IMPACT OF AGE AS A SOCIO-DEMOGRAPHIC VARIABLE ON HEALTH INSURANCE PRODUCTS

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Abstract:
The private health insurance has taken off over the recent years, boosted by the pandemic of COVID 19, setting the pace for other similar products, over a market severely dominated by MTPL. However, there were numerous factors influencing this growth, starting with state policies, insurance companies' management along with welfare and socio-demographic factors. This paper addresses some of the later by focusing on age and notoriety, aiming to determine the possible correlation between socio-demographic variables such as age and health insurance products. The data used were provided by a recent study, conducted by the Institute of Financial Studies, an organization specialized on nonbanking financial system, gathered through a questionnaire, focused on a relevant group, considering all the necessary indicators regarding age, financial situation, area of living, studies, etc.

Keywords: economy, management, sales, health, insurance, socio-demographic.

1. Introduction

In Europe the general rule is that a strong, mandatory, state funded health insurance system is in place. In other parts of the world the situation differs, way down to countries where the state system is virtually inexistent. However, even in most developed countries in Europe, not everyone is insured and the state insurance doesn't always cover all costs, thus creating a constant challenge for governments to increase the percentage of insured population. "State and local efforts to reduce the number of uninsured workers include three major approaches: public insurance expansions, subsidies paid directly to low-income workers to help pay their share of employer-sponsored insurance premiums or buy individual insurance and subsidies paid directly to small employers to reduce the cost of health insurance premiums" (Reschovsky J. D., Hadley J.2001). As regards Romania, the health system is basically a state funded one. The health insurance is mandatory for any labour contract and the state insurance has a wide coverage, especially in terms of illness treatment, maybe not so performant when it comes to prevention. However, short funding, bureaucracy and corruption make the services difficult to access, time consuming and sometimes even unavailable. All these have created enough space for private health services, offered by specialized clinics and, more recently, even private hospitals. As costs of medical services are usually high, health insurance

products offering access to such benefits have gained a share of the market and the recent data show trends of future sustainable growth.

It is a constant subject for debate whether, or in which proportion, different demographic indicators influence the sales rate of various types of insurance products. It is vital for sales managers to understand how the market reacts to new old/new products, which are the factors that determine the decision when acquiring an insurance product and how these factors can be influenced. The aim of this paper is to determine the possible correlation between socio-demographic variables such as age and notoriety and the use of private health insurance products.

The initial hypothesis was that the use of the product – health insurance products - is correlated with age and notoriety. The data used for this research were provided from a recent study (Siminica M. Ladaru, R. et al, 2022), conducted by the Institute of Financial Studies, an organization specialized on nonbanking financial system Several methods were used to determine the relation between the variables including the Pearson correlation coefficient and linear regression.

2. Literature Review

Some authors described the evolution of insurance as being “The most dramatic change in the public sector in the twentieth century was the birth and growth of the social-insurance state. In 1900, two countries (Germany and Austria) had modest old-age and medical-care programs for the middle class, created up to twenty years before. Today, old-age programs and universal medical-care programs are the hallmark of developed countries” (Cutler M. D., Johnson R. 2004). Also, the importance of health services costs is emphasized by some authors, “Health and health costs are at the core of public concerns. In many societies, healthcare services are provided at a state level, although a myriad of private services are also available. In others, access to healthcare services is mainly done through a private insurer, otherwise, medical treatment expenses would quickly become unbearable for the general public.” (Fonseca R. J., Cunha L. 2020).

A study conducted in Switzerland has among the results concerning explanatory variables, that the relative price for healthcare appears significant in neither the consumption nor selection equation. This result may be attributed to the fact that individuals are not very sensitive to the actual price of healthcare, as they pay only part of the cost thanks to their state funded insurance coverage, situation that, related with an aging population, poses an increasing economic challenge. “Aging population is a given fact in Europe and demographic changes poses a challenge to the welfare state. With current levels of benefits and a much larger dependent population, contribution rates and social spending will need to grow to unprecedented levels” (Bilger M., Chaze, J.P. 2008). However, should that be the case for well developed countries, when the discussion reaches especially developing countries, researchers have reached the conclusion that among the factors usually found to correlate with the ownership of private health insurance policy is the cost, “As further evidence of the importance of cost in the decision to take up insurance coverage, about 20 percent of all uninsured people live in families where a worker has declined employer-sponsored insurance coverage, with two-thirds citing cost as the main reason for failing to take up that coverage” (Cunningham P. J., Schaefer E., Hogan C., 1999). Other authors consider that “ageing and labour – consequences for individuals and institutions, have addressed the larger issue of impact of aging on the labour market also from the perspective of

disability insurances" (Börsch-Supan, A. Age, 2011). "Moving away from out-of-pocket payments for healthcare at the time of use to prepayment through health insurance is an important step towards averting financial hardships associated with paying for health services. Social health insurance is mandated for those employed in many developed countries where employment and wage rates are high; this service is extended to those unemployed through subsidy" (Acharya A, Vellakkal S, et al 2012).

