace province.

## 1 Description of methodology

We used the scoring method to determine the loyalty effect. Particular answers given by respondents were given appropriate weights. In order to calculate the loyalty effect we used the aggregated weight value [1], [2].

Then we built a model of linear regression through the beginning of the co-ordinate system (without any constant), in which the dependent variable was the loyalty effect (Y). The obtained model allowed us to perform three types of analyses. The first one enabled us to indicate the groups of the most and the least loyal clients, the second one consisted in calculating the absolute span (AS), which measured the difference between the lowest and the highest values of each feature, while the third analysis concerned relative importance of independent variables on shaping the loyalty effect.

## 2 The loyalty of insurance company clients

It is only natural that clients resign from the services of some companies and join their competitors. Fifteen percent of American clients change their banks and insurance companies every year. F. F. Reichheld, the author of *"The Loyalty Effect. The Hidden Force Behind Growth, Profits, and Lasting Value"* [18] writes that American corporations lose half of their clients every five years, half of their employees every four years, and half of their investors within less than one year. This situation may also soon be observed in Poland.

The dictionary entry of loyalty emphasizes faithfulness or devotion to some institution or oneself. In economics, this term is presented as an attitude of a particular client, who, driven by subjective feelings, regularly uses the offer of one enterprise, regularly purchases the goods of the same brand or does their shopping in the same place. The word 'loyalty' makes collocations with other words, determining the subject of this loyalty, for example: brand loyalty, company loyalty, product loyalty or shop loyalty. T. Sztucki believes that loyalty towards some products and companies means that the buyer is tied to the type of purchased goods and their points of sale by doing regular shopping and spreading positive opinions about them [19], [14].

R. Leventhal believes that loyalty consists in continuous returns of the customer to the company in order to make a purchase, even if the company charges slightly more than competitors. The price includes good relations, that is the sum of all interactions of a customer that took place. The company that can cultivate such relations will be achieve more benefits in the long run. Another definition states that loyalty is a set of behaviors associated with repeat purchase of a product or service, purchase of other products offered by the company, recommending the company and its produce. In other words, these are behaviors that generate revenue [12], [13].

Comparing these dictionary and marketing definitions we may draw a conclusion that they have some common features but they also differ significantly. Both identify loyalty as some kind of faithfulness, devotion. While dictionaries see the cause of this behavior in some noble feelings, such as patriotism or love, in marketing these feelings are much more down-to-earth. The client is usually sent a message: 'repeat your purchase and you will receive something extra in return' [16], [17].

N. Hill and J. Alexander [5] in their book present a totally different definition of loyalty in seller-buyer contacts. Loyalty, according to them, is devotion, faithfulness and subservience, but not of a customer but of the company towards the purchasers of its products. The customer does not have to be loyal at all. The more knowledgeable and stronger the customer, the more he or she realizes this. It is the company whose products the customer uses that must show the subservience traits to deserve regular sale contacts with its clients. The company will be selling its products as long as they satisfy the clients' needs. To win the customer loyalty you have to deserve it offering them loyalty to them and their needs. This is the only attitude that will allow the companies to gain profits from cooperation with this group of purchasers [6], [7], [9].

Summing up our discussion on the essence of customer loyalty and relating it to the insurance market we can state that the loyalty of the customer of an insurance company is their inclination to buy insurance products of only one insurer in a determined time period. The client takes out insurance policies and purchases consecutive products in the same insurance company, and when they expire, he or she renews them in the same company.

Traditional marketing approach pays special attention to finalizing the transaction. It is the main aim of all advertising and promotional efforts [10], [13], [15]. The company should aim at not only winning a good client but also at retaining them and establishing a long-term cooperation with them. Marketing in a company should

strive at establishing and strengthening the relationship with a client [17].

Long-term cooperation and retention of a client cannot be only associated with continuous repeat purchases of the company products. We must distinguish between repeat behavior and loyalty. Loyalty, contrary to repeatability, cannot be bought offering low prices or continuous promotions. In the long term such approach may turn out to be a recipe for disaster for the company. The customer will make purchases until another competitor appears and offers them more benefits. The company cannot rely on such group of 'loyal' customers, as they will leave for the competition as soon as they are offered better conditions. Customer loyalty should be built on a different basis. The following examples could be quoted here:

- **product quality** – the company may gain permanent competitive advantage and may ensure that the customer will not be tempted to buy a product of worse quality;
- **suiting the product to satisfy individual needs of customers** – the client receives exactly what he or she needs. The client realizes that the competition will not offer this, and if they do, it will not be the same. An essential factor here is the identification of needs and matching the product to the client. Sometimes it is worth taking appropriate action leading to this, but most often this type of behavior can be seen in relationships with key customers who can afford to pay for such customization as it requires considerable devotion on the company side;
- **the feeling of belonging to the group** – people do not like to feel alienated, belonging to a certain selected group enhances their feelings of their value and gives them security.

