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CHALLENGES FOR THE UKRAINIAN LABOR MARKET IN WARTIME CONDITIONS AND THEIR IMPACT ON NATIONAL ECONOMIC SECURITY

DOI: 10.21008/j.0239-9415.2022.086.05

Russia's military aggression against Ukraine has become a serious challenge for the Ukrainian labor market, leading to significant disproportions, which are reflected in the imbalance of supply and demand for labor, large-scale loss of jobs, the fall in real wages and incomes, as well as significant structural and regional imbalances in the functioning of the labor market, which deepens the uneven development of the Ukrainian economy and poses a threat to the economic security of Ukraine. These processes, taking into account a number of problems in the socio-economic development of Ukraine in the pre-war period, threaten the economic and social security of Ukraine in the short and long term, causing significant economic losses and degradation of human capital. The prospects of the post-war development of the Ukrainian labor market should primarily be considered in the context of the formation of a safe economic and social environment at the state level, the imperative of which should be the preservation of human capital in Ukraine. For this purpose, a state strategy for the post-war recovery of the national economy with a clearly expressed socio-humanitarian orientation should be developed, which will provide for the observance of social guarantees at the level of leading international standards. At the same time, it is equally important to stimulate economic growth in Ukraine on the basis of intellectualization, digitalization, and environmentalization of the Ukrainian economy.

Keywords: labor market, human capital, demographic challenges, economic and social security

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1. INTRODUCTION

During the last three years (since 2019), the Ukrainian labor market has been in a state of permanent turbulence, which in 2019 was due to the spread of the COVID-19 pandemic in the world, and from February 2024 – a new unpredictable challenge – the military aggression of Russia. It is obvious that such serious challenges had a negative impact on the functioning of the Ukrainian labor market, leading primarily to a large-scale loss of jobs, which, according to the World Labor Organization (2022), reached 4.8 million jobs as of May 2022, which is equal to 30 percent of pre-war employment in Ukraine. These processes objectively increase threats to economic security, which lead not only to the growth of unemployment, but also to the loss of income of the population, the spread of poverty and a significant burden on the social protection system of the population in conditions of a budget deficit.

It should also be noted that even in the pre-war period, particularly during the last 10 years, the level of development of the Ukrainian economy did not ensure the national economic interests and national economic security of the state. As it is emphasized in the Strategy of Economic Security of Ukraine (2021), the economic security during 2010-2019 was assessed as unsatisfactory, with particularly threatening indicators for almost all components (production, demographic, energy, foreign economy, investment and innovation, macroeconomic, food, social and financial security), which obviously had a negative impact on the functioning of the entire national economy and the Ukrainian labor market in particular. These circumstances further complicate the situation on the labor market in the current wartime conditions in Ukraine.

From these positions, it is relevant to study modern challenges on the Ukrainian labor market in order to find the ways to counteract its destructive processes, which cause a negative impact on the national economy and pose a threat to the economic security of the country not only in the short term, but also in the long term perspective, causing significant economic losses and the degradation of human capital.

2. THEORETICAL BACKGROUND

Studies of the Ukrainian labor market have been the subject of research by many Ukrainian scientists. In particular, the works of E. Libanova (2003, 2008, 2012) are devoted to the problems of the formation of the Ukrainian labor market, state social policy in the field of employment and human capital; the works of Grishnova (2006, 2014) and D. Bogyna (2000, 2002) – to studies of labor market and regulation of social and labor relations; A. Kolot (2009, 2012), I. Kravchenko (2012) – to social and labor relations, personnel motivation and social responsibility of business. Regional peculiarities of the labor market and social policy are initiated in the works of U. Sadova (2000, 2005) and L. Semiv (2000).

Considerable attention of researchers (Yu. Marshavin (2011), I. Marchenko (2013)) was paid to the issues of labor market regulation at the state and regional levels under conditions of aggravated global and national crises and the intensification of migration processes. In this context, it is worth highlighting the research of L. Shevchenko, O. Hrytsenko, S. Makuha (2009), L. Strembitska (2017) and others, who emphasized the relationship between the crisis situation on the national labor market and threats to national economic security, in particular, to a full and effective use of human capital, implementation of the model of innovative development of the national economy, guarantees of social security and justice in society.

Issues of personal security, safety and social protection in the labor market and therefore macroeconomic and social security, human well-being and institutional regulation of socio-economic processes at the state level are very important. The results of research by N. Inank and A. L. Kalleberg (2022) on the example of European countries show these aspects vary in different countries. According to the scientists' conclusions, they affect the transformation of labor relations in two directions: on the one hand, they cause the liberalization of the labor market and labor relations, and on the other hand, the restructuring of the social sphere and the system of social welfare protection, taking into account the modern trends of the labor market of European countries and the general economic situation (restriction of state budgets caused by a decrease in economic growth and the aging of the workforce).

These problems become even more acute in conditions of Russia's full-scale military aggression against Ukraine, where in the territories of active hostilities, the functioning of the labor market is completely impossible, and the relocation of business and migration processes are the only possible way out from the situation. In addition, under worsening financial conditions (increasing inflationary processes, growing state budget deficit, decreasing economic activity of businesses, decreasing purchasing power of the population, etc.), there is an exacerbation of social problems, in particular, a significant increase in poverty, which, according to UN forecasts, may lead to 9 out of 10 Ukrainians finding themselves below the poverty line. Objectively, this situation will stimulate migration processes and the growth of the number of refugees from Ukraine, which will obviously negatively affect the economic security not only of Ukraine, but also the host countries of Europe, whose expenses for Ukrainian refugees, according to the OECD (2022), have already reached 26 billion euros.

That is why the study of the problem of the impact of the war on the functioning of the Ukrainian labor market is timely and relevant in the context of challenges for the economic security of Ukraine in the short-term and long-term perspectives.

3. GOALS AND METHODOLOGY

The purpose of the article is to study the modern trends on the Ukrainian labor market, caused by significant challenges and upheavals under the influence of Russian military aggression, as well as their impact on national economic security in the short-term and long-term perspectives.

The task of the research is also to find ways to counter destructive processes on the Ukrainian labor market, which cause a negative impact on the national economy and pose a threat to the economic security of the country not only in the short term, but also in the long term, threatening significant economic losses and degradation of human capital.

To achieve these goals the authors used such scientific methods as: analysis and synthesis, induction and deduction - to determine the modern trends in the Ukrainian labor market and their impact on national economic security; statistical and sociological comparisons, graphical interpretation of data – to determine the peculiarities of the Ukrainian labor market in wartime conditions and the ways of its adaptation to the functioning in conditions of uncertainty and turbulence.

The informational base of the study includes materials from scientific and professional publications related to the peculiarities of the Ukrainian labor market, statistical and research materials of the State Statistics Committee of Ukraine, the National Bank of Ukraine, international organizations (World Bank, United Nations, Organization of Economic Cooperation and Development) as well as sociological surveys by analytical companies and centers of Ukrainian citizens, Ukrainian internally displaced persons, migrants and refugees.

4. RESULTS AND DISCUSSION

Russia's military aggression on the territory of Ukraine dealt a large-scale blow to the Ukrainian economy. According to the macroeconomic statistical data of the National Bank of Ukraine (2022), the war caused an unprecedented economic recession (39.3% of the estimated level according to the results of the II quarter of 2022), and therefore a rapid reduction of the population's income and growth of the unemployment rate to a record level – about 35%. Such a high rate of unemployment in Ukraine is a clear threat to the economic security of Ukraine, as it significantly exceeds the indicators of economic security approved at the state level by the Ministry of Economic Development and Trade (2013), in terms of the level of unemployment: 7 times the target benchmark (5% unemployment) and almost 4 times the critical limits (9%).

In war-time conditions, the Ukrainian labor market has experienced unprecedented upheavals, primarily caused by the humanitarian crisis and significant demo-

graphic challenges: loss of life, physical and psychological injuries, forced migration, loss of housing, jobs, complicated educational process, problems with access to medicine and even basic human needs (water, food, etc.), especially in the areas of active hostilities, etc. These demographic changes significantly affect not only the current trends in the Ukrainian labor market, but will obviously have a significant impact on the development of the situation on the labor market in the medium and long term, threatening significant demographic losses in the future and the degradation of human capital, and thus on the economic security of Ukraine.

4.1. Demographic challenges caused by the war and their impact on the Ukrainian labor market and economic security of Ukraine

From these positions, in our opinion, the starting point for the analysis of modern trends in the Ukrainian labor market is the analysis of demographic changes caused by the war and their impact on trends in the labor market at the current stage and in the medium and long-term perspectives.

