

## YOUTH EMPLOYMENT AS A FACTOR OF MACROECONOMIC RESILIENCE AND INFRASTRUCTURE RECOVERY IN POSTWAR UKRAINE

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*This article investigates the macroeconomic significance of youth employment in postwar Ukraine, with a specific focus on its impact on the recovery and continuous functioning of critical infrastructure systems. The urgency of the topic is determined by the unprecedented challenges facing the national labor market, including demographic decline, forced migration, and the growing mismatch between professional skills and structural labor demand. Particular attention is paid to the integration of young professionals into infrastructure-intensive sectors such as energy, communications, transportation, and construction, which are essential for ensuring national resilience and economic sustainability. The study applies a multidisciplinary methodology, combining content analysis of institutional frameworks, national recovery strategies, and labor market data with systemic assessment of workforce capacity and regional disparities. The findings reveal that despite the increasing vulnerability of the youth segment, it remains an underutilized strategic resource capable of accelerating innovation, rebuilding essential services, and contributing to fiscal recovery through expanded employment and human capital development. The research also outlines the limitations of current employment policies and vocational education initiatives, many of which remain fragmented and insufficiently aligned with macroeconomic priorities. The practical value of this study lies in its policy recommendations aimed at aligning youth labor market activation with national postwar reconstruction goals, promoting targeted institutional support, and reinforcing the long-term stability of infrastructure systems through integrated labor market planning. Strengthening mechanisms of youth engagement is also crucial for reversing the effects of brain drain and ensuring inclusive growth. As Ukraine moves forward with its reconstruction agenda, the role of young professionals must become central in shaping a resilient and future-ready economy. Their effective involvement in national rebuilding efforts will determine not only short-term recovery but also the strategic competitiveness of Ukraine in the global landscape.*

**Keywords:** youth labor market, postwar recovery, critical infrastructure, macroeconomic resilience, human capital, vocational training, employment policy.

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**Formulation of the problem in general terms.** The functioning of the youth labor market in Ukraine has become increasingly critical in the context of profound economic disruptions and structural transformations triggered by Russia's full-scale invasion. As Ukraine enters a prolonged phase of postwar recovery, the sustainable operation of critical infrastructure such as spanning energy, transport, communications, healthcare, and education, depends not only on financial and technological investments but also on the availability of a skilled, mobile, and resilient workforce. Within this framework, young people represent both a vulnerable demographic and a strategic resource capable of driving reconstruction and innovation.

The war has exacerbated pre-existing labor market imbalances, including high youth unemployment, skills mismatches, and regional disparities in employment opportunities. At the same time, it has accelerated structural shifts in employment demand, particularly in sectors essential to national resilience. In parallel, the destruction of

infrastructure, large-scale displacement, and demographic shifts have undermined traditional labor supply channels, creating acute shortages in key professions tied to the maintenance and recovery of critical systems.

Given these challenges, the youth segment of the labor force is emerging as a focal point for macroeconomic policy aimed at rebuilding the national economy and ensuring the uninterrupted functioning of vital services. This requires a comprehensive reassessment of employment strategies, education and training systems, and institutional support mechanisms. Understanding the dynamics of the youth labor market under conditions of systemic crisis is essential to designing effective interventions that align human capital development with the imperatives of critical infrastructure recovery.

**Analysis of recent research and publications.** The interconnection between labor market development and the stability of critical infrastructure has received considerable attention in economic and policy research, particularly in

post-conflict settings. In Ukraine, recent analytical work has emphasized the urgency of adapting labor resources to support large-scale reconstruction. Pyshchulina I. et al. [7] argue that the youth labor force should be viewed not only as vulnerable to economic shocks but also as a potential engine of national recovery. According to the Razumkov Centre [8], the strategic mobilization and upskilling of young workers are central to rebuilding key sectors of infrastructure and services.

The World Bank [10] outlines the importance of active labor market programs that target youth, especially in the context of recovery from conflict. Their evaluations show that early career interventions, digital literacy training, and employment incentives for young people significantly improve labor outcomes and reduce long-term economic scarring. Another World Bank report [3] identifies a severe mismatch between the existing youth labor supply and the growing demand in infrastructure-intensive sectors such as construction, energy, and ICT.