Also, it should be considered that any paper tackling matters related to health could address the pandemic influence, regardless of the topic, and health insurance makes no exception, "COVID was a source of worry and even conflict, but also unlocked people's resources in use of health enhancing - behavioral strategies, social support, and renewed gratitude for sources of personal meaning and value" (Schwartz C.E., Borowiec K., et al, 2022). The health insurance market also may have been influenced by the pandemic although issue is not addressed in this paper.

In some countries, state health insurance coverage is at the lowest, very limited, leaving a large part of the population virtually uninsured, with the most representative example the US, where private health insurance is dominant and, in the absence of a wide coverage state funded system, cost is among the most influential factors. Also in US, the factors influencing the choice were addressed by some authors, "socioeconomic status and minority status influenced whether or not a person enrolled in a health insurance plan" (Cantiello J., Myron F., et al 2015). These conclusions lead to topics often approach by researchers in correlation with health and health insurances – ageing and morbidity: "Countries with strong primary health-care systems have better health outcomes and lower health-care costs than do those without, but primary care is weak and underdeveloped worldwide, and even countries with strong primary care systems face substantial challenges from ageing populations and increasing multimorbidity" (Barnett K., Mercer S. W., et al, 2011)". Actually, cost as a factor influencing the decision of acquiring a health insurance product has been further analysed in correlation with morbidity, in fact, according to Fisher K, Griffith L., et al, (2021), "systematic review found that the majority of the 35 included (observational) studies showed a positive association between multimorbidity and service use/cost in older adults", the same authors specifying that, "many studies to date have treated socio-demographic factors as covariates that are adjusted for in regression analyses examining the relationship between multimorbidity and healthcare service use, or examined only a few socio-demographic factors. Adjusting for confounders in regression models does not explore potential effect modification, i.e., whether the relationship between multimorbidity and healthcare service use is consistent across levels of the socio-demographic factors". Similar studies have also recently examined the topic of socio demographic factors, focusing on the use of health insurance coverage as the dependent variable and gender, age, education, place of residence, region, province, race, wealth index, marital status, and employment status as dependable variables (Akokuwebe M. E. M., Erhabor E. S. 2022).

3. Research and methodology

In Romania, a characteristic of the market that we need to mention is that the internal insurance market is dominated by auto, especially MTPL - motor third party liability, which has created a difficult environment for other products, considering that

the insurance market GDP share has also been at a relatively low level, comparing with other member states. The contribution of private health insurance in financing the national health system is low, stating at around 1% and way below the European Union average which is around 5%. Recent changes in terms of annual deduction and facilities have raised the interests for health insurance products and determined a reprioritization of focus when it comes to related investments. Thus, health and life insurance products have climbed to the top of customer attention in 2022. According to insurance and reinsurance companies' union – UNSAR, 4 out of 10 Romanians are interested in private health insurance policies, figures confirmed by the annual data on insurance market, especially on private health insurances (figure 1), published by ASF – National Surveillance Authority. That even though, according to ASF, at the end of 2019, the assets of the insurance-reinsurance market represented 2.09% of the GDP, slightly decreasing compared to the prior year (2.41%).

The non-banking financial market consumers in Romania would be at 4.39% GDP Capital market, consisting of:

- 53,550 investors according to the ICF
- 336,343 OEIF investors
- 88,709 CEIF investors

As for the Insurance market, it's only at 2.09% GDP, out of which, in numbers, 13,862,058 consist of non-life insurance contracts and 1,618,776 life insurance contracts.

The private pension sector, related and under the surveillance of the same institution, shares 6.09% GDP with 7,46 million participants in Pillar II and 501.124 participants in Pillar III.

