Determinants of Individual Life-Related Insurance Consumption: The Case of the Slovak Republic[1]

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Abstract

The premature death of a breadwinner, serious injuries or an insufficient level of income during retirement can decrease the living standard of households substantially. Life insurance represents a tool for managing such kinds of uncertainties, however, individuals do not adequately consider this need for security. Papers focusing on factors determining life-related insurance consumption identified many variations in the effect of these factors. The reasons are not clear, but one of the explanations is the aggregated nature of life insurance without focus on the type of covered risks. Based on survey data, we confirm the differences in the determinants of various risks covered by life insurance. In the general life insurance model, we confirmed the following as significant determinants: gender, head of household status, combination of marital status and dependent children, saving behaviour and employment status. In the private pension insurance coverage, significant determinants are age, education, saving behaviour and employment status. The willingness to buy accident cover with life insurance is determined by the saving behaviour and employment status. Marginal effect has the status of head of household.

Keywords: *consumer behaviour, life insurance, insurance demand, logistic regression*

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Introduction

In household finance, the decision to buy life-related insurance combine the problem of consumers' uncertainty regarding their future income, future consumption and overall balance of household assets and liabilities. The usual sources of consumer uncertainty include uncertainty about future capital income, future labour income (human capital), age at death, investment opportunities, and relative prices of consumer goods (Merton, 1975). Response to these uncertainties and today's decisions by individuals have a major impact on their future standard of living, as evidenced by studies. For example, Holden, Burkhauser and Myers (1986) and Hurd and Wise (1989) point to substantial declines in living standards and an increase in poverty rates among widowed females. Auerbach and Kotlikoff (1989) analyse data gathered from households in middle age through early retirement and found that roughly one-third of wives and secondary earners would have seen their living standards decline by 25 percent or more after the death of their spouse. In the context of population aging, as well as a low participation in retirement savings products, and the different life expectancy of females and males, several institutions (OECD, see Rouzet et al., 2019; World Bank, see Bussolo, Koettl and Sinnott, 2015) point out the risks that individuals are exposed to as a result of insufficient risk diversification in most European countries. There are several ways of managing these uncertainties. In this paper, we focus on the analysis of the demand for life-related insurance as one of the tools of risk management. In particular, we analyse the determinants of the chosen insurance that cover specific risks.

The demand for life-related insurance is explained by several intentions: the preventive management of future income uncertainty resulting from the death of the breadwinner (Browne and Kim, 1993; Hubbard, Skinner and Zeldes, 1995), the lifestyle motive (Modigliani and Brumberg, 2005), the bequest motive (Bernheim, Shleifer and Summers, 1985) as well as the accumulation of wealth and its appreciation (e.g. for retirement) (Keynes, 2006). These intentions could be classified within three general life insurance demand motives: 1. „life protection", 2. „income protection" and 3. „pure saving" (Beenstock, Dickinson and Khajuria, 1989). Each motive can be linked to various life-related insurance policies, therefore the demand for various life insurance-related policies might vary. Previous research focused mainly on the drivers of aggregate life insurance demand not reflecting these differences.

The aim of this paper is to identify the determinants of individual life-related insurance consumption with regard to particular insurance covering specific type of risks. Using a sample of 870 respondents from Slovakia, we examine the determinants of life-related insurance demand in particular insurance coverages. We expect different drivers for purchasing life insurance covering the risks of

death and endowment (referred to as General Life Insurance), a lowered standard of living and reduction of regular monthly income due to retirement (referred to as Private Pension Insurance) and loss of income due to reduced working ability as a result of an accident (referred Accident Insurance Rider as a life insurance policy rider). We verify the assumption that the aggregate nature of life insurance (without focus on the type of covered risks) could result in the discrepancies among the results of previous studies. The expected differences in determinants could help respond to the ambiguous results of previous extensive research on the determinants of life insurance demand. Our results could help policymakers in Slovakia to stimulate demand for life-related insurance. Life insurance density is very low in the Slovak Republic.[2] Since a reduction in the breadwinner's working capacity due to disability, death or retirement could have a significant impact on the future consumption of other dependent household members, households in the Slovak Republic are exposed to the risk of poverty. The failures of individuals in risk management and risk diversification puts pressure on public systems. Understanding the determinants of life-related insurance demand is crucial for policymakers in applying more effective tools which support risk management via life-related insurance policies for individuals and households. The drivers of life-related insurance demand is important so that insurance companies and policymakers' campaigns can be better targeted at individuals and their actual needs with regard to their socio-demographic and economic characteristics.

