

Assessment of a Stimulating Effect of Wages on Economic Growth of Border Regions of Poland and Ukraine

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Abstract: The purpose of research is to carry out an analysis of trends and an assessment of a stimulating effect of a change in wage on economic growth in border regions of Poland and Ukraine, in particular, in Lublin Voivodeship and Volyn Oblast. An analysis is carried out, of a change in the average monthly wage indicators and gross regional product per person starting from 2004, when Poland became a member of the European Union and the first “orange” revolution took place in Ukraine. For a long period of 2004–2020, positive trends of a change in these indicators are identified. In Poland, only positive trends were observed, while in Ukraine only in the period of the 2009 economic crisis their slight decline was received. According to the results of research of the wage trend in border regions by purchasing power parity, it is identified that a real wage in Poland is more than twice as high as in Ukraine, but this ratio gradually decreases. Based on constructed regression models, it is identified that an average monthly wage indicator increase is a catalyst of the practically proportional gross regional product growth per person both in Lublin Voivodeship and in Volyn Oblast. A conclusion was made that a regional socioeconomic policy must be aimed at providing permanent growth of the average wage level and wage de-shadowing. This will also promote balancing of regional labor markets from own resources and highly-skilled labor force migration process regulation.

Keywords: wage, economic growth, border regions, gross regional product, Volyn Oblast, Lublin Voivodeship.

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A wage level increase is an important task set for themselves by representatives of legislative and executive power at various administration levels in all countries. Economically active population is also interested in a wage increase as it is the major portion of their income. In general, a wage level determines the welfare of the country or specific region. Studying wage trends and searching ways to increase its real level is also an important scientific and practical problem, especially for border regions where able-bodied population has an alternative of labor migration to European countries with a comparatively higher labor payment level.

However, proceeding from current difficult realities of development of Poland and Ukraine as well as their border regions, the need arises to deepen scientific research in studying a stimulating wage function in order to work out proposals for using reserves to increase a real wage level without negative reflection on an inflation rise.

Hypothesis, Purpose and Tasks of Research

The main hypothesis of this research is based on a belief that wage level growth in border regions of Poland and Ukraine must promote the respective increase in their gross regional product level, in particular, per person. It means that the wage growth must have a positive stimulating effect on economic growth of regions that can be expressed by a gross regional product indicator both in general and per person.

The purpose of research is to carry out a trend analysis and assessment of a stimulating effect of a wage change on the economic growth in border regions of Poland and Ukraine, in particular, in Lublin Voivodeship and Volyn Oblast.

The main tasks of research are:

- to study trends and regularities of the wage change in specified border regions;
- carry out an assessment of a stimulating effect of wages on a change in the indicator of the gross regional product per person.

Comparison of Wage Trends in Border Regions

A wage level increase in border regions of Poland and Ukraine is one of the most important tasks, which, today, has come up before the bodies of state power, enterprises and organizations of these regions since the level of the welfare of citizens and their purchasing capacity as well a migration policy will be determined, to a large extent, by its solving. As Lublin Voivodeship and Volyn Oblast are border regions quite sensitive to a change in wages and a welfare level of citizens of neighboring countries – Poland to Germany and other countries of the European Union with a higher wage level, and in Ukraine – predominantly, to a wage level

in Poland and the Czech Republic. In border regions of Ukraine, an unfavorable situation has currently arisen, in particular, in Volyn Oblast, due to a low wage level, a great part of the economically active population decides in favor of seeking employment abroad where an average wage level is several times higher and working conditions are better. There is also the same problem in Lublin Voivodeship of Poland as the population labor migration takes place, to other higher paying neighboring voivodeships, in particular, Masovian Voivodeship, as well as to neighboring Germany. Although, on the one hand, movement of labor migrants from border regions of Ukraine solves, to a certain extent, a problem of labor shortage in Poland, in particular, in Lublin Voivodeship, but it does not promote growth in the general average wage level in the region as labor migrants agree to work at the existing wage level.

