The Development of Life Insurance in the Czech Republic and the Slovak Republic

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Abstract

This article investigates the influence of selected determinants on the development of life insurance in the Czech Republic and the Slovak Republic in the years 2007–2019. The aim of the present study is to examine whether there are relationships between the development of selected determinants and the development of life insurance in the Czech Republic and Slovak Republic. We are using the correlation analysis, specifically Spearman's correlation coefficient, performed in the Eviews program with quarterly data. The determinants can be divided into positive and negative. Positive determinants encourage consumers to take out an insurance contract, thus acting to increase interest in insurance. Negative determinants have the opposite effect, which means that the consumer's willingness to take out insurance decreases, and the consumer is not interested in insurance on the development of life insurance in selected countries in the period under review. A positive impact on the development of life insurance was found in the case of gross domestic product, average gross monthly wage, interest rate on deposits and population in selected countries in the period under review.

Introduction

The topic of life insurance was chosen based on the existence of the importance of insurance in the daily lives of all citizens. Life insurance mainly covers risks associated with the health and life of citizens. It is built in such a way that any insurance indemnity will facilitate the insured's subsequent complex life situation in the event of an accident or disability, or in the event of his death, his family and loved ones will be secured. Significance is also seen in the impact on the development of the country's economy. Insurance companies enter the financial market through investment and are a significant institutional investor.

The aim of the present study is to examine whether there are relationships between the development of selected determinants and the development of life insurance in the Czech Republic and Slovak Republic. These determinants are gross domestic product, consumer price index, general unemployment rate, population, number of children born, average gross wage, and interest rate on deposits. The following research questions were established at the beginning of the investigation. Are the Czech and Slovak insurance markets developing in a similar way in the selected period? Are the factors that influence the demand for life insurance in the Czech and Slovak Republics the same or different?

This article provides an overview of the Czech and Slovak insurance markets in our estimated period. We focus primarily on the growth rate of life insurance, the ratio of life insurance to total insurance, and the written premium. Two selected markets are also briefly compared. Some studies on the problem of factors influencing the development of life insurance in different countries and time periods are presented in the paper. Based on those selected studies, determinants that could influence the development of life insurance were further selected and examined. The determinants can be divided into positive and negative. Positive determinants encourage consumers to take out an insurance contract, thus acting to increase interest in insurance. Negative determinants have the opposite effect, which means that the consumer's willingness to take out insurance decreases, and the consumer is not interested in insurance. Afterwards, we present the characteristics of the data and methods used in the paper. In conclusion, the empirical results are discussed and the results of our analysis are summarized.

The topic of life insurance was chosen based on the existence of various studies that examine the development of life insurance and look for the reasons for the development. Authors differ in their results, and this topic is highly debated. Different influences can be found in different countries. The purpose of this article is to find out what determinants operate in two similar economies that belong to the CEE region. The Czech Republic and the Slovak Republics were chosen based on the similarity of the historical development of the countries and their insurance markets.

1   The Czech and Slovak Insurance Market

Insurance market analysis shows that in the monitored period the ratio in the Czech Republic is averagely 60:40 in favour of non-life insurance. In the Czech Republic, nonlife insurance still predominates over life insurance. This trend can be observed throughout the period since 1991, when the insurance market began to develop in the Czech Republic. According to the Instant Research survey commissioned by ČSOB from 2021, Czechs generally do not understand life insurance very well, and almost half of the population of the Czech Republic does not have life insurance at all. This lack of interest in life insurance is a long-term phenomenon. The reason is probably the lack of awareness among the population. The indifference of Czechs to life insurance is also proven by the Broker Trust survey conducted by the STEM/MARK agency from 2017. According to the conclusion of this survey, the proportion of citizens in the Czech Republic who do not have life insurance is still significantly higher than in western countries. The results show that every second Czech does not have life insurance, specifically 47% of respondents.