The paper is structured as follows: in the second section, we present the results of previous research on the determinants of the demand for life insurance, where we point to their inconsistent results. We focus on socio-demographic and economic variables, which we then test in the empirical analysis. We examine the determinants according to their impact on the aforementioned coverage through general life insurance, private pension insurance and accident insurance (as life insurance policy rider). In the third part, we present data and methodology. In the results and discussion, we discuss the empirical results. We confirm the differences between the determinants of various risk-related insurance policies. The last section contains our conclusion.

1. Literature Review of the Determinants of Life Insurance Demand

The theoretical model of life insurance demand was first developed by Yaari (1965), Hakansson (1969) and Fischer (1973), later followed by Pissarides (1980), Campbell (1980), Karni and Zilcha (1986), Lewis (1989) and Bernheim

[2] Life insurance in Slovakia is below the average of the European insurance market. An average more than 1 300 USD per capita was spent on life insurance in Europe in 2018. In Slovakia, life insurance premiums per capita was 180 USD, in 2018. (Swiss Re, 2019).

(1991). These pioneers established extensive research examining the determinants of individuals' decisions to purchase life insurance. After more than five decades of research on life insurance drivers, the results are unsatisfactory since no unified theory has been developed. Many determinants have been studied: personal, demographic, economic or financial, political, institutional and cultural (Beck and Webb, 2003; Browne and Kim, 1993; Li et al., 2007). On the individual and household levels, two main categories have been identified as important: socio-demographic determinants (age, gender, education, dependent children, employment status and religion) and economic determinants of demand for life insurance (income, savings and employment status). Following our research scope, we discuss the effect of these determinants in more detail.

The age is the baseline variable that determines the level of premiums in life insurance. The premium for life insurance increases with age. The impact of age on life insurance demand is not clearly proved by research. Berekson (1972), Showers and Shotick (1994), Truett and Truett (1990), Baek and DeVaney (2005) claimed that an increasing age is positively reflected in the demand for life insurance. The opposite, negative dependence was demonstrated by Ferber and Lee (1980), Auerbach and Kotlikoff (1989), Bernheim (1991) and Chen, Wong and Lee (2001).

Another demographic determinant that has been widely researched without clear results is gender. Gandolfi and Miners (1996), who focused on the decisions of married males and females regarding life insurance, identified a positive influence of gender on life insurance demand. Further research led to conclusions that there is no difference in life insurance demand between females and males (Schubert et al., 1999; Ćurak, Džaja and Pepur, 2013; Pastoráková et al., 2013). This discrepancy could result from various types of life insurance policies as the gender and willingness to buy insurance are associated with a different degree of risk aversion between females and males (Borghans et al., 2009). However, the higher rate of risk aversion of females compared to males was confirmed particularly by studies analysing individual investment decisions (e.g. Halek and Eisenhauer, 2001; Powell and Ansic, 1997). Previous literature did not fully explain these differences.

The positive impact of education on the demand for life insurance has been confirmed by several studies (Hammond, Houston and Melander, 1967; Ferber and Lee, 1980; Burnett and Palmer, 1984; Truett and Truett, 1990; Browne and Kim, 1993; Gandolfi and Miners, 1996; Li et al., 2007). A higher level of education is associated with a greater understanding of the risks facing the individual and thereby the need for life insurance (Browne and Kim, 1993). Outreville (1996) declared that the period of the financial dependency of offspring is even

prolonged by a higher level of education. However, the negative impact of a higher level of education on demand for insurance was proved by Auerbach and Kotlikoff (1989), who pointed out that less educated people are better in risk securitization.

The importance of life insurance lies in protecting dependents from financial difficulties in the event of the death of the breadwinner (Hammond, Houston and Melander, 1967; Campbell 1980). The demand for life insurance should be higher for individuals with dependents, which has been proved by the majority of papers (Burnett and Palmer, 1984; Truett and Truett, 1990; Berekson, 1972; Hammond, Houston and Melander, 1967; Beenstock, Dickinson and Khajuria, 1989, and Li et al., 2007). An increasing number of financially dependent children increases the tendency to buy life insurance (Chui and Kwok, 2008). The dependency should be distinguished from the interdependence arising from the cohabitation of an individual in a partnership or marriage.