The OECD [6] adds a macroeconomic dimension to this issue by asserting that youth employment policies contribute directly to institutional resilience and economic stabilization. Coordinated policies that link vocational education, labor market entry, and regional infrastructure planning are particularly effective in environments with volatile labor supply.

Several studies also focus on the economic cost of disrupted labor markets and outward migration. Audretsch D., Momtaz P. P., Motuzenko H., and Vismara S. [3] apply a synthetic control approach to measure entrepreneurship loss in Ukraine, showing that youth-led ventures, which is the key to innovation and infrastructure modernization, have been disproportionately affected. Bertè M., Paolotti D., and Kalimeri K. [4], using LinkedIn data, reveal significant shifts in the professional geography of Ukrainian youth, with implications for regional disparities in labor allocation.

Kovtun A. [5] explores the state of Ukraine's infrastructure post-war and advocates for direct alignment between labor policy and national recovery priorities. He proposes targeted employment hubs and regional vocational centers to train young people in sectors essential to rebuilding efforts.

Institutional reports further reinforce the urgent need for integrated planning. The World Bank, in coordination with the Government of Ukraine, the EU, and the UN [10], highlights in its RDNA3 assessment the critical labor shortages across key infrastructure sectors due to wartime displacement, destruction, and emigration.

Altogether, the literature converges on the conclusion that youth must be actively positioned within broader macroeconomic strategies. Their integration into infrastructure-related employment pathways is not only an economic necessity but also a precondition for sustainable and resilient national development.

**Formation of the objectives of the article.** The purpose of this study is to examine the evolving role of the youth labor market in Ukraine's postwar recovery, specifically in the context of ensuring the stable functioning of critical infrastructure. The research focuses on the intersection between human capital development and macroeconomic

resilience, considering how youth employment strategies can address workforce deficits in key infrastructure sectors such as energy, transport, and communications. By analyzing the structural shifts in labor supply and demand caused by the war, the study aims to evaluate the extent to which youth-targeted policies, vocational education systems, and institutional frameworks contribute to national recovery objectives. Ultimately, the article seeks to formulate evidence-based recommendations for aligning youth labor integration with broader economic reconstruction efforts.

**Methods of research.** This study is based on a combination of qualitative and quantitative research methods, aimed at analyzing the structural transformation of the youth labor market in Ukraine and its macroeconomic implications for critical infrastructure recovery. A comparative analysis of institutional reports, including those from the World Bank [10], OECD [6], and the Razumkov Centre [7], was conducted to identify current labor market trends and policy responses. Statistical data on youth employment, migration, and sectoral labor demand were examined to assess the impact of war-related disruptions on workforce availability. Content analysis was applied to national recovery plans and labor legislation to evaluate institutional mechanisms targeting youth integration. Additionally, a review of recent academic studies [3; 4; 5] provided a theoretical foundation for understanding the link between labor market dynamics and infrastructure resilience. The methodological approach is grounded in the principles of evidence-based policy research and systems analysis, ensuring a comprehensive and multidisciplinary perspective.

**Results of the study.** The youth labor market in Ukraine has undergone severe disruption due to the full-scale war, resulting in structural dislocation, regional fragmentation, and demographic contraction. Young people aged 20–35, who traditionally represent a dynamic and mobile labor force, have been disproportionately affected by displacement, educational interruptions, and restricted access to formal employment pathways. According to Pyshchulina I. [7], the war has led to an accelerated decline in the economically active youth population, particularly in frontline and temporarily occupied regions, where labor force participation has collapsed. At the same time, host regions are experiencing growing pressure on local labor markets due to internal migration and uneven job availability.

These transformations have contributed to significant sectoral and spatial mismatches between labor supply and demand. As noted in the World Bank's labor profile [3], youth unemployment remains persistently high, even in regions with increased demand for skilled workers. The imbalance is further complicated by the fragmentation of vocational training systems and the inability of local labor services to effectively coordinate employment placements in high-need sectors. Bertè M. [4] highlight that a large share of qualified young professionals have migrated abroad or shifted to freelance and remote work, often disconnected from national recovery priorities.

