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Abstract

The purpose of this work is to identify whether the development of an insurance market is linked to economic growth in former transition countries. A multiple regression analysis is employed to estimate the insurance-growth relationship, using a cross-country panel dataset analysis tracking annual total insurance penetration in 10 countries over the 2000–2012 period, and applying a fixed effect model to test the hypothesis that this linkage is demonstrably positive. The results show a negative and statistically non-significant correlation between insurance and GDP growth, suggesting a lack of evidence that insurance promotes economic growth in post-transition economies.

Keywords: insurance sector, GDP, total insurance penetration, economic growth, post-transition countries

JEL: E44, G22, O11, P27, P34

Introduction

In a worldwide practice there is a vast literature on factors affecting economic growth and different factors supporting this process. Most of the literature is, however, concentrated on specific problems related to the bank industry or capital markets and possible solutions to overcome challenges they pose. In the last decades a strong consensus has emerged that there is a significantly positive correlation between banking/financial industry development and a country's economic growth [Levine, 1997; Levine, Loayza, and Beck, 2000; Merton and Bodie, 1995].

Apart from the main determinants of economic growth (such as components of GDP, the banking sector, government policies, etc.) insurance markets may fairly be considered as being closely related to economic growth and general financial stability of a country. The insurance sector contributes to economic development through issuing insurance policies, efficiently channelling savings to finance real investment projects. In addition, insurance is considered to be a complementary to the banking system, and a facilitator of growth enhancing financial advancement of the country [Grace, Rebello, 1993].

The bulk of the literature on the insurance-growth nexus theory focuses on analysis of a few nations over a various times [e.g. Catalan et al, 2000; Ward and Zurbruegg, 2000]. Only limited scholarly attention has been devoted to the insurance sector in transition economies, and there are only a few econometric works on the interaction between the insurance sector expansion and economic growth in those countries, which have now completed their initial transition stage. It is important to better understand this relationship in those economies because insurance industry development is a core regulatory and policy issue that may meaningfully impact growth.

Our focus here is on the causality connection between income expansion and a deepening of the banking and the insurance sectors, particularly in the transition states of Central and Eastern Europe (CEE), which became the New EU Member States (NMS) in 2004 and 2007, respectively. Eight countries (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, and Slovenia) became members of the European Union on 1 May 2004, while Romania and Bulgaria joined on 1 January 2007. An analysis of the area of the so-called countries of the Eastern Bloc has become especially important after the collapse of Communism in the Central and Eastern Europe and progression of those countries towards the EU.

Despite various political and economic difficulties associated with transformation, these countries have made significant progress in development and successfully accomplished the transition period.¹ However, economic growth and systemic stability are still far from optimal in those countries, as compared to “old” EU member countries. Accordingly, further examination of various aspects of economic growth in the New EU Member States may provide lessons for future reforms to accelerate their economic progress.

This study attempts to verify the insurance-growth assumption utilizing recent panel data. A fixed effect model is employed, which applies cross-country and time-series techniques for the analysis. The study tests whether development of the insurance sector is an important determinant of economic growth in the former transition countries by empirically regressing economic growth on measures of total insurance penetration. Annual data for 10 former transition countries during the period of 2000–2012 are examined in this analysis.

Literature Review

The role of insurance markets in a country's economic activity has been a subject of much discussion and analysis. Initially, economists were considering insurance primarily as a technique to minimize and manage risk. Later insurance impacts were linked to financial stability, government security programs, facilitation of trade and commerce, and a country's general economic growth [Skipper, 2001]. Arena [2006] notes, when summarizing an earlier study by Skipper [1997], that "... evolution of insurance industry can influence economic growth by: (a) mobilizing domestic savings, (b) allowing different risks to be managed more efficiently, thereby encouraging the accumulation of new capital; (c) boosting financial stability and decreasing anxiety; (d) facilitating trade and commerce; (e) supporting to reduce or mitigate losses; and (f) fostering a more efficient allocation of domestic capital..." p. 2].