First of all, it should be noted that the demographic situation in Ukraine since the beginning of independence (since 1991) was characterized by negative trends: the population of Ukraine decreased by 11.7 million people in the period 1991-2022. (Fig. 1).

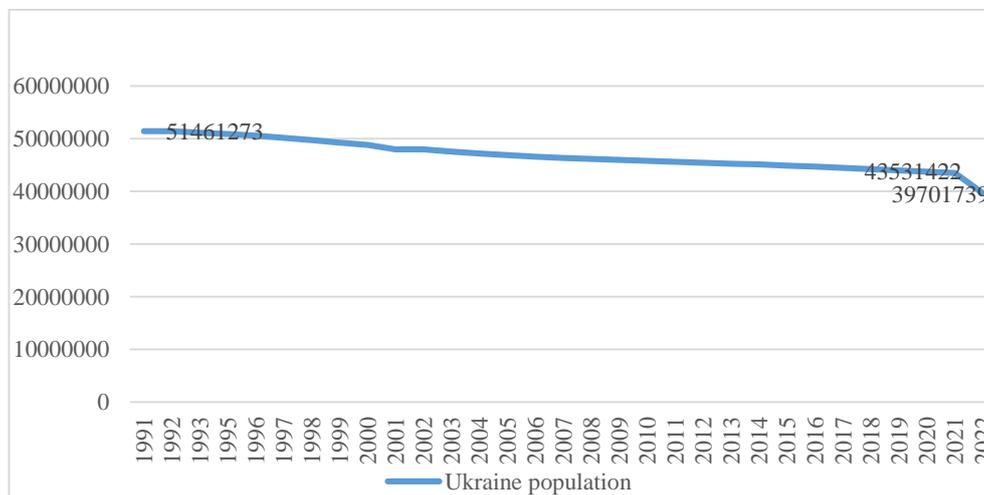


Fig. 1. The dynamics of the population of Ukraine from 1991 to 2022

Source: compiled by the author on the basis: Worldometer. Ukraine population. Retrieved from <https://www.worldometers.info/world-population/ukraine-population/>

The indicated negative trends were caused primarily by stable negative indicators of population growth (Fig. 2), due to the low birth rate in connection with the difficult economic situation in the country and the low income of the population (114th place in the world in 2021 in terms of income per capita 4,120 USD per year (World Bank, 2022), as well as a high level of economic activity of women (48% labor force participation rate in 2020), which is typical for many European countries.

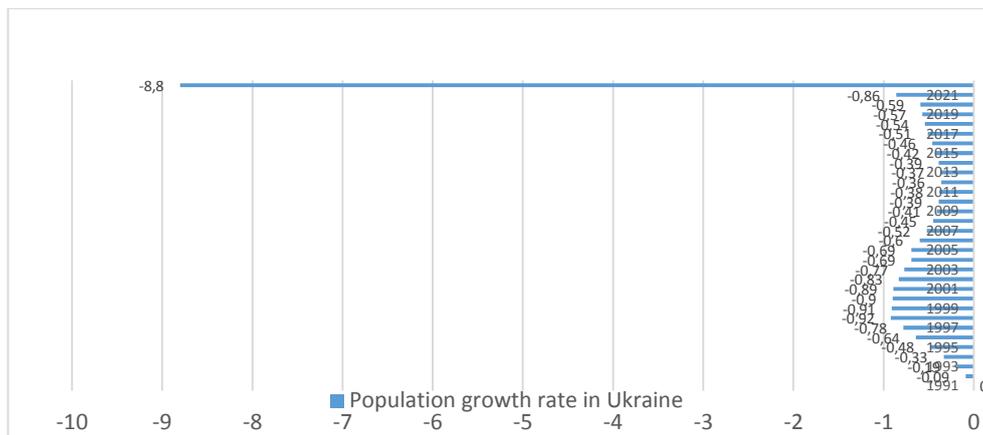


Fig. 2. The dynamics of the population growth rate of Ukraine from 1991 to 2022

Source: compiled by the author on the basis: Worldometer. Ukraine population. Retrieved from <https://www.worldometers.info/world-population/ukraine-population/>

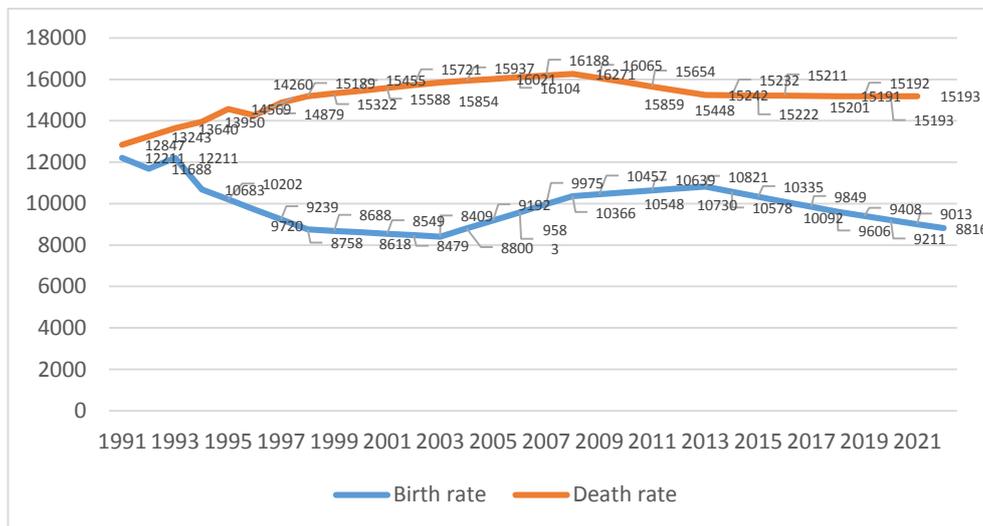


Fig. 3. The dynamics of the birth rate and death rate of Ukraine from 1991 to 2022

Source: compiled by the author on the basis: Worldometer. Ukraine population. Retrieved from <https://www.worldometers.info/world-population/ukraine-population/>

At the same time, it should also be noted that in comparison with other countries of the world, according to the indicator of population growth, Ukraine ranks 208 out of 235 countries, along with Poland (207th place), Germany (205th place), Greece (218th place) and other countries in which the birth rate is lower than the death rate (Fig. 3).

Figure 3 shows that the downward trends in birth rates that had continued since 1991 stopped in 2005, possibly as a result of the government-level fertility policy that was initiated in 2005 and accompanied increased cash benefits for the birth of a child. However, since 2015 (the period of the economic crisis) these rates again followed a downward trend.

Regarding the mortality of the population in Ukraine, as can be seen from Fig. 3, these trends increased until 2009 and changed to a decreasing mortality of the population since 2011.

However, in connection with the beginning of armed Russian aggression, since February 2022, objectively, the trends of increasing mortality among the Ukrainian military and civilian population have resumed. Currently, there are no accurate statistics on the number of Ukrainians killed in the war, but the Office of the UN High Commissioner for Human Rights (OHCHR) (2022) recorded 12,272 civilian casualties in the country: 5,237 killed and 7,035 injured.

The scale of the demographic losses of the Ukrainian population due to hostilities will still be assessed. At the same time, as rightly noted in the macroeconomic and monetary review of the NBU for July 2022, the obvious long-term consequence of the war will be a sharp decrease in the birth rate, which was relatively low even before the war, which will objectively lead to negative demographic consequences.

Demographic indicators and the state of the labor market of Ukraine are significantly affected by the active migration of the population, including abroad. Thus, according to UN data, as of June 21, the number of refugees from Ukraine exceeded 8 million, a large part of them received temporary protection and government assistance in recipient countries.

In order to support countries that accept refugees from Ukraine under the auspices of the UN and other non-governmental organizations the Regional Refugee Response Plan was created and outlines the multi-partner, multisector response strategy and financial requirements of 142 partners supporting the host governments of Hungary, Moldova, Poland, Romania, Slovakia and other countries to provide protection services and urgent humanitarian assistance to refugees from Ukraine.

According to UN data, more than 1.5 million Ukrainians in Hungary, Moldova, Poland, Romania and Slovakia, as well as 2.4 million people in other European countries, benefited from this international humanitarian support (Table 1, 2, 3).