The highest share of the uninsured is in the group of citizens with incomes up to 20,000 CZK per month, and up to a quarter of Czechs do not even know what the purpose of life insurance is. In general, it can be stated that in the Czech Republic, citizens insure their property more than their own lives. Ratio of life and non-life insurance in the Slovak Republic in monitored period is averagely 55:45 but in favour of life insurance. At the beginning of the period we are monitoring, specifically in 2007, a study was carried out by the Slovak Association of Insurance Companies, which points to a different development in the Slovak Republic. This study points to the year-over-year growth of life insurance, which was equal to 13%. Thus, it overtook the growth of non-life insurance, which grew by only 2% over the same period. In general, it can be stated that the Slovak Republic is much closer to all other developed countries than the Czech Republic.

The premiums in both countries increased during the monitored period. In the Czech Republic, the growth of insurance premiums was mainly influenced by the one-time premium. In 2012, a larger drop was recorded, but there was a change in the calculation methodology, so it is not appropriate to give much weight to this phenomenon. In the following years, after the change in methodology, a growing trend was recorded in the Czech Republic, which, according to calculations, was for the most part an increase in the volume of nonlife insurance premiums. In the Slovak Republic, there was an increase in prescribed premiums until the end of 2015, but then a larger decrease can be seen in 2016. The decrease was caused by a decrease in prescribed life insurance premiums. Since 2016 in the Slovak Republic, life and non-life insurance have contributed almost equally to the annual increase in premiums from total insurance, although life insurance still predominates in percentage terms. This comparison shows that Czech insurance applicants always prefer property insurance, while Slovak clients prefer life insurance.

With regard to total insurance coverage, an initially increasing trend is visible in the Czech Republic until 2011, although fluctuations are noticeable. After that, total insurance coverage in the Czech Republic dropped sharply in 2012 and maintained a slight overall downward trend until the end of the monitored period. In the first observed quarter, the total insurance coverage in the Czech Republic was equal to 3.79% and in the Slovak Republic 2.95%, and in the last observed quarter these values dropped to 2.23% in the Czech Republic and 2.66% in Slovakia. However, in both national economies, insurance coverage is significantly lower than the average of the member states of the European Union, creating room for growth in the area of the entire insurance market.

Through an analysis of the development of the insurance markets of both countries, it was found that the written premium in the Czech Republic is almost three times higher than the written premium in the Slovak Republic. This difference is due to the different size of the economies of the countries. The markets are different and there is a known difference in the amount of GDP, population, and other variables. Despite this fact, the penetration of life insurance, the ratio of life insurance to gross domestic product, was higher in the Slovak Republic. The average value of life insurance penetration in Slovakia is equal to 1.47% in the observed period, while in the Czech Republic this value is equal to 1.19%. Therefore, we can again state that the citizens of the Slovak Republic place more emphasis on their own life insurance.

2   Literature review

One of the most important studies on which further research is based is the work of Beck and Webb (2003), which examined the determinants influencing life insurance between 1961 and 2000 in 68 countries. In this study, the authors divided the determinants into demographic, economic, and institutional. The following determinants were identified as demographic: religion, education, life expectancy, urbanization. Then they identified the following determinants as economic: income, inflation rate, inflation volatility, private savings, real interest rates, banking sector development, social security, and the Gini coefficient. Then institutional determinants were identified: institutional order, revolutions and coups, and institutional development. Analysis was performed using panel data analysis. This research has shown that higher income, lower inflation, better banking sector development, higher household savings, and higher real interest rates have a positive effect on life insurance development.

The next study, Li et al. (2007), examined the influence of determinants influencing life insurance demand in 30 OECD countries in 1993–2000. The following determinants were identified as determinants with a positive impact: the income of the individual, the number of dependents cared for by the family, the level of the highest level of education attained and the level of development of the financial services infrastructure in the given country. On the contrary, the following were identified as determinants with a negative impact: age, social security level, and government transfers to the population.

Factors that influence foreign participation in life insurance in 24 OECD countries in 1993–2000 were the subject of research by Ye et al. (2009). As the main determinants with positive impact were identified, life expectancy, the degree of interdependence of young and old people, and the level of household income. However, an important finding in this study was that institutional determinants that positively influence the participation of foreign entities in domestic premiums include a higher degree of liberalization, a more stable government environment, and greater effectiveness of government regulations.