The idea that a formation of a national insurance market is essential for economic growth was first developed in 1964, during the initial conference of UNCTAD [Kugler, Ofoghi, 2005]. Kugler and Ofoghi [2005] have shown a positive correlation between the development of an insurance market and the economic growth of a country. However, Ward and Zurbruegg reached a different conclusion in their research conducted in 2000. Their study found no evidence of this correlation in the long-term in some OECD countries. In reaching this conclusion, the authors used the total amount of insurance premiums as an indicator of insurance activities.

It is worth mentioning that the majority of empirical researches on financial/economic growth concentrates on interdependencies between the stock market and banking sector with GDP growth. More recently, the role of financial industry on economic growth has become an additional important subject for empirical research. The works conducted by King and Levine [1993] and Rousseau and Wachtel [1998] may serve as examples. Many studies show a positive correlation between finance sector development and economic growth. Levine and Zervos [1998] used cross sectional methodology to estimate the role of stock market and the banking sector with regards to GDP growth. Similarly, Beck and Levine [2001] performed analyses based on panel data techniques. These (and other) works confirmed that growth in both areas (banking and stock market) have independent and positive impact on economic growth. The impact of the bond market on economic growth has also been extensively researched [e.g., De Fiore and Uhlig, 2005]. It was evidenced that the development of the bond sector stimulated economic growth as well.

Favara [2003] observed that there are limited empirical studies examining the role of other financial vehicles on economic growth. Most of the attention is dedicated to the banking sector, bonds and stock markets, often ignoring insurance market and its linkages to economic growth. Given the growing interaction of insurance companies within the financial industry, it would be reasonable to anticipate the rising interest of economists and

government agencies in establishing efficient regulatory policies. Such works could be particularly helpful to developing countries when seeking strategies to stimulate GDP growth.

Browne and Kim [1993] performed regression analyses to assess variables that may influence demand for life insurance around the globe. Data for 45 different countries on the consumption of life insurance per capita were collected for the years 1980 and 1987. Variables included: religion, national income, dependency ratios, life expectancy, the share of the young adult residents pursuing tertiary education, social security payments, expected inflation rates, and policy loading charges or the prices of insurance. Three types of log linear equations were developed. In the first version of the model premium was employed whereas in the second and third versions life insurance was used. As it was anticipated inflation, income and dependency ratio were positive and were statistically significant indicators in every model. Education and religion demonstrated a negative sign, which also was expected, but lacked significance in some trials. Social security and price, both with a positive signs, were also statistically significant. Life expectancy was not significant. One of the main findings of Browne and Kim was that in Muslim countries there is lower demand for life insurance, relative to other countries. It should be emphasized that similar findings were made by Hofstede [1995] and Fukuyama [1995], who suggested that social origins and religion influence insurance consumption.

In 1996, Outreville published a cross-sectional analysis for the year 1986 by concentrating on data from 48 developing countries. His primary goal was to estimate a correlation of life insurance with GDP. The result was, however, unexpected. Outreville assumed that life insurance premiums had no impact on financial development. This research contradicts earlier results derived by Outreville [1990], when he evaluated a cross-section of 55 developing countries and identified the relationship between property-liability insurance premiums and economic and financial development. A positive relationship between the logarithm of property-liability premium per capita and GDP per capita was found. Although the coefficient for price was not statistically significant, Outreville reported a positive linkage between demand for insurance and financial enhancement. Furthermore, income elasticity was greater than one.

ZhiZhuo [1998] attempted to understand whether income per capita and consumer price index (CPI) are linked with insurance utilization in China, for which he conducted both: cross-regional (for the year 1995) and time-series analyses for the years 1986–1995. Both analyses appeared to be positive – GDP and CPI are significantly correlated with insurance.

Webb, Grace and Skipper [2002] applied a cross-country analysis for 55 countries for the 1980–1996 time-periods to test the relationship between banks, life insurance, non-life insurance, and economic growth. The authors applied the Solow-Swan neoclassical growth model and the three-stage-least-squares instrumental variable approach (3SLS-IV) to test their hypothesis of interest. Insurance penetration was used as a measure of insurance sector development. This work indicated that banking and life insurance, taken as

exogenous components, strongly predict economic growth. However, when the interaction terms between banking and life insurance and between banking and non-life insurance were included, the individual variables lost explanatory power, suggesting the presence of complementarities among financial intermediaries. As can be seen from the analysis, insurance activities should have a positive impact on economic growth. However, this impact may vary across different countries and across different lines of the insurance business.