When we use the above factors, we may realize that the customer is willing to pay a higher price in order to be the chosen one. Then the company achieves additional material benefits. Obviously, it should not be concluded that discounts and rebates should never be used. The greatest effects are achieved when we combine all the above-mentioned activities in appropriate proportions.

### 3 Benefits related to possessing a group of loyal customers

There is no doubt that each enterprise should aim at building a group of loyal customers. The biggest advantages resulting from possessing such a group are listed below:

- they do not leave for the competitors;
- they buy more, more frequently, they are ready to accept a higher price and do not react nervously to price increases;
- they provide stability to the company, they allow the company to develop and to survive in the industry;
- costs of sales, marketing and start-up are depreciated in the long period when the customer uses the services of the company;
- servicing such customers is often cheaper;
- they recommend company services to their nearest and dearest and contribute to spreading positive opinions about the company and its offer.

A loyal customer is incredibly precious for the company. As already mentioned, a loyal customer does not buy competitors' products, accepts the chosen product and is proud of purchasing it. The purchase is connected with additional benefits, therefore such clients are not sensitive to price fluctuations. As the research conducted by *Profit Impact of Marketing Strategies* shows, loyal clients are less sensitive to price increases. They can pay on average 9% more than others [3], [4], [5]. At the same time, they buy products more often and spend more money. Such behavior cause that the company has the guarantee of repeat purchases and this contributes to its higher turnover and profits. The company can stabilize its market situation and does not have to be afraid of being pushed out of the market. American research has proved that the cost of retaining a regular client is over 5 times lower than the cost of attracting a new one. Such a person does not need to be persuaded to the company, you do not have to make a detailed presentation of your offer, provide examples of people using these products, etc. All procedures used in the company are perfectly known and even accepted by such a person. As a result, such a person becomes a spokesperson for the company and recommends it outside. People who met such 'company representatives' can be persuaded more easily and more quickly to buy our products. A regular, loyal customer is the most valuable asset of the company [20]. Companies must switch from perceiving clients as transaction generators. In order to retain them, special programs are being created, known as loyalty programs, whose primary objective is to make the client return, buy more and promote the company outside [19], [18].

#### 4 Measuring customer loyalty

It is assumed that in order to measure customer loyalty in a particular enterprise, the following measures must be taken:

- retention ratio;
- expenditure share ratio;
- recommendation ratio;
- availability of other possibilities;
- attractiveness and perception of other possibilities.

The measurement of these quantities and then proper interpretation of the results will allow us to determine the level of customer loyalty. *The retention ratio* is the lowest level of loyalty. It is a value which enables us to determine 'whether customers will remain customers'. It also tells us what percentage of past buyers still buy the products of a particular enterprise and what percentage of them do not return to the company in the analyzed period. The higher the ratio, the more clients use the services of this enterprise in consecutive periods of time [1]. The above value should be analyzed in connection with the expenditure share ratio, because the fact that the customer still buys the products of a given enterprise does not necessarily prove that the customer is loyal to this enterprise. They can simultaneously buy the same type of products from our competitors for the reasons known only to them. *The expenditure share ratio* allows us to determine the share of expenditure on company

products in the total expenditure on a particular type of goods [2], [3].

As we have already stated, one of the features of a loyal customer is the fact that such people become fierce promoters of the company and its products. This is an essential factor in identifying what kind of buyer we deal with. Loyalty is measured by means of *the scoring method*. Answers to particular questions are assigned some point values, having summed the points we may determine which group – of loyal or disloyal customers – a particular person belongs to. The identification of factors affecting the loyalty attitude is made on the basis of responses obtained from these two groups [7], [8]. Comparing the evaluation of satisfaction we can infer what caused them to present this kind of attitude. If both the loyal and disloyal groups were equally satisfied with some feature, this does not affect their attitude. However, when there is a gap between groups' feelings, we may draw a conclusion that it is a vital feature that cannot be omitted<sup>1</sup>. The company should try to do its best in what the customer notices most. Certain features of company products are not important to customers and the company may ignore them or pay less attention to them [11].