Koklar (2011) dealt with the identification of determinants affecting real gross life insurance premiums in the Czech Republic. The determinants were chosen on the basis of previous work and were divided into four groups: economic, social, supply, and demographic. The practical part was performed on the basis of Granger causality and a model of vector autoregression or linear regression. Among economic factors, this study confirmed the positive relationship between GDP and real gross premiums written. With respect to social factors, a negative relationship between the written real gross premiums and the selected social security expenditures was confirmed here. From the supply determinants, a negative relationship was proven between the life expectancy of the children born and the real gross premiums written. From the demographic factors group, the number of newborns had a positive impact on real gross written premiums.

In the research of Brokešová et al. (2014), the determinants influencing life insurance in the four Visegrad countries in the years 1995–2010 were examined, specifically the countries of Central Europe: The Czech Republic, Poland, the Slovak Republic, and Hungary. The determinants were divided into the following groups: economic, demographic, sociocultural, and business determinants. The economic determinants

included gross domestic product, annual inflation rate, foreign trade, and the number of motor vehicles. The authors included population, dependency index, and life expectancy in the demographic factor group. Among the sociocultural determinants, the authors chose education, the degree of urbanization, the social security system, and the crime rate in the country. The quality of regulation and the concentration of the insurance market were chosen as business determinants. The results showed that the determinants otherwise affect insurance in the four Visegrad countries and differently in economically developed countries, due to different political and social developments. According to the study, economic determinants had a positive and fundamental effect on the development of life insurance. On the contrary, the annual inflation rate, the social security system, and the crime rate had a negative impact.

Yin's research (2015) analysed the factors influencing life insurance demand in the Malaysian insurance market in 2015. A 2012 survey showed that only 41% of Malaysians have life insurance, so Yin focused on this issue. The author included income, education, age, gender, dependency, and indebtedness among the examined determinants. This study found that age and gender education have a positive effect on life insurance demand. Other factors were identified as factors with zero impact on life insurance.

The development of the insurance market in the Czech and Slovak Republics was examined by Grmanová et al. (2016). In this monograph, emphasis was placed on aspects of the economic environment and the application of models to express the effectiveness of Slovak and Czech commercial insurance companies. The monograph points out current issues and includes a correlation analysis and a linear regression model examining the effects of determinants on life and nonlife insurance in the Czech Republic and Slovakia in the years 2004–2014. This study showed that there is a strong direct linear relationship between gross domestic product and premiums. It also emerged that there was an indirect moderate linear relationship between the unemployment rate and the premium, but it was found that at a significance level of 0.05, the correlation coefficient between the unemployment rate and the premium was not statistically significant. According to Grmanová et al. there is a close link between the positive development of the economy and the positive development of premiums.

Muslija and Satrovic (2018) conducted research on the impact of economic and demographic determinants on life insurance demand in 2005–2010. Data were collected from a total of 150 countries. In this study, a multivariate analysis was used when principal component analysis (PCA) and multiple linear regression were used. The study showed that both economic and demographic determinants have a statistically significant effect on life insurance demand. According to the study, economic determinants have a stronger influence.

In the next study, Artlová and Kábrt (2018) examined the main determinants that influence the demand for life insurance in the Czech Republic in the years 1993–2015. The authors used their own calculations based on the multidimensional principal component method and econometric time-series analysis for empirical research. Identical to Beck and Webb (2003), they divided the investigated determinants into three groups: economic determinants, demographic determinants, and institutional determinants. The economic

