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DOES INSURANCE PROMOTE ECONOMIC GROWTH: THE EVIDENCE FROM EX-YUGOSLAVIA REGION

Abstract
The aim of this paper is to examine the impact of insurance on economic growth and interaction of insurance and banking in promoting economic growth in ex-Yugoslavia region. We use the country-specific fixed effects models for panel data for the period 2004-2008 allowing each cross-sectional unit to have a different intercept term serving as an unobserved random variable that is potentially correlated with the observed regressors. The research results show that insurers provide positive effect on economic growth both as providers of insurance risk management and indemnification and as institutional investors. These results could be useful for regional governments that seek to improve economic growth as they suggest the need for implementation of stimulative policies for the development of insurance industry.

Key words: insurance, economic growth, ex-Yugoslavia region.

1.   INTRODUCTION

Earliest form of insurance emerged in order to protect enterpreneurs from risks arising from overseas commercial trading ventures, thus to facilitate the economic growth through increased trading. Nowadays, insurers act not only as providers of risk transfer and indemnification but also as financial intermediaries. A large body of theoretical literature (e.g. Rejda, 2005; Skipper and Kwon, 2007; Dorfman, 2008) emphasise many benefits of insurance to the economy and society that include the following: 1) enhances financial stability of families and businesses, 2) facilitates competitiveness and development of trade and commerce by enhancing creditworthiness, lowering the total necessary amount and cost of capital and reducing total risk, which enables entreprenurs to enter new business ventures and take additional risks, 3) substitutes and complements public sector expenditures on security programs, 4) facilitates loss prevention either directly, by investing in loss prevention programs such as medical research, fire prevention or highway safety, or indirectly by tying premiums to loss experience, 5) increases liquidity, availability of total capital stock in an economy and efficiency of capital allocation. In addition, empirical evidence from developed economies demonstrates that insurers are one of the major employers, investors and tax contributors in the U.S. (Insurance Information Institute, 2009), in the U.K. (Association of British Insurers, 2009) and in the E.U. (Comité Européen des Assurances, 2009).

Since 1991, after the breakup of former socialist Yugoslavia, regional economies have passed through the transition process. Instead of being tightly controlled and centrally planned the economies become market-oriented. Privatisation has been at the forefront of the economic transition process when insurance industry is considered. Before the transition process took place "private insurance was neither much needed nor purchased" (Dorfman, 2008:76), because of the exaggerated use of public funds for coverage of losses, comprehensive social insurance and government ownership of the means of production, which consequence was the fact that state-owned enterprises were insured by state-owned insurers. Privatization incentives the development of risk management and growth of insurance demand and at the same time insurance markets became deregulated and liberalized. Although local insurance markets are still modestly developed in terms of insurance density in relation to their western counterparts, insurance premium growth in countries of ex-Yugoslavia have outpaced premium growth in developed economies (see Swiss Re, 2009; Marovic, Njegomir and Maksimovic, 2010). In addition to the development of insurance industry, the economic transition in general and privatisation in particular have facilitated stock market and the development of banking industry. Accelerated insurance markets' growth in recent years have raised question of the importance of its contribution to the pace of economic growth within the regional economies.

The academic research of the determinants that promote economic growth focused firstly on capital and labour. Neoclasical growth theory emerged when Solow (1956) and Swan (1956) introduced technological progress as an additional determinant of economic growth. During late 1980's new growth theory or endogenous growth theory was developed in order to identify gaps that still remain in explaining economic growth. This theory implies that investment and growth of one sector of an economy can provide positive esternalities to other sectors. When financial services industry is in question, most of the research assessed the impact of the development of banking and stock markets on economic growth (e.g. Gertler, 1988; Pagano, 1993; King and Levine, 1993a; Levine, 1999; Levine and Zervos, 1998; Beck and Levine, 2004).[1] While factors that affects growth of demand for insurance have been studied extensively (e.g. Outreville, 1990; Browne, Chung and Frees, 2000; Beck and Webb, 2003), the empirical research of the impact of insurance on economic growth is scarce. Additionally, the research of the complementarity of insurers', banks' and capital markets' development and economic growth has not been studied extensively.[2] Even when the research is available (e.g. Ward and Zurbruegg, 2000; Webb, Grace and Skipper, 2002; Kugler and Ofoghi, 2005; Vadlamannati, 2008; Arena, 2008; Adams et al., 2009) it is mainly focused on developed and developing economies, excluding former communist European countries. To our knowledge, the research focused on the issue of insurance market activities and their interactions with banking and capital markets development and economic growth for the ex-Yugoslavia region's countries is non existent.