Despite these challenges, the youth segment continues to demonstrate resilience and adaptive potential. Data analyzed by the Razumkov Centre [8] suggest that young

workers are more likely than older cohorts to re-enter the labor force after displacement, especially when provided with targeted support, such as requalification programs or temporary employment schemes. However, without systemic coordination between labor institutions, educational providers, and infrastructure planning bodies, this potential remains underutilized.

The functioning of Ukraine's critical infrastructure has been severely impaired not only by physical destruction but also by acute shortages of skilled labor, particularly among the younger population. As noted in the RDNA3 report prepared by the World Bank and its partners [10], the war has caused widespread displacement of technical personnel in sectors such as energy, logistics, water systems, and digital infrastructure. Many qualified professionals have either joined the military, emigrated, or relocated domestically, leaving significant gaps in the operational capacity of essential services.

These shortages are particularly pronounced in technical and engineering occupations, where workforce replacement requires both time and targeted investment in training. The OECD [6] emphasizes that Ukraine's infrastructure recovery is contingent upon the rapid restoration of human capital in these areas, especially through the integration of young professionals capable of learning and adapting to new technologies. However, the current educational and vocational systems are often ill-equipped to respond swiftly to such labor demands.

According to Kovtun A. [5], delays in rebuilding projects are increasingly linked not only to funding constraints but to the lack of available personnel with relevant skills. This has forced regional governments and infrastructure agencies to compete for a limited pool of labor, frequently drawing from older or less qualified cohorts. The World Bank [3] further highlights that regional disparities are deepening, with rural and frontline areas experiencing the most critical labor shortages due to depopulation and the absence of targeted employment programs.

Without immediate strategic action to recruit and train young specialists, Ukraine risks facing a prolonged deficit of technical workforce that could stall national recovery efforts and undermine the resilience of critical infrastructure systems.

In response to growing labor shortages and the imperative of infrastructure recovery, several institutional initiatives have been launched in Ukraine to support youth employment. However, the effectiveness of these mechanisms remains uneven and often fragmented. National programs such as "Youth of Ukraine 2021–2025" aim to enhance the professional inclusion of young people through vocational training, career guidance, and entrepreneurship support, yet their coverage and adaptability have been constrained by wartime realities [8].

The World Bank [10] emphasizes that effective youth employment strategies must be closely integrated with macroeconomic priorities, particularly in sectors identified as critical to national resilience. This includes aligning vocational education and training (VET) programs with the skills demands of infrastructure recovery, such as

construction engineering, digital systems maintenance, and energy efficiency. Unfortunately, as noted in the Razumkov Centre's analysis [7], most regional employment services lack the institutional capacity to deliver targeted retraining or to coordinate effectively with infrastructure ministries.

Positive examples do exist. Kovtun A. [5] highlights emerging models of regional employment hubs that offer fast-track certification and job-matching services for youth in war-affected areas. These hubs serve as coordination points between local authorities, employers, and training institutions, facilitating the integration of young people into sectors with urgent labor needs. International partners have also played a role in supporting technical assistance and capacity-building efforts for labor institutions [3; 6].

Still, the fragmentation of efforts and the absence of a unified national strategy to integrate youth into infrastructure development remain critical challenges. Without institutional coherence, even the most motivated young workers struggle to access meaningful employment opportunities that contribute directly to recovery goals.

The integration of youth into the labor market is not only a matter of social policy but a key determinant of Ukraine's macroeconomic stability and long-term resilience. In the context of critical infrastructure recovery, young professionals represent an essential human capital reserve capable of accelerating reconstruction, innovation, and institutional renewal. As shown in the OECD's economic outlook for Ukraine [6], sustained youth employment contributes directly to fiscal recovery by expanding the tax base, reducing dependency ratios, and supporting local consumption and investment cycles.

The World Bank [3] also underscores the macroeconomic risks associated with youth exclusion, noting that prolonged unemployment or underemployment among young people leads to long-term productivity losses and a weakening of public service delivery. Conversely, when youth employment strategies are tied to infrastructure investment planning, they can stimulate multiplier effects across the economy. For example, investing in digital literacy programs and technical apprenticeships linked to energy or telecommunications sectors not only addresses immediate labor shortages but builds a foundation for structural transformation.

Audretsch D. et al. [3] demonstrate that entrepreneurship among youth, particularly in postwar economies, can play a catalytic role in regional stabilization and job creation. However, such potential requires targeted institutional support and access to finance, which remain limited in Ukraine's current post-crisis landscape.