Extracting multiyear data from the above-mentioned reports, shows that health insurance products have been the engine of annual market growth at national level in Romania, over the last years. Health insurance products have reached over the first trimester of 2022, gross written premiums, approximately 184,3 million lei, 28% growth comparing with same period of 2021:

Health insurance product evolution between 2018 2021	**Number of valid contracts at the end of reporting session**	**Number of new valid contracts at the end of reporting session**	**Gross written premiums (lei)**	**Gross claims paid (lei)**
T1 2018	344.544	142.199	77.877.793	31.078.543
T1 2019	391.162	163.875	93.136.670	43.877.581
T1 2020	395.328	196.116	142.347.602	58.264.996
T1 2021	380.240	135.439	143.531.706	61.176.314

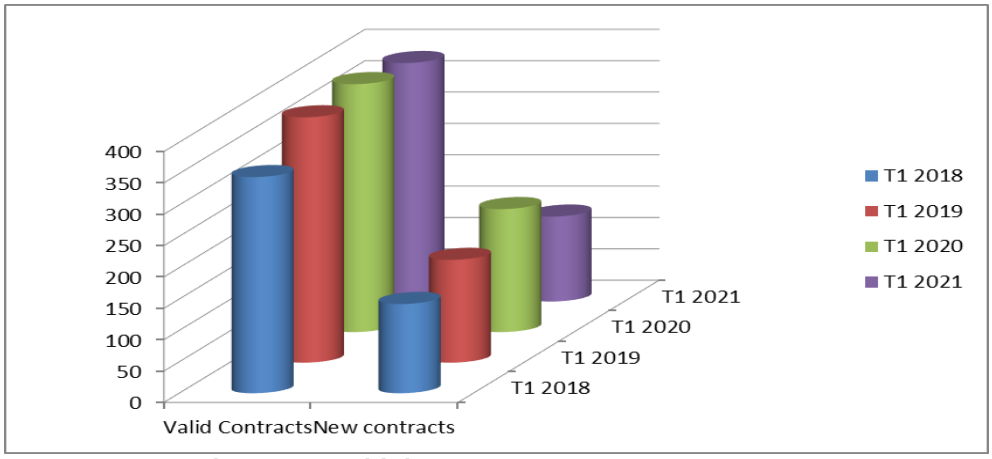

Figure 1. Health insurance contracts 2018-2021
Source: Created by the author

The data used for this research were provided from a recent study, conducted by the Institute of Financial Studies, an organization specialized on nonbanking financial system. However, using questionnaires for gathering relevant data on such a specific issue involves complex challenges, especially in terms of representative sample. These issues were addressed through a well-designed questionnaire, focused on a relevant group, considering all the necessary indicators regarding age, financial situation, area of living, studies, etc. Broad national and regional cultures are among the important aspects in terms of attitude towards financial services in general and insurance products in particular, conservativism or even reluctance to new, all these factors having relevant variations depending on age, financial status and education, making the representative selection of subjects for the questionnaire even more relevant for the topic.

The research was ordered by the Institute of Financial Studies and made by INSCOP Research, between 29.04.2022 – 13.05.2022, using as method of research a sociological inquiry through a questionnaire. The sample volume was 1303 persons, representative for relevant socio-demographic categories, sex, age, employment for Romania's over 18 years old population, having a maximum error of ± 2, 71% with 95% reliability.

The method for data collection was CATI (via telephone calls) and out of the simple random sample volume of 1303 respondents, representative for the population aged over 18, 626 (48%) were males and 677 females (52%).

The study has set to measure one dependable variable – the use of product and as independent variables, Age and Notoriety.

a. Use of private health insurance reflects respondent's weight for currently owning a valid policy. Positive answers received 1 point as negative ones, 0 points.

b. Notoriety of private health insurance reflects respondent's weight for having knowledge about the existence of the product. Positive answers received 1 point as negative ones, 0 points.

c. Respondent's age sample was split in five different groups, each group being scored from 1 to 5, as follows: 1 for the under 18; 2 for 18-29; 3 for 30-44; 4 for 45-59 and 5 for 60 or above.

As mentioned before, the dependable vaiable was the use of private health insurance and notoriety and the age of respondends were used as independent variables. Based on the collected answers by centralizing the data, a dependance between these variables was analysed, by using Pearson correlation coefficient and linear regression.

4. Results and discussion

With a reach of 85.2% of respondents declaring that they know/have heard of private health insurances, the notoriety of the products is overall quite high. Out of this 85,2% just 24.3% had actually used such products in the past. If we split the demographic indicators, addressing the age factor, we come up with the highest percentage for the population between 30-44 years of age, reaching to 90% notoriety, while a much lower percentage, 82% is found at people over 60.