Therefore, the aim of this paper is to provide empirical evidence on the impact of insurance on economic growth and interection of insurance, banking and capital market development in promoting economic growth. The findings of this study will be of particular importance to regional policymakers who seek a better understanding of the determinants of economic growth. The study results will provide them information necessary to determine policies, such as tax policy, that will facilitate economic growth within constraints of limited available capital stocks, present excessive current accounts' deficits and foreign debt burden.[3]

We apply linear country speciffic fixed effects model for panel data. Panel data encompass 5 countries of the ex-Yugoslavia region for the period 2004-2008. We have chosen fixed effects due to small number of control variables in each of three models for capturing the effects of unobserved variables that are potentially correlated with the observed regressors.

The reminder of this article is organised as follows. A review of prior literature is presented first, followed by a theoretical framework that encompass the explanation of economic growth variables used in the research. The fourth section presents the data and methodology employed in the analysis. The empirical results are presented in the fifth section that is followed by the conclusion.

2.   PRIOR LITERATURE REVIEW

Determining factors and patterns of economic growth has attracted attention of researchers for a long time, since Adam Smith to modern days. As there were always the unexplained percentage of growth, three economic growth theories evolved, classical, neo-classical and endogenous growth theory, which is usually refered to as new growth theory. Researches within the financial literature focused on the explanation of externalities that may promote economic growth in addition to labour, capital and technology factors that were typicaly used by representatives of classical and neo-classical economic growth theories. However, most of the research done is focused on the impact of banking while several studies examined the impact of capital markets development. As reviewed by Levine (2005) most of the existing research on the links between the operation of the financial system and economic growth suggest that better functioning of banks and capital markets facilitates economic growth.

In the insurance related literature, first researches of the links of insurance and economic growth focused on the impact of economy on insurance development. Among the first empirical research that found support for a positive impact of income on insurance demand was the study of Beenstock, Dickinson and Khajurja (1986). By using cross-section and time-series data for ten industrialized countries for the period 1970-1981 they found that life insurance demand is directly positively dependent on income, measured as GDP per capita. A series of empirical researches on the impact of economy on both life and non-life insurance followed. Typically using insurance premium as dependent variable and economy's income as explanatory variables, all of them found support for the thesis that life and non-life insurance directly depend upon economic development. For a comprehensive review of these studies see Hussels, Ward and Zurbruegg (2005) and Arena (2008).

The issue of insurance industry development impact on economic growth has only recently attracted researchers. As our study is primarily focused on the determination of insurance development as explanatory variable for economic growth we will provide more detailed review of these studies. To our knowledge, first study that examined causal relationship between insurance industry growth and economic growth was that of Ward and Zurbruegg (2000). They examined short and long dynamic relationships between economic growth, measured by annual real GDP, and insurance industry, measured by total real premiums, for nine OECD countries for the period 1961-1996. As additional explanatory variables they used changes in private saving rates, the general government budget surplus, population size, the general government level of current expenditure and youth plus old age dependency ratios, measured as the proportion of the total population under 16 and over 65 years of age. Based on bivariate VAR methodology to test for Granger causality[4] authors found that the causal relationship between economic growth and insurance market development vary across countries. They did not determined the exact causes although they express their suspicions that possible causes are country-specific nature of

cultural, regulatory and legal environment, the improvement in financial intermediation and the moral hazard effect of insurance. Their research is additionally important as they separately from Outreville (1996) and Enz (2000) reach the same conclusion that elasticity of the demand for insurance varies itself with the level of income that is it becomes less sensitive to income growth in more developed economies.

Webb, Grace and Skipper (2002) examine whether banks, life and non-life insurers individually and collectively contribute to economic growth by facilitating the efficient allocation of capital using revised Solow-Swan model of economic growth. They use cross-country data for 55 developed and developing countries, excluding ex-communist European economies, for the period 1980-1996. In addition to average penetration of life and non-life insurance, as explanatory variables for GDP per capita growth, they use average growth rate of capital stock per capita, average penetration of banking activity, average level of exports as a share of GDP, average government expenditure share of GDP, natural log of initial real GDP per capita and data on proportion of the population over 25 who have completed primary school. They found that the exogenous components of banking and life insurance penetration are robustly predictive of increased productivity. Synergy between banks and insurers exists, which indicates that banks and insurers collectively provide greater benefits than it would be by summing their individual contributions. Additionally, they found that there is no link between economic growth and non-life insurance. Economic growth affects life insurance penetration while it does not predict banking development.