factors were as follows: net disposable income per capita, net national savings per capita, Czech national bank discount rate, Gini index, gross domestic product per capita, inflation rate, unemployment rate, number of self-employed persons per 1,000 inhabitants, average number of tertiary educated, average per capita wages, per capita housing loans, per capita loans to households and per capita household consumption expenditure. The demographic group in this study consists of five indicators which are: life expectancy at birth for both sexes, the dependency index, the old age dependency index, the young people's dependency index, and the number of people with tertiary education per 1,000 inhabitants. Institutional indicators included tax revenues per capita, social support benefits per capita, average old age pension, development of the banking sector, and size of the public sector. In the first step of the analysis, when the unit root test was performed, it was necessary to exclude the number of university graduates, the size of the public sector, and per capita household consumption expenditure due to a different order of integration of these variables. Compared to other studies, this was a surprising conclusion, because it was the number of tertiary educated people in the study by Yea et al. (2009) where the positive impact on life insurance demand was confirmed and the size of the public sector had a negative impact on life insurance demand in the 2007 study by Li et al. It was found that a group of demographic factors negatively affect life insurance demand. Furthermore, it was found that economic factors had a positive impact and institutional factors had a positive impact in the density model, but they played an insignificant role in the penetration model. Regarding the analysis of individual determinants, the negative impact of interest rates and net national savings on life insurance demand was identified.

Under the auspices of the Czech National Bank, Časta (2020) tested potential determinants of the development of the insurance sector in 1997–2017. The analysis was carried out on a set of data from 24 European countries in the years 1997–2017. The authors examined the effects on life insurance and non-life insurance. The determinants were selected on the basis of previous studies. The panel estimate confirmed that premiums in both life and non-life insurance are very closely linked to a country's economic cycle due to their strong and statistically significant relationship to real GDP growth. Furthermore, it has been proven that a higher concentration of the insurance market means a higher volume of premiums in the area of life insurance. Higher household savings and a more developed financial system also have a positive effect on the growth of premiums in life insurance. On the contrary, higher social security contributions have a negative impact. This and other studies mention that the higher the state contributions, the lower the demand for life insurance. Those state social security payments mentioned above crowd out life insurance products, and it is therefore logical that social security systems provide protection against the risk of death. In this article, the authors also mention the effects of the COVID-19 pandemic, which discusses possible premium declines related to declining economic performance. The pandemic could also be associated with an increase in claims in life insurance and in some non-life insurance sectors, but this increase may be mitigated to some extent by exclusion clauses.

Based on the studies mentioned above, the following determinants were chosen: gross domestic product, consumer price index, unemployment rate, number of children born, average gross monthly wage, population, interest rate on deposits. In this study, we examine the influence of these determinants on the development of life insurance.

3   Data and methodology

We obtained the data set from the Czech national bank, Slovak national bank, Czech insurance association, Slovak insurance association and Czech statistical office.

All quarterly data comes from period 2007–2019. We examine the relationship between the development of selected determinants and the development of life insurance in the Czech Republic and the Slovak Republic in a selected period. The inputs include the gross domestic product, consumer price index, general unemployment rate, population, number of children born, average gross wage, and interest rate on deposits. We decided to choose the penetration and density of life insurance as explanatory variables. Penetration is calculated as the share of life insurance in the gross domestic product of the country. The density is calculated as the share of life insurance per capita. Growth rates were calculated from all data so that they could be further used for calculations.

Recent empirical studies use the regression panel method, the least squares method, the linear regression model, and correlation analysis to describe the relationships between selected determinants and the development of life insurance. Due to the characteristics of our data sample, we cannot use panel regression or linear regression because all assumptions were not met. Therefore, we apply correlation analysis.

The correlation analysis shows the statistical dependence of two quantitative quantities. The degree of correlation is expressed by a correlation coefficient, which can vary in the interval <-1; 1>. Thus, the correlation between two quantities can be described as a correlation. If one of them changes, the other changes correlate, and vice versa. If the value of the correlation coefficient is equal to -1, it is possible to describe the dependence between the variables as completely indirect. If the value of the correlation coefficient is equal to 1, it is possible to mark the dependence between the variables as completely direct. If the value of the correlation coefficient is equal to 0, which means that the variables are not correlated, then there is no statistically detectable dependence between the characters. We use the Spearman correlation coefficient to determine the influence of determinants on the development of life insurance. The Spearman correlation coefficient is called rs in the calculation and according to Adamec, Hampel and Střelec (2017), the Spearman correlation coefficient is calculated according to the following formula:

$$r_s = \frac{\sum_{i=1}^{n} x_{ri} \cdot y_{ri} - n \cdot \bar{x}_r \cdot \bar{y}_r}{(n-1) \cdot s_{x_r} \cdot s_{y_r}} \tag{1}$$

The values of the Spearman correlation coefficient range from -1 to 1. The closer the value is to 1, the stronger the direct relationship exists between x and y. On the contrary, the closer the correlation coefficient to -1, the stronger the indirect relationship between the variables x and y.