The relationship developed between the customer and the company is precious when it is characterized by profitability. However, it should be realized that it is not the only criterion that could be applied here. Other vital criteria would be: turnover, length of relationship, share in customer's expenditure, positive opinion about the company spread by the client and experience the company gains during this relationship. When these factors are present, the company may wish to maintain the alliance even if it is not profitable. One of these factors may be assumed as the crucial one and it will be the basis for evaluating relationships with clients rather than profitability[15].

*Lifetime value (LTV)* has become a standard method of measuring the results of the programs managing customer relationships. *LTV* is a current net value of future profits which will be obtained from a number of newly-won or existing clients in a particular period of time. It is the profit retained in the company in the period when the client makes purchases or uses company services.

*LTV*, contrary to other measure instruments, anticipates the actions and future results of groups of clients based on their past and present buying habits. It also allows us to determine the results achieved by the whole company, in the following form:

$$LTV = \overline{W} \cdot L$$

where:

$\overline{W}$  – average expenditure of a particular person in the analyzed period of time;

$L$  – number of periods of time in which a particular person remains the company's customer.

<sup>1</sup> For example, if loyal clients, in a 5-point scale, assessed the quality of food in a particular restaurant at 4.3 and disloyal ones at 4.1, this is not the factor accounting for customers' leaving. However, if loyal customers assessed cleanliness at 4.2 and disloyal ones at 2.1, this is a sign that the place has not always been clean and some clients have been discouraged by this.

*LTV* is the value of average expenses of a particular customer in the analyzed period of time multiplied by the number of periods in which such a person remained the company's customer<sup>2</sup>. To calculate *LTV* precisely, we need a customer base with basic data about them and the history of their purchases of above one year.

The loyalty issue was treated as a problem for all customers, it was considered impossible to divide the customers into segments or create the test and the control groups. It turns out that any activity can be tested on a selected group of the society. After conducting the sample research it is necessary to carry out customer segmentation. Some people fit the assumptions much better than others, for example in *expenditure rate*, *retention rate* or *referential rate*. The analysis of more and less profitable groups indicates what financial means should be allocated to each of them and what actions to take in order to achieve the desired effect. Average expenditure is allocated to customers with average profitability, much more than on the best clients on average and significantly less than on the worst ones on average. This type of segmentation may result in a considerable increase in profits.

The best clients (those who make the biggest and the most frequent purchases) should not be tortured with marketing programs. They must receive outstanding service. We need to retain them and to deserve their loyalty. The second group of customers (with average expenditure) are the best addressees of marketing programs – we should encourage them to buy more and to join the higher group. Unfortunately, customers from the lowest level may cost more than they are worth, therefore the company should not be interested in their stay.

*LTV* is a good tool for measuring the effectiveness of various kinds of marketing strategies before implementing them. *LTV* is mostly affected by:

- retention rate;
- referral rate;
- expenditure rate (level);
- direct cost;
- marketing cost.

Frederick F. Reichheld [18] draws our attention to the fact that successful companies have three common features: loyal customers, loyal employees and loyal owners. He believes that clients are loyal not to the banks, insurance companies, etc., but to the employees of these institutions. He believes that the retention growth of 5% may lead to *LTV* increase of as much as 75% in such sectors as insurance, banking or car dealers. As for insurance, this growth may reach around 8% annually and may be caused by the following factors:

- family accident;
- increased income (purchase of more expensive cars, purchase of home appliances, purchase of a holiday cottage);
- increase in the number of household members (more life insurance policies

<sup>2</sup> Taking as a example a person who does the shopping in one grocery store and spends 50 zloty there, we can calculate that the store will obtain from this person the amount of 13,000 zloty (52 weeks times 5 years times 50 zloty). The shop would lose this money if it lost the customer.

taken out);

- inclination to save which increases when approaching the retirement age.

In growth of the retention rate may stem from better treatment of a client. Special bonds and relations are built, but such activities cost. We must send our client a birthday card, letters, questionnaires. It is much better to rely on proper selection. According to Reichhelds:

- clients are predictable and loyal, preferring long-term relations;
- some are more profitable, spend more, need less service;
- some clients like products and services of our company more than products and services of our competitors.

Finding customers who possess one of the above features will improve the retention rate without spending additional money. Work is much easier when performed with loyal people. Boards most often take a short-term view of the problem. They employ some resources and expect quick results. However, building a true loyalty attitude among clients may take years. The effects may come only after a long time and only then the invested capital will yield. Using this useful method we may persuade the financial institution executives to introduce a loyalty program in their organization. Open-minded managers who take a strategic approach to their company development will undoubtedly be interested in it.