Under such complex conditions, the need arises to search for the new and more efficient solutions for the wage level growth, which would enable to stimulate the population to seek employment in the interior labor market rather than fall into the ranks of labor migrants who not infrequently fail to live up to their own hopes for obtaining a decent level of wages and have no proper protection of their rights abroad.

At the initial stage of the analysis, a change in average monthly wage indicators and gross regional product in Volyn Oblast of Ukraine for 2004-2019 is studied (Figure 1).

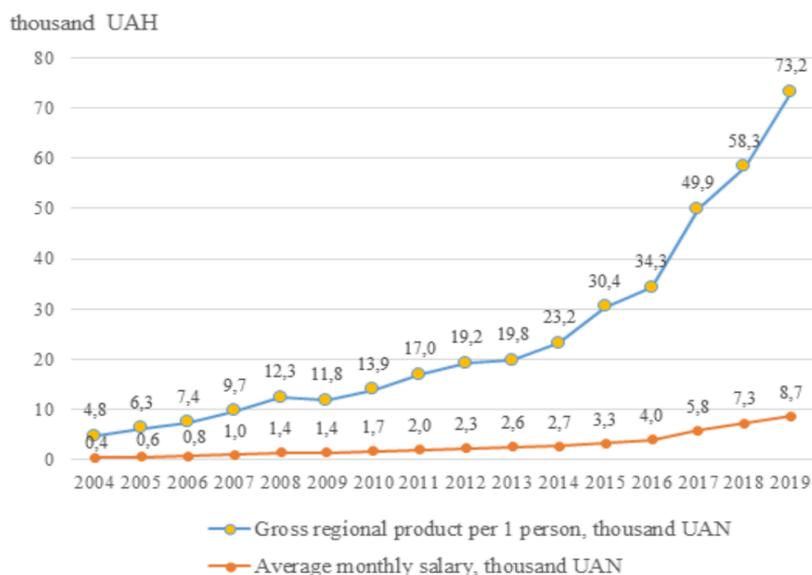


Figure 1. Change in Average Monthly Wage Indicators and Gross Regional Product in Volyn Oblast of Ukraine for 2004-2019 (Constructed by Authors According to Data of the Main Statistics Department in Volyn Oblast).

We see from Figure 1 that from 2004, when the first so called “orange revolution” took place in Ukraine, during almost the whole period, positive trends towards growing in both the level of the gross regional product per person and the level of average monthly wages prevailed. Only in the period of the world crisis in 2009, a decline in these indicators was observed. It is also seen that higher rates of growth of the gross regional product per person as well as average monthly wages in Volyn Oblast are observed over the last 5 years. This is associated, to the full extent, both with a recovery of the economy of the region and with an effect of inflation processes.

At the next stage, changes in similar indicators in Lublin Voivodeship are studied (Figure 2).

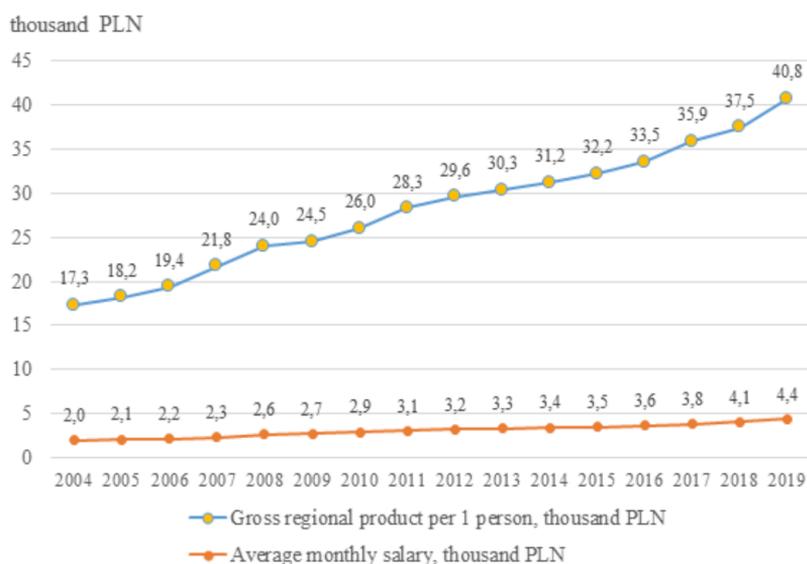


Figure 2. Change in Average Monthly Wage Indicators and Gross Regional Product in Lublin Voivodeship of Poland for 2004-2019 (Constructed by Authors According to Data of the Central Statistical Office and Statistical Office in Lublin).

