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## INSURANCE SERVICES MARKET DEVELOPMENT: INTERNATIONAL EXPERIENCE AND UKRAINIAN REALIA

***The article introduces a theoretical methodological approach to the management of commercial insurance system development in Ukraine. Key challenges hindering national insurance market development are diagnosed. The article introduces economic-mathematical toolkit for managing the insurance market development, based on structural features of European countries, which makes it possible to ground the formation of national insurance system development and provide a long-term sustainable economic growth of national economy.***

***Keywords:*** *insurance services; insurance market; gross insurance premiums; economic-mathematical modeling; linear regression.*

***JEL classification: G22.***

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## РОЗВИТОК РИНКУ СТРАХОВИХ ПОСЛУГ: ЗАРУБІЖНИЙ ДОСВІД ТА УКРАЇНСЬКІ РЕАЛІЇ

***У статті запропоновано теоретико-методологічний підхід до формування ринку страхових послуг в Україні. Діагностовано основні проблеми, що стримують розвиток національного ринку страхових послуг. Запропоновано економіко-математичний апарат управління розвитком ринку страхових послуг, в основу якого покладено структурні особливості європейських країн, що дозволяє аргументовано підійти до формування національної моделі розвитку системи страхування.***

***Ключові слова:*** *страхова послуга; ринок страхових послуг; валові страхові премії; економіко-математичне моделювання; лінійна регресія.*

***Форм. 5. Рис. 2. Табл. 1. Літ. 10.***

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## РАЗВИТИЕ РЫНКА СТРАХОВЫХ УСЛУГ: ЗАРУБЕЖНЫЙ ОПЫТ И УКРАИНСКИЕ РЕАЛИИ

***В статье предложен теоретико-методологический подход к формированию рынка страховых услуг в Украине. Диагностированы основные проблемы, которые сдерживают развитие национального рынка страховых услуг. Предложен экономико-математический аппарат управления развитием рынка страховых услуг, в основу которого положены структурные особенности европейских стран, что позволяет аргументированно подойти к формированию национальной модели развития системы страхования.***

***Ключевые слова:*** *страховая услуга; рынок страховых услуг; валовые страховые премии; экономико-математическое моделирование; линейная регрессия.*

**Problem setting.** Formation of Ukraine's economic development paradigm has resulted in a greater interest to the economic factors strengthening the market basis for economy's functioning and development. This has caused a need for strengthening the capitalization of existing and the creation of new financial institutions in the country, whose functions are directed at storage, distribution and redistribution of temporarily free financial resources. In this context, the importance of the financial sector in money capital flow is increasing, which can also ensure economic growth in the long run.

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Comparing the gross insurance premium volumes and GDP in Ukraine and in developed European countries one can indicate that the current state of the national market of personal insurance cannot be considered satisfactory. It should be noted, that insurance markets in Eastern European countries and in Ukraine started developing almost simultaneously. Therefore, the fundamental principles and the methods of organization, mechanisms and criteria regulating the activity of the insurance market and reflecting the strategic objectives and priorities of qualitative development of commercial insurance system are of considerable scientific interest.

**Recent research and publications analysis.** The works of such outstanding foreign scientists as A. Manes (1992), V. Raikher (1947), L. Reitman (2005) and others have been devoted to the theoretical aspects of the insurance market. The very nature of insurance has been indicated studied by such famous contemporary Ukrainian scientists as B. Bazylevych (2012), S. Osadets (2012), different classifications of insurance services have been introduced, specifics of insurance organization in different economic formations has been revealed etc. Scientific works dedicated to comparative analysis of economic-mathematical models describing the dependence of gross insurance premiums on gross domestic product (GDP), as well as relative velocities of growth, specific parts of premiums in GDP, shares of GDP and gross insurance premiums attributable to an individual have not been the main focus of the papers studying insurance matters.

**The goal of the article** is to study the current state of the insurance services market by singling out the specific features of the national insurance system functioning, and give mathematically grounded identification of individual insurance market development perspectives in Ukraine, based on the analysis of international experience.

**Key research findings.** Socioeconomic transformations in Ukraine have determined the accelerated development of different financial services. But at the current stage Ukraine is still lagging behind the economically developed countries almost by all indicators related to financial services and the insurance services market. Insurance market can accumulate large amounts of temporarily free capital and has an effective mechanism to operate it, which is of great importance for national economy's competitiveness.

The insurance services market is the most capitalized among other non-bank financial markets having a relative macro- and microeconomic stability with a stable growth tendency. The key macroeconomic indicators of the insurance services market are as follows (Kuzheliev and Shakura, 2014):

- "the insurance penetration" indicator is the ratio of insurance premiums to gross domestic product;
- "the density insurance" indicator is the sum of insurance premiums calculated per capita;
- the ratio of insurance benefits to the amount of insurance premium;
- the amount of insurance premium at regional, national and international insurance services market.

