

# Determining The Affecting Factors on The Delay to Renew The Auto Insurance (Case study: a survey on the Saman insurance agencies in Shiraz)

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**Abstract-**All the owners of land and rail vehicles whether they are real persons or legal persons, are obliged to insure their vehicles against physical and financial damages to the third parties which may occur because of accidents of the mentioned vehicles or towing and trailer attached to them or their cargo. Despite third party insurance is compulsory, but there are people who have delays in their renewal of the insurance contract. This research intends to identify the affecting factors on this delayed action. For conducting the research, 524 registered case in all of the Saman insurance agencies in the city of Shiraz over five years (2011-2015) was studied. The factors are year of manufacturing, the number of driving accidents record, the type of automobile, type of insurance company, the beginning month of the contract. The results show that only the desire to change of type of insurance has been the affecting factor on this delay.

**Index Terms-** Analysis of Variance, Third party, Insurance, Third party insurance contract.

## I. INTRODUCTION

The third party insurance law, compulsory and binding to the policy states that by authentication of existence of a causal relationship between physical and financial damage of the third party and vehicle accidents, the compensation is due to the holder and consequently his or her insurer. At the completion of expression of this law, third party is defined as: third party is a person who is damaged physically or financially because of the vehicle accidents except the driver who caused the accident if he or she did not have a role in the incident for example in the cases of a technical problem, fire, etc. In addition to the damage of the injured one, his or her damage is also subject to compensation and payment. Also when in the car accidents, both parties are guilty, the driver is considered the cause of incident to the extent of guilt and is considered third party to the extent of not being guilty.[2]

By taking a look at the global experiences and theoretical foundations, the affecting factors and components in pricing of auto insurances are classified in three categories: individual properties of the driver, properties of the vehicle and functionality of the vehicle. Dionne and Vanase (1989) based on the number of damage claims and individual characteristics affect distribution of claiming a bound-malus system for determining the amount of the contract was

announced.[1] Recently, many researches on bound-malus systems are done: Payandeh (2010) and Mahmoudvand, et al (2013). By studying the method of pricing in Iran, we realized that usually the properties of the vehicle and its functionality (incompletely) are taken into account in pricing and practically the very important individual properties of the driver are not considered. At the moment, affecting factors in determining the auto insurance of third party in Iran are the extent of commitments (physical, financial and driver accidents), insurance period, car functionality, discounts and penalties, number of cylinders in the cars and motorcycles, carrying capacity of passenger cars and cargo capacity of trolley cars. Several studies have been conducted for designing a model for penalty-reward system in order to designate the insurance rate. [6]

Insurances are divided to governmental, private and free categories.[3] There are several private insurance companies from which Saman insurance is one of the most active ones. Saman insurance company was founded on February-15-05 with 200 billion rial capital which was divided to 200 million shares each worth 1000 rial with registration number 241059 in order to provide commercial insurance in fields of financial, responsibility and individuals insurance. They acquired their license in fields of life, non life and reinsurance from central bank and started their activity as the sixth financial group of Saman. [7]

Unfortunately people will think about provision of an insurance policy for the body of their cars when they have an accident and therefore we have seen many infractions in this section. Also by declaring the 60 percent portfolio of Iran insurance company for automobiles, it has been said that: "the culture of acquiring an insurance policy for the body of the cars has not been integrated into the society yet and people think only about third party insurance."

The focus of this study is to understand the reason for delay in renewing the third party insurance. The data has been gathered from Saman insurance agencies in the city of Shiraz from year 2011 to 2015. The time of renewal, car model, driving accident record, type of the car and type of the insurance company are the factors which have been studied about the relationship to the delay in renewal of insurance contract. Next section will deal with the method of conducting the research.

## II. THE METHOD OF RESEARCH

This research investigates the various factors and their impact on delay of signing the insurance contract by car

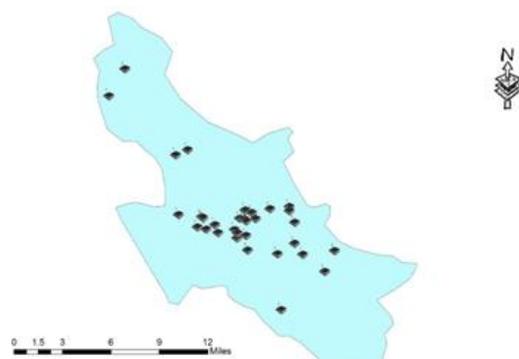
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owners. The statistical population of the research includes all of the customers who referred to the franchises of Saman insurance company in years 2011, 2012, 2013, 2014 and 2015. Map (1) shows the discretion of Saman insurance agencies in the city of Shiraz which indicates their centralization is in the city center. This means that customers can easily renew their auto insurance by going to the city center and finding one of these agencies.