The positive impact of marital status (higher interest in insurance products for married persons) was confirmed by few studies (Eisenhauer and Halek, 1999; Baek and DeVaney, 2005). The number of studies have proved a significant negative impact of marriage on life insurance demand (Hammond, Houston and Melander, 1967; Mantis and Farmer, 1968; Bernheim, 1991; Mahdzan and Victorian, 2013). They pointed to the fact that individuals living alone prefer life insurance. Their motivation lies in the need to secure the financial consequences of a serious illness or injury.

In this respect, it may be appropriate to observe the decisions of the individual acting as the head of the household, regardless of whether they are married or not, or whether they have dependent children or not. The head of the household represents a decision maker in financial matters and, at the same time, his/her disability, loss of income or death significantly affects the income of the household. Therefore, the interest in any form of life insurance is higher for individuals who are the head of the household. Hammond, Houston and Melander (1967) and Campbell (1980) stated that the head of the household has its irreplaceable place, which predetermines it to an increased demand in life insurance.

Another issue related to life insurance demand is the belief of individuals in „a higher power", due to which their willingness to buy life insurance coverage is significantly lower. Religion had been a strong cultural contradiction to life insurance in the past (Zelizer, 1983), since an orthodox faith considers the purchase of life insurance as an expression of the individual's disbelief in „a higher power" and its protection. Henderson and Milhouse (1987) reported that through religion it is possible to gain a better view of individual behaviour because of the uniqueness of national cultures. Burnett and Palmer (1984) confirmed the

negative impact of religion on demand for life insurance. It is necessary to recognize that different religions differ in their views of insurance (Daniel, 2003) and for example Islam has a specific position among religions, which does not allow the use of life insurance built on traditional principles.

The living standard and wealth of individuals increase as their income becomes higher, and life insurance becomes more affordable. Most of the studies confirmed the positive impact of income on the demand for insurance (Hammond, Houston and Melander, 1967; Mantis and Farmer, 1968; Duker, 1969; Neumann, 1969; Fortune 1973; Ferber and Lee, 1980; Burnett and Palmer, 1984; Truett and Truett, 1990; Browne and Kim, 1993; Showers and Shotick, 1994; Gandolfi and Miners, 1996; Outreville, 1996; Li et al., 2007). Anderson and Nevin (1975) found a positive relationship between current income and life insurance demand for low- and high-income households.

Life insurance demand is associated with saving behaviour. Previous research brought mixed results concerning the particular relationship between saving behaviour and ownership of life insurance. Both relations (insurance and savings as substitutes or complements) were supported in literature. Several studies have found that saving behaviour (not only the amount saved but also the willingness to create savings) has a positive impact on the demand for life insurance (Headen and Lee, 1974; Ferber and Lee, 1980; Bernheim, 1991; Mahdzan and Victorian, 2013). On the other hand, Rose and Mehr (1980) confirmed that individuals who seek saving products consider life insurance purchase among other types of deposits and investments.

The majority of the papers, in spite of different views on employment status, confirmed the positive impact of employment on the demand for life insurance (Hammond, Houston and Melander, 1967; Mantis and Farmer, 1968; Duker, 1969; Ferber and Lee, 1980; Miller, 1985; Fitzgerald, 1987; Auerbach and Kotlikoff, 1989). The studies analysed the working status of individuals through various concepts. Hammond, Houston and Melander (1967), and Mantis and Farmer (1968) showed it as the status of workers in the labour process. Goldsmith (1983) and Gandolfi and Miners (1996) used employment as a measuring tool for a wife's work status. Research by Lee, Kwon and Chung (2010) looked at this determinant as the classification of individuals in the work process, such as self-employed persons, employed persons and unemployed persons, with higher demand being recorded for self-employed individuals.

The inconsistency of the previous results evokes a question regarding the causes of these differences. The possible reason is the different risks aggregated in the category of life insurance. In our analysis, we focus on identifying differences in the individual determinants of life-related insurance products covering different risks.

2. Data and Methodology

The empirical analysis of the impact of demographic and economic determinants of life-related insurance demand was performed on a sample of 870 respondents from the Slovak Republic. The survey sample consists of respondents between the ages of 18 and 62, with the share of females being 49.66 percent. The sample follows the demographic distribution of the Slovak Republic's population based on age and gender (Statistical Office of the Slovak Republic). The age distribution consists of the group from 18 to 25 years represented by 15.06%, the group from 25 to 39 years comprised of 331 individuals (38.05%). The age group 40 – 61 is represented by 408 individuals (46.90%). Descriptive statistics and definitions of variables are shown in Table 1.