Table 1. Countries featured in the Refugee Response Plan

Country	Date	Refugees from Ukraine registered for Temporary Protection or similar national protection schemes	Refugees from Ukraine recorded in country	Border crossing from Ukraine	Border crossings to Ukraine
Hungary	30.08.2022	29027	29027	1292632	Data not available
Romania	28.08.2022	55911	86178	1127998	783091
Slovakia	30.08.2022	90416	90612	736387	474864
Poland	30.08.2022	1353338	1353338	5796748	3834530
Republic of Moldova	30.08.2022	Not applicable	90525	591957	232313
Total		1528692	1649680	9545722	5324798

Source: *Operational Data Portal UN (2022). Ukraine Refugee Situation. Retrieved from <https://data.unhcr.org/en/situations/ukraine>.*

Table 1 shows that during half a year of Russia's armed aggression, 9.5 million people migrated from the territory of Ukraine to its nearest neighbors (Poland, Romania, Hungary, Moldova, and Slovakia), of which 5.3 million returned to the territory of Ukraine. The largest number of Ukrainian migrants arrived in Poland (5.8 million people), more than half of whom returned to their homeland.

It should be noted that the support of Ukrainian migrants in Poland is an unprecedented act of humanitarian support for citizens of a neighboring country and an act of solidarity and devotion to the values of freedom and democracy. As reported during the Economic Forum in the city of Karpach (Lower Silesian Voivodeship) by the Deputy Minister of Internal Affairs of Poland and the Government Commissioner for Refugees from Ukraine Paweł Szefernaker, 1,333,600 Ukrainian migrants have already received PESEL numbers. In fact, this means that more or less the same number of refugees remained in Poland. As the minister noted, more than 400,000 refugees from Ukraine have already found legal work in Poland, so there are doubts as to whether they will return to Ukraine at the end of the war.

A significant number of migrants is also recorded in other neighboring countries, in particular those bordering Ukraine (Belarus and Russia) to the north and east (Table 2).

Table 2. Other countries neighboring Ukraine

Country	Date	Refugees from Ukraine registered for Temporary Protection or similar national protection schemes	Refugees from Ukraine recorded in country	Border crossing from Ukraine	Border crossings to Ukraine
Russian Federation	30.08.2022	Not applicable	2414075	2414075	Data not available
Belarus	30.08.2022	Not applicable	12505	16701	Data not available
Total		Not applicable	2426580	2430776	Data not available

Source: *Operational Data Portal UN (2022). Ukraine Refugee Situation. Retrieved from <https://data.unhcr.org/en/situations/ukraine>.*

As can be seen from Table 2, the number of migrants from Ukraine registered as refugees in Russia and Belarus reached 2.4 million people. However, there is currently no information regarding their receipt of assistance in accordance with the international support for refugees under the auspices of the UN, as well as regarding the return of migrants to their homeland.

It should also be noted that almost 2.5 million migrants from Ukraine are registered as refugees and receive assistance according to international norms under the auspices of the UN in other 37 European countries, and almost 3 million refugees from Ukraine are registered in European countries (Table 3).

It is obvious that in the situation of such a large number of migrants from Ukraine, there are great risks regarding the non-return of migrants to their homeland and the loss of a significant share of the human capital of Ukraine, which is a great threat to the economic security of Ukraine in the long term. These risks are primarily due to the fact that there is a labor shortage in many European countries, and among Ukrainian refugees (according to the sociological survey of the Razumkov Center (2022), which was conducted from July 20 to August 25, 2022), the most represented social groups are the following: highly qualified specialists (30 %), managers of enterprises and their divisions (14%), entrepreneurs (14%), skilled workers (12%), housewives (11%). Moreover, according to the level of education, the majority of migrants (82%) have completed higher education (Fig. 4).

Table 3. Other European countries

№	Country	Date	Refugees from Ukraine registered for Temporary Protection or similar national protection schemes	Refugees from Ukraine recorded in country
1	Albania	23.08.2022	Not applicable	2780
2	Armenia	23.08.2022	Not applicable	489
3	Austria	30.08.2022	79728	79728
4	Azerbaijan	09.08.2022	Not applicable	4639
5	Belgium	30.08.2022	53741	54414
6	Bosnia and Herzegovina	14.08.2022	Not applicable	218
7	Bulgaria	30.08.2022	131846	77114
8	Croatia	30.08.2022	17486	17487
9	Cyprus	21.08.2022	15343	13035
10	Czech Republic	30.08.2022	423202	423374
11	Denmark	21.08.2022	31396	33396
12	Estonia	23.08.2022	32627	51501
13	Finland	21.08.2022	36652	36652
14	France	09.08.2022	96520	96520
15	Georgia	30.08.2022	Not applicable	26379
16	Germany	30.08.2022	670000	971000
17	Greece	23.08.2022	18745	18745
18	Iceland	23.08.2022	1500	1500
19	Ireland	29.08.2022	50423	46481
20	Italy	30.08.2022	153968	159968
21	Latvia	22.08.2022	38406	36912
22	Liechtenstein	17.08.2022	278	278
23	Lithuania	23.08.2022	63279	63279
24	Luxembourg	30.08.2022	6263	6263
25	Malta	30.08.2022	1366	1459
26	Montenegro	30.08.2022	5975	24482
27	Netherlands	05.07.2022	68050	68050
28	North Macedonia	17.08.2022	Not applicable	3296
29	Norway	19.08.2022	23912	23912
30	Portugal	10.08.2022	49623	49718
31	Serbia and Kosovo	30.08.2022	939	17458
32	Slovenia	30.08.2022	7279	7279
33	Spain	29.08.2022	139022	139116
34	Sweden	23.08.2022	42713	44546
35	Switzerland	22.08.2022	59963	64053
36	Turkey	19.05.2022	Not applicable	145000
37	United Kingdom	30.08.2022	120600	120600
	Total		2440845	2931121

Source: Operational Data Portal UN (2022). Ukraine Refugee Situation. Retrieved from <https://data.unhcr.org/en/situations/ukraine>.

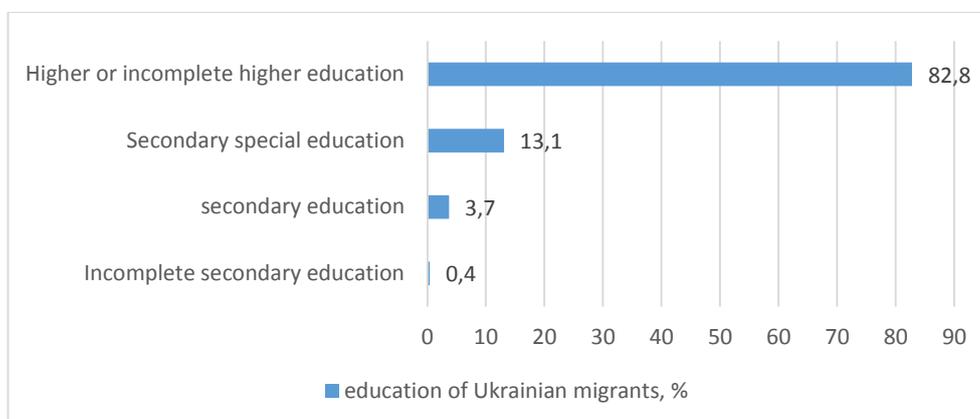


Fig. 4. Education level of Ukrainian migrants, %

Source: compiled by the authors on the basis: Razumkov Center (2022). *Attitudes and assessments of Ukrainian refugees (July–August 2022p.)*. Retrieved from <https://razumkov.org.ua/napriamky/sotsiologichni-doslidzhennia/nastroi-ta-otsinky-ukrain-skykh-bizhentsiv-lypen-serpen-2022p>

The high level of education of Ukrainian migrants is an extremely threatening indicator of the risk of loss of human capital in Ukraine, and also indicates high chances of employment of refugees abroad. As evidenced by the results of the sociological survey, when talking about the main source of livelihood, 28% of respondents name financial assistance from various sources (refugees in Germany give this answer significantly more often - 48%), 19% – previous financial savings, 12% – permanent work in the host country, 12% – temporary work (or part-time work) in the host country, 0.6% – income from business in the host country, 0.2% – student scholarship in the host country, 9% – remote work in Ukraine, 0.8% – income from business in Ukraine, 2% – pension. That is, in fact, 24% of Ukrainian migrants already have permanent or temporary work in the host country, and it is obvious that the share of employed refugees will increase dynamically with the increase of time spent outside the homeland.

In turn, the increase in the share of employed migrants will affect their attitudes towards returning to their homeland (Fig. 5).

Figure 5 shows that currently the majority of Ukrainian migrants want to return to their homeland in the near future (70%), that is, after the end of hostilities and after it becomes safe to live in Ukraine, while only 6.8% do not plan to return, and those who hesitate and find it difficult to answer – 17%.

Residents of the Western (18%) and Central (15%) regions are more likely to plan to return in the near future, while only 6% of refugees from the Eastern and Southern regions plan to return. The latter more often express their intention to return after making sure that it is safe to stay in the area where they lived (41% among refugees from the Eastern region, 48% from the Southern region).