However, irrespectively of all factors, the end of the line is the actual use of the product that matters, in this case private health insurance products. When it comes to using the products, the 30-44 group states at 33% that use to have one, compared with just 15% currently having a valid private health insurance policy. As expected for the population over 60, the percentages are lower, 14% had one in the past and just 5% currently have a valid policy.

According to statistics provided by the Census Bureau in US there were approximately 42 million uninsured Americans living in the United States in 2013. That raises the question of what categories of population are the most insured and the factors influencing the decision. “The consequences of such a large uninsured population are great and affect those individuals who do not purchase health insurance, as well as the rest of society, through cost shifting, increased insurance premiums, and higher taxes” (Cantiello J., Myron F., et al, 2015.). Contrary to the findings and results of this paper, in US, being a different system, with very limited public health coverage, the most vulnerable category is represented by young adults. “Young adults who are between the ages of 18 and 24 are about 30% less likely to be insured than the rest of the population. The chances of being insured increase as a person grows older. 25% of people between the ages of 25 and 34 are uninsured compared to 18% between the ages of 35 and 44 and 13% between the ages of 45 and 65” (Cantiello J., Myron F., et al 2015.).

Different socio demographic factors have also been found in positive correlation by other studies (Akokuwebe M. E., Erhabor E. S. 2022) “The study findings also show that marital status is a significant factor in explaining having health insurance coverage, and this variable has not been given much consideration in many studies conducted on factors that influence individuals’ decision to enrol in health insurance. It is observed that being currently married is positively related to a higher likelihood of enrolling in health insurance for both male and female respondents compared to never being married or previously married”.

In order to measure the connection intensity between the use of private health insurance policies, their notoriety and the age of the respondents, the Pearson correlation coefficient was used. The results are shown in table 1.

Table 1

Correlations

		Notoriety	Use	Age
Notoriety	Pearson Correlation	1	,147**	-,088**
	Sig. (2-tailed)		,000	,002
	N	1303	1303	1303
Use	Pearson Correlation	,147**	1	-,110**
	Sig. (2-tailed)	,000		,000
	N	1303	1303	1303
Age	Pearson Correlation	-,088**	-,110**	1
	Sig. (2-tailed)	,002	,000	
	N	1303	1303	1303

**. Correlation is significant at the 0.01 level (2-tailed).

There is a direct correlation, limited intensity though (R = 0,147), between use of health insurance products and their respective notoriety, statistically significant (Sig. = 0,000), which leads to the conclusion that as the level of knowledge on these products rises, the rate of use is also increasing.

As for the correlation between the use of health insurance products and the respondent's age, an inverted, low intensity correlation exists (R = -0,110), also statistically significant (Sig. = 0,000), which stats the fact that, as the age of respondents increases, the health insurance products rate of use is decreasing.

In order to highlight the contribution brought in by the two independent variables (notoriety of health insurance products and the age of respondents) to the health insurance products increase of use, multiple linear regression was used, achieving the following results, as shown in tables 2&3.

Table 2

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	,177[a]	,031	,030	.335	,031	20,984	2	1300	,000	1,940

a. Predictors: (Constant), Age, Notoriety

b. Dependent Variable: Use of Product

Table 3

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,125	,044		2,857	,004		
	Notoriety	,143	,028	,139	5,065	,000	,992	1,008
	Age	-,032	,009	-,098	-3,579	,000	,992	1,008

a. Dependent Variable: Use of Product

The linear regression model is:

Use of product = Notoriety x 0,143 – Age x 0,032 + 0,125

The resulting model confirms the positive influence of notoriety as well as the negative one of age, on the use of private health insurance products. These influences are low in intensity, the two factors only explaining a limited part form the use of products variation (R Square = 0,031).

5. Conclusions

As the results came out, there is a correlation factor to be considered, not very strong though, indicating that the use of product is related with age, rather from a negative perspective, as it decreases along with age. Also, the figures prove that the notoriety of the product is decreasing along with age. However, the decrease is higher in terms of using the product, leading to the conclusion that age has a negative influence over the use of private health insurances. This may come from different causes, higher prices for elderly people as they present higher risk of illness, coverage of the public health system etc. Also, a level of reluctance from insurance companies to target persons above a certain age as they are more likely to be subject of compensations, compared to a younger, healthier person. The system of state health insurance is also decisive, as proven in the US, where the lack of state funding healthcare triggers the influence of age as a positive factor.

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