T a b l e 1

List of Explanatory Variables and Descriptive Statistics

Variable	Definition	Mean	Standard deviation
GENDER	*Binary variable equals one for female.*	0.50	0.500
AGE	*Variable denoting subject's age (1 = 18 – 24; 2 = 25 – 39; 3 = 40 – 61).*	1.91	0.918
EDUCATION	*Binary variable equals one for those who have finished university education.*	0.53	0.499
MARITAL_ ST	*Binary variable equals one for those who are married or living as a couple.*	0.50	0.500
DEPENDENTS	*Binary variable equals one for those who have at least one child.*	0.43	0.496
HEAD_OF_HOUSEHOLD	*Binary variable equals one for those who are head of household.*	0.54	0.498
RELIGION	*Binary variable equals one for those who are believers.*	0.70	0.459
INCOME	*Variable denoting subject's gross monthly income group (1 = under 330 EUR; 2 = 331 – 880 EUR; 3 = 881 – 1 500 EUR, 4 = over 1 500 EUR).*	2.34	0.838
SAVINGS	*Binary variable equals one for those who are making savings.*	0.78	0.413
EMLOYMENT_ ST	*Variable denoting subject's status on labour market (1 = employed; 2 = entrepreneurs; 3 = students, unemployed or pensioners).*	1.57	0.817

Source: Author's calculations.

We use binary logistic regression to analyse the effect of independent individual characteristics on the demand for a particular life-related insurance product. This type of regression is used because of the categorical character of our variables. The maximum likelihood method was used for estimating the parameters of the model following the general formula:

$$\text{Prob}\,(INS_i=1) = f\,(D_i, E_i) \qquad (1)$$

where

INS_i – a dependent variable that equals to 1 if the individual has a particular type of insurance and 0 otherwise. Analysed types of insurance are General Life Insurance (LIFE_INS), Private Pension Insurance (PENS_INS) and Accident Insurance Rider (ACC_R),

D_i – a set of demographic characteristics of individual *i*,

E_i – a set of economic characteristics of individual *i*.

We estimated three individual models and, as a robustness check, the combined model testing overall life-related insurance demand. The specifications of estimated models are as follows. In all models, the dependent variable is a binary variable equal to 1 if the individual has particular life-related insurance product and 0 otherwise. In Model 1, the analysed insurance product is General Life Insurance (LIFE_INS) that covers the risks of death and endowment or their combination).[3] In Model 2, we focus on Private Pension Insurance (PENS_INS) (supplementary pension scheme covering risks related to retirement securitization[4]). The determinants of Accident Insurance Rider (ACC_R) (rider to General Life Insurance that covers the risk of accident) are estimated in Model 3.[5] Model 4 represents a combined model. In this model, the dependent variable is defined as 1 if the respondent has any of the analysed life-related insurance policies and 0 otherwise.[6] This model helps us to show the differences in estimated drivers for particular life-related insurance products and aggregate life-related insurance demand.

We have several demographic and economic explanatory variables chosen based on the review of the literature presented in the previous section of the paper. Our explanatory variables are as follows: gender (GENDER), age (AGE), education (EDUCATION), marital status (MARITAL_ST), dependent children (DEPENDENTS), head of household (HEAD_OF_HOUSEHOLD), religion (RELIGION), income (INCOME), savings (SAVINGS) and employment status (EMPLOYMENT_ST). Because of the presence of a moderate association rate between the variable MARITAL_ST and variable DEPENDENTS, we included a further variable of their cross effect in the model.

[3] This insurance includes capital endowments and Unit-Linked policies. In terms of gross written premium, these insurances are very popular in Slovakia. It represents over 75% of the life insurance industry (AXCO Insurance Market Report, 2016).

[4] A supplementary pension scheme is available in the Slovak Republic as an addition to the mandatory pension schemes.

[5] Accident insurance as a representative of other policy types available in the Slovak insurance market is the most popular rider within all life and pension products (in terms of written premium).

[6] We did not include health insurance (including daily compensation for hospital treatment) in our research as this line is not substantial in Slovakia, mainly due to the wide range of cover under the public system, which is mostly either provided for free or with a small co-payment.