A regression model and cross-country panel data analysis were used by Haiss and Sümegi [2007] to examine the role of insurance in economic growth for 29 countries. The authors divided observed countries into two groups: in the first group were included EU-15 member countries, Switzerland, Iceland and Norway; while the second group consisted of new EU member states (the CEE countries) and EU membership candidates – Turkey and Croatia. Croatia, Lithuania and Latvia were omitted due to insufficient data. GDP was utilized as a measure of economic growth, whereas total, life and nonlife insurance premiums were used as insurance activity indicators. The research was performed for the years 1992–2005. According to their findings, the “overall picture is mixed”. There was a positive correlation of life insurance and GDP growth in the EU-15 countries, and short-run impact for the CEE/NMS countries for non-life insurance. The authors concluded that, like the banking industry, the impact of the insurance sector depends on the level of economic development.

Almost a decade earlier, Holsboer [1999] had reached a different conclusion. His study focused on alterations in external settings for insurance companies in European countries, and suggested that the significance of the insurance industry in the economy is reliant on rising competition between financial sectors. Holsboer underlined the bi-directional relationship between the insurance sector and economic growth of a country, and supported the notion that a developed insurance sector facilitates financial sector growth and, therefore, growth of the economy in general (and vice versa).

Arena [2008] conducted empirical research about the interdependence among insurance and economic growth in 56 countries, which were developed or developing during the period 1976–2004. Insurance activity was measured as attracted premiums of total, nonlife and life insurance. The author found that only in developed countries did life insurance impact economic growth, but the impact of nonlife insurance is positive and significant for both developed and developing economies (though smaller in developing countries than in developed ones). Arena’s overall conclusion was that nonlife and life insurance positively impacted economic development.

Kjosevski [2011] also examined the impact of insurance on economic growth, with empirical analysis for the Republic of Macedonia. He used data for the period 1995–2010 and employed multiple regression approach to test his hypothesis. The author used three different insurance indicators life insurance, nonlife insurance and total insurance penetration. Insurance development was measured by insurance penetration. Kjosevski [2011] found positive and significant correlation between insurance sector development

and economic growth. The growth promoting role of insurance was confirmed in terms of non-life insurance, and, total insurance, while the results for life-insurance demonstrated negative impact on economic growth.

Recently, Richterikova and Korab [2013] also attempted to examine the potential correlation between insurance and economic growth. Their study was based on a relatively new meta-analysis, which was initially adopted in 1980 s. [Havranek, Irsova, 2010a]. The meta-analysis is a statistical method for aggregating results from independent studies, enabling researchers to estimate findings with a higher number of observations and better accuracy [Richterikova, Korab, 2013]. As in almost all previous studies, Richterikova and Korab used total insurance premiums as a variable determining insurance activity. The findings indicated a positive influence of insurance markets on economic growth.

Although one may argue that there is a theoretical explanation for the positive correlation between insurance industry and GDP growth of a country, empirical studies report results that differ across countries and regions. Most economists agree that the development of insurance markets stimulates economic growth, however, the number of empirical works is rather small generally, and particularly so regarding the insurance-growth linkage in post-transition economies. Given the growing involvement of insurance companies in the larger financial industry, government bodies in those economies will need to be increasingly vigilant in trying to assure the proper functioning of this sector, requiring regulatory policies that are responsive to actual conditions. Revealing those conditions is the primary goal of this work.

Empirical Model

The empirical approach presented in this study attempts to explain the trend in economic growth and its variation over time in post-transition countries. Since vast majority of the economic literature states that developed insurance market promotes economic growth of many countries, we seek to confirm this pattern for post-transition countries. Thus, we test whether trends in economic growth of the country are correlated with tendencies in insurance market. Hence, it has to be ensured that the estimates of economic deepening accounts for the sway of the exogenous element of insurance.