4   Empirical results and discussion

In the appendix we can see the results of correlation analysis, specifically Spearman correlation coefficients of the chosen determinants. Using two variants, the influence between density and selected factors and between penetration and selected factors was investigated. The impact was examined among factors both in the Czech Republic and in the Slovak Republic in the whole period Q1 2007–Q4 2019 and at the same time in periods that are divided based on the change in the methodology of calculation of life insurance premiums in 2012 in the Czech Republic and accepting the Solvency II regime in 2016 in the Slovak Republic.

Table 1 compares the expected effect determined from the results of the studies mentioned above and the effects found, which were calculated using the Spearman correlation coefficient.

Table 1: Expected and determined influence of determinants on the development of life insurance

Determinants	Expected impact	Observed impact CZ	Observed impact SK
Number of children born	+/-	**-**	**-**
Consumer price index	-	/	/
Unemployment rate	+/-	/	/
Gross domestic product	+	**+**	**-**
Average gross monthly wage	+	**+**	/
Interest rate on deposits	-	**+**	/
Population	+/-	/	**+**

The effect of the number of children born with life insurance was first evaluated. It is clear from Table 1 that the results of the studies differed and both negative and positive effects were confirmed. From all the above, a negative relationship was found between the growth rate of the number of children born, the growth rate of density, and the growth rate of penetration. A negative link was demonstrated in both countries monitored. Therefore, the result is the opposite of what Koklar (2016) states in his study. In contrast, Elango and Jones, who conducted their study in 2011, confirmed the same effect, namely that population growth has a negative impact on life insurance developments.

Another indicator evaluated was the consumer price index. Many studies have shown a negative effect of inflation on the development of life insurance, specifically in the study of Beck and Web (2003), then Celik and Kayali (2009), in the study of Kjosevski (2012), then in the study Sliwinsky, Michalsky and Rozskiewicz (2013) and also in the study by Brokešová et al. (2014). However, Spearman's correlation analysis performed in the fourth chapter showed that there is a zero correlation between the growth rate of the consumer price index and the penetration growth rate and the density growth rate in 2007–2019 in the Czech and Slovak Republics, that is, there is no dependence between these factors.

The growth rate of the unemployment rate was another factor examined. Again, it is clear that the expected effect was both negative and positive, since the results of the studies differed. For example, a 2013 study by Sliwinski, Michalski, and Rozskiewicz showed a negative impact of the unemployment rate on the development of life insurance in Poland in 1991–2005. In contrast, in the study of Kábrt in 2016, Kábrt states that the unemployment rate in the Czech Republic, Germany, and the United States in 1990–2004 had both a positive impact and a negative impact on the development of life insurance. The results of the correlation analysis showed that in the Czech and Slovak Republics, the existence of dependence among the selected factors was not found in 2007–2019.

From all the studies mentioned in Section 2, which examined the impact of GDP on life insurance, it was found that gross domestic product has a positive impact on the development of life insurance. Therefore, the expected effect was positive. However, as can be seen from the appendix, the results of the correlation analysis were different. In the Czech Republic, the positive link between the growth rate of the gross domestic product and the growth rate of the density in 2007–2019 was confirmed, as well as in the Kábrt study (2016) or in the study of Burić et al. (2017). An unexpected result is the negative effect found between the growth rate of gross domestic product and the growth rate of density in the Slovak Republic in 2007–2019. No similar results were observed in any of the studies studied. This result could say that the more successful the Slovak economy, the less the population's interest in life insurance products, which would be the exact opposite of consumer behaviour than in the Czech Republic.