"The insurance penetration" indicator (the indicator of market depth) is an important indicator of the insurance services market functioning. This one is among the most important indicators assessing the impact of insurance on socioeconomic

development of a country, because it is of high importance for insurance market efficiency in terms of its impact on the economy by determining the share of total insurance premiums in GDP. The analysis of this indicator within a certain period of time makes it possible to get the most accurate assessment of the current state of insurance business in the country.

Thus, in 2013 the share of insurance premiums in GDP of Ukraine was 2%, which is a rather low indicator as compared to European countries (Figure 1).

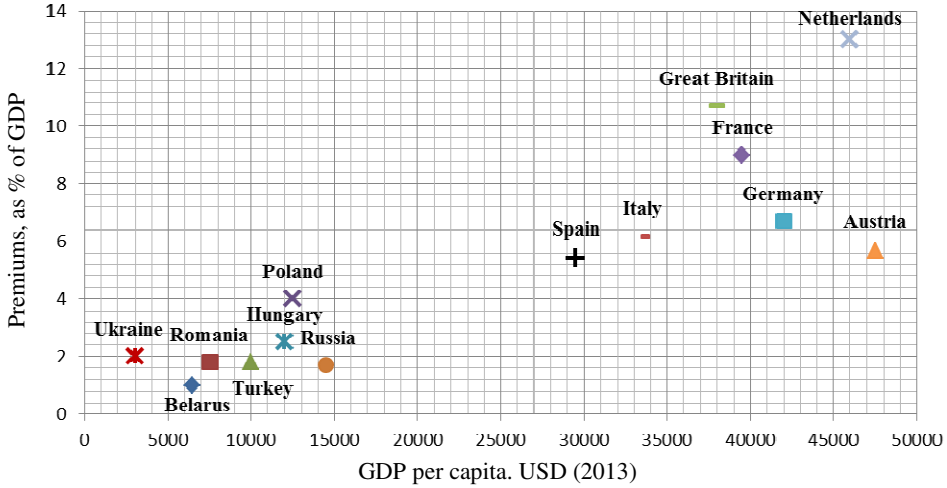


*Figure 1.* **The indicators of insurance penetration in Europe,** *compiled by the authors according to the* Global Index Insurance Facility (2013)

However, low level of insurance penetration should be considered as an important indicator of growth potential, as there is a strong positive dependence between GDP per capita and the level of insurance penetration. According to Fitch, while GDP per capita is increasing, insurance penetration is growing as well, which determines the rate of growth at the insurance market exceeding GDP growth (Fitch Ratings Russia, 2015). This can lead to a powerful growth of the insurance markets in European countries with developing economies and turning these markets into mature ones (Figure 2).

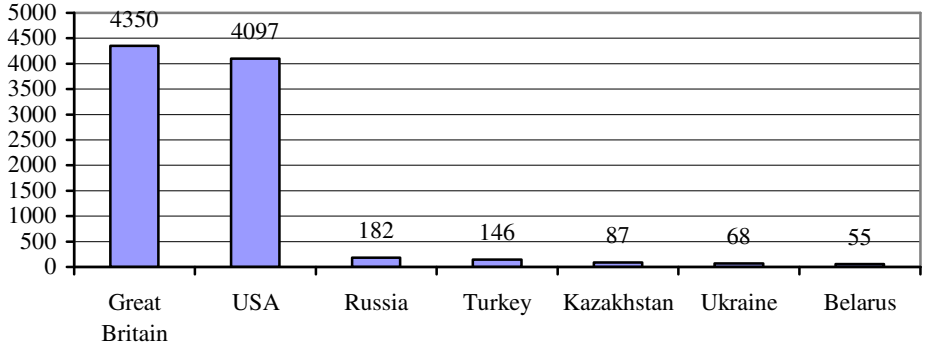


*Figure 2.* **The potential of insurance premiums per capita increase,** *USD, compiled by the authors according to the* Sigma Insurance Research (2013)

The total number of insurance companies functioning in Ukraine as of 01 January, 2014 amounted to 345, including IC"life" – 62 companies, IC "non-life" – 345 companies.

Statistical data on gross insurance premiums and GDP of 16 European countries, have been analyzed (Table 1).