For many years now we have been observing two approaches adopted in work on modeling economic phenomena and processes. The first one is based on the methods of analysis regression and tries to find the relation between the analyzed variables, which will allow us to explain the mechanisms behind the economy. The other one analyses all economic conflicts basing on the methodology of stochastic processes [4], [6], [11].

## 5 Methodological foundations for determining the power of loyalty

The first step to create the loyalty model of clients of non-life insurance companies was to select a group of clients to be covered with the survey. The research group comprised those who had insurance policies with only one insurance company at the time of conducting the survey. In this way they met the necessary condition to be considered loyal.

In order to be able to say more about the loyalty of these clients, each of them was assigned a number called loyalty effect, which in fact is the measure of loyalty. Someone's loyalty was confirmed by the fact that they used the services of one insurer. The loyalty effect was to prove the loyalty level of a particular client to their insurer.

In order to determine the loyalty effect we used the scoring method. Particular answers provided by respondents were assigned relevant weights. To calculate the loyalty effect we used the aggregated value of weights. The analysis assumed that the loyalty attitude is affected by the features listed and described below.

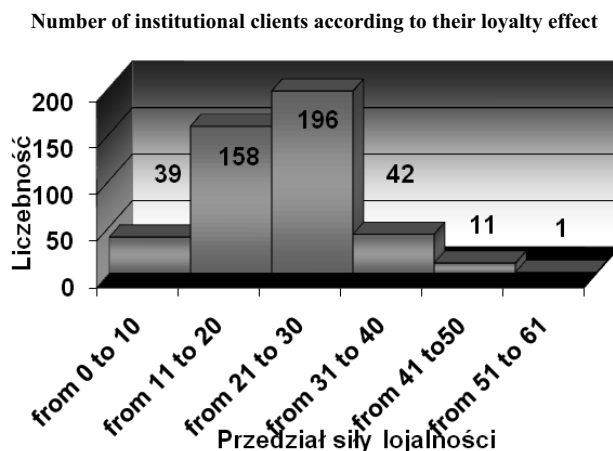
1. The period of time a person has been the client of one company.



2. The use of other insurers' services in the past.
3. Plans concerning the change or the increase in the number of insurers.
4. Attractiveness, perception and willingness to use competitors' services.
5. Application of recommendation technique.
6. Possible behaviors before signing consecutive insurance policies.
7. Annual amount of money allocated to insurance premiums.

*The loyalty effect as the measure of loyalty level of insurance companies' clients of division III. To determine the loyalty effect we used the results of 404 questionnaires filled in by the pollsters. The surveyed clients indicated that they used the services of only one insurance company – such loyal attitude was demonstrated by 54.67 % of the surveyed companies. The highest value of the loyalty effect reached 61% and the minimal value was zero in the surveyed companies. In order to demonstrate how the loyalty power is shaped we used a histogram which is a collection of rectangles, whose foundations will be established by particular class ranges and whose height will indicate the quantity of each class range.*

Figure 1



Source: own elaboration.

The above graph shows the histogram of the surveyed companies, in which the horizontal axis presents the values of the loyalty effect. Now we calculate the arithmetic mean, using the following formula:

$$\bar{Y} = \frac{1}{n} \sum_{j=1}^n Y_j,$$

where:

$\bar{Y}$  – arithmetic mean of loyalty effect;

$Y_j$  – individual values of loyalty effect in the surveyed entities;

$n$  – number of observations.

For the surveyed entities, the arithmetic mean of the loyalty effect reached the value of 20.98.

*The median* divides the surveyed population into two parts. At least half of the units of the surveyed population have the values not higher than the median, while the other half have the values not lower than the median. The median for enterprises reached the value of 21. The most frequent value in a particular distribution is called its dominant. In the surveyed companies it had the value of 21. Another stage of the analysis was to use the variation measures. They are used to allow differentiation between two surveyed samples which have the same measures of central tendency but may differ in reality in dispersion of the trait value.

Classic measures characterizing differentiation are: variance and standard deviation. Variance of the sample is a sum of squares of deviations of the feature value from their arithmetic mean divided by the number of observation reduced by 1. Variance estimator was calculated according to the following formula:

$$S^2 = \frac{\sum_{j=1}^n (Y_j - \bar{Y})^2}{n-1}$$

where:

$S^2$  – variance;

$\bar{Y}$  – arithmetic mean of loyalty effect;

$Y_j$  – individual values of loyalty effect shown by the surveyed entities;

$n$  – number of observations.