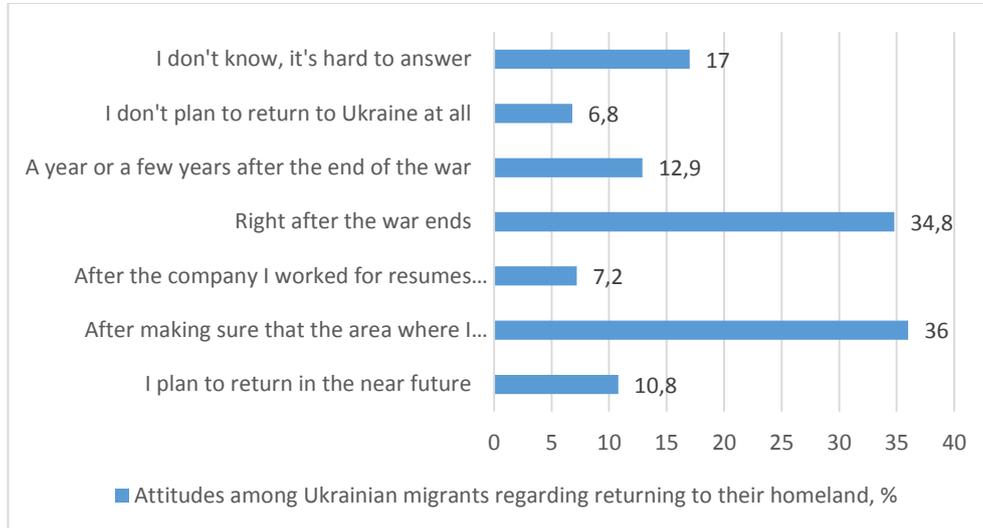


Fig. 5. Share of Ukrainian migrants planning to return to their homeland, %
 Source: compiled by the authors on the basis: Razumkov Center (2022). *Attitudes and assessments of Ukrainian refugees (July–August 2022p.)*. Retrieved from <https://razumkov.org.ua/napriamky/sotsiologichni-doslidzhennia/nastroi-ta-otsinky-ukrain-skykh-bizhentsiv-lypen-serpen-2022p>

According to the results of the sociological survey, the vast majority of Ukrainian migrants want to return to their region of residence before the war (88.3%), while only 6.6% of migrants plan to return to another region of Ukraine (Fig. 6).

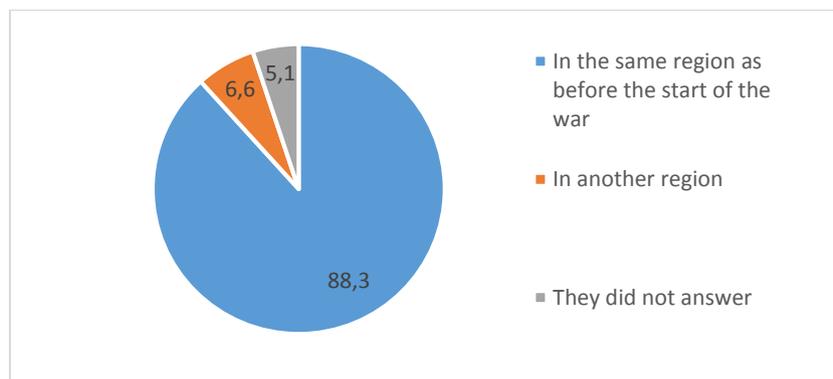


Fig. 6. The share of migrants who answered that they planned to return to Ukraine
 Source: compiled by the author on the basis: Razumkov Center (2022). *Attitudes and assessments of Ukrainian refugees (July–August 2022p.)*. Retrieved from <https://razumkov.org.ua/napriamky/sotsiologichni-doslidzhennia/nastroi-ta-otsinky-ukrain-skykh-bizhentsiv-lypen-serpen-2022p>

It should also be noted that there is a great desire to return to their homes as soon as possible among internally displaced persons. Thus, according to the International Organization for Migration (IOM), as of May 2022, there were 8 million internally displaced persons in Ukraine, while as of September 2022 the number of such persons has decreased and amounts to more than 6.6 million persons. The main regions to which people return are Kyiv and the Kyiv region, as well as Kharkiv region, Odesa region, and Chernihiv region.

It is obvious that the decrease in the number of internally displaced persons and the return of internal migrants to their own homes is primarily related to the liberation of the occupied territories of Ukraine, but currently their share is quite high and makes up 15% of the entire population of Ukraine. Also, the situation is not easy with the employment of internally displaced persons and this encourages people to return home.

At the same time, it should be noted that at the state level of Ukraine, according to the resolution of the Cabinet of Ministers of Ukraine (2022), measures are being implemented to provide financial support to internally displaced persons, as well as financial support to employers who create jobs for such persons. So, in particular, 2,000 hryvnias are paid monthly to internally displaced persons who have registered. (equivalent to 50 US dollars), and for persons with disabilities and children - 3,000 hryvnias (equivalent to 73 US dollars). It is obvious that the amount of this support is insignificant and does not even cover the subsistence level, which according to the Act of Ukraine "The State Budget of Ukraine for 2022" is UAH 2,508.

In our opinion, the state program to support employers who create jobs for immigrants (the Program) is more effective. According to this Program, the employer receives compensation in the amount of UAH 6,500 (USD 158) for each employed internally displaced person, for whom the employer pays a single contribution to the mandatory state social insurance. At the same time, the employee's salary cannot be lower than the minimum wage.

According to the reporting of the State Treasury Service of Ukraine, as of January-June 2022, state budget expenditures for providing employers with compensation for labor costs for each employed person from among internally displaced persons as a result of hostilities during martial law were spent in the amount of UAH 37.3 million or at the level of 18.7% of the revised plan. That is, during the two months of this program's operation, almost a fifth of the funds provided for in the state budget for this year have already been used for the relevant activities.

Therefore, according to the data published on the official website of the Ministry of Economy of Ukraine, as of July 14 of this year, more than 4.4 thousand employers used the compensation program for labor costs for each employed person from the number of internally displaced persons, and almost 7.4 thousand of Ukrainians who were forced to move to safe regions got a job.

Another state program to support the Ukrainian economy, the Ukrainian labor market, and internally displaced persons is the state business relocation program. As part of this program, companies can apply on the website of the Ministry of Economy of Ukraine and register their intention to move their activities to one of the western

regions of Ukraine: Zakarpattia, Ivano-Frankivsk, Lviv, Ternopil, Khmelnytskyi, Chernivtsi, Vinnytsia, Volyn and Rivne regions. The Ministry of Economy provides assistance in the transportation of equipment, and specialists in the regions – contact the enterprise, jointly search for options for the placement of production facilities, resolve issues of rent, connection of networks, resettlement of personnel and family members.

According to the Ministry of Economy of Ukraine, 692 enterprises were moved from the zone of active hostilities to safe regions of Ukraine in August of this year as part of the business relocation program. Of them, 477 companies have already resumed their work. Therefore, in half a year of the war, the labor market of Ukraine is to some extent restored compared to the situation at the beginning of the war. However, the recovery is uneven and with significant disproportions in terms of labor supply and demand in the labor market, as well as in its regional segment.

4.2. Disproportions in the Ukrainian labor market during the war and their impact on the economic security of the country

The strengthening of disparities in the Ukrainian labor market in the conditions of armed aggression is primarily reflected in the significant increase in unemployment among the population of Ukraine (Fig. 7) and the burden on one vacant workplace (Fig. 8).

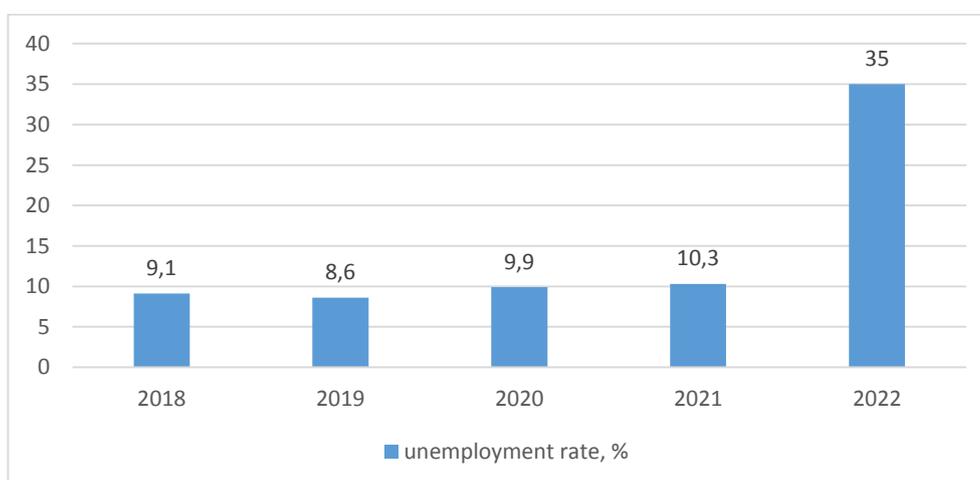


Fig. 7. The dynamics of unemployment rate in Ukraine during 2018 – 05.2022

Source: compiled by the authors on the basis: National Bank of Ukraine (2022). Monthly macroeconomic and monetary review of the NBU. Retrieved from <https://bank.gov.ua/ua/news/all/makroekonomichniy-ta-monetarniy-oglyad-lipen-2022-roku>

Figure 7 shows that as a result of Russian aggression, the unemployment rate in Ukraine has more than tripled and reached a record 35%. However, unemployment rates could be even higher in the absence of large-scale migration flows, which, on the one hand, in the short-term relieved the tension in the domestic labor market, and in the long-term are a threat of a large-scale loss of skilled labor, and therefore the economic security of the country.