*Table 1.* **The averaged indicators of individual insurance in European countries, 2001–2013**

| Countries | Quantitative Characteristics | | | |
|---|---|---|---|---|
| | Share of GDP per capital, ths EUR | Insurance premiums per capital, ths EUR | Share of gross insurance premiums in GDP, % | Average growth rate of gross insurance premiums, % |
| Great Britain | 28.9 | 3.45 | 12.4 | 1.76 |
| Germany | 30 | 2.17 | 6.93 | 2.36 |
| Austria | 4.8 | 2.04 | 5.85 | 2.18 |
| France | 31.7 | 3.23 | 9.83 | 2.81 |
| Sweden | 38.5 | 2.92 | 7.58 | 3.53 |
| Italy | 28.3 | 2.3 | 8.09 | 2.31 |
| Turkey | 7.67 | 0.1 | 1.28 | 2.29 |
| Poland | 9.29 | 0.36 | 3.83 | 4.86 |
| Czech Republic | 14.6 | 0.57 | 3.9 | 6.08 |
| Slovakia | 12.3 | 0.38 | 3.18 | 5.34 |
| Bulgaria | 4.64 | 0.11 | 2.26 | 4.81 |
| Estonia | 10.5 | 0.32 | 2.97 | 6.73 |
| Hungary | 9.61 | 0.3 | 3.17 | 4.1 |
| Latvia | 7.82 | 0.14 | 1.8 | 3.38 |
| **Ukraine** | **2.73** | **0.05** | **2.13** | **3.23** |
| Romania | 6.42 | 0.11 | 1.63 | 3.63 |

Source: Compiled by the authors according to the Insurance Services Statistics.

In the first group of countries, the share of GDP per capita in 2013 fluctuated from 38.5 ths EUR (Sweden) to 28.3 ths EUR (Italy) and gross insurance premiums per capital – from 3.5 ths EUR (UK) to 2 ths EUR (Austria). Specific weight of gross insurance premiums in GDP significantly varied from 12.5% (UK) to 5.9% (Austria), the relative annual growth of gross insurance premiums with inflation, fluctuated within 1.8% to 3.5%. Significant correlation between specific growth of gross insurance premiums, specific weight of GDP as absolute values (per capita) have not been found.

Different situation can be observed in the analysis of correlation between gross insurance premiums ($y_0$) and the share of GDP ($x_0$) calculated per capita (EUR). The least square method has been applied to identify this ratio for Eastern European countries:

$$y_0 = 27{,}1 + 6{,}76 \times 10^{-3} \times x_0 + 2{,}07 \times 10^{-6} \times x_0^{\,2}, \quad (1)$$

where $y_0$ is the gross insurance premiums (EUR); $x_0$ is the share of the GDP per individual, the coefficient of determination is 0.83 and the influence of unaccounted factor $s$ is 17%.

This economic-mathematical model is valid for Western European countries, but with worse forecast. For Germany this econometric model shows that $y_0$ = 2096 EUR/person, which is actually 2168 EUR/person. According to calculations, in different countries the population views on insurance cannot be exactly the same but there is a clear progressive nonlinear correlative dependence of the specific share of gross insurance premiums and the share of GDP per capita: the value of $y_0$ is growing much faster than that of $x_0$ on average throughout Europe. The value increases by more than 100% (from 406 to 819 EUR) with the growth of $x_0$ 12000 EUR/person to 18000 EUR/person.

It can be stated that insurance services market is insignificant in economic relations of the countries with the GDP less than 5 ths EUR/person. For example, in Turkey the rate of annual growth of gross insurance premiums is 2.3%, while their share in GDP amounts to 1.28%, and only 98 EUR of gross insurance premiums falls on an individual, while GDP is 7.77 ths EUR.

The dependence of gross insurance premiums $y_0$ on GDP $x_0$ in European countries varies significantly. The linear dependence connects these indicators in Sweden and Turkey:

$$y_i = a_0 + a_1 x_i, \quad (2)$$

where $y_i$ is gross insurance premiums; $x_i$ is GDP; $\alpha_0$ is the constant coefficient of linear regression; $\alpha_1$ is the coefficient of linear communication; index $i$ is 1 for Sweden and 2 for Turkey.

In Germany and Austria gross insurance premiums grow more slowly than GDP:

$$y_i = a_0 + a_1 x_i - a_2 x_i^2, \quad (3)$$

where $i = 3$ for Germany; for Austria $i = 4$.

For example, in Germany $\hat{y}_3 = -4{,}18 \times 10^5 + 0{,}419 \times x_3 - 0{,}73 \times 10^{-7} \times x_3^2$, as a result of the financial crisis in France the growth of GDP ceased to influence the volume of gross insurance premiums.

It should be noted that both linear and parabolic economic-mathematical models describe the corresponding insurance markets both before the crisis and after it. The growth of gross insurance premiums remained, despite the crisis, linear or nonlinear (parabolic) function of GDP growth. In France, the share between gross insurance premiums and GDP was disrupted in 2007–2008 to such extent that at the moment it is too early to speak about a correlative connection between them. In Great Britain the share of gross insurance premiums in GDP (12.5%) is higher than in France (9.8%), the correlation coefficient between gross insurance premiums and GDP has decreased to such extent that the issue of the very economic-mathematical model remains unsolved.

It can be assumed that when the share of gross insurance premiums exceeds 8% of GDP, insurance market is becoming too sensitive to relatively minor factors affecting GDP.

In post-Soviet countries, the situation at insurance markets is in fact the opposite. According to the European Commission, the annual growth rates (5.05% on average) of gross insurance premiums are twice as high as in the first group (2.5%),

while their specific weight in GDP (3.02%) is more than twice lower (6.86%). Liquidation of the command economy required significant costs in these countries, therefore people could not allocate to insurance services such means as in Western Europe, despite the urgent need for the development of this market. The annual growth rates of the insurance services market in the former Soviet countries are twice higher than in Western markets, which can be accounted for by the interest to insurance services. In these countries, on average 310 EUR of the gross insurance premiums fall per capita, while in Western European it is 2.76 ths EUR, though the difference in the share of GDP per capita is only 3 times less and makes 9.81 ths EUR against 32.8 ths EUR.

The abovementioned data indicates a significant underdevelopmet of Eastern European insurance markets. Having such a rate of economic growth Eastern Europe will be able to reach the level of Western European countries in about 80–90 years. Such a pessimistic forecast has been made as a result of the analysis of the relevant economic-mathematical models, conducted by the authors.

The economic-mathematical modelling has shown that in Czech Republic, Hungary, and Estonia gross insurance premiums are directly proportional to GDP. This tendency cannot be an example of the success of the insurance market: to overcome the great gap between Eastern and Western Europe a positive nonlinear dynamics in the economic-mathematical model are required:

$$y_i = a_0 + a_1 x + a_2 x_i^2, \quad (4)$$

where $\alpha_0$, $\alpha_1$, $\alpha_2$ are the coefficients of the quadratic dependence; i is the number of a country.

To reach the Western levels is possible only in 50 years with the current values of the coefficient $\alpha_1$. The examples of Poland and Latvia with their progressive economic-mathematical models are more positive:

$$y_i = a_0 + a_1 x_i + a_2 x_i^2. \quad (5)$$

In Poland $\alpha_1$ = -0.183; $\alpha_2 = 4.38 \times 10^{-7}$, so gross insurance premiums in this country will be 3.8 times higher, while in Czech Republic – only 1.8 times.

In Ukraine 2.7 ths EUR of GDP per capita is about three times less than in Eastern Europe. According to the introduced economic-mathematical model 61 EUR of gross insurance premiums would go per capital, while in fact it is only 50 EUR. In 2013, in Ukraine the gross insurance premiums made up to 2.13% of GDP, which is very close to the indicators of Bulgaria (2.26%), where gross insurance premiums (105 EUR/person) are 2.1 times higher than in Ukraine, due to the fact that greater part of GDP falls on an individual (4.64 ths EUR).

The linear dependence of gross insurance premiums on GDP is an important feature of Ukrainian insurance market. Such a character of the econometric model can be satisfactory only for the countries with the rates not less than 10 ths EUR/person.

Taking into account the abovementioned, it can be stated that the most significant challenges faced by the national insurance service market are:

- imperfect legal regulation of the insurance industry;
- underdeveloped life insurance market and other kinds of personal insurance;

- low creditworthiness of potential consumers of insurance services and their distrust towards insurance institute;
- scarce information about insurance companies and the services they provide.

Moreover, Ukraine does not have a legal basis for the implementation of investments, compulsory health insurance and voluntary pension insurance. Underdeveloped are such insurance fields as agricultural, environmental and catastrophic risks. Normative and legislative regulation of insurance agents world, actuaries and emergency commissioners still need improvement, and the level of capitalization of most insurance companies is very low.

So there are contradictions in overcoming the enumerated challenges. Firstly, there is a contradiction between high growth rates of insurance premiums and relatively low capitalization for insurers. Secondly, there is a contradiction between high growth rates of insurance premiums and low profitability of insurance operations, which is a consequence of the incorrect methodology in assessing the financial results of insurance companies. Thirdly, there is a contradiction between high rates of development and the underdeveloped system of insurance products sales. Fourthly, there is a contradiction between high rates of insurance companies and the lack of effective forms of management, which is largely due to the shortage of qualified professionals. Finally, now there is a demand for the creation of a centralized warranty insurance fund that would guarantee the fulfillment of financial obligations. However, so far there is no legal mechanism for the creation and functioning of such a fund.

**Conclusions.** Thus, the comparison of Ukraine with other Eastern European countries has demonstrated that under the conditions of transformation the development models of insurance markets in Poland and Latvia can theoretically help increase the gross insurance premiums in Ukraine up to one-third without the GDP growing. So Ukrainian insurance market even under the conditions of economy's stagnation has certain reserves for effective long-term development.

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