The variance value calculated for enterprises was 66.58. *Standard deviation is a square root from variance.* It is used in analyzing data in order to give variance proper measure. When calculating standard deviation, the following formula was used:

$$S = \sqrt{S^2}$$

where:

$S$  – standard deviation;

$S^2$  – variance.

The value of standard deviation for the surveyed group of institutional entities was 8.16. We also calculated the coefficient of variation to determine what part of arithmetic mean is the standard deviation. We used the following formula:

$$V = \frac{S}{\bar{Y}} \cdot 100 \%$$

*Standard deviation* constituted 38.89% of the average value for enterprises. *A typical variance range* informs us which cases may be considered typical ones and which are treated as deviations, thus:

$$Y_{\text{typ}} \in (\bar{Y} - S; \bar{Y} + S)$$

For the surveyed enterprises *typical variance range* was comprised between the loyalty power values of 12.82 and 29.14. 64.3% of institutional entities belonged to this range.

## 6 Theoretical foundations for constructing econometric models

The construction of the models presented below aimed at determining what factors significantly influenced the power of loyalty shown by clients of insurance companies. It was also important to examine the intensity of the influence particular factors had on this phenomenon.

In order to accomplish the above aims, the process of constructing the model was divided into the following stages:

- selection of model variables;
- choice and justification of the analytical form of the model;
- parameter estimation;
- application of the created model to conducting the analysis.

The analyzed model had *loyalty effect* as the dependent variable. For further analysis we assumed variables from the questionnaire as independent variables. At this stage we resigned from verifying the significance of independent variables influence on dependent variables as their number was not big and the applied method of constructing the model checked the significance of variables, therefore variables that did not meet this requirement could not be incorporated into the model.

As the dependent variable in a regression model was only affected by quality variables (for example the number of people in a household, place of living, size of earned income, industry, etc.), it would be pointless to use the free term. If it was used, its value would in practice determine the value of a dependent variable for a group of clients that did not actually exist.

Due to the above, we assumed the following model for our further analysis:

$$Y_i = \beta_{11} C_{11} + \beta_{12} C_{12} + \dots + \beta_{1t} C_{1t} + \beta_{21} C_{21} + \beta_{22} C_{22} + \dots + \beta_{2u} C_{2u} + \beta_{r1} C_{r1} + \beta_{r2} C_{r2} + \dots + \beta_{rw} C_{rw} + \varepsilon$$

where:

- $Y_i$  – dependent variable *loyalty effect*;
- $C_{ij}$  – j-th variant of i-th feature

$$C_{ij} = \begin{cases} 1 & \text{for observation of variable } C_i \text{ representing variant } j \\ 0 & \text{for other cases} \end{cases}$$

$\beta_{sz}$  – relative *loyalty effect* of a particular respondent  $s = 1, 2, \dots, r$ ,  $z = 1, 2, \dots, w$ , while

$\varepsilon$  – is an element of an error.

We assumed that the function of the value, just like the function of the costs, had a linear form; this justifies the linear form of the model. The estimation of the parameters of the above model was used by means of a classic method of Least Squares, using the SPSS package, while its verification was based on  $R^2$  coefficient. It should be remembered that for the analyzed model, the determination coefficient measured part of the variation of the dependent variable at the beginning of the co-ordinate system explained by the regression model. In order to check whether the model fitted the data sufficiently we verified the hypothesis concerning the coefficient of determination. The zero hypothesis had the following form:

$$H_0: R^2 = 0$$

while the alternative hypothesis can be presented as:

$$H_1: R^2 > 0.$$

This hypothesis was checked by means of the statistics characterized by *F-Fischer-Snedecor distribution* for  $m_1 = k$  and  $m_2 = n - k - 1$  degrees of freedom, where:  $n$  – number of observations,  $k$  – number of variables, expressed by the following formula:

$$F = \frac{R^2}{1 - R^2} \cdot \frac{n - k - 1}{k}$$

The critical value of  $F^*$  statistics was obtained from the tables for an assumed significance level  $\alpha$  and for  $m_1$  and  $m_2$  degrees of freedom. In case:

$$F_{emp} \leq F^*$$

there was no basis for rejecting hypothesis  $H_0$  and accepting  $H_1$ . This situation meant that  $R^2$  coefficient of determination insignificantly differed from zero, therefore the fit between the model and data was too weak.