Kugler and Ofoghi (2005) use the components of net written insurance premium to evaluate a long run relationship between development in insurance market size and economic growth by using Johansen's λ_{Trace} and λ_{max} co integration tests. In addition, they use Granger causality tests with disaggregated measures of specific classes of long-term and general business insurance for the United Kingdom. Disaggregated data for long-term insurance includes yearly and single premium (including life insurance, annuities, individual pensions and other pensions) for the period 1966-2003 and for general business insurance, includes motor, accident and health, liability, property, pecuniary loss, reinsurance and MAT (Marine, Aviation and Transport) for the period 1971-2003. For most of variables and for at least at 5% level of significance, co integration tests confirmed long run relationship between development in insurance market size and economic growth. Causality tests' results show for eight out of nine markets (the exception is pecuniary loss insurance) that the long run relationship between insurance market size development and economic growth is present rather than there is cyclical effect. In the short run, growth in life (both yearly and single premium), liability and pecuniary loss insurance causes economic growth. Additionally, they found that causality from GDP growth to insurance market size development is more powerful than the causality from the other side.

Haiss and Sumegi (2008) examine the impact of insurance on economic growth, measured by GDP, on the sample of 29 countries belonging to the European economic region. The countries used in the analysis are EU-15, Norway, Switzerland, Iceland, New EU Member States and EU membership candidates (Turkey and Croatia). From the EU Member states Lithuania was omitted due to lack of data and only few data was available for Croatia and Latvia. They used a panel data for the period 1992-2005 for the regression the data series, which was expanded to the cross-section dimension. As dependent variable they use real GDP at constant year 2000 prices in constant 2000 US Dollars per employee while as explanatory variables they use gross premium income (three separate variables for total, non-life and life premium) calculated in constant year 2000 prices and US Dollars, physical capital stock at constant year 2000 prices in constant 2000 US Dollars per employee and human capital stock constructed as index using weighted employee education figures and R&D expenditure, interest (10-year government bond yields, secondary market, annual average) and inflation rate. Due to the short time period covered they assume the slope coefficients in the growth equation to be independently distributed and hence homogenous per year. They conducted the same tests for two country groups, one consisting of the EU-15, Norway, Switzerland and Iceland and the other pooling the New EU Member States from Central and Eastern Europe Countries and EU membership candidates (Turkey and Croatia). They found positive impact of life insurance on GDP growth for the first group of countries. For the second group, they found a larger impact of liability insurance. Additionally, their findings emphasize the impact of the real interest rate and the level of economic development of the insurance-growth nexus.

Using the generalized method of moments for dynamic models of panel data for 55 countries, including high, middle and low income countries, for the period 1976-2004, Arena (2008) study causal relationship between insurance market activity and economic growth. He uses data for non-life and life insurance premiums in order to assess potentially different effects on economic growth, measured by growth in real GDP per capita. As additional explanatory variables he uses private credit, stock market turnover, initial GDP per capita, openness, government consumption, inflation, human capital, and terms of trade changes data. He found support for causal effect of insurance to economic growth. However, the research results evidence different impact of life and non-life insurance on economic growth. While life insurance premiums positive effect on economic growth is driven by high-income countries only, non-life insurance premiums effect on economic growth is driven by all countries, although a larger effect is found in high-income countries. Additionally, he found that life insurance would have a bigger impact on economic growth at low levels of economic development and non-life insurance at middle levels. Finally, he found that life insurance would have a bigger impact on economic growth if stock market development is deeper while the results for non-life insurance suggest a complementarity effect for initial and intermediate stages of stock market development.