As seen in Figure 2, in Lublin Voivodeship, from 2004, when Poland became a member of the European Union, a clear rising trend is observed, of changing in indicators of both average monthly wages and gross regional product per person. Even in the period of the 2009 world crisis, these indicators did not decline. In general, for the period under analysis, the average monthly wage increased 2.2-fold and the gross regional product per person – 2.4-fold. Taking into account that an inflation rate in Poland is much lower than in Ukraine, this is indicative of considerable improvement of both standard of living of the population and economic development of Lublin Voivodeship, in general.

On a nationwide scale, border regions of Poland and Ukraine taken as an object of research are not among the most economically developed regions. Accordingly, an average monthly wage level in these regions is also lower than in these countries, in general (Figure 3).

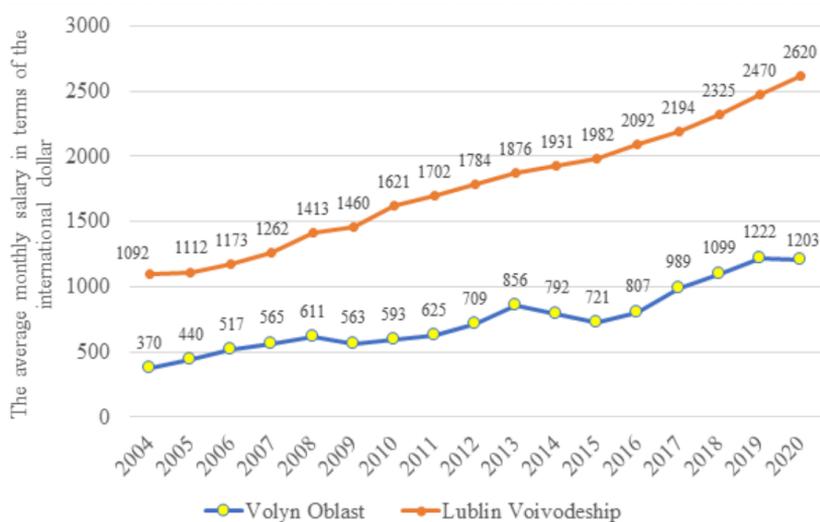


Figure 3. Comparison of Average Monthly Wage Change in Volyn Oblast and Lublin Voivodeship versus Average Wage by Country for 2004-2020 (Constructed by Authors According to Data of the Central Statistical Office and Statistical Office in Lublin and Main Statistics Department in Volyn Oblast).

In Lublin Voivodeship, the average monthly wage changed within 86.7-90.3% versus the average monthly wage in the Republic of Poland, in general. This is indicative of steady trends of this region towards referring to regions with a lower labor payment level that is caused by many factors, the main of which is its remoteness from developed countries of Europe.

On the other hand, in Volyn Oblast, in 2004, the situation was much worse as this indicator, as compared to the average level in general in Ukraine, was 69.8%. But thereafter, positive trends towards its growth to the highest level of 82.5% in 2019 were observed, however, thereafter, in 2020, in the period of the pandemic, it declined to 79.9%. The main cause for a relatively low labor payment level in Volyn Oblast is a predominately agrarian and forestry specialization of the region.

To provide correct comparison of average monthly indicator trends in Lublin Voivodeship and Volyn Oblast, these indicators expressed in national currencies (zloty and hryvnia) are recalculated into the common currency – the international dollar using the purchasing power parity coefficient calculated by the World Bank and accounting for inflation processes in various countries (Figure 4).