On the other hand, if:

$$F_{emp} > F^*$$

then hypothesis  $H_0$  should be rejected and hypothesis  $H_1$  accepted, which should be interpreted as sufficient fit between the model and data. The obtained model allowed us to conduct three types of analyses. The first one let us indicate the groups of the most and the least loyal customers, marked respectively by  $G_{\max}$  – the most loyal,

$G_{\min}$  – the least loyal ones.

$$G_{\max} = \{ C_{1\max}, C_{2\max}, \dots, C_{k\max} \};$$

$G_{\min} = \{ C_{1\min}, C_{2\min}, \dots, C_{k\min} \};$   
 where  
 $C_{i\max}$  – variant of i-th independent variable, for which;  
 $\max \{b_{i1}, b_{i2}, \dots, b_{is}\};$   
 $C_{i\min}$  – variant of i-th independent variable, for which;  
 $\min \{b_{i1}, b_{i2}, \dots, b_{is}\};$   
 while  
 $b_{is}$  – estimated parameters of the regression model.

The second analysis consisted in calculating the absolute span (AS), which measured how much the lowest and the highest value of each feature differ from each other.

Thus:

$AS_i$  – absolute span for i-th independent variable;

$AS_i = \max \{b_{i1}, b_{i2}, \dots, b_{is}\} - \min \{b_{i1}, b_{i2}, \dots, b_{is}\}.$

*Absolute spans of all variables* which constituted the model allowed us to calculate the total absolute span (TAS), determined in the following way:

$RA=AS, ORA=TAS$

$$ORA = \sum_i RA_i$$

The third analysis dealt with relative significance of independent variables on shaping the loyalty power. *Relative significance of i-th independent variable* on shaping the loyalty power was determined using:

$Z=S, RA=AS, ORA=TAS$

$$Z_i = \frac{RA_i}{ORA} \cdot 100 \%$$

As we can see, higher values of  $S_i$  will correspond to stronger influence of a particular feature on the client's loyalty attitude.

## 6 The construction of a model describing the analyzed sample

*Loyalty effect* was assumed to be the dependent variable of the model. Independent variables were: *size of revenue, sector, form of ownership and size of employment*. We created a linear model of the relationship between *loyalty effect* and the above-mentioned independent variables. The model of complex regression going through the beginning of the co-ordinate system had the following form:

$$Y_i = \beta_1 R_1 + \beta_2 R_2 + \beta_3 R_3 + \beta_4 R_4 + \beta_5 S_1 + \beta_6 S_2 + \beta_7 S_3 + \beta_8 S_4 + \beta_9 F_1 + \beta_{10} F_2 + \beta_{11} F_3 + \beta_{12} F_4 + \beta_{13} E_1 + \beta_{14} E_2 + \beta_{15} E_3 + \beta_{16} E_4 + \varepsilon$$

where:  $Y_i$  – dependent variable, *loyalty effect*;

- $R_1$  – size of revenue – 0 – 100,000 zloty;  
 $R_2$  – size of revenue – 100,000 – 1million zloty;  
 $R_3$  – size of revenue - 1million - 5million zloty;  
 $R_4$  – size of revenue - above 5million zloty;  
 $S_1$  – sector – commerce;  
 $S_2$  – sector – services;  
 $S_3$  – sector – industry;  
 $S_4$  – sector – construction industry;  
 $F_1$  – form of ownership – state enterprise;  
 $F_2$  – form of ownership – private enterprise;  
 $F_3$  – form of ownership – other than state or private enterprise;  
 $E_1$  – size of employment – 0-9 people;  
 $E_2$  – size of employment – 10-49 people;  
 $E_3$  – size of employment – 50-250 people;  
 $E_4$  – size of employment – above 250 people;  
 $\beta_i$  – relative level of loyalty power of a given factor;  
 $\varepsilon$  - element of error.

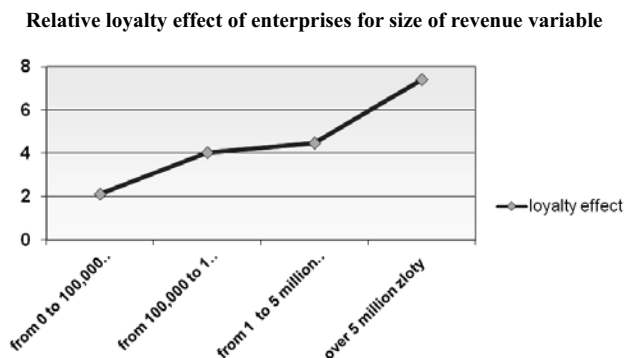
We did not exclude any variable from the model. We obtained the coefficient of determination  $R^2 = 0.876$ ,  $F = 183.711$  at the significance level of  $\alpha = 0.05$ . The zero hypothesis states that  $R^2$  equals zero -  $H_0: R^2 = 0$  compared to the alternative hypothesis which states that  $R^2$  statistically significantly differs from zero -  $H_1: R^2 \neq 0$ . The obtained result showed that  $R^2$  statistically significantly differed from zero, therefore the variation of independent variables explained the variation of the dependent variable. At the significance level of  $\alpha = 0.05$  we calculated  $F_{emp.} = 183.711$ . For this level of significance,  $F^* = 1.691$ . Because  $F$  empirically was bigger than  $F^*$ , the zero hypothesis  $H_0$  was rejected and the alternative hypothesis  $H_1$  was accepted. This means the significance of  $R^2$ . At this level of significance the proposed model was accepted for further analyses.