The empirical specification attempts to check the economic development based on 13 time periods, using time-series and cross-country data for the 2000–2012 periods. The standard approach within this framework is to use annual data for estimation purposes. Using such data, however, has a drawback; it ignores the possibility that annual data may not characterize long-lasting equilibrium statistics for any particular period, due to the slow adjustment to changes in the variables. To avoid this problem, our model allows partial adjustments through a log-linear equation for economic development.

A fixed effect estimation model is implemented, as it is more appropriate compared to OLS to account for the country-specific effects.² The least squares dummy variable (LSDV) method is used to test the hypothesis. In the model there is a standard specification in levels, where economic development is persistent (i.e., it is a function of its own past values). Thus, the empirical model has the following form:

$$(GDP\ growth)_t = \alpha_i + \gamma t + \beta_1 (Total\ insurance\ penetration)_t + \beta_2 (GDP\ per\ capita)_t + \beta_3 (Private\ credit)_t + \beta_4 (Export)_t + \beta_5 (Investment)_t + \beta_6 (Government\ spending)_t + \varepsilon_{it}$$

α and γ are intercept parameters, which differ across countries and years, β is the coefficient of the explanatory variables and ε_{it} is an error term. According to the fixed effect model, intercept parameters embody all observable effects and specify an estimable conditional mean, assuming the same slopes and constant variance across countries. The fixed effect approach takes intercept parameter to be a group-specific constant term in the regression model, which can be correlated to other regressors.

Data, Measurement, and Sources

In this research focusing on the insurance market development and economic growth a data set for the period 2000–2012 is used. Statistics used in the analysis originate from a variety of sources. Insurance penetration figures are taken from Insurance Europe (CEA) website. Real income per capita, private credits provided by the banking sector, government expenditures, total exports, and gross capital formation are from the World Development Indicators (WDI) database.

Economic expansion is calculated as the growth rate of GDP per capita. Indicators employed as control terms that could clarify economic boost are: total insurance penetration, GDP per capita, private credit, government spending, export, and investment.

As a corresponding measure of the insurance sector, annual data of total insurance penetration was used. Total insurance penetration is a frequently utilized measure of insurance activity. It is expressed as total gross written premiums relative to GDP. It is expected that this variable will have positive influence on economic growth.

Initially, real income per capita was also introduced into the model, since higher income is assumed to stimulate economic activity and, thus, generate a disproportionate rise in demand for insurance. This factor is included in the empirical formula to indicate on the convergence effect, or the propensity of the speed with which economic growth equalized across various states. Annual data on real GDP per capita is obtained from the World Development Indicators based using 2005 US prices. The caution here is that inclusion of additional variables into the macroeconomic specification raises the number of moment conditions, which could carry additional bias. Hence, GDP per capita is

treated as an exogenous variable in the regressions. Data scrutiny indicates the occurrence of unit root in GDP per capita figures. To deal with the problem of non-stationarity, data for GDP per capita were first differenced. Based on the theory the anticipated sign of the initial level of economic expansion measure is positive.

Various researches [Demirguc-Kunt, Maksimovic, 2002; Levine, 1999; Levine, Zervos, 1998; Beck, Levine, 2004; Demetriades, Andrianova 2004] have shown that advanced financial system positively affects economic growth. Banking sector development is employed here (specifically, private credits provided by the banking sector) as a proxy for the financial development. This indicator is expressed as percentages of GDP. The data source is the World Development Indicators dataset (WDI), which contains annual information for a large panel of countries. It is widely accepted that private credit is the most essential banking development indicator, because it illustrates the level of likelihoods that new entrants will get bank funding. Consequently, higher levels of this indicator were interpreted as signs of higher levels of financial services for the private sector, and as a result, greater credit accessibility. In general, economists expect credit provided by the banking sector to positively impact economic growth. Thus, we expect positive signs for credit in this analysis.

We use exports as a proxy for economic growth and consequently the share of exports of goods and services in GDP is utilized. According to traditional Keynesian theory, exports can be a significant facilitator of economic growth. Studies conducted by Marin in 1992 and Vohra in 2001 empirically verify that positive role. In research on the relationship between insurance industry expansion and economic growth international trade is also included as a supplementary explanatory term [e.g., Webb, Grace, Skipper, 2002; Arena, 2008]. The expected sign of the coefficient is positive.