Adams et al. (2009) analyze long-run historical relation between banking, insurance and economic growth in Sweden using time-series data from 1830 to 1998. They use econometric tests for co integration and Granger causality to identify conjoint effects of banking and insurance and economic growth. In addition to the whole period, they use Granger causality tests for three sub-periods (1830-1888, 1889-1948 and 1949-1998). They use log of annual per capita growth in the rate of real GDP to measure national economic growth, data for the total (central, commercial and savings) annualized amount of real bank lending to the non-bank public on a per capita basis to represent bank credit variable and real annualized value of total premiums (life and non-life) per capita to represent insurance penetration variable. They found that the development of bank lending activity preceded economic growth in Sweden during the nineteenth century and increased the demand for insurance, while Granger causality was reversed in the twentieth century. Additionally, they found that in later sub-periods insurance development fosters demand for banking services but only in times of economic prosperity. Their results for the entire period indicate that banking has the predominant influence on both economic growth and the demand for insurance while insurance market appears to be driven more by the pace of economic growth rather than leading economic development.

The lack of the previous research focused on the interaction between regional insurance industry development and economic growth, its separate and joint impact with banking, as well as the need of economies that belong to the ex-Yugoslavia region to facilitate economic growth by own resources, served us as a motivator for the analysis on the topic. Although our research contains results that extend and complement those in existing literature, the main contribution of the research presented in this paper is original. Haiss and Sumegi (2008) include two insurance markets of ex-Yugoslavia region (Croatian and Slovenian) in their examination, but they do not examine joint impact of insurance growth with banking on economic growth. We examine how insurance affects economic growth not only as a provider of risk and indemnification but also as an institutional investor, in which sense we depart from previous studies.

3.   THEORETICAL FRAMEWORK

Our analysis focuses on the impact of insurance on economic growth and interection of insurance, banking and capital market development in promoting economic growth. Following simmilar approach in previous literature (e.g. Webb, Grace and Skipper, 2002; Arena, 2008; Adams et al., 2009) as a measure that depicts economic growth we use log of annual per capita growth in the rate of real GDP. Factors that we use as control variables that may explain economic growth include the following: life and non-life insurance premium, banking and capital market development, government consumption, export of goods and services, and physical capital, and life and non-life insurance companies' investments.

Primary objective of our study is to determine how insurance market development affects economic growth. As insurers collect premiums for their risk transfer and indemnification services, insurance premiums are used as a standard measure of insurance market development in insurance literature. However, some researchers use total premiums (e.g. Ward and Zurbruegg, 2000; Adams et al., 2009) while others use disagregated data for life and non-life insurance (e.g. Webb, Grace and Skipper, 2002; Haiss and Sumegi, 2008; Arena, 2008). Life and non-life insurers offer different protection services to individuals and businesses. While life insurers offer medium and long-term protection products with savings elements, non-life insurers offer medium and short-term indemnification products. As a result, their effect to economic growth might be different and by using total insurance premiums we will fail to account for different market forces as suggested by Browne and Kim (1993). However, while recognising its weaknesses, due to small number of countries in the pool we use ratio of gross premium written (*PR*) as a proxy for insurance market development. We hypothesise positive impact of premiums on economic growth.

Insurers act not only as providers of risk transfer and indemnification but also as an important financial intermediaries. Some authors (e.g. Conyon, 1994) emphasise that financial intermediation provides the most important argument for insurers' contribution to economic growth as it links insurance market development to the accumulation of productive capital within an economy and improve the efficiency of investments (e.g. Conyon and Leech, 1994; Skipper and Kwon, 2007; Dorfman, 2008). Additionaly, through their investment function insurers facilitate economy of scale in investment and create liqidity, which is found to facilitate economic growth by Levine and Zevros (1998). Althought the importance of insurers' investments is recognised in previous studies, neither of them test its contribution to the economic growth. Following the thesis provided by Webb, Grace and Skipper (2002) that life insurers reserves can be used as approximation of the investment funcion, we use technical reserves of both life and non-life insurance companies as a proxy for their investment funcion (*IF*). The expected effect on economic growth is positive.

Numerous studies (e.g. Gertler, 1988; Pagano, 1993; King and Levine, 1993a; Levine, 1999; Levine and Zervos, 1998; Beck and Levine, 2004) have showed that better developed financial systems have positive effect on economic growth. In the empirical literature inconsitencies exist regarding the complementarity and supplementarity effect between banks and capital market development and thus their conjoint effect on economic growth, as it is reviewed by Arena (2008). In insurance related literature some researchers use only the effect of banking (e.g. Ward and Zurbruegg, 2000; Webb, Grace and Skipper, 2002, Adams et al., 2009) while others examine the effect of capital market development as well (e.g. Arena, 2008). We assume that both banking and capital markets are important for economic growth. Following mentioned previous studies in insurance related literature and banking related literature (e.g. King and Levine, 1993b; Beck and Levine, 2004) as a proxy for the effect of banking (*BANKING*) on economic growth we use the ratio of total outstanding bank credit