After calculations, the regression model took the following form:

$$\begin{aligned}
 \text{Loyalty effect} = & \quad 2.11 R_1 \quad + \quad 4.03 R_2 \quad + \quad 4.47 R_3 \quad + \quad 7.40 R_4 \quad + \\
 & \quad (2.05) \quad \quad (2.11) \quad \quad (2.27) \quad \quad (2.42) \\
 & + \quad 16.86 S_1 \quad + \quad 16.65 S_2 \quad + \quad 15.07 S_3 \quad + \quad 16.26 S_4 \quad - \\
 & \quad (3.60) \quad \quad (3.66) \quad \quad (3.72) \quad \quad (3.69) \\
 & - \quad 0.73 F_1 \quad - \quad 3.28 F_2 \quad - \quad 0.08 F_3 \quad + \quad 5.01 E_1 \quad + \\
 & \quad (2.26) \quad \quad (1.94) \quad \quad (3.14) \quad \quad (3.19) \\
 & + \quad 2.56 E_2 \quad + \quad 1.89 E_3 \quad + \quad 1.88 E_4 \\
 & \quad (3.29) \quad \quad (3.43) \quad \quad (3.66)
 \end{aligned}$$

The analysis of the model allowed us to select the groups of the most and the least loyal customers. Financial intermediaries from the Podkarpacie province should pay special attention to the entities with the lowest size of employment, companies dealing with commerce that have over 5 million zloty of revenue and those whose form of ownership was neither private nor state. These entities belong to the most loyal group. The least loyal group of customers were enterprises which were characterized simultaneously by the following features: sector – industry, size of revenue – 1 – 100,00 PLN, form of ownership – private, and with the highest level of employment. The size of revenue turned out to be positively correlated with *loyalty effect*. As we can easily notice, the greatest *loyalty effect* characterized by enterprises with the highest revenue levels. In addition, between *the size of obtained revenue and the number of possessed insurance products*, there was a medium statistically significant relationship ( $\chi^2 = 76.41$ ;  $df = 18$ ;  $\alpha = 0.001$ ;  $Eta = 0.451$ ). The behavior of these entities was impressive, indeed. Not only did they spend quite a lot of money on insurance, but they also bought out all their insurance policies from one insurance company. By doing so, they probably obtained some additional discounts or the insurance company showed great talent in adjusting their offer to meet individual needs, helping companies assess the risk, choosing the offer or taking some preventive action.

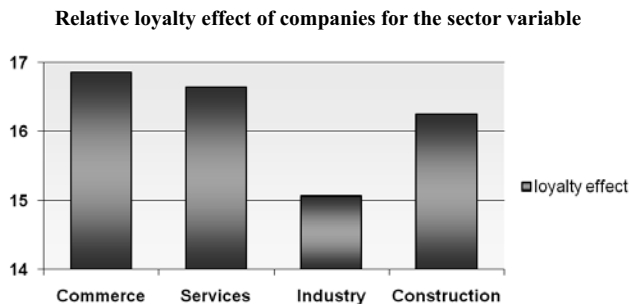
Figure 2



Source: own elaboration.

Observing the coefficients accompanying independent variables marked with B in the model, we can easily state that the commerce sector is the most loyal, while the industry is on the opposite end of the loyalty scale. Between **the sector** and **the number of possessed insurance products** there was a weak statistically significant relationship ( $\chi^2 = 40.05$ ,  $df = 18$ ,  $\alpha = 0.002$ ,  $Eta = 0.214$ ). Commerce and service enterprises have the smallest number of insurance products. Hence their high loyalty. As they did not have a large number of products, they were not interested in what other insurers have on offer. As the number of products grew, both in industry and construction companies, it was worth getting acquainted with the offer of other insurance companies.