3. Results and Discussion

Empirical results are shown in Table 2. In general, the determinants of insurance demand vary based on the particular type of life-related insurance. Specifically, in Model 1 which focuses on the demand for General Life Insurance (LIFE_INS), significant determinants are female (GENDER), positive saving behaviour (SAVINGS) and marginally significant is the head of household status (HEAD_OF_HOUSEHOLD), cross term between marital status and dependent children/s (DEPENDENTS*MARITAL_ST) and employment status (EMPLOYMENT_ST). In Model 2, concerning the demand for Private Pension Insurance (PENS_INS), the significant determinants are age (AGE), university education (EDUCATION), positive saving behaviour (SAVINGS), and employment status (EMPLOYMENT_ST). Marginally significant is if the respondent have at least one dependent children (DEPENDENTS). In Model 3, which tests the determinants of Accident Insurance Rider (ACC_R), the significant factors are positive saving behaviour (SAVINGS) and entrepreneur employment status (EMPLOYMEN_ST). Marginal effect has the head of household status (HEAD_OF_HOUSEHOLD). The combined model (Model 4) support the role of the female (GENDER), cross term of marital status and dependent children/s (DEPENDENTS*MARITAL_ST), the propensity to save (SAVINGS) and student/unemployed/pensioner status (EMPLOYMENT_ST). Marginally, the university education (EDUCATION) has effect in combined model. The findings support our main assumption that the aggregate character of life insurance (without focus on the type of covered risks) could result in the discrepancies of the results of previous studies.

The respondent's gender significantly influences the willingness to buy General Life Insurance (LIFE_INS) in Model 1 and the Combined model (Model 4). The chance to have a General Life Insurance contract as a female is 1.38 times higher than the chance of a male. Our research confirms the results of Gandolfi and Miners (1996), in which females buy life insurance more often than males. Females are more likely to manage life-related risks through life-related insurance.

Determinant AGE has significant impact only in the Model 2 estimating determinants of Private Pension Insurance. Similar results for the whole life insurance interest were confirmed by several studies, Berekson (1972), Showers and Shotick (1994), Truett and Truett (1990) and Baek and DeVaney (2005). Important finding is that as the age of individuals' increase, their demand for Private Pension Insurance also increase. Respondents aged 18 – 24 have 0.3 times chance of having Private Pension Insurance in comparison to respondents aged 40 – 61. For those aged 25 – 39 it is 0.7 times chance in comparison to the focus group. This is despite the fact that efforts to establish a pension plan in older age are economically inefficient.

T a b l e 2

The Impact of the Variables on the Demand for Individual Types of Insurance

Variable	General Life Insurance	Private Pension Insurance	Accident Insurance Rider	Combined model
	Model (1)	Model (2)	Model (3)	Model (4)
GENDER (FEMALE)	0.325* (0.154)	0.101 (0.167)	0.047 (0.157)	0.364* (0.168)
AGE (18 – 24)	0.032 (0.287)	–1.178** (0.398)	0.016 (0.307)	–0.211 (0.298)
AGE (25 – 39)	–0.147 (0.182)	–0.343+ (0.187)	–0.203 (0.184)	–0.239 (0.203)
EDUCATION (UNIVERSITY)	0.161 (0.158)	0.596*** (0.172)	0.139 (0.161)	0.328+ (0.172)
MARITAL_ST (MARRIED/COUPLE)	0.302 (0.229)	0.393 (0.246)	–0.137 (0.235)	0.327 (0.249)
DEPENDENTS (YES)	–0.478 (0.298)	0.525+ (0.313)	–0.334 (0.315)	–0.480 (0.308)
HEAD_OF_HOUSEHOLD (YES)	0.275+ (0.162)	–0.125 (0.171)	0.303+ (0.164)	0.134 (0.180)
RELIGION (BELIEVER)	0.137 (0.160)	–0.031 (0.176)	0.112 (0.166)	0.169 (0.174)
DEPENDENTS (YES)* MARITAL_ST (MARRIED/COUPLE)	0.640+ (0.365)	–0.155 (0.382)	0.401 (0.379)	0.846* (0.391)
INCOME (331 – 880)	–0.448 (0.292)	0.154 (0.412)	–0.303 (0.328)	–0.367 (0.299)
INCOME (881 – 1500)	–0.275 (0.334)	0.511 (0.436)	–0.186 (0.363)	–0.233 (0.352)
INCOME (1500–)	–0.059 (0.404)	0.745 (0.488)	0.214 (0.422)	0.212 (0.447)
SAVINGS (YES)	0.971*** (0.187)	1.207*** (0.244)	1.379*** (0.235)	1.155*** (0.191)
EMLOYMENT_ST (ENTERPRENEUR)	0.388+ (0.225)	–0.166 (0.216)	0.426* (0.209)	–0.048 (0.248)
EMPLOYMENT_ST (STUDENTS, UNEMPLOYED, PENSIONER)	–0.458+ (0.258)	–1.155*** (0.333)	–0.350 (0.289)	–0.769** (0.267)
Constant	–0.710+ (0.376)	–2.019*** (0.492)	–1.727*** (0.423)	–0.296 (0.390)
Observations	870	870	870	870
Cox and Snell R Square	0.100	0.208	0.088	0.143
Nagelkerke R Square	0.135	0.283	0.121	0.201