Another factor chosen for the correlation analysis was the average gross monthly wage. From all the examined studies mentioned in Section 2, which dealt with the influence of income of the population, it is clear that this factor has always had a positive impact on the development of life insurance, that is, the more people earn, the greater the demand for life insurance. This hypothesis was confirmed only in the correlation analysis between the density growth rate and the growth rate of the average gross monthly wage in the Czech Republic. In the Slovak Republic, zero dependence was found between the average gross monthly wage and density and penetration in the observed period.

In a study from 2017, Burić examined the interest rate on deposits in his study. Burić examined the impact of the interest rate on deposits on the development of life insurance in Balkan countries in 2005–2015 using an analysis of panel data. His conclusions show that the interest rate on deposits has a negative impact on the development of life insurance. However, it is clear from the appendix that there could be a positive link between the growth rate of the interest rate on deposits and the growth rate of penetration in the Czech Republic in 2007–2019. This result is the exact opposite of what Sawadogo, Guerineau, and Ouedraogo (2018) also say in their study. In the Slovak Republic, zero dependence was found between the factors mentioned above in the observed period.

The last factor examined was the population. The results of the studies differ and the impact was negative, but also a positive impact was found. For example, in the study of Celik and Kayali from 2009. The above correlation analysis showed that no connection was found between the growth rate of the population and the growth rate of penetration and density in the Czech Republic. In the Slovak Republic, on the other hand, the existence

of dependency was proven between the growth rate of the population and the growth rate of penetration in 2007–2019.

As can be seen from the appendix and Table 1, the Czech Republic has shown a link between the development of life insurance and the growth rate of gross domestic product, as well as the growth rate of the average gross monthly wage, the growth rate of children born and the growth rate of interest rates on deposits. In the Slovak Republic, the findings were slightly different. As in the Czech Republic, the existence of a link between the development of life insurance and the growth rate of gross domestic product, as well as the growth rate of the number of children born, was proved here. Furthermore, a link was found between the development of life insurance and the growth rate of the population. For other factors, the existence of dependence was not found, and the correlation was zero.

Conclusions

The aim of this paper was to determine the influence of selected determinants on the development of life insurance in the Czech Republic and Slovak Republics in the period 2007–2019. Based on studies dealing with the same issues, seven determinants were selected for this work, the influence of which on the development of life insurance was further analyzed. The following research questions were established at the beginning of the investigation. Are the Czech and Slovak insurance markets developing in a similar way in the selected period?

Are the factors that influence the demand for life insurance in the Czech and Slovak Republics the same or different?

The influence of determinants was investigated in connection with the density and penetration of life insurance in the Czech and Slovak Republics in the years 2007–2019. Quarterly data from freely available databases of the Czech National Bank, the Slovak National Bank, the Czech Insurance Association, the Slovak Insurance Association, and the Czech Statistical Office were used for this analysis. The values of the Spearman correlation coefficient were determined by correlation analysis. The values of the Spearman correlation coefficient were used to evaluate the influence of individual factors. The results, which are visible in the appendix, show that in the Czech Republic the link between the development of life insurance, density or penetration, and the growth rate of gross domestic product, the growth rate of gross monthly wage, the growth rate of children born, and the growth rate of interest rates on deposits. In the Slovak Republic, the existence of a link between the development of life insurance, the density or penetration of life insurance, and the growth rate of gross domestic product, the growth rate of the number of children born, and the growth rate of the population was proved. For other factors, the existence of dependence was not found, and the correlation links were zero.

The research questions focused primarily on the existence of differences in the development of the Czech and Slovak insurance markets and also on whether the Czech and Slovak insurance markets are influenced by the same or different factors. Based on the analysis performed, certain differences were found in the development of the Czech and Slovak insurance markets. One of the reasons is probably the difference in the behaviour of Czech and Slovak consumers. In the Slovak Republic, life insurance has long prevailed over non-life insurance, as in other developed countries. In the Czech Republic, the trend is different, and a larger share of non-life insurance is constantly visible. Czech citizens thus prefer property insurance to life insurance. However, in both economies, below-average insurance was found compared to the European Union, and there is room for growth in the entire insurance market. The links between individual factors in the Czech and Slovak Republics were also different. In the Czech Republic, a link was found between the development of life insurance and the growth rate of GDP, the growth rate of the average gross monthly wage, the growth rate of the number of children born and the growth rate of the interest rate on deposits. In the Slovak Republic, the existence of a link between the development of life insurance and the growth rate of GDP, the growth rate of the number of children born and the growth rate of the population has been proven.