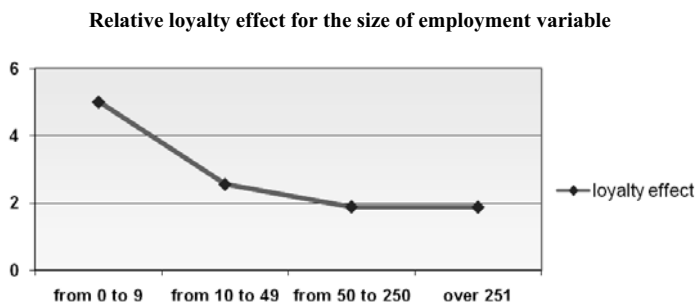
Figures 3



Source: own elaboration.

The size of employment turned out to be negatively correlated with *loyalty effect*. Increased employment brings lower value of the examined feature. This could be attributed to the fact that as companies grew, they delegated some people or created some organizational units to deal with the analysis of insurance companies offers. Such people devoted their time to seeking the most attractive possibilities of using the services of other insurers, therefore loyalty of the enterprise declined.

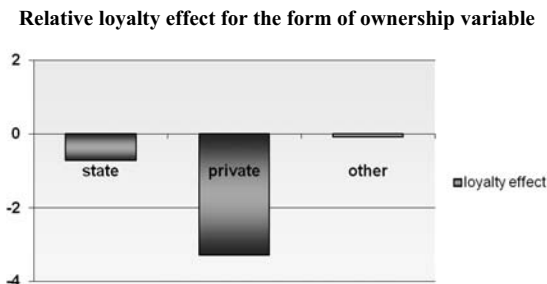
Figure 4



Source: own elaboration.

Enterprises whose form of ownership was neither state nor private were the most loyal ones. They were closely followed by state companies, while private enterprises were the least loyal.

Figure 5



Source: own elaboration.



In case of institutional entities we could try to analyze the influence of particular features on the shaping of loyalty effect.

Analyzing the value of absolute span, we could state that:

- size of revenue:  
 $AS_R = 7.40 - 2.11 = 5.29;$
- sector:  
 $AS_S = 16.86 - 15.07 = 1.79;$
- ownership form  
 $AS_F = -0.08 - (-3.28) = 3.2;$
- size of employment  
 $AS_E = 5.01 - 1.88 = 3.13.$

**The sum of spans equals:**

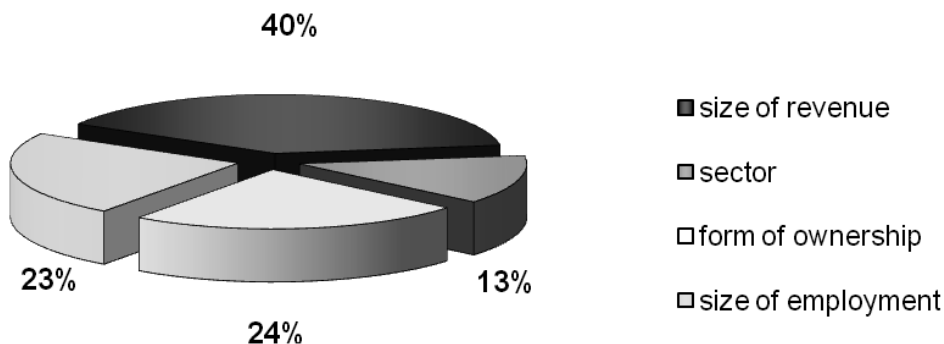
$$\Sigma AS_i = AS_R + AS_S + AS_F + AS_E = 13.41$$

The relative significance of particular features for loyalty is as follows:

- size of revenue:  
 $S_R = 39.45 \%$ ;
- sector:  
 $S_S = 13.35 \%$ ;
- form of ownership:  
 $S_F = 23.86 \%$ ;
- size of employment:  
 $S_E = 23.34 \%$ .

Figure 6

Relative significance of independent variables for the loyalty effect of enterprises



Source: own elaboration.

Clearly the greatest influence on shaping the loyalty effect was exerted by the size of revenue obtained by the enterprise. Slightly lower significance could be assigned to the form of ownership and the size of employment, while the sector in which the enterprise operated exerted the lowest influence on it.

## 7 Conclusions

The conducted analyses of the insurance market demonstrated that insurance companies, as far as institutional clients are concerned, should pay special attention to commerce enterprises, those with the smallest employment size, those with the highest revenues and other than state or private form of ownership. Among them, it will be easy for insurers to find loyal clients. Additionally, the loyalty attitude was strongly influenced by the size of revenue, ownership form and size of employment. Concentrating on such entities, insurers increase the probability of developing a group of loyal customers and thus decrease the risk of conducting business activity.

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