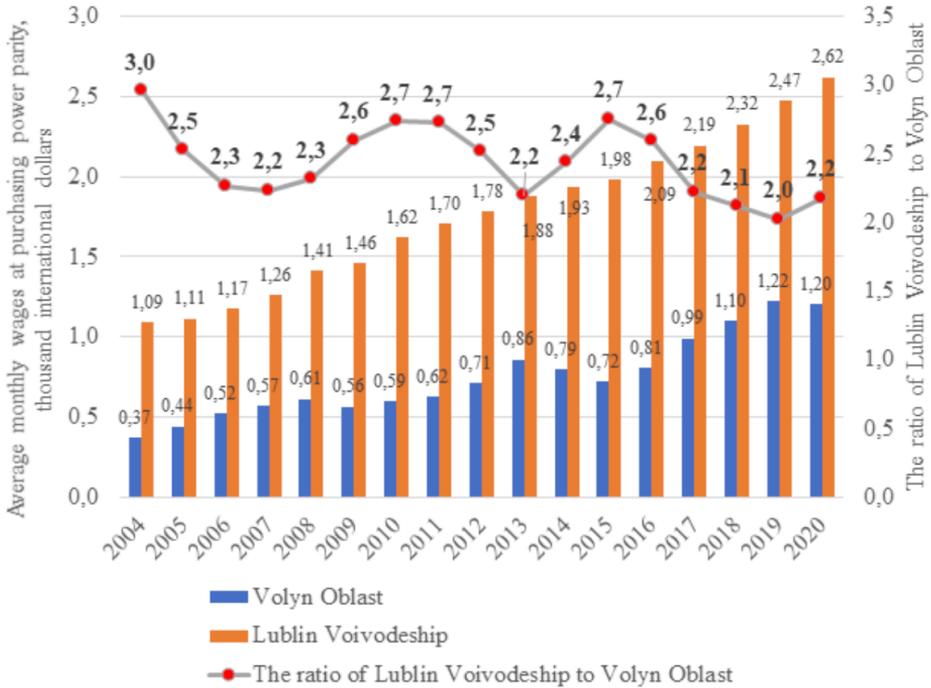


Figure 4. Comparison of Change in Average Monthly Wage Recalculated into International Dollar by Purchasing Power Parity in Volyn Oblast and Lublin Voivodeship for 2004-2020 (Constructed by Authors Based on Processing of World Bank's Data).

As we see in the figure, in recalculation into the international dollar, continuous excess of the average month wage in Lublin Voivodeship as compared to Volyn Oblast is observed. In particular, in 2020, the average monthly wage in Lublin Voivodeship was 2,620 international dollars while in Volyn Oblast – 1,203 international dollars, id est, 2.2-fold less. But, if we analyze the ratio for the whole period under analysis, then it was the largest in 2004 – 3-fold. After 2015, a trend towards annual reduction of this ratio, even to 2-fold in 2019, was observed.

But still, a conclusion may be made that a disparity in labor payment in Ukraine and Poland remains great, which explains a growth in flows of labor migration, predominantly to Poland, although the situation gradually levels as local employers in Volyn Oblast are also interested in retaining the labor force. Taking into account that workers who obtain employment in Poland not infrequently bear additional expenses for job search and document execution for border crossing as well as for registration in other country, for accommodation and healthcare, it can be expected in the coming years that labor migration to Lublin Voivodeship will be unprofitable for Ukrainians from an economic perspective.

Assessment of Stimulating Effect of Wages on Economic Growth of Border Regions

Main indicators of the level of economic development of regions include, in the international practice, a Gross Regional Product (GRP) indicator both in general and per person of the respective region. In this case, the second indicator is more appropriate for interregional comparisons as it accounts for the average contribution of the human factor to economic development of the region.