to private sector at end-of-year to GDP. We hypothesise positive impact of banking on economic growth. In order to measure conjoint effect of insurance with banking we use interaction term (*IB*) between gross premium written and ratio of total outstanding bank credit to private sector at end-of-year to GDP.[5] We hypothesise that positive impact on economic growth of both insurance and banking viewed separately is augmented due to the synergy effect between them. Following Arena (2008) as a proxy for capital market development (*CAPMARKET*) effect on economic growth we use total value of shares traded during the period, divided by the average market capitalization for the period. We hypothesise positive impact of capital market development on economic growth.

The government has an important role for the establishment of framework for private sector development in every economy. However, numerous theoretical and empirical research suggest that the larger government consumption the less developed will be financial system, and especially insurance industry. For example, Beenstock, Dickinson and Khajurja (1986) found that life insurance premiums vary inversely with social security coverage. If government provide indemnification for property losses, disability, retirement and health care, individuals will have less incentives to purchase insurance (Skipper and Kwon, 2007), the fact that was especially emphasised during the communist era in Eastern Europe (Dorfman, 2008). Also, greater government consumption is generaly considered to decrease the efficiency of investments as its investments are directed by political and social considerations (e.g. Webb, Grace and Skipper, 2002; Dorfman, 2008). Therefore, general goverment consumption is usually used as a control variable when depicting economic growth in both banking related literature (e.g. King and Levine, 1993a; Levine, 1998; Levin, Loayza and Beck, 2000; Berthelemy and Varoudakis, 1996; Ahlin and Pang, 2008) and insurance related literature (e.g. Ward and Zurbruegg, 2000; Webb, Grace and Skipper, 2002; Arena, 2008). We measure government expenditure (*GOV*) as a ratio of general goverment expenditures to GDP. We hypothesise negative relationship between government expenditures and economic growth.

Export is one of the factors, considered even in traditional Keynesian theory, that can facilitate economic growth. Empirical studies have confirmed that export positively affect economic growth (e.g. Marin, 1992; Vohra, 2001). Foreign trade is also present as additional explanatory variable in insurance related literature that examines how insurance market development affects economic growth (e.g. Webb, Grace and Skipper, 2002; Arena, 2008). We measure export of goods and services (*EXPORT*) as a ratio of the value of all goods and other market services provided to the rest of the world to GDP as a measure of export variable (*EXPORT*). We hypothesise that export positively affects economic growth.

Early studies of economic growth considered that it is driven mainly by physical capital and labour input growth. According to neoclassical Solow-Swan model of economic growth the operation of diminising returns implies that equal increases in physical capital on its own brings smaller and smaller increases in

economic growth. Newer neoclassical growth models (e.g. Lucas, 1988) assume non-diminishing marginal returns to accumulable factors of production (physical and human capital). Some recent studies confirmed that physical capital accumulation importance vary with the stage of economic development as it is most important in the first stage of economic development (Funke and Strulik, 2000). In insurance related literature physical capital stock is used as an additional explanatory variable for economic growth (e.g. Webb, Grace and Skipper, 2002; Haiss and Sumegi, 2008). Following previous literature, we use gross domestic investment per GDP data as a proxy for physical capital stocks. According to EBRD's methodology, gross domestic investment consists of additional outlays to the economy's fixed assets, plus net changes in inventory levels. Fixed assets include: land improvements (fences, ditches, drains, etc.); plant, machinery and equipment purchases; and the construction of roads, railways, schools, offices, hospitals, private residential dwellings, commercial and industrial buildings, etc. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales and "work in progress". Net acquisitions of valuables are also considered capital formation. We hypothesize positive relationship between physical capital (*PC*) and economic growth.

4.   DATA AND METHODOLOGY

Our data cover 5 countries, which formerly were constituent republics of Socialist Federal Republic of Yugoslavia, over the time period 2002-2008.[6] Number of observations for each country varies between 3 and 5, depending on data availability. Descriptive statistics are shown in Table 1.

