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**ADOPTING THE POLISH EXPERIENCE IN THE RENOVATION OF INDUSTRIAL
REGIONS AS PART OF THE POST-WAR RECOVERY STRATEGY FOR
UKRAINE (BASED ON THE EXAMPLE OF SILESIA)**

The article explores the specificity and potential application of Polish experience in renovating industrial regions as a critical component of Ukraine's post-war recovery strategy, mainly through the case study of the Silesian industrial region. It is determined that Poland, having successfully transformed its coal and industrially-oriented regions into drivers of economic growth and sustainable development, can serve as a crucial source for the study and practical utilization of this experience for Ukraine. The phased steps in the systemic transformation of the Silesian economy from a traditional region with a well-developed coal industry to a new sector of modern high-tech and innovative production have been discussed in the article. It has been established that the main factors contributing to such transformation include an effective strategy for regional development, substantial investments in human capital and education, measures to create a favourable business environment, and comprehensive organizational and financial support from the state.

Keywords: renovation, industrial regions, socio-economic regional development, Polish experience, post-war recovery, potential, competitiveness, economic transformation.

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Problem Statement. The current Ukrainian context presents many complex challenges related to the post-war recovery of the national economy and social infrastructure. One of the key issues lies in the imperative to ensure sustainable and balanced development of industrially oriented regions, which bear the adverse effects of deindustrialization and international competition. In this context, the adoption of Polish renovation experience, specifically through the example of the Silesian region, encompassing Lower Silesian, Opole, Silesian, and parts of Lubusz Voivodeships, emerges as a pertinent and crucial strategy for Ukraine. The problem at hand revolves around the practical implementation and adaptation of this experience to Ukrainian conditions and the specificities of industrial regions. The goal is to foster a resilient and competitive environment for effective economic recovery and improved quality of life for the population.

It is essential to note that the intensive economic development of industrial regions is crucial in ensuring both economic stability and social progress during the post-war recovery period. However, regions historically specialized in heavy industry are currently facing numerous challenges, including declining production volumes, reduced employment opportunities, and environmental threats. In this context, it is crucial to determine how the Polish renovation experience can be utilized and adapted to Ukraine's specific needs and opportunities to promote sustainable development of industrial regions and transform them into centres of innovative production. This transformation is envisioned to significantly elevate the standard of living for the population.

Consequently, the relevance of researching and analysing the possibilities of adapting this experience becomes particularly pronounced now. It necessitates concentrated efforts from researchers to develop recommendations for implementing the renovation strategy in industrial regions as a crucial component of Ukraine's post-war recovery strategy.

Analysis of Recent Research and Publications. The recovery and development of industrial regions are relevant for many countries facing challenges of deindustrialization and changes due to the impact of geopolitical events. Within the context of Ukraine, currently engaged in a severe conflict with Russian aggressors, experiencing significant losses across various sectors, including the national economy, studying the experiences of other nations becomes exceptionally crucial for formulating post-war recovery strategies. In this regard, exploring Poland's experience renovating the Silesia region assumes particular relevance.

The comprehensive importance and role of industrial regions in economic recovery are meticulously examined in the research conducted by Yu. Chalyuk and B. Pohrishchuk, who emphasize the pivotal role of industrial regions as drivers of economic development and sustainable recovery following economic crises and military conflicts (Чалюк, 2022; 2020). Additionally, the research identifies factors directly influencing the development of such regions and underscores the government's unique role in supporting their recovery (Pohrishchuk, Kolomiets, Chaliuk, Yaremko and Hromadska, 2023).

For Ukraine, a crucial aspect lies in studying Poland's experience renovating Silesia and transforming it from a traditional coal region into an innovative economic centre. Notably, the work of C. Hetmanska provides a detailed description of the strategies and key achievements of this transformation (Hetmańska, 2005).

Exploring Poland's experience in economic reforms in Ukraine is not a novel undertaking. Works by Yu. Husiev delve into the practical feasibility of applying Poland's experience in renovation within the Ukrainian context. The research analyses the similarities between Ukrainian and Polish regions, along with possible approaches and strategies that can be adapted for achieving successful outcomes (Гусєв та Бєлікова, 2015).

In the context of regional recovery, it is also essential to emphasize the population's active participation in the renovation process, as highlighted in the work of T. Shmatkovska. This work explores the impact of civil society on the development and sustainability of regions in the context of decentralization reforms in Ukraine (Шматковська, та Подзізей, 2020; Шматковська, Сташук та Дзямулич, 2021).

Furthermore, recent academic papers place a heightened focus on issues of social justice in the context of renovating industrial regions. Specifically, the research by M. Dziamulich examines approaches to ensure social development for forming socially-oriented systems during the regional economic recovery process (Дзямулич, 2022; Дзямулич та Чиж, 2020).

Therefore, the importance and potential application of Poland's experience in renovating industrial regions for Ukraine necessitates further in-depth study, especially concerning formulating post-war recovery strategies.

Research Objective. This article aims to explore and analyse the Polish experience in renovating industrial regions, using the case study of Silesia, to identify opportunities for its adoption and adaptation in the context of Ukraine's post-war recovery strategy. The critical research tasks include analysing the history of Silesia's transformation into Poland's leading technological region, identifying factors contributing to the success of the Polish experience, and assessing its applicability in Ukrainian realities. Moreover, the goal is to develop recommendations for creating a sustainable economic and social environment in Ukrainian industrial regions.

Presentation of the Main Research Material. The Polish experience renovating Silesia's industrial regions holds unique value and is an exemplary model for other countries and regions grappling with similar challenges. The diversification of the economy stands out as a central aspect of the overall value of this experience. Once a significant coal region, Silesia successfully transitioned to a more diversified and modern economy. This experience demonstrates the possibility of breaking away from raw material dependence and actively developing other economic sectors, such as innovation, new technologies, and services.

A crucial aspect of this transformation was the substantial increase in education and workforce qualifications investments. Poland invested considerable effort in enhancing the quality of education and training its workforce to meet the demands of modern innovative industries. This contributed to creating a functional pool of skilled personnel for developing new industrial sectors. Subsequently, investments in research and development played a vital role in creating competitive industries in Silesia. In particular, these investments became a significant stimulus for developing high-tech sectors in the region.

Large-scale infrastructure projects, such as expanding transportation networks and establishing specialized industrial parks, played an essential role in the economic transformation of Silesia. Additionally, a critical success factor was forming partnerships with local communities and businesses. Engaging local communities and enterprises in the renovation process facilitated the formation of a sustainable and inclusive development for the region.

Thus, the overall value of the Polish experience in renovating industrial regions, particularly in Silesia, lies in demonstrating how a strategically chosen approach, investments in innovation, education, infrastructure, and active partnerships can successfully transform former industrial centres into modern and competitive regions with a diversified economic system. The average monthly income in the respective region (see Figure 1) indicates the success of regional reform efforts.

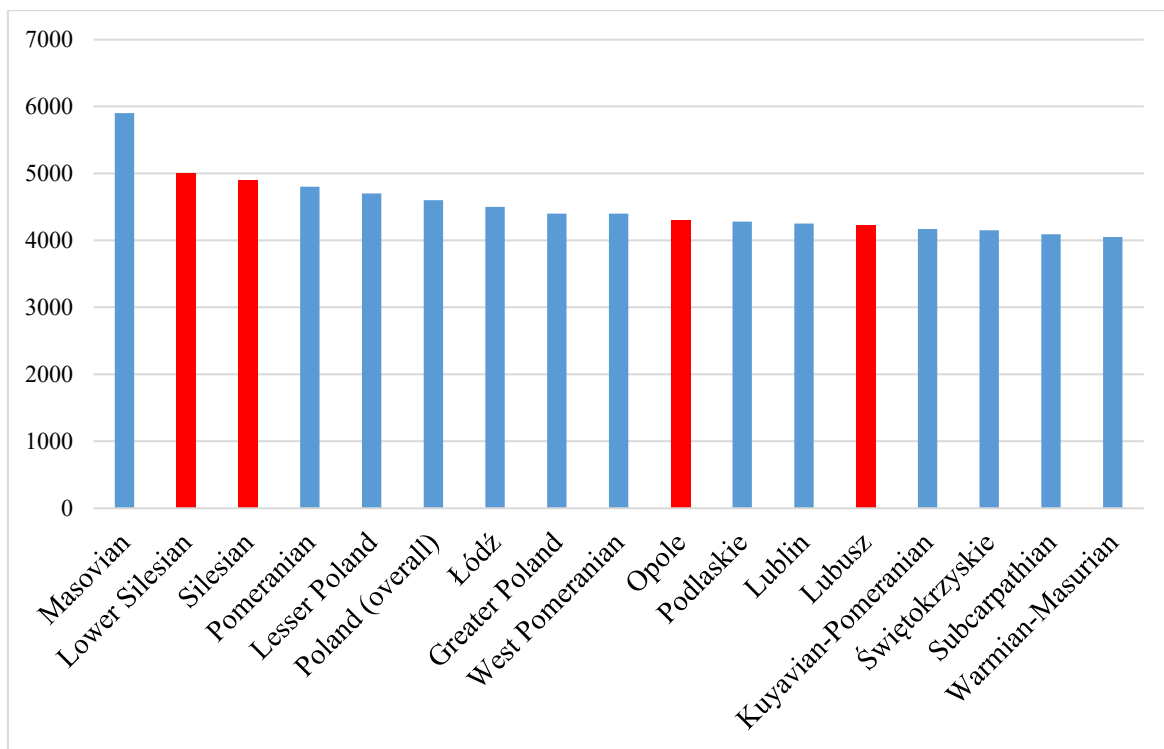


Figure 1. Average Monthly Wage in Polish Voivodeships in 2021, in Zlotys Source: (Baron, 2021).

As can be seen, the two key Voivodeships of Silesia – Lower Silesian and Silesian – hold the second and third positions in terms of wage levels among all regions of Poland. They are surpassed only by the capital Mazovian Voivodeship and have income levels higher than the national average. Meanwhile, the Lubusz Voivodeship, although geographically partially associated with Silesia, was not fundamentally oriented towards heavy industry and coal mining, in contrast to the main Silesian Voivodeships.

In general, Poland successfully carried out the transformation of its coal and industrially-oriented regions, such as Silesia, through the application of a comprehensive approach. This approach included investments in innovation and technology, stimulation of the development of the new sector, expansion of the educational sector to prepare a qualified workforce, and extensive support for scientific research. It allowed the Silesian voivodeships to form a diversified economy, reduce the country's raw material dependence, and ensure the sustainable development and competitiveness of regions previously focused on coal mining and industrial production.

The systematic transformation of Silesia's economy from a traditional region with a developed coal industry to a new integrated sector of modern high-tech and innovative production occurred gradually and included several important steps:

1. Strategy Development: the initial stage of Silesia's renovation involved developing a transition strategy that defined the main goals, priorities, and ways to implement planned structural transformations.

2. Diversification of Investments: investments were made in various industries and economic sectors, primarily in high-tech industry, biotechnology, and green technologies. This helped reduce the region's economic dependence on coal mining and positively influenced the development of the service sector.

3. Development of an Innovative Environment: The focus on fostering innovation by creating technology parks and business incubators and supporting commercial developments by research institutions contributed to the formation of numerous innovative enterprises and the emergence of new sectors in the region's economy.

4. Education and Workforce Preparation: modernizing the education system to train qualified specialists who meet the needs of emerging industries was a crucial factor in the region's transformation and renovation.

5. Infrastructure Projects: the intensive development of transport, logistics, and energy infrastructure was important to supporting new productions and attracting additional investments. Namely, the European Union primarily funded regional infrastructure improvement through various cross-border cooperation programs.

6. Partnership with Local Communities and Businesses: active collaboration with municipalities and local businesses facilitated problem-solving in the interaction between local government bodies and investors, creating a favourable environment for implementing investment projects and overall business development.

7. Natural Resource Restoration and Green Development: A key aspect was to address environmental challenges stemming from the region's historical focus on heavy industry and coal mining. Stimulating the development of green technologies not only formed a new innovative sector in the economy but also contributed to resolving accumulated ecological issues.

Overall, it can be observed that the mentioned systematic approach to renovation has contributed to the successful socio-economic transformation of Silesia from a traditional coal region to a high-tech and innovative centre, ensuring its sustainable development in the long term.

In practical terms, the Polish experience in renovating industrial regions can be effectively utilized in several regions of Ukraine facing similar issues of structural dependence on coal or heavy industry, where there is a need for economic modernization and diversification. Furthermore, the initial application of such experience should focus on those areas most affected by military actions.

Specifically, the implementation of the Polish experience in renovation primarily concerns the Donetsk and Luhansk Oblasts, which are regions with the highest concentration of heavy industry and have suffered significant destruction of their production base and

infrastructure due to the war. The Polish experience in reintegrating industrial areas and fostering innovation in these regions can be valuable, particularly for creating new markets and developing high-tech sectors based on using and improving existing industrial infrastructure.

Secondly, the renovation experience should be applied in the Zaporizhzhia and Dnipropetrovsk Oblasts, where heavy industry, particularly metallurgy, plays a crucial role in innovative transformation. Adopting the experience of transforming industrial enterprises can help implement more effective management, modernize production, and attract investments into new industries.

Additionally, the Kharkiv and Kirovohrad Oblasts are worth mentioning, as these regions also have significant potential for developing new sectors such as agriculture, green technologies, and the food industry. Therefore, the experience of Lower Silesian and Opole Voivodeships regarding developing rural areas and innovative infrastructure can help create resilient regional economies.

At the same time, it is essential to note that for the practical implementation of renovation programs in these regions, individual strategies must be developed for each of them uniquely, considering their potential, needs, and specific features. Active collaboration with local communities and the private sector to attract additional investments in innovation and education are crucial for strengthening the competitiveness of regions and creating opportunities for sustainable economic growth.

To implement the post-war recovery strategy of Ukraine and the renovation of industrial regions, it is necessary to consider the following positions to carry out the transformation of regional economic systems:

1. Industrial Diversification: this involves the development of new sectors to reduce dependence on heavy industry and promote the creation of employment in modern industries such as high-tech sectors, innovation, and services.

2. Increased Investments in Innovation and Education: comprehensive support for research and implementing technological innovations, leveraging qualified workforce, and stimulating innovative development.

3. Infrastructure Projects: drawing on the experience of Silesian Voivodeship, especially in the development of transportation, logistics, and energy infrastructure, aimed at supporting the growth of high-tech industries and providing access to new markets.

4. Sustainable Use of Natural Resources: emphasizing sustainable exploitation of natural resources to transform existing enterprises into innovative clusters focused on green technologies. Environmental restoration measures are particularly crucial, given the significant pollution caused by hazardous materials during military actions.

5. Modernization of Industrial Facilities: implementation of technological and environmental standards of the European Union to enhance productivity and reduce environmental impact. This modernization, relying on innovative technologies, not only improves the production base but also allows new innovative enterprises to develop and implement technological principles aligned with new requirements.

Overall, these propositions collectively contribute to shaping a strategy for the post-war recovery of Ukraine based on the modernization and diversification of industrial regions, promoting sustainable development, and enhancing the country's competitiveness.

The experience of renovating territories is highly significant for Ukraine, especially considering the country's challenges. The destruction of industrial facilities and production bases due to war, particularly in the Luhansk and Donetsk Oblasts, has already created significant economic and social problems. Future renovation efforts will help redirect and modernize the economy of these regions to restore lost infrastructure, create new jobs, and

support their economic development. Drawing on the Polish renovation experience in the coal mining industry will help avoid mistakes and ensure a sustainable and inclusive recovery that considers the needs of communities and the private sector. By incorporating ecological aspects into the renovation process, Ukraine can utilize modern standards and green technologies for the sustainable use of natural resources and environmental restoration. In this context, renovation experience becomes essential for creating a comprehensive plan for our state's post-war recovery and social development.

Conclusions. In conclusion, it is evident that the adoption of the Polish experience in the renovation of the industrial regions of Silesia can indeed become a crucial component of Ukraine's post-war recovery strategy. The Polish model has demonstrated that a comprehensive approach, encompassing economic diversification and investment in innovation, education, and infrastructure, can effectively assist Ukrainian industrial regions in transforming their economies and creating conditions for sustainable development. It is essential to consider Ukraine's specific needs and characteristics, but overall, the Polish experience can provide valuable practical recommendations for the successful recovery and modernization of Ukrainian industrial regions.

Furthermore, incorporating the Polish experience also underscores the importance of reducing reliance on raw materials and focusing on innovation and advanced technologies. These factors can generate competitive industries and new regional growth and development opportunities. Silesia is a vivid example in the context of future reforms and the post-war revitalization of industrial areas. It is crucial to account for the individual features and conditions of Ukrainian regions that have suffered from military actions and looting by Russian criminals. However, as evidenced by practice, the application of successful renovation experiences allows for a relatively swift recovery process and achievement of the goal for restoring the country's economic capacity within a concise timeframe.

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ЗАПОЗИЧЕННЯ ПОЛЬСЬКОГО ДОСВІДУ РЕНОВАЦІЇ ПРОМИСЛОВИХ РЕГІОНІВ, ЯК ЧАСТИНА СТРАТЕГІЇ ПІСЛЯВОЄННОГО ВІДНОВЛЕННЯ УКРАЇНИ (НА ПРИКЛАДІ ДОСВІДУ СІЛЕЗІЇ)

У статті розглянуто специфіку та можливість застосування польського досвіду реновації промислових регіонів у якості ключового компонента стратегії післявоєнного відновлення України, зокрема, на прикладі індустріального регіону Сілезія. Встановлено, що Польща, яка успішно здійснила трансформацію своїх вугільних та промислово орієнтованих регіонів в драйвери економічного зростання та сталого розвитку, може слугувати важливим джерелом вивчення та практичного використання цього досвіду для України. Розглянуто поетапні кроки по системній трансформації економіки Сілезії від традиційного регіону з розвинутою вугільною промисловістю до нового сектору сучасного високотехнологічного та інноваційного виробництва. Встановлено, що основні фактори, які сприяли такому перетворенню, включають в себе ефективну стратегію регіонального розвитку, значні за обсягом інвестиції у людський капітал та освіту, заходи по формуванню сприятливого бізнес-середовища та загальну організаційно-фінансову підтримку держави.

Ключові слова: реновація, промислові регіони, соціально-економічний розвиток регіону, польський досвід, післявоєнне відновлення, потенціал, конкурентоспроможність, економічна трансформація.