However, it was not possible to determine and confirm the reasons for the differences mentioned above between the Czech Republic and the Slovak Republic on the basis of research. Therefore, it would be appropriate to include other factors that belong to the field of behavior and perform a deeper analysis of the influence of determinants on the development of life insurance.

Acknowledgements

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Appendix A. Spearman correlation coefficient

VLIV DENSITA ČR					
2Q 2007 - Q4 2019					
	Number of children born	Consumer price index	General unemployment rate	Gross domestic product	Average gross wage	Interest rate on deposits
k	-0.251765	0.041357	0.141397	**0.44543***	**0.689864***	0.028692
2Q 2007 - Q4 2011					
	Number of children born	Consumer price index	General unemployment rate	Gross domestic product	Average gross wage	Interest rate on deposits
k	-0.259649	0.064912	-0.028194	**0.449123****	**0.817544***	0.130759
1Q 2012 - 4Q 2019					
	Number of children born	Consumer price index	General unemployment rate	Gross domestic product	Average gross wage	Interest rate on deposits
k	-0.335411	-0.021628	0.246304	**0.38673****	**0.591642***	-0.034464

VLIV PENETRACE ČR					
2Q 2007 - Q4 2019					
	Number of children born	Consumer price index	Population	General unemployment rate	Average gross wage	Interest rate on deposits
k	**-0.500633***	-0.097104	-0.05276	0.061518	0.057557	**0.271627****
2Q 2007 - Q4 2011					
	Number of children born	Consumer price index	Population	General unemployment rate	Average gross wage	Interest rate on deposits
k	**-0.561404****	-0.070175	-0.014035	0.027313	0.431579	0.272927
1Q 2012 - 4Q 2019					
	Number of children born	Consumer price index	Population	General unemployment rate	Average gross wage	Interest rate on deposits
k	**-0.460044***	-0.164589	-0.179985	0.017816	-0.179619	0.280477

VLIV DENSITA SR					
2Q 2007 - Q4 2019					
	Number of children born	Consumer price index	General unemployment rate	Gross domestic product	Average gross wage	Interest rate on deposits
k	**-0.512127***	-0.050317	-0.028959	**-0.603891***	0.110136	0.201357
2Q 2007 - Q4 2015					
	Number of children born	Consumer price index	General unemployment rate	Gross domestic product	Average gross wage	Interest rate on deposits
k	**-0.591597***	0.071989	-0.110084	**-0.465546***	0.120168	0.311765
Q1 2016 - Q4 2019					
	Number of children born	Consumer price index	General unemployment rate	Gross domestic product	Average gross wage	Interest rate on deposits
k	-0.391176	-0.297059	0.288235	**-0.761765***	0.041176	0.052941

VLIV PENETRACE SR					
2Q 2007 - Q4 2019					
	Number of children born	Consumer price index	Population	General unemployment rate	Average gross wage	Interest rate on deposits
k	**-0.327149****	-0.123439	**0.296742****	0.062896	0.03448	0.114389
2Q 2007 - Q4 2015					
	Number of children born	Consumer price index	Population	General unemployment rate	Average gross wage	Interest rate on deposits
k	-0.32549	-0.056583	**0.35098****	-0.045098	-0.061064	0.117927
Q1 2016 - Q4 2019					
	Number of children born	Consumer price index	Population	General unemployment rate	Average gross wage	Interest rate on deposits
k	-0.188235	-0.282353	0.102941	0.473529	0.032353	0.055882

*When significant, marked */***

 * indicates significance level 1%;

** indicates significance level 5%.