So, in order to check to what extent the level of the average monthly wage has a stimulating effect on the region's economic growth that can be expressed by a change in the indicator of the gross regional product per person, it is appropriate to use a correlation-regression analysis methodology. Data given in Fig. 1 became the input data for carrying out a correlation-regression analysis of these indicators in Lublin Voivodeship.

Based on the research findings, a conclusion may be made that among all options of the construction of models (linear, degree, exponential, logarithmic, polynomial), the best one, proceeding from the determination coefficient value ($R^2=0.9974$), is the model described in the form of linear dependence with a high probability level (95%) that, graphically reflects, in Figure 5, strong interrelation between the above indicators.

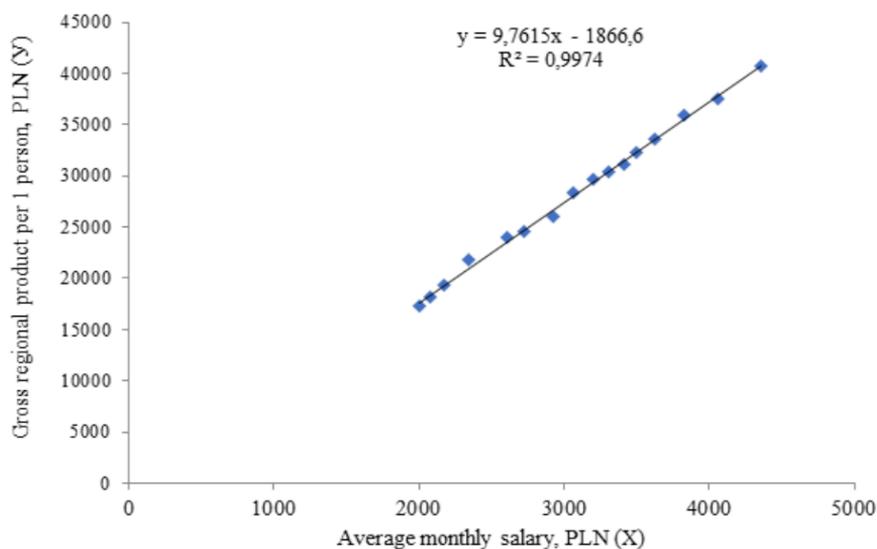


Figure 5. Regression Line of Assessment of Correlation between Wage Level and Gross Regional Product per Person in Lublin Voivodeship of Poland for 2004-2019 Period (Constructed by Author According to Data of Central Statistical Office and Statistical Office in Lublin).

Based on the results of the analysis of the specified model, a conclusion may be made that further growth of the average monthly wage in Lublin Voivodeship can become a catalyst for growing the gross regional product per person.

In particular, increasing in the average monthly wage level in the region to 6,000 zlotys (or by 37.7% to the 2019 level) will enable to increase the gross national product per person to 56,702 zlotys (or by 39.1% to the 2019 level). It means that each growth in the average monthly wage by 100 zlotys will provide growing in the gross regional product per person by 976 zlotys.

Similarly, data from Figure 2 are taken for carrying out a correlation-regression analysis of interrelation between indicators of the average monthly wage and gross regional product per person in Volyn Oblast. In the process of the correlation-regression analysis, it is identified that among all mentioned options of the construction of models, the best one, proceeding from the largest value of the determination coefficient ($R^2=0.99607$), is the model described in the form of a second degree polynomial with a high probability level (95%). Graphically, this interrelation between the above indicators is shown in Figure 6.