Imbalances in the labor market also manifested in an increase in the number of applications for one vacant workplace, i.e., from 6 to 12 applicants for one vacant workplace (Fig. 8).

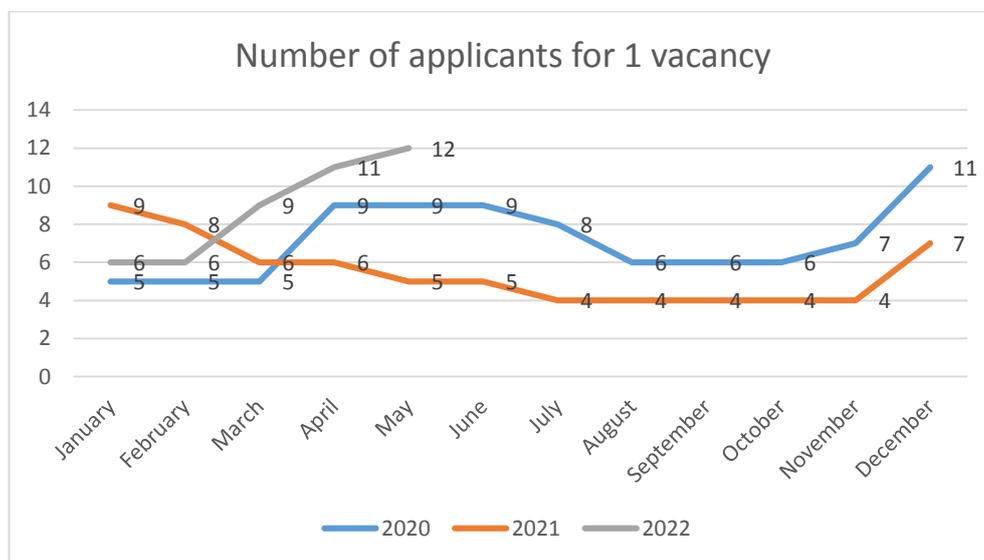


Fig. 8. Number of applicants for 1 vacancy, as of the end of the month, persons
 Source: compiled by the authors on the basis: National Bank of Ukraine (2022). *Monthly macroeconomic and monetary review of the NBU*. Retrieved from <https://bank.gov.ua/ua/news/all/makroekonomichniy-ta-monetarniy-oglyad-lipen-2022-roku>

Figure 8 clearly shows significant imbalances in the Ukrainian market in the last two crisis years, when the load on a vacant position on the labor market increased due to the outbreak of the coronavirus disease, and during the peak period in December 2021, there were 11 applicants for one workplace. In the conditions of war, these processes objectively also take place, although during half a year of military aggression there is also a situational adjustment of the domestic labor market to this difficult situation, as well as a certain intensification of economic activity, and hence the revitalization of the labor market in regions where there are no active combat operations (Fig. 9).

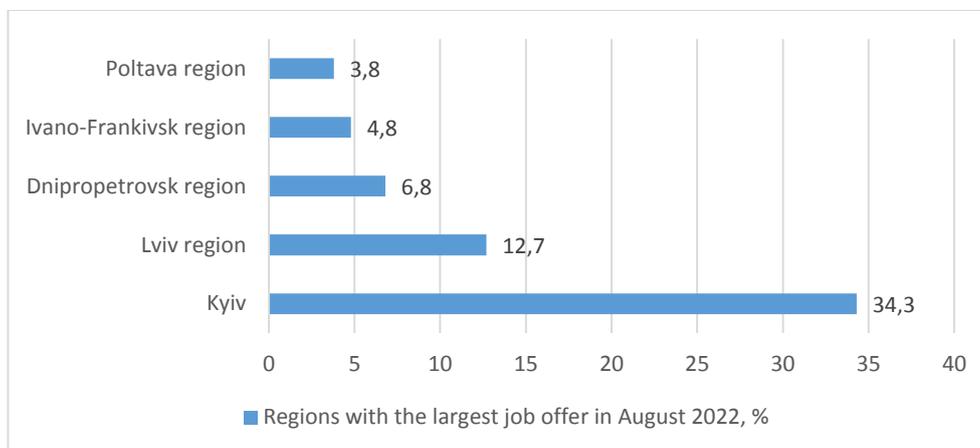


Fig. 9. Regions of Ukraine with the largest job offer in August 2022, %

Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynek-pratsi-ukrayiny-pislya-pivroku-vijny/>

Figure 9 shows that the largest share of job offers is concentrated in the capital of Ukraine – the city of Kyiv (34.3% of all jobs), western regions – Lviv region (12.7%), Ivano-Frankivsk region (4.8%), where there are no active hostilities, as well as in the industrial and relatively calm region of central Ukraine – Dnipropetrovsk region (6.8%), as well as in the central part of Ukraine – Poltava region (3.8%).

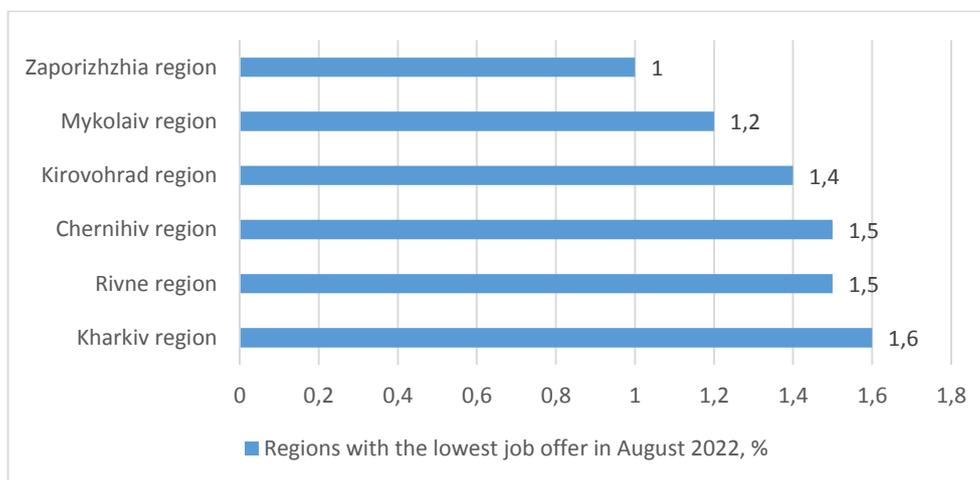


Fig. 10. Regions of Ukraine with the lowest job offer in August 2022, %

Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynek-pratsi-ukrayiny-pislya-pivroku-vijny/>

In the regions of Ukraine which are at the epicenter of hostilities, the share of job positions is very low (Fig. 10).

From Fig. 10 we can see that as a result of hostilities in the industrially developed regions of Kharkiv and Zaporizhzhia regions, the share of job offers decreased to 1.6% and 1%, respectively. A low share of job positions is also observed in the Mykolaiv region (1.2%), which is located in the south of Ukraine and is subject to massive artillery shelling, as well as in the Kirovohrad (1.4%) and Chernihiv (1.5%) regions, which are also often hit by rockets.

These trends characterize not only the existing regional disproportions of the domestic labor market in wartime conditions, but also a significant blow to the industrial potential of the Ukrainian economy, which was largely concentrated in these regions. Accordingly, a significant number of residents from the regions of active hostilities are forced to seek refuge in the relatively calm regions of western Ukraine or to leave the country, and some of them have nowhere to return to, as their homes or the enterprise where they worked have been destroyed.