Note: Standard errors are reported in parentheses. +, *, **, *** indicates significance at the 90%, 95%, 99% and 99.99% levels, respectively.

Source: Author's calculations.

Individuals with university education are more interested in Private Pension Insurance (Model 2) and marginally in overall demand for life-related (Model 4). Their probability to have Private Pension Insurance is 1.8 times higher in comparison to respondents with primary or secondary education. The positive impact of higher education has been confirmed by a number of studies (Hammond, Houston and Melander, 1967; Ferber and Lee, 1980; Burnett and Palmer, 1984;

Truett and Truett, 1990). Higher education can contribute to a greater awareness of the risks and threats over the lifetime of the individual, as well as to understanding the insurance and its role in the retirement. A higher level of education is associated with a stronger desire to protect dependents and provide them with a stable standard of living (Truett and Truett, 1990).

The key role of life-related insurance is to protect dependent persons from financial difficulties of household resulting from the breadwinner's death (Hammond, Houston and Melander, 1967, Campbell, 1980). As we pointed out in the literature review, the majority of studies proved a significant and positive impact. Our results do not confirm this assumption. The reason lies in the different historical development, where individuals prefer to place their funds in other forms of assets (instead of life insurance) in the Slovak Republic. The bequest motive is mainly represented by the ownership of real estate. About 90% of Slovak households own real estate whereas in the neighbouring country of Austria, the ratio is about 48% according to the Finance, Eurosystem Household and Consumption Network (2013). The effect of having a dependent person on life-related insurance is supported only as a cross term with married/living in the couple status (DEPENDENTS*MARITAL_ST). In the case of General Life Insurance demand, this effect is only marginal (p-value = 0.079). In overall life-related insurance demand (Model 4), the probability to have a life-related insurance is 2.33 times in comparison to the other combinations of values of variables DEPENDENTS and MARITAL_ST. The role of marital status is supported by the previous literature. Eisenhauer and Halek (1999), as well as of Baek and DeVaney (2005) confirmed the positive impact of partner commitments on the demand in for life insurance. Recognizing the need for life insurance to ensure the future living standards of their partners and dependents in the event of an unexpected event (death) or their future standard of living (endowment) is significantly important to our respondents. The higher willingness to buy life-related insurance is linked to the increased responsibility they face in a relationship but only if they have dependent children at the same time. This result is supported by positive but only marginally significant effect of the respondent’s head of household status (HEAD_OF_HOUSEHOLD) on the demand on General Life Insurance (Model 1) and Accident Insurance Rider (Model 3). Individuals are aware of the fact that in the case of any unexpected event, such an event may have a negative impact not only on their health, property or other interests but on the other members of the household and their dependents.

In most studies, income is considered to be a key economic determinant with a significant and positive impact on the purchase of whole life insurance. In our research, we do not confirm the significant impact of income (INCOME) in any of the researched life-related insurance. We support important role of propensity

to save (SAVINGS) in all analysed life-related insurance policies, in a similar manner to previous whole life insurance research (Headen and Lee, 1974; Ferber and Lee, 1980; Bernheim, 1991; Mahdzan and Victorian, 2013). This is a valuable insight for insurance practice, as it is a clear example of the fact that insurance can be perceived from this perspective as a complement for savings. Insurance is a useful tool for those consumers who think about their future. Due to generally low level of the financial literacy in the Slovak population,[7] many individuals are not able to understand the difference between insurance and savings, but they consider these two forms to be identical, because they purchase life-related insurance and make savings at the same time. Based on this result, we could conclude that those participants who manage their risks via capital accumulation in savings have significantly higher demand for life-related insurance. In the case of General Life Insurance (Model 1) positive saving behaviour increase demand by 2.6 times, in Private Pension Insurance (Model 2) by 3.3 times and in Accident Insurance Rider (Model 3) by 4 times. Positive saving behaviour is the most important determinant of life-related insurance demand in our dataset.