Table 1

Descriptive Statistics and Expected Signs of Relationship

Variable	Exp.Sign	Mean	Median	Maximum	Minimum	Std.Dev.	Skewness	Kurtosis
GDP growth		0.04950	0.04739	0.06900	0.02400	0.01180	-0.16277	2.84509
PR	+	5.33258	5.52636	6.92689	3.84790	1.15369	0.08469	1.57686
IF	+	5.66268	6.02793	8.90049	3.64053	1.65101	0.20019	2.00314
BANKING	+	0.50287	0.51800	0.78800	0.25100	0.16601	0.02991	1.75623
EXPORT	+	0.47067	0.43000	0.70000	0.29000	0.12842	0.29600	2.19811
GOV	-	0.41604	0.42833	0.45838	0.33144	0.04167	-1.13181	2.85719
CAPMARKET	+	0.12507	0.09300	0.26500	0.06000	0.06203	0.92915	2.82451
PC	+	0.26893	0.27100	0.31400	0.20700	0.02888	-0.67079	3.07855

Source: authors' calculations

Data are obtained from various sources. Non-life and life insurance premium and technical reserves data are obtained from individual countries' regulatory bodies and national insurance associations. GDP, domestic credit to private sector, stock trading volume, general government expenditure and gross capital formation data are obtained from European Bank for Research and Development (EBRD) economic statistics and forecasts published for each year in *Transition Report*. Population data are obtained from individual countries' statistical offices. The only exception for population data is Bosnia and Herzegovina, the only country that hadn't census since 1991, thus we use EBRD's estimates of total population excluding refugees abroad. Total exports to GDP data we obtained from World Development Indicators Online (WDI) Database of the World Bank, updated as of October 8, 2009. All monetary values have been denominated to 2008 euro value and adjusted for inflation by authors.

Given the cross-sectional and time-series data, we use country specific fixed effects panel data regression model with common coefficients across all cross-section members of the pool. The general equation to be estimated using pooled least squares is:

$$y_{it} = \alpha_i + \boldsymbol{x_{it}}\beta + u_{it} ,$$

where y_{it} is a scalar dependent variable, i.e. profitability, $\boldsymbol{x_{it}}$ is a $K{\times}1$ vector of independent variables, u_{it} is a scalar disturbance term, i indexes country in a cross section, and t indexes time measured in years. Since the error terms u_{it} are potentially serially correlated and heteroskedastic, we propose an autoregressive process of first order: $u_{it} = \rho u_{it-1} + e_{it}$, where e_{it} is white noise. Model incorporates White's consistent covariance matrix (White, 1980), for dealing with heteroskedasticity.

Model incorporates the state of economy and it's return on investment as environment in which we observe influences of market liberalisation and concentration on overall profitability. Namely, we estimate the equation:

$$(GDP\ growth)_{it} = \alpha_i + \beta_1(PR)_{it} + \beta_2(IB)_{it} + \beta_3(IF)_{it} + \beta_4(BANKING)_{it} + \beta_5(EXPORT)_{it} + \beta_6(GOV)_{it} + \beta_7(CAPMARKET)_{it} + \beta_8(GOV)_{it} + u_{it}$$

5.   EMPIRICAL RESULTS

The model used in this study has been introduced at the end of previous chapter. In this section we present original results and interpretations concerning the model observed.

The results of the empirical analysis are presented in Table 2.

Table 2

Parameter estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PR	0.21640*	0.07271	2.97610	0.05880
IF	0.02975**	0.00741	4.01299	0.02780
BANKING	-0.00192	0.24052	-0.00797	0.99410
EXPORT	0.53868**	0.16536	3.25755	0.04720
GOV	1.05919**	0.22406	4.72725	0.01790
CAPMARKET	0.07409	0.05124	1.44591	0.24400
PC	-0.55979*	0.20555	-2.72338	0.07230
IB	-0.03005	0.01420	-2.11583	0.12470
R-squared	0.97244	Mean dependent var		0.04950
Adjusted R-squared	0.87139	S.D. dependent var		0.01180
S.E. of regression	0.00423	Sum squared resid		0.00005
Log likelihood	72.76502	F-statistic		15.12262
Durbin-Watson stat	3.45290	Prob(F-statistic)		0.02384

Source: authors' calculations

Note: Dependent Variable: GDP growth. Country specific intercepts have been omitted from the table. **, * denote statistical significance at the 5% and 10% levels.