Under these conditions, countries that accept Ukrainian refugees, whose average age is 36, often try to encourage the most able-bodied Ukrainians to stay and work in emigration. Therefore, Ukraine finds itself in a situation where, on the one hand, it is forced to fight with the aggressor, and on the other, to compete with the EU for the return of its compatriots to their homeland and to create attractive conditions for them to live and work.

It should also be noted that structural disproportions also arise in the personnel aspects of the labor market in wartime conditions. There is already a shortage of a number of specialists, especially in regions of active hostilities, due to the departure of people abroad. For example, the demand for medical workers and pharmacists, who were among the most sought-after specialists even before the start of the war, has become critical. That is why, for example, many pharmacies were closed for a long time because there was no one to work in them, and some pharmacy chains were forced to attract medical university students due to a lack of staff.

In conditions of structural and regional disproportions on the Ukrainian labor market caused by the war, according to analytical data, vacancies are opened mainly to replace employees who have gone abroad, or companies after relocation are looking for employees in a new place. However, there are also companies that open new job positions. A survey conducted among companies from various sectors of the economy showed that after half a year of war on the Ukrainian labor market, the most in demand are sales workers (27.8% of all offers on the labor market), students at the beginning of their careers (14.3 %), IT specialists (9.4%), transport and logistics workers (6.5%), etc. (Fig. 11).

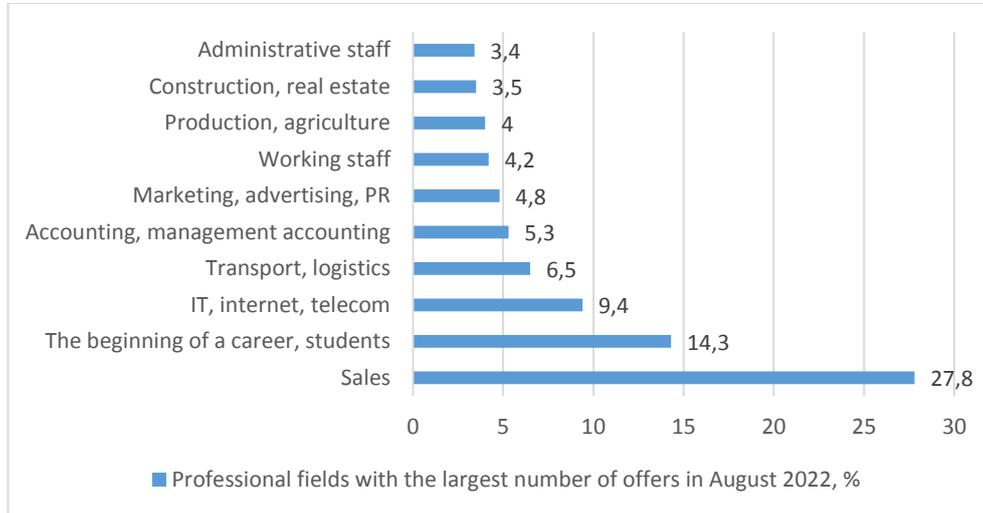


Fig. 11. Professional fields in Ukraine with the largest number of offers in August 2022, %
 Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynek-pratsi-ukrayiny-pislya-pivroku-vijny/>

Some of these professions are not only in high demand on the Ukrainian labor market, but also offer some of the highest salaries (Fig. 12).

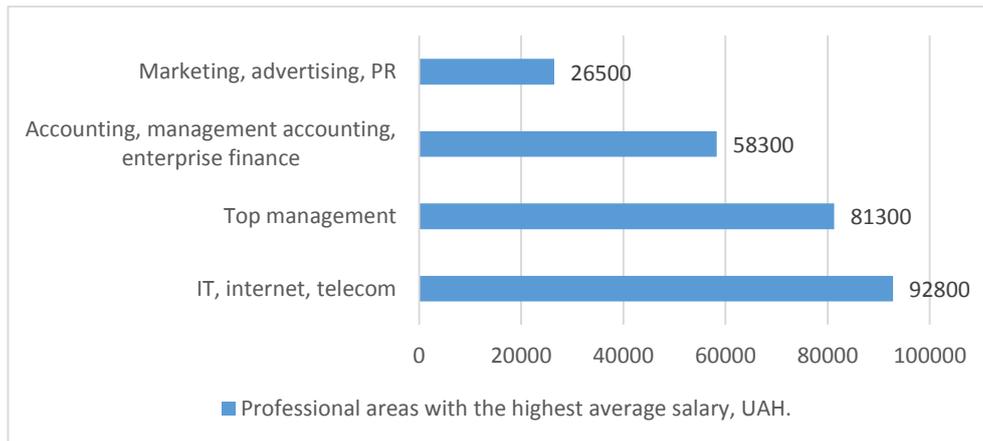


Fig. 12. Professional areas in Ukraine with the highest average salary in August 2022, UAH
 Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynek-pratsi-ukrayiny-pislya-pivroku-vijny/>

As can be seen from Figure 12, the highest paid professions in Ukraine are employees of the IT sector with an average salary of UAH 92,800, high salaries are also received by representatives of top management (UAH 81,300), as well as specialists in accounting, management accounting and corporate finance (UAH 92,800).

Workers in the fields of tourism and hotel business, workers in labor professions, security and students starting their careers are among those who receive the lowest salaries (Fig. 13).

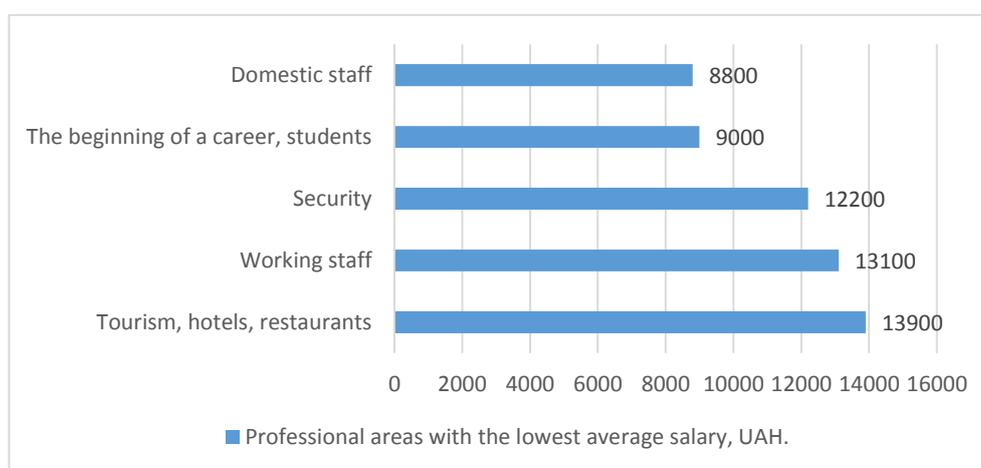


Fig. 13. Professional areas in Ukraine with the lowest average salary in August 2022, UAH
 Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynok-pratsi-ukrayiny-pislya-pivroku-vijny/>

Figure 13 shows the low wages in certain sectors of the Ukrainian economy, which is due to the critical situation in these areas in wartime conditions (for example, the tourism sector cannot function normally in war conditions), as well as the general decline in economic activity, the aggravation of crisis processes in the national economy, in particular, a significant increase in inflation, which, according to the National Bank of Ukraine, reached 23.8% in August 2022. A consequence of these processes is a decrease in the level of real wages, which in August of the current year is 82.5% of the previous year (Fig. 14).

Figure 14 clearly shows that in the pre-war period, dynamic trends in wage growth prevailed in Ukraine, and only in the current year, under the influence of the war, wages changed to a downward trend. According to the Pension Fund of Ukraine (2022), the average salary in Ukraine in August 2022 was UAH 13,957 (only \$340). Moreover, this indicator differs significantly depending on the location and in different regions of Ukraine varies in the range from UAH 28,700 in Kyiv to UAH 10,600 in the Kharkiv region, i.e., 2.7 times (Figs. 15 and 16).