Employment status (EMPL_ST), as an economic determinant, is a significant factor in our Private Pension Insurance model (Model 2), Accident Insurance Rider model (Model 3) and Combined model (Model 4). Marginal effect is captured in the General Life Insurance model (Model 1). In the context of previous research, the effect of working status was obtained for life insurance by Miller (1985), Fitzgerald (1987), and Auerbach and Kotlikoff (1989). The roles of different working statuses on life-related insurance demand vary. To be an entrepreneur increases the chance of having the General Life Insurance (Model 1) as well as Accident Insurance Rider (Model 3) by 1.5 times in comparison to the status of employee. This finding is in line with Lee, Kwon and Chung (2010). It hints as the higher responsibility and better risk management of entrepreneurs as a result from lower economic security of entrepreneurs compared to employees. In the case of Private Pension Insurance (Model 2), this chance is lower but not statistically significant. Similarly, negative and not significant effect is observed in overall life-related insurance demand (Model 4). The role of status of students/unemployed/pensioner is more consistent. In all our models, this status decreases the demand for analysed life-related insurance. These individuals declare lower values of income. In our data, 59.6% of respondents who rank themselves on the category students/unemployed/pensioners have income lower than 330 EUR and because of that in case of negative event they represent vulnerable group.[8] Appropriate risk management should be important tool for these individuals. However, their budget constrains considerably reduce their financial options.

[7] See e.g. Baláž (2012).

Conclusion

In this paper, we identify the determinants of individual life-related insurance consumption with regard to particular insurance covering specific type of risks. The research sample consists of survey data from the Slovak Republic. Previous studies have mostly looked at life insurance as a whole industry; we have focused on examining determinants from the perspective of the covered risks. Our empirical analysis confirms our assumption that the aggregate nature of life insurance (without focus on the type of covered risks) could result in the discrepancies among the results of previous studies. The determinants of demand in different life-related insurance products have some specific features. In policies covering the risks of premature death and endowment (General Life Insurance), we confirm the following significant determinants: female, the propensity to save and marginally head of household status, if the respondent has at least one dependent child and is married/live in the couple as well as the employment status of the respondent. In the products covering risks related to retirement security (Private Pension Insurance) important and significant determinants are age, university education, the propensity to save, and employment status. Marginally the demand for Private Pension Insurance is increased for individuals who have the dependent children. The demand for insurance covering the risk of various accidents (Accident Insurance Rider) is determined by the propensity to save and entrepreneur working status. Marginal effect is observed regarding the head of household status, where respondents who declare themselves as head of the household have 1.3 times higher chance to have Accident Insurance Rider in comparison to those respondents who are not the head of household. The results could be helpful for insurance companies and policymakers' campaigns to be better targeted at individuals with the aim of increasing the demand.

In the case of General Life Insurance, females show a higher willingness to buy this type of insurance than males. Even though the decision-making in finance was considered to be the domain of males, it seems that females are increasingly involved in decisions in this sphere. Females represent potential clients for insurance companies in the future due to their growing interest in financial products (Pastoráková et al., 2013). General Life Insurance consumption is higher for married/living in the couple individuals with dependent children. Their higher willingness to purchase life insurance is linked to the increased responsibility they feel towards other people living with them by participating in different tasks in the household and dependent children. This assumption is supported by the positive effect of head of household status on the demand for

[8] If we excluded students as they are usually partially dependent on their parents, this fraction decreases to 39.47% that is still very high number.

this insurance. Insurance stands out as an appropriate mean of protecting the values and standard of living of a multi-member household. Our model reveals the positive effect of saving behaviour on the demand for General Life Insurance, which means that individuals combine tools for managing life-related risks. These facts can be two different challenges for insurance practice and policymakers. For individuals, it is the pressure to stimulate their interest in any form of life-related insurance coverage and call on their own self-reliance without relying on the state or others. On the other hand, there is opportunity to promote group insurance coverage for people living in one household. It would make it easier for individuals to make decisions concerning which person in the household would be covered by an insurance policy. Higher demand from entrepreneurs point to their higher interest in life-related risk management and higher responsibility. Policymakers should focus on the employees to stimulate their demand through re-establishment of tax benefits.

