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International Labor Market Development under Global Economy Innovativeness: Structural Drivers and Institutional Imperatives

Abstract. Introduction*. The modern international labor market is undergoing a fundamental transformation due to the pressures of a global economy, technological innovation, and demographic shifts. A country's success in the global workforce is no longer determined by physical exertion but by the development of robust economic structures and institutions that can absorb advanced technologies.*

Purpose*. This research aims to identify the specific structural and institutional determinants that drive international labor market development and labor productivity in both developed and emerging economies in the context of global innovativeness.*

Results*. The study uses data from global financial organizations to identify divergent pathways for economic growth. Developed economies with rapidly aging populations (with an approaching 2:1 worker-to-retiree ratio in the EU) must prioritize national savings and fully funded pension systems to sustain capital deepening and technological innovation. Conversely, developing nations must focus on improving the cognitive abilities of their workforce and eliminating restrictive regulatory barriers, which currently lead to severe resource misallocation. Eliminating these institutional constraints and promoting technology transfer could boost Total Factor Productivity (TFP) by 30-60%.*

Conclusions*. In order to navigate the modern global workforce, we must shift from consumption-driven to investment-driven economic models. For transitional economies like Ukraine and the Republic of Moldova, this necessitates comprehensive pension reform and market deregulation to attract capital. It is important to emphasize that institutional readiness must precede the adoption of advanced, innovative policies.*

Keywords*: international labor market; global economy innovativeness; labor productivity; human capital; national savings; resource misallocation; pension reform; regulatory barriers; Total Factor Productivity; demographic transition.*

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Чувардинський В. О., аспірант кафедри Економіки та міжнародних економічних відносин Маріупольського державного університету, м. Київ, Україна

Розвиток міжнародного ринку праці в умовах інноваційності глобальної економіки: структурні рушійні сили та інституційні імперативи

Анотація. *Сучасний міжнародний ринок праці фундаментально трансформується під впливом стрімкої інноватизації глобальної економіки та безпрецедентних демографічних змін. Успіх країни на світовій арені більше не визначається суто фізичними зусиллями, а безпосередньо залежить від розбудови сильних економічних інституцій. Визначені специфічні структурні та інституційні детермінанти, що стимулюють розвиток міжнародного ринку праці та продуктивність у розвинених країнах і країнах, що розвиваються, в умовах глобальних інновацій. Розвинені економіки, які стикаються зі швидким старінням населення, повинні надавати пріоритет національним заощадженням та накопичувальним пенсійним системам для підтримки поглиблення капіталу. Країни, що розвиваються, мають зосередитися на підвищенні якості людського капіталу та усуненні регуляторних бар'єрів, що спричиняють місалокацію ресурсів. Усунення цих штучних обмежень та стимулювання трансферу технологій може збільшити загальну факторну продуктивність на 30-60%. Успішна інтеграція вимагає обов'язкового переходу від моделей споживання до інвестиційних моделей. Для перехідних економік, таких як Україна, це вимагає комплексної пенсійної реформи та дерегуляції для залучення капіталу, підкреслюючи критичну важливість інституційної готовності.*

Ключові слова: *міжнародний ринок праці; інноватизація глобальної економіки; продуктивність праці; людський капітал; національні заощадження; місалокація ресурсів; пенсійна реформа; регуляторні бар'єри; загальна факторна продуктивність; демографічний перехід.*

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Formulation of the problem. In the current discourse on the global economic slowdown, the issue of labor productivity has moved beyond academic debate to become a central political economic dilemma. A common narrative, particularly in transitional economies, attributes low productivity to insufficient labor intensity or a lack of individual diligence. However, this anthropocentric view contradicts macroeconomic reality. Economically defined as real GDP divided by total hours worked, productivity is less a function of physical exertion and more a derivative of capital depth, technological absorption, and allocative efficiency. The urgency of this research is dictated by two simultaneous global trends. First, the "demographic winter" in the European Union and other developed regions threatens to erode the fiscal base of social security systems, making capital accumulation (savings) a matter of survival rather than merely growth. Second, developing nations remain trapped in a "middle-income trap," where low-quality education and high regulatory barriers prevent the effective transfer of technologies. Understanding the specific weight of these factors are savings for the “North” and institutions for the “South” is critical for formulating adaptive national economic strategies.

Analysis of recent research and publications. The theoretical foundation of this study rests on classical and neoclassical growth theories, eventually evolving into modern institutional analysis. W. Arthur Lewis [1, p. 145] established the foundational threshold for development by arguing that an economy must transition from saving 4-5% to 12-15% of national income to sustain growth, a concept recently reinforced by the McKinsey Global Institute, which reported that capital intensity per worker has stagnated in Western economies due to low savings rates [2, p. 24]. Moving beyond simple resource accumulation, Hsieh and Klenow revolutionized the understanding of total factor productivity (TFP) in developing markets by demonstrating via empirical analysis of China and India that eliminating resource misallocation could boost TFP by 30-60% [3, p. 1425]. Similarly, Madsen provided historical context for the OECD, proving that 93% of TFP growth over 130 years resulted from the importation of knowledge embedded in capital goods [4, p. 470].