Another control term in the hypothesis formula is investment, which we measure as gross capital formation, defined as follows: "Gross capital formation (formerly gross domestic investment) consists of outlays in addition to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and 'work in progress.' According to the 1993 SNA, net acquisitions of valuables are also considered capital formation" [The World Bank].³ Investments are expected to be positively associated with economic growth.

The government plays a key role in establishing an environment for private sector expansion in any country. Nevertheless, various theoretical and practical studies propose that greater government consumption negatively affects development of the financial sector of a country generally and, in particular, with the insurance sector. For instance, Beenstock, Dickinson and Khajurja [1986] established an inverse relation between life

insurance premiums and social security coverage. According to Skipper and Kwon [2007], if the government plays an active role in providing security protection for property damages, disability, retirement and health care, people are not motivated to acquire insurance to address those risks. Economists in general agree that high government consumption decreases the efficiency of government investments since investment decisions are influenced by political and social factors [e.g., Webb, Grace, Skipper, 2002; Dorfman, 2008]. Thus, government expenditures is typically applied as a control indicator when describing economic growth in banking and insurance investigation papers [Levine, 1998; Levin, Loayza, Beck, 2000; Ahlin, Pang, 2008; Ward, Zurbruegg, 2000; Arena, 2008]. In this analysis, government expenditure is measured by its share in GDP. It is anticipated government expenditures negatively correlate with economic growth.

Empirical Results

The main outcomes of the study are summarized in Table 1, which contains the estimates of economic growth regressions using a fixed effect estimator in which Total Insurance Penetration as well as other independent variables is treated as exogenous. To start with, it is important to note that the value for F-test for this model is significant, meaning that all the coefficients of the model are not equal to zero. On the basis of the F-test it can be observed that the model is well fitted. In addition, all coefficients are statistically different from one. Furthermore, based on the Hausman test ($\chi^2(2) = 34.09$ [Prob> $\chi^2 = 0.0000$]), the null hypothesis stating that a random effect model is better than its counterpart is rejected. Therefore, it may be concluded that a fixed effect is a suitable estimator and is relied upon for delivering statistical inference.

TABLE 1. Fixed-effects regression Total Insurance Penetration and GDP in post-transition countries, dependent variable: logarithm of GDP

Variable	Coef.	Std.Err	z	P> z	[95% Conf. Interval]
Total Insurance Penetration	-.5003374	.8959353	-0.56	0.578	-2.278292 1.277617
GDP per capita	.0005674	.0001715	3.31	0.001	.000227.0009079
Private Credit	-.1402303	.0212325	-6.60	0.000	-.1823656 -.0980951
Exports	.248303	.0438888	5.66	0.000	.1612072.3353989
Government Expenditures	-.2831441	.1082442	-2.62	0.010	-.4979511 -.068337
Capital Formation	.5738759	.0728128	7.88	0.000	.4293813.7183704
Interaction Term	-7.025615	5.645966	-1.24	0.216	-18.22985 4.178621

Notes: Number of observations 114; Sample period 2000–2012; Number of time periods (T)=13; Number of countries (N) = 10; R² = 0.7389; F-Test (6,98) =46.23 (Prob>F=0.000)

Source: author's estimations.

Table 1 shows that the estimated coefficient of Total Insurance Penetration is negative, but lacks significance at the 5 percent significance level. This means that the insurance variable is a statistically insignificant determinant of economic growth, where GDP growth is employed as a proxy for economic development. Though inconsistent with theory, these findings are in line with the outcomes obtained by various authors [Webb et al. 2002; Haiss, Sümegi, 2006]. While empirically studying all EU countries during the period 1992–2004, Haiss and Sümegi also found the signs for total premium income negative and insignificant. Webb, et al., as well as Haiss and Sümegi [2006] found coefficients to be negative and not significant for non-life insurance.

We also calculated coefficients and signs for Total Insurance Penetration in combination with private credit provided by the banking sector (a proxy for the financial development). The sign for Private Credit is negative and significant, meaning financial development negatively affects economic growth. This could indicate the shrinking strength of the bank-growth-nexus over the last decade, consistent with Rousseau and Wachtel [2005], who found weaker links using more current data. This observation is also generally consistent with other studies showing negative, with low significance, coefficients of banks and the insurance sectors in the latest studies indicating both sectors having to face similar transformation.