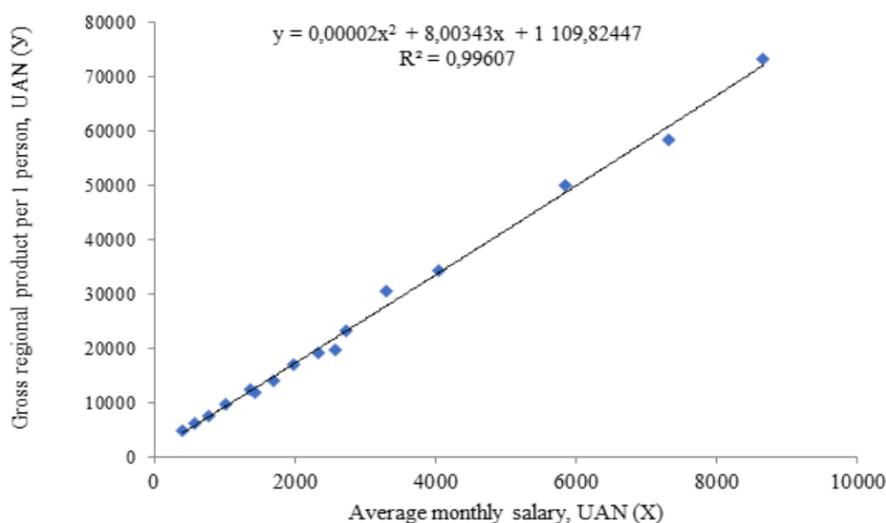


Figure 6. Regression Line of Assessment of Correlation between Wage Level and Gross Regional Product per Person in Volyn Oblast of Ukraine Based on Data for 2004-2019 Period (Constructed by Author According to Data of Main Statistics Department in Volyn Oblast).

Based on the results of the analysis of this regression model, a conclusion may be made that further growth of the average monthly wage level is also a substantial incentive to growing in the gross regional product per person in Volyn Oblast. In particular, a growth in the level of the average monthly wage in the

region to 12,000 hrn. (or by 29.6% to the 2020 level) will enable to provide growing in the gross regional product per person to 126,661 hryvnias (or by 36.7% to the 2019 level). It means that each growth in the average monthly wage by 100 hryvnias will result in the growth of the gross regional product per person by 849 hryvnias.

Based on the results of the carried out correlation-regression analysis, a conclusion may be made that an average monthly wage change has a major positive stimulating effect on economic growth in Lublin Voivodeship and in Volyn Oblast that can be reflected by an increase in the indicator of the gross regional product per person.

Discussion

Scientific research associated with studying a stimulating function of the wage at the national, regional and local levels in Poland and Ukraine was carried out by many scientists who placed emphasis on studying major factors of an effect on wage formation. Many scientists, mostly representatives of the Keynesian school of economics (Keynes, 1936; Robinson, 1962; Perroux, 1975), believe that wages have a direct positive effect on economic growth of the country, region or local territory.

The International Labor Organization in its latest *Global Wage Report 2020-2021: Wages and Minimum Wages in Time of COVID-19* emphasized that an efficient wage policy must be a constituent part of any development strategy. The main elements of tasks for development are the growth of the economy and labor productivity, but a wage policy can help transform these improvements into achievement of a larger-scale complex of interrelated Sustainable Development Goals (Global Wage Report 2020-21).

It is quite possible to support an opinion that regional and local policies must be aimed to provide a decent standard of living for the population of the respective territory that depends, to a great extent, on the level of the average monthly wage. The provisions of regional and local policies must include the measures aimed at increasing the level of wages of the population in the respective territory (A. Miszczuk, M. Miszczuk, 2021).

A special significance of implementation of the policy of increasing the wage level, for the development of the sector of the social economy in the Lublin Voivodeship, was emphasized by Polish scientists (Bronisz, Jakubowski, M. Miszczuk, A. Miszczuk, 2019).

A problem of providing a decent wage level is closely associated with a problem of labor migration of the population as well as directly effects the development of border regions of Poland and Ukraine. A steep differentiation in

wage levels is observed, for example, in Volyn Oblast and in regions of neighboring Poland that is a major labor migration catalyst. That is why this and a number of other related problems require further research and development of measures for providing a parity in wage levels in border regions.

There is also an opinion that the main factor of the migration of Ukrainians is the inequality in various spheres between the countries and they mostly leave not only for obtaining higher wages but because of the lack of a vision for a better future of their country (Libanova, 2021).