In the Private Pension Insurance, the demand is lower for younger respondents. Older individuals participate more often in this scheme in order to secure a certain income in the future. The positive aspect is that individuals feel co-responsible for their future income in retirement due to unfavourable demographic developments in the Slovak Republic. The demand is higher for individuals with a higher education. The complementary effect of the propensity to save for Private Pension Insurance is expected. Individuals save for retirement using different financial products including saving accounts as well as Private Pension Insurance. Based on our results it is evident that those who save in some form have significantly higher chance to have Private Pension Insurance. Private Pension Insurance demand is affected by the employment status of individuals. Entrepreneurs have a lower (but not statistically significant) demand for Private Pension Insurance which could be explained by the usual scheme where employees have participation in this insurance subsidised by their employers as a working benefit. In the case of entrepreneurs, all expenses for Private Pension Insurance are at their own cost, despite a tax reduction. As almost 40% of entrepreneurs in our sample have income lower than average, policymakers should focus on this shortness. In the future, these individuals could be an endangered by poverty and they could represent a burden for social system.

Accident Insurance Rider is driven by the propensity to save, entrepreneur employment status and marginally by the head of household status. Entrepreneurs as well as head of households are more interested in this rider. These individuals are more vulnerable in the case of accident and higher demand point to their rational behaviour. The positive effect of saving behaviour is evident in all our estimated models including Accident Insurance Rider. This is a valuable

insight for insurance practice and policymakers. It is a clear example of the fact that life-related insurance in any form of covered risk is an attractive risk management tool for those consumers who save which point to diversification in life-related risk management strategies. Insurance companies should focus on the individuals' willingness to save money, as income is a flow variable that can change over time. Insurers have the opportunity to reach out in their marketing campaign to individuals who are making savings as they can offer them any form of life insurance cover; not as an investment tool, however, but as a risk management tool to manage various life-related risks.

In all of our models, income was not significant, indicating that the level of income does not determine whether the individual purchases any kind of life insurance coverage. Income is important for every individual, regardless of its size, as the needs of the individuals are derived from it. In some cases, a low income for a particular person means a higher degree of dependence in covering basic living needs. We want to point out the unjustified segmentation of consumers based on income in life-related insurance products. The difference in interest between different income groups is not evident, but the required level of insurance coverage will correspond to the needs of individuals. We do not deny that the extent of the insurance (e.g. the coverage or sum insured) will vary among income groups, but we want to draw attention to the fact that consumer demand for any form of life insurance is positively affected by saving behaviour. Beside individuals' overall level of income, insurance companies should focus on their willingness to save, as income is a flow variable that can change over time.

The research results could help policymakers and insurance companies to target better and more explicitly their marketing campaigns through the knowledge of the particular type of individual life-related insurance determinants and their impact. Given the risks associated with longevity and the need for an effective solution to old-age security, it is essential to focus on raising awareness, especially among young people and people with lower education. The government should consider steps to persuade these vulnerable groups to address their own post-productive age situation and take their own responsibility for future securitization. Policymakers have the opportunity to use life insurance products to increase the pension security of individuals. In this case, they should focus on reaching the target groups, considering their age, saving habits, education and employment status, as evidenced by our results.

This paper adds to the literature available on the determinants for demand for life-related insurance of different coverage in Slovakia. The offer of life insurance products in Slovakia is nowadays similar to the offer in western European countries. However, the transition period that Slovakia underwent in previous

decades did not change the behaviour and attitude of Slovak customers to an extent seen in western countries. The results of our research as well as the indicators of the insurance market suggest that life insurance in the Slovak Republic has been unable to establish at the level of the developed countries even 30 years after transition. We assume that this fact may represent a peculiarity in the behaviour of Slovak consumers on the life insurance market. Both from the point of view of their worse adaptation to the changing environment and the lower ability of individuals to accept changes related to the transfer of responsibility from state paternalism to the individuals themselves.

The limitation of our research is its focus only on the binary ownership of a certain form of life-related insurance. For future research, it would be advisable to consider the amount of the premium paid or the sum insured.

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