Strategic alignment between labor market interventions and macroeconomic recovery plans, particularly through interministerial coordination and public-private partnerships, is therefore critical. Youth engagement in infrastructure-related employment is not an auxiliary component but a central pillar of national resilience. It ensures both the functionality of critical systems and the viability of Ukraine's broader reconstruction agenda.

**Conclusion.** The findings of this study highlight the central role of youth employment in Ukraine's macroeconomic recovery and in the sustainable functioning

of critical infrastructure. The war has intensified structural weaknesses in the labor market, creating severe shortages in key sectors and disrupting traditional employment pathways, particularly for young people. However, the youth labor force remains a vital asset with the potential to accelerate reconstruction if appropriately supported and integrated into national recovery strategies.

Evidence from institutional reports and academic research demonstrates that labor mismatches, regional disparities, and the outflow of skilled youth must be addressed through coordinated policy interventions. Programs targeting technical training, vocational guidance,

and entrepreneurship are necessary but insufficient in isolation; their effectiveness depends on systemic alignment with infrastructure development planning and fiscal policy.

The article underscores the need for a unified, long-term approach that links youth employment with macroeconomic resilience. Prioritizing the integration of young professionals into infrastructure recovery not only mitigates demographic risks and economic exclusion but also reinforces the foundation for sustainable growth. In this context, youth policy is not merely a social imperative but a strategic instrument of national reconstruction and institutional modernization.

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### **ЗАЙНЯТИСТЬ МОЛОДІ ЯК ЧИННИК МАКРОЕКОНОМІЧНОЇ СТІЙКОСТІ ТА ВІДНОВЛЕННЯ КРИТИЧНОЇ ІНФРАСТРУКТУРИ В ПОВОЄННІЙ УКРАЇНІ**

У статті досліджено макроекономічне значення молодіжної зайнятості в контексті повоєнного відновлення України з акцентом на її вплив на стійке функціонування систем критичної інфраструктури. Актуальність теми зумовлена безпрецедентними викликами, що постали перед національним ринком праці внаслідок демографічного скорочення, вимушеної міграції, релокації бізнесу та зростаючого розриву між рівнем професійної підготовки молоді й реальними потребами національної економіки. Особливу увагу приділено ролі молодих фахівців в інфраструктурно-інтенсивних секторах, таких як енергетика, будівництво, транспорт і цифрові технології, що є визначальними для забезпечення економічної стабільності, безпеки та довгострокового зростання. Методологічною основою дослідження є міждисциплінарний підхід, що передбачає контент-аналіз інституційних документів, національних стратегій відновлення, а також статистичних даних про динаміку молодіжного ринку праці та регіональні відмінності у кадровому забезпеченні. Виявлено, що, незважаючи на підвищену вразливість цієї категорії населення, молодь залишається стратегічним ресурсом, здатним забезпечити інноваційний розвиток, модернізацію критичних систем, розширення податкової бази та зміцнення інституційної спроможності держави. Обґрунтовано необхідність синхронізації молодіжної політики з інфраструктурними інвестиційними програмами, що дозволить не лише зменшити масштаби втрати кваліфікованого трудового потенціалу і професійної міграції. Практична цінність статті полягає у формулюванні рекомендацій для інтеграції трудового потенціалу молоді в систему національного відновлення шляхом удосконалення міжінституційної взаємодії, адаптації освітньо-професійної підготовки до потреб критичних галузей і посилення зв'язку між ринком праці та довгостроковими макроекономічними пріоритетами України. Зміцнення участі молоді в процесах відбудови сприятиме підвищенню ефективності державного управління, посиленню соціальної згуртованості та оновленню економічної моделі. Прогнозується, що ефективне залучення молоді стане каталізатором структурних змін в економіці та підвищить її адаптивність до майбутніх викликів. Запропонований підхід може бути використаний при розробці державних стратегій зайнятості, освітньої політики та регіонального розвитку в умовах післявоєнного відновлення.

**Ключові слова:** ринок праці молоді, повоєнне відновлення, критична інфраструктура, макроекономічна стійкість, людський капітал, професійна підготовка, політика зайнятості.

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