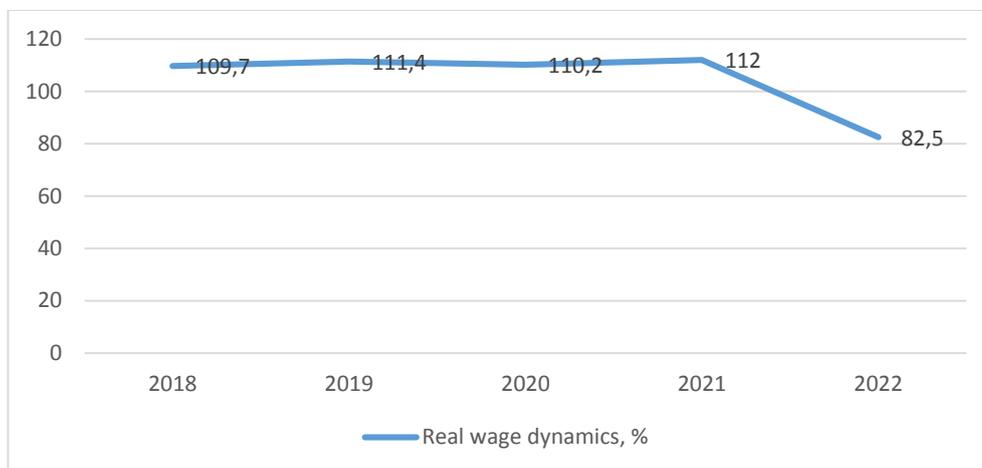


Fig. 14. Real wage dynamics index in Ukraine in 2018 – 08. 2022, %

Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynek-pratsi-ukrayiny-pislya-pivroku-vijny/>

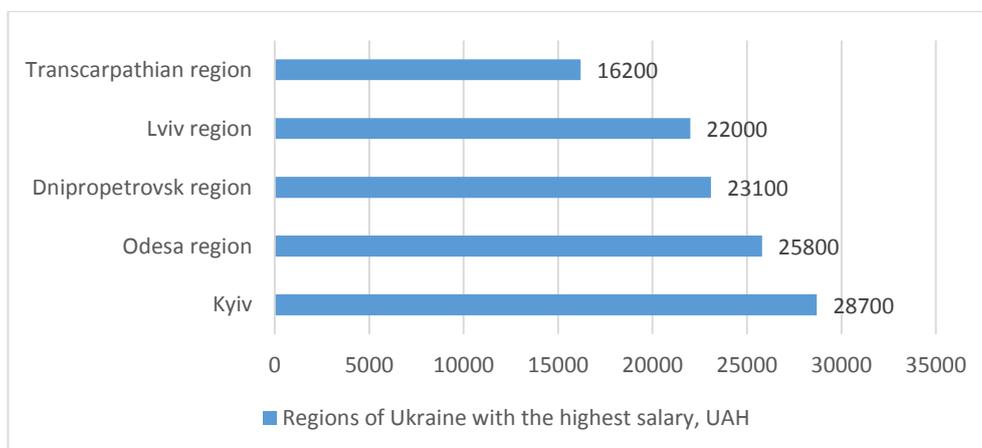


Fig. 15. Regions of Ukraine with the highest salary in August 2022, UAH

Source: compiled by the authors on the basis: European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynek-pratsi-ukrayiny-pislya-pivroku-vijny/>

Figure 15 illustrates the territorial differences in the average salary in the regions with its highest level: the city of Kyiv (UAH 28,700), Odesa region (UAH 25,800), Dnipropetrovsk region (UAH 23,100), Lviv region (UAH 22,000) and Transcarpa-

thian region (UAH 16,200). All these regions are not in the immediate zone of hostilities and the different level of wages is determined primarily by the level of pre-war economic development of the regions of Ukraine, as well as regional and structural disparities in the pre-war economic development of Ukraine.

The above is confirmed by analytical data regarding the regions of Ukraine with the lowest wages, the list of which includes western regions where active hostilities are not taking place, in particular, Ternopil region (UAH 11,100) and Rivne region (UAH 11,700) (Fig. 16).

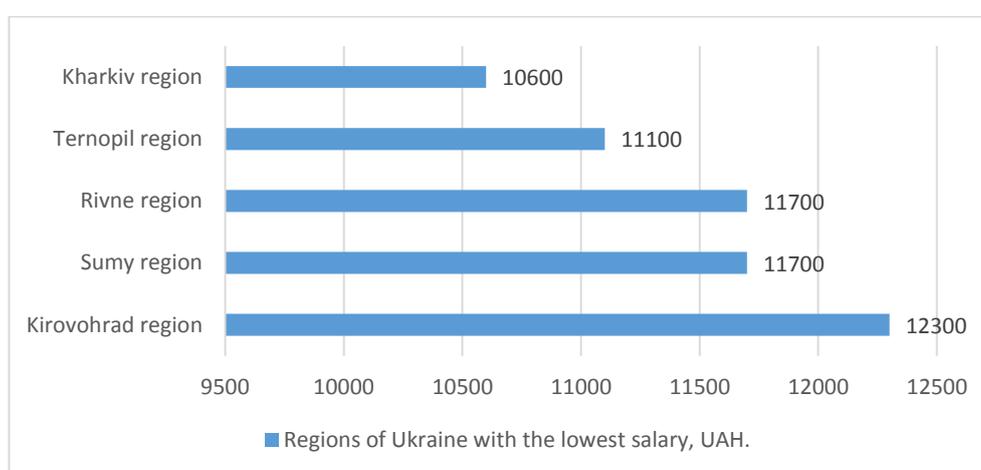


Fig. 16. Regions of Ukraine with the lowest salary in August 2022, UAH

Source: compiled by the authors on the basis: *European Business Association (2022). The labor market of Ukraine after half a year of war. Retrieved from <https://eba.com.ua/rynok-pratsi-ukrayiny-pislya-pivroku-vijny/>*

As we can see from Fig. 16 the lowest salary in the amount of UAH 10,600 is in the Kharkiv region, which is currently in the zone of active hostilities. Low wages also occur in the Sumy region bordering Russia (UAH 11,700), as well as in the Kirovohrad region (UAH 12,300).

That is, as can be seen from the analytical materials, the Russian military aggression against Ukraine led to significant disparities in the functioning of the Ukrainian labor market in conditions of a general economic downturn, a decrease in economic activity, or the complete closure of enterprises in active combat zones, which is reflected in the imbalance of supply and demand on the labor force in the Ukrainian labor market, significant imbalances in its functioning on a regional basis, as well as a drop in the average level of wages and incomes of the population, which becomes particularly acute in the regions where active hostilities are conducted.

At the same time, it should be noted that despite the extremely difficult circumstances of the functioning of the labor market of Ukraine in wartime conditions,

Ukrainian businesses are adapting to the new realities and requirements of functioning on the labor market. This is reflected in the structural changes in the Ukrainian labor market, in particular of a territorial nature (the increase in the number of jobs in the Western regions of Ukraine in connection with the relocation of a part of enterprises and workers from the war zone to the West of Ukraine), as well as in the structure of demand for workers of certain professions related to construction, transportation, logistics, IT. It should also be noted that the Ukrainian IT sector is an example of the ability to adapt to difficult realities on the basis of maturity, stability and flexibility.

4.3. Adaptation of the Ukrainian labor market to military realities on the example of the IT sector

The Ukrainian tech sector demonstrates its maturity, agility and ability to adapt to new realities. As a result the losses sustained in the IT sector are significantly lower than in any other Ukrainian industry. As stated in the results of a large survey conducted by SSA group in 2022 (over half of the survey participants (58%) consisted of Software Engineers & QA Engineers, mainly working at middle and senior levels, other departments of Ukrainian software development companies were represented by Design, Marketing Analytics, SEO, Copywriting, DevOps and Data Science), the main measures of adaptation of the Ukrainian IT sector to the realities of wartime are the following:

- *security measures and business relocation to safer places*: 61% of 7000 Ukrainian IT specialists had been forced to leave their homes in the second month of the war; 46% of interviewed IT professionals found safer places for themselves within Ukraine, about a quarter of those who relocated within Ukraine moved to the Lviv region (23%), while an approximately equal number of Lviv-based IT specialists (25%) moved from their area to a smaller town or village. Of the 14% of respondents who relocated to foreign countries, Poland with 36% was the most popular destination for Ukrainian software development specialists, followed by Germany with 10% of relocated interviewees having settled there (Fig. 17);
- *focus on compliance with labor market requirements and high professionalism* – despite the growing tension on the labor market, the appearance of unemployed IT specialists and the growing competition between them (11 applicants for 1 workplace), highly qualified specialists remain in demand in the IT market. According to DOU, mid-level and senior professionals remain the most sought-after group of employees. The amount of job postings for the most experienced has even increased compared with pre-war indicators;

- *flexibility in international collaboration* – despite times of uncertainty SSA Group continues to deliver full-cycle software development and services worldwide, primarily targeting mid-sized entities, and continues to increase the volume of projects in Western Europe, the Nordics, the UK, North America and Australia.