As results show, the gross written premium per capita has significant effect on economic growth at 10% level. This means that insurers as providers of insurance coverage and indemnification have positive influence on economic growth. Additionally, investment function is found to be positively correlated with economic growth at 5% level. Thus, as we have expected insurance companies contribute to economic growth both as institutional investors and insurance risk managers.

Furthermore, the effect of export of goods and services is found to be positively correlated with economic growth. Its importance is found to be significant at 5% level.

Our results for government expenditures and physical capital influence on economic growth are rather unexpected. They are also inconsistent with previous studies that focused on developed markets. We presume that the possible explanation for this anomaly might be the fact that the state of domestic capital markets development and the role of banking in economic growth is still in its infacy. Additionally, capital markets are still insuficiently regulated that generates high volatility that is merely founded on economic factors. Therefore, government expenditure role in economic growth is most probably exaggerated in current state of economic development.

6.   CONCLUSION

The objective of this article was to examine the role of insurance in economic growth in countries that belong to ex-Yugoslavia region. Additionaly, we examined how interection of insurance and banking affects economic growth. Our sample covers period from 2004 to 2008 and encompass data for following five countries: Bosnia and Herzegovina, Croatia, FYR Macedonia, Serbia and Slovenia. The model observed focuses on the effects of financial sector, government expenditures, export and physical capital on economic growth.

Our results are partially consistent with previous studies focused on developed and developing countries. The significant impact of insurance, i.e. insurance companies both as providers of risk management and indemnification and as institutional investors, and export of goods and services is in line with previous studies and with our hypothesis. However, insignificant impact of banking and capital markets, positive impact of government expenditures and negative impact of physical capital are inconsistent with previous studies and our hypothesis. These results signalize the need for the implementation of simulative government measures for the development of insurance industry and other financial services industries. The research findings are particularly important for economies of ex-Yugoslavia as they strungle for financial resources that would provide faster pace of economic growth which is currently constrained with limited available capital stocks, excessive current accounts' deficits and foreign debt burden.

It is well known that adverse selection, moral hazard and insurance fraud generate costs to the economy, therefore further research might involve these costs in addition to the costs of scarce resources that insurers use, similar to all other businesses. Also, research of interrelationship between insurance and non-financial sectors of the economy in the promotion of economic growth should be of interest for further research. Finally, the results from cross-country study such as ours might hide actual results for specific countries. Therefore, in addition to longer time periods, further research of the issue of how insurance market development promotes economic growth should focus on per country analyses.

ENDNOTES

1. For a comprehensive review of theoretical and empirical research on the connections between the operation of the financial system and economic growth see Levine (2005) and Bađun (2009).

2. For a comprehensive descussion of these interactions, which might be positive and create synergies in stimulating economic growth or negative, see Davis and Steil (2001), Webb, Grace and Skipper (2002); and Arena (2008).

3. For statistics underlying these facts see The Economist (2009).

4. Granger (1969) causality test is a technique for determining whether one time series is useful in forecasting another.

5. *IB* is obtained by multiplying *PR* with *BANKING*.

6. Countries included in our analysis are Bosnia and Herzegovina, Croatia, Former Yugoslav Republic of Macedonia, Slovenia and Serbia. Montenegro was omitted due to lack of relevant available data.

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POTIČE LI OSIGURANJE EKONOMSKI RAST : PRIMJERI S PODRUČJA BIVŠE JUGOSLAVIJE

Sažetak

Cilj je ovoga rada ispitati utjecaj osiguranja na ekonomski rast kao i međuzavisnost osiguranja i bankarstva u promidžbi ekonomskog rasta na području bivše Jugoslavije. U radu koristimo modele fiksnih efekata za panel podatke za period 2004.-2008. pri čemu dopuštamo da svaka međusektorska jedinica ima različit presječni član koji služi kao neuočena slučajna varijabla koja je potencijalno međuzavisna s uočenim regresorima. Rezultati istraživanja pokazuju da osiguravatelji ostvaruju pozitivan efekat na ekonomski rast i po osnovi njihove uloge upravljanja rizikom osiguranja i obeštećenja i kao institucionalni investitori. Dobijeni rezultati mogu biti značajni vladama zemalja područja koje nastoje unaprijediti ekonomski rast s obzirom da oni ukazuju na potrebu implementiranja stimulativnih politika za razvoj industrije osiguranja.

Ključne riječi: osiguranje, ekonomski rast, područje bivše Jugoslavije.

JEL klasifikacija: G22, O49