An alternative explanation for this unexpected negative correlation of insurance market development and the banking sector on economic growth may be found in regional differences that are aggregated in our data set (treatment of the region as a whole). There are significant differences in the structure and level of development of both the insurance and banking sectors among the CEE countries studied. For instance, according to a CEA annual report [2009] the only state in the CEE area with a life insurance sector developed at European level is Poland, which accounts for more than 50 percent in life gross written premiums among the CEE countries. Differences are also apparent in the banking sector. Based on EBF databases [2009] four countries – Poland, the Czech Republic, Hungary, and Romania – account for more than 75 percent of total bank assets in the CEE region, and Poland alone holds more than 25 percent of those total assets. Hungary and Romania showed a decline in total bank loans in 2009. Furthermore, the distribution by bank loan categories differs from country to country (Romania shows large consumer credit, while Slovenia relies more on the corporate sector credit).

As for other independent variables the outcomes seem to demonstrate that the level of Exports are significant at 5 percent level, and therefore facilitate economic growth, while Government Expenditures negatively correlate to GDP growth as predicted by the theory and previous findings in this area [Levine, 1998; Levin, Loayza, Beck, 2000; Webb, Grace, Skipper, 2002; Arena, 2008]. As was expected, the coefficient of Capital Formation is positive and significant.

Based on our data, the assumed positive and significant impact of the insurance sector on economic growth in post-transition countries is not confirmed by the data set. Thus, the

results from the testing propose that the Total Insurance Penetration is not a statistically significant determinant of economic growth. Although these findings are comparable to the findings of Grace and Skipper [2002], Haiss and Sümegi [2006] and other researchers, a general lack of consensus in this area suggests that more research is necessary to investigate the various channels through which insurance can affect economic growth. Above mentioned studies as well as studies conducted by Catalan et al. [2000], Davies and Hu [2004] and Boon [2005] have also separately analyzed life and non-life insurance sectors and their impact on economic growth. Grace and Skipper [2002], Haiss and Sümegi [2006] found out that though signs for total insurance premium and non-life business are negative and non-significant, coefficients for life insurance are positive and significant. Thus, investigating each insurance branch and its impact on economic growth individually can shed more light on the insurance-growth nexus in former transition countries.

Conclusion

Most studies exploring the relationship between total insurance penetration and economic growth have uncovered a positive links between them. However, these links have received less attention in the transition countries of Central and Eastern Europe (CEE), which became New EU Member States (NMS). The significance of the insurance in the overall financial intermediation has increased over time; however, the vigor of the finance-growth-relationship seems to have weakened in recent years. The key purpose of this research was to better understand the function of the insurance sector in the finance-growth-nexus, and answer the question how insurance affects economic development, concentrating on the post-transition countries. Investigation of this notion is important since results could guide to numerous policy suggestions and sequencing of changes in transition states.

We used a log-linear equation for economic growth which includes a lagged dependent measure. Employing a panel data set of 10 countries over the period 2000–2012 and a using fixed effect estimator the empirical investigation shows that the total insurance penetration is statistically not a significant determinant of GDP growth. The results of the analysis are inconsistent with the insurance-growth hypothesis; however, they support the previous studies proposing a negative and non-significant influence of insurance and the banking sectors on the economic growth in the EU members. Thus, the obtained figures do not confirm that execution of incentives for advancement of the insurance would facilitate faster economic growth in the former transition countries.

The lack of empirical evidence in support of the insurance-growth nexus points to the need to further research these relationships, analyzing non-life and life insurance separately. This approach may help policy makers better determine whether, and to what extent, insurance regulations may most contribute to economic growth.

Notes

¹ According to the World Bank, „the transition is over” for the 10 countries that joined the EU in 2004 and 2007.

² OLS estimation can lead to biased outcomes in analyzing panel data as it assumes a single set of slope coefficients and one intercept.

³ The World Bank- World Development Indicators dataset-<http://data.worldbank.org/indicator/NE.GDI.TOTL.ZS>

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