Map 1: The location of Saman insurance agencies in Shiraz

Data was analyzed with minicab software. For checking the hypotheses, analysis of variance (anova) test was employed.

### III. FINDINGS

In this section we will answer the research questions. For this purpose, anova test is being used to investigate the effects of factors on delay of insurance renewal and their operational solutions.

1- Does the year of manufacturing affect the delay in renewal of insurance contract?

Among the 524 cases that have been surveyed, there were automobiles with manufacturing date from year 1980 to 2015. From the value of Pearson correlation coefficient which is equal to 0.075, it is been understood that the variables delay time and year of manufacturing are not correlated with each other. The significance level of this relationship, p-value, equals to 0.717 which shows that there is not a significant linear relationship between the mentioned variables.

In this stage, we will limit ourselves to the study of cars which are manufactured in the recent four years. Now we investigate the hypothesis which says if the cars that are manufactured in the recent four years have similar behavior in delay time? As the calculation show us the value for analysis of variance test in this situation is  $F=0.36$  and this number means the insignificance. In fact there is no difference with regards to the year of production of the delay for signing the insurance contract. Therefore the cars which are manufactured in the recent 4 years have no difference in regards with the delay time and have shown the same behavior.

2- Does the number of driving accidents record affect the delay in insurance contract?

At first it is guessed that the people who have driving accident record, for the reason that the renewal rate would be different for them, may have delay in the renewal of their insurance contract. Here for checking this hypothesis we focus on driving accident record less than six years in relation to the insurance renewal and with the information extracted from analysis of variance test, we have realized that driving accidents do not have significant effect on the time to renew the insurance contract. It should be said that the test statistic for the anova test is  $F=2.05$ .

3- Does the type of automobile affect the delay on insurance renewal?

The variety of the automobiles was very high so that we could not consider each model as a level for the variable of automobile type. For compressing the information and conducting statistical test, this time we have divided the automobile types and have investigated the effect of delay in this category. We have classified the vehicles in three groups as follows:

Code 1: Cars which are made in Iran.

Code 2: Motorcycles.

Code 3: Cars which are made abroad.

According to the analysis of variance which its statistic value is  $F=1.75$  and  $P\text{-value}=0.176$ , we understand that the same behavior occurs with regards to the type of vehicles.

**Table 1.** The results of analysis of variance for the effect of month of a year on the delay time for renewal of third party insurance contract

Source	DF	SS	MS	F	P
Months of Start	11	22903	2082	1.10	0.357
Error	515	972704	1889		
Total	526	995607			

$S = 43.46$      $R\text{-Sq} = 2.30\%$      $R\text{-Sq}(\text{adj}) = 0.21\%$   
Individual 95% CIs For Mean Based on Pooled StDev

Level	N	Mean	StDev
1	41	21.93	34.29
2	47	25.60	58.12
3	58	28.29	48.44
4	25	22.28	37.97
5	32	31.78	72.20
6	40	20.02	33.57
7	31	11.61	17.88
8	44	30.95	52.56
9	45	9.67	12.92
10	61	20.74	44.38
11	40	13.55	24.51
12	63	20.13	43.83

Pooled StDev = 43.46

4- Does the type of insurance company affect the delay in insurance contract?

It may be true that if people do not have any contract in other insurance companies or do not have change in their last year insurance policy, it might affect the delay. Hence in this section we investigate the hypothesis about the effect of type of the company of the delay to sign the contract. According to the analysis of variance test the values  $F=21.7$  and  $p\text{-value}=0.000$ , therefore we conclude that the type of the

company has effect on the delay time. In fact for the different companies the delays are as follows.

5- Does the beginning month of the contract affect the insurance contract?

Because of the economic issues and the experienced boom in businesses in some of the months of a year, people have financial power to renew their insurance contract and this issue can be considered as an affecting factor in decreasing the delay to sign the insurance contract. According to the results (table 1), the analysis of variance calculates  $F=1.10$  and  $P\text{-value}=0.357$  which mean the beginning month does not have any significant effect on the delay time. Also the average and standard deviation and confidence interval for the delay time are shown below.

#### IV. CONCLUSION

Insurance marketing is actively searching for new customers and in this way it may consider some discounts which makes the price less than the declared rates. This makes the car owners pursue the insurance agencies which offer lower prices. On the other hand according to the obtained information, it can be understood that the only factor which affects the delay time is the type of insurance company. In fact it can be said that the only reason for delaying the signing of insurance contract is the tendency to change the insurance company so that they can pay less insurance premium.

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