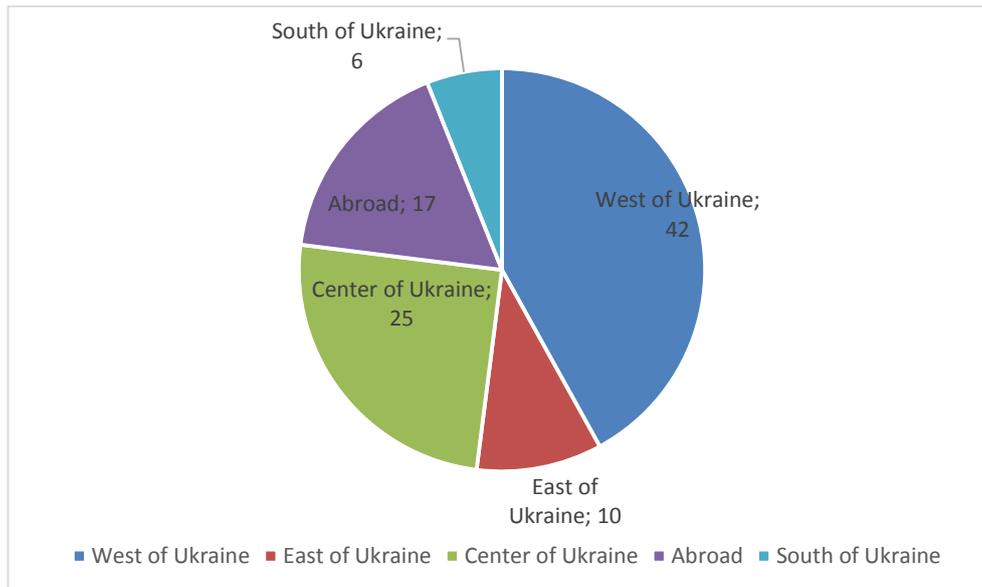


Fig. 17. Relocation of IT specialists caused by the military invasion

Source: compiled by the authors on the basis: SSA Group, 2022. *Ukrainian Software Development Market in Wartime*. Retrieved from <https://www.ssa.group/blog/ukrainian-software-development-market-in-wartime/>

The conducted analysis of the adaptation of the IT sector of Ukraine to the functioning of the labor market and the entire Ukrainian economy in conditions of war is not only evidence of the possibility of adapting business, the labor market and the entire national economy to conditions of war, but also evidence of the presence of highly educated and highly professional human capital in Ukraine, which obviously has to become the foundation of Ukraine's national economic security.

5. CONCLUSIONS AND FUTURE DIRECTIONS

Thus, summing up the results of the conducted research, it should be noted that Russia's military aggression against Ukraine has become a serious challenge for the Ukrainian labor market, leading to a large-scale loss of jobs, a decrease in the population's income, the threat of the spread of poverty and a significant burden on the

social protection system in conditions of a budget deficit. These processes, taking into account a number of problems in the socio-economic development of Ukraine in the pre-war period, threaten the economic and social security of Ukraine in the short and long term, causing significant economic losses and degradation and loss of human capital.

From these positions, the demographic challenges caused by the war were analyzed, in particular, the increase in mortality among the military and civilian population and the large scale migration from Ukraine of skilled labor, which is a significant risk of loss of human capital, which poses a great threat to the economic security of Ukraine in the long term. At the same time, attention is focused on the fact that in the context of the consolidation of Ukrainian society and measures of the Ukrainian state regarding social protection of citizens and support of the Ukrainian labor market in wartime conditions, as well as unprecedented assistance from international organizations and foreign countries, primarily Poland, regarding humanitarian support for Ukrainian migrants, the vast majority of migrants is planning to return to their homeland in the post-war period. Therefore, it is obvious that ending military aggression as soon as possible and transitioning to a peaceful life is one of the most important factors in preserving human capital in Ukraine and restoring the effective functioning of the labor market.

However, in the conditions of ongoing military aggression, the restoration of the functioning of the labor market is uneven, with significant disproportions, which is reflected in the imbalance of supply and demand for labor, the increase in the workload for one vacant workplace, the fall in real wages and incomes of the population, as well as significant structural and regional imbalances in the functioning of the labor market, which deepens the uneven development of the Ukrainian economy and poses a threat to the economic security of Ukraine.

At the same time, despite the extremely difficult circumstances, Ukrainian businesses are adapting to the realities of the functioning of the labor market in wartime conditions. This is reflected in structural changes in the domestic labor market, in particular of a territorial nature (increasing the number of jobs in the Western regions of Ukraine), as well as in the structure of demand for workers in certain professions related to construction, logistics, and IT. In particular, the Ukrainian IT sector is an example of the ability to adapt to complex realities on the basis of maturity, stability and flexibility.

Thus, based on the conducted research, the prospects for the post-war development of the Ukrainian labor market, in our opinion, should primarily be considered in the context of the formation of a safe economic and social environment at the state level, the imperative of which should be the preservation of human capital in Ukraine. For this purpose, a state strategy for the post-war recovery of the national economy with a pronounced socio-humanitarian orientation should be developed, which will provide for the observance of social guarantees at the level of leading international standards.

At the same time, it is equally important to stimulate economic growth by creating a favorable investment environment to stimulate business development, as well as the concentration of intellectual and material resources in the most promising sectors of the national economy and its development on the basis of intellectualization, digitalization, and environmentalization. For this purpose, it is necessary to create an appropriate mechanism of institutional, informational and analytical, personnel, financial, legal and material support for the post-war recovery of the economy, as well as the consolidation of society on the basis of the social responsibility of the state, business and civil society for the future of the Ukrainian state and its citizens.

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WYZWANIA DLA UKRAIŃSKIEGO RYNKU PRACY W WARUNKACH WOJNY I ICH WPŁYW NA BEZPIECZEŃSTWO EKONOMICZNE KRAJU

Streszczenie

Agresja militarna Rosji na Ukrainę stała się poważnym wyzwaniem dla ukraińskiego rynku pracy, gdyż doprowadziła do znacznych dysproporcji, przejawiających się w nierównowadze podaży i popytu na pracę, masowej utracie miejsc pracy, spadku realnych wynagrodzeń i dochodów. Czynniki te pogłębiają nierównomierny rozwój ukraińskiej gospodarki i zagrażają bezpieczeństwu ekonomicznemu Ukrainy. Procesy te, biorąc pod uwagę szereg problemów rozwoju społeczno-gospodarczego kraju w okresie przedwojennym, mają negatywny wpływ na bezpieczeństwo gospodarcze i społeczne Ukrainy w perspektywie krótko- i długoterminowej, gdyż powodują znaczne straty gospodarcze i degradację kapitału ludzkiego.

Zdaniem autorów niniejszego artykułu, perspektywy powojennego rozwoju ukraińskiego rynku pracy należy rozpatrywać przede wszystkim w kontekście kształtowania bezpiecznego środowiska gospodarczego i społecznego na szczeblu państwowym, którego imperatywem powinno być zachowanie kapitału ludzkiego w Ukrainie. W tym celu należy opracować państwową strategię odbudowy powojennej gospodarki narodowej z wyraźnie wyrażoną orientacją społeczno-humanitarną, która zapewni przestrzeganie gwarancji społecznych na poziomie wiodących standardów międzynarodowych. Równocześnie ważne jest stymulowanie wzrostu gospodarczego w oparciu o tworzenie sprzyjającego środowiska inwestycyjnego stymulującego działalność gospodarczą, a także koncentrację zasobów intelektualnych i materialnych w najważniejszych sektorach ukraińskiej gospodarki. Rozwój ukraińskiej gospodarki powinien opierać się na intelektualizacji, cyfryzacji i ekologizacji. W tym celu konieczne jest stworzenie odpowiedniego mechanizmu instytucjonalnego, informacyjno-analitycznego, finansowego, prawnego i materialnego wsparcia dla powojennego ożywienia gospodarki, a także konsolidacja społeczeństwa w oparciu o społeczną odpowiedzialność państwa, biznesu oraz społeczeństwa obywatelskiego. Warunkiem koniecznym do odbudowy gospodarczej kraju w oparciu o własne zasoby i bezpośrednie inwestycje zagraniczne jest oczywiście zakończenie wojny i stabilizacja polityczna. Czynnikiem sprzyjającym będzie integracja gospodarcza z krajami Unii Europejskiej.

Słowa kluczowe: rynek pracy, kapitał ludzki, wyzwania demograficzne, bezpieczeństwo ekonomiczne i społeczne

Acknowledgments

This article is the result of the implementation of the international research internship program in Banking University (Ukraine, Lviv) for the period from September 24 to December 24, 2021 with a duration of 180 academic hours and continuation of the scientific cooperation which started during internship in the following years 2022-2023.

Three authors of the article express their thanks to the Poznan University of Technology (in Poznań, Poland) and Banking University (in Lviv, Ukraine) for the possibility of conducting research during the internship, as well their continuation after the end of internship.