We support an opinion (Khaustova, Marynchenko, 2015) that issues of improving the state regulation of labor payment in Ukraine require immediate solving, first of all, by reviewing a state regulation mechanism in terms of strengthening controlling functions of the state over the labor payment process and complying with the requirements of the current legislation in this sphere. A special emphasis in analyzing wages should be laid on assessing its stimulating function, which may be considered as supporting for the wage level, subject to labor quantity and quality but also as a factor for improving the performance efficiency. In its turn, implementation of this function involves a labor productivity increase against a wage level increase.

The comprehensive development of border regions must involve leveling wage rates and obtaining additional synergy effects from joint cooperation (Miszczuk, 2015).

The research (Shubalyi, Shubala, Potemkina, 2018) also shows that a widespread phenomenon at many enterprises in Ukraine, and, in particular, in the Volyn Oblast, is the availability of unofficial employment and payment of the unofficial wage that leads to receiving less money by the budget and social security funds. Concurrently, employers themselves face danger of imposing financial and criminal responsibility, depriving thereby employees of social guarantees such as official leaves, wage compensation during illness, higher pension payments etc. both now and in the future. An addition, the existence of such processes has a negative impact on the regulation through monetary-credit and tax policies as well as leads to decreasing the efficiency of the state socioeconomic policy.

It should also be noted that statistical information provided by official statistics units in border regions of Poland and Ukraine plays an important role in supporting development of the information society and knowledge-based economy. This also considerably effects the improvement of the efficiency of the performance of bodies of state power and local-self-government by establishing the respective information-analytical base for socioeconomic phenomena and processes, their support in the process of decision making through information on phenomena and processes (Miszczuk, 2017, p. 253).

An important task that must be set for themselves by the authorities of the national and regional levels in Ukraine is to remove a phenomenon such as the unofficial wage payment that can increase an indicator of tax receipts to local budgets from personal income at least by 20%. Many employers in border regions, in particular, in Volyn Oblast, come to the understanding that only by increasing the wage level and improving working conditions it is possible to reduce a flow of labor migration to neighboring countries and attract employees with required skills. But trends towards increasing the wage are predominantly characteristic of industrial and construction enterprises while in agriculture, trade and public services as well as in the public administration sector no acute improvement of the situation is observed.

Conclusions

Thus, the wage has a considerable positive stimulating effect on the level of economic development of border regions of Poland and Ukraine, in particular, an indicator of the gross regional product at current prices per person. This was confirmed by the results of the carried out correlation-regression analysis.

It is possible to emphasize several proposals to increase a level of the real wage and ensure the performance of the stimulating function by it in border regions of Poland and Ukraine:

- a gradual increase in the level of the minimum wage but proceeding from real capacities of the economy only, so as not to provoke increasing an inflation rate;
- activation of social dialogue at levels of territorial, branch and local trilateral socioeconomic councils to study, in the process of negotiations, the capabilities and consider the interests of all parties: employers, hired workers and bodies of state power of respective levels;
- provision of economic growth in the country, in general, and, especially, in border regions that requires additional measures for economic stimulation of establishing and developing joint productions in the border territory to stop a labor migration flow to neighboring countries;
- simplification of the process of attraction of foreign investments and establishment of joint ventures in border regions, subject to investor's guaranteeing a decent wage level and involvement of local employees;
- activation of newly-established territorial communities in Ukraine based on the experience of the Polish gminas in stimulating business development and increasing an employment level, especially, in the rural area as well as strengthening control over activities of operating business entities to prevent unofficial wage payments.

Research findings confirmed the hypothesis that a wage increase is a powerful incentive to economic growth of border regions of Poland (Lublin Voivodeship) and Ukraine (Volyn Oblast). A wage increase will also promote growing the internal demand, increasing production rates, forming new jobs, and improving, in general, living standards of the population. So, a regional socioeconomic policy in these border regions must be aimed at both providing a continuous increase in the average wage in all types of economic activity and at wage de-shadowing. This will add new momentum to balancing regional labor markets from own resources and promote highly-skilled labor force labor migration process regulation.

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