Regarding specific drivers of productivity, Kim, Loayza, and Meza-Cuadra utilized variance decomposition in a World Bank study to identify education and market efficiency as key variables [5, p. 64]. While Hanushek and Woessmann further refined the educational aspect by proving that cognitive skills, rather than mere years of schooling, are the primary drivers of long-term GDP growth [6, p. 281]. Finally, Acemoglu and Robinson contextualize these economic factors within institutional theory, explaining how extractive institutions create barriers that physically prevent the flow of capital to productive firms [7, p. 126].

Formulation of research goals. The article aims to identify the primary factors influencing labor productivity in developed and developing economies within the context of a global economy characterized by innovation. Specifically, the study aims to:

- Substantiate that for developed economies, the critical constraint is the capitalization of pension liabilities and the national savings rate.
- Prove that for developing economies, the primary growth reserves lie in the quality of education (human capital) and the reduction of regulatory barriers (institutional transparency).
- Visualize the correlation between regulatory barriers and productivity stagnation.

Although the general determinants of productivity are well-known, there is a lack of integrated research contrasting the hierarchy of these factors. Most policies in developing nations focus on “job creation” or “industrial parks” without addressing the fundamental lack of domestic savings or the mismatch between educational output and market needs. Furthermore, the impact of the looming demographic shift in the EU from 2024 to 2070 on the productivity requirements of neighboring transition economies remains under-researched. This article bridges this gap by linking demographic pressure in the EU with the savings/investment imperative.

Presentation of the main research material. The public and policymakers frequently and mistakenly interpret labor productivity as a metric of individual employee effort or "sweat equity." However, rigorous economic analysis reveals it to be a systemic output rather than a personal input. This distinction is fundamental: If a worker in Country A produces 10 units per hour using manual tools and a worker in Country B produces 100 units using an automated line, the difference lies strictly in capital depth and technological integration, not diligence. The worker in Country B is not working ten times harder; they have ten times the leverage.

Consequently, the “productivity puzzle” is not solved by squeezing labor, but by optimizing the environment surrounding the labor. The World Bank's analysis of productivity growth identifies five pillars: innovation, education, market efficiency, infrastructure, and institutions. A critical yet often overlooked finding is that these pillars are not universally weighted. In early-stage economies, basic infrastructure and market stability may account for most of the growth. In contrast, in frontier economies, the weight shifts almost entirely to innovation and complex institutional frameworks. Treating productivity as a “morale” issue rather than a structural engineering issue can lead to policy errors, such as tightening labor regulations (increasing intensity) rather than incentivizing capital investment (increasing efficiency) [5, p. 65].

For economies in transition, the constraints that limit productivity growth differ fundamentally from those in mature markets. These constraints primarily center on the depth of human capital quality and institutional

efficiency. According to Kim et al., education accounts for about 50% of the variation in productivity growth in developing nations. This statistic underscores the critical role of human capital [5, p. 68]. However, this quantitative metric can be misleading when viewed in isolation. Integrating the findings of Hanushek and Woessmann reveals a significant discrepancy between "years of schooling," a metric often inflated by government mandates, and the actual "cognitive skills" of the workforce. In many developing nations, the aggressive expansion of tertiary enrollment creates a statistical illusion of progress, yielding a surplus of degree holders lacking the functional literacy, critical problem-solving capabilities, and vocational applicability required by a modern economy. This "skills gap" creates a paradoxical labor market where high aggregate unemployment coexists with a desperate shortage of qualified personnel, effectively preventing businesses from adopting advanced technologies because the necessary human capital is absent. Consequently, the economy suffers from "diploma inflation" rather than genuine human capital development, rendering increased education spending ineffective without a radical realignment of curricula toward market-driven cognitive demands [6, p. 285].

Beyond the supply of labor, institutional friction severely throttles the demand for productivity. The second major obstacle to developing economies is the misallocation of resources caused by opaque regulatory barriers and extractive political frameworks. As Acemoglu and Robinson note, "extractive institutions" are often designed not to facilitate commerce but to protect incumbent monopolies and political elites from competition [7, p. 131]. This creates a distorted marketplace where success is determined by political connections rather than economic efficiency. Hsieh and Klenow empirically demonstrated that, in markets such as those in China and India, capital and labor do not flow to the most productive innovators, but instead become trapped in state-connected "zombie firms" or inefficient legacy enterprises. These inefficiencies act as a massive implicit tax on growth [3, p. 1436].

Simulation data indicates that, without adding a single new dollar of foreign investment, total factor productivity would rise by 30-60% if capital allocation efficiency in these regions merely matched U.S. levels. This would be achieved by liberating existing resources to flow to high-growth firms. Thus, these nations' path to prosperity lies not only in educating their workers but also in dismantling the regulatory impediments that prevent those workers from being employed by efficient firms [5, p. 68].

The economic landscape for developed nations within the OECD is radically different. With mature market institutions providing roughly 45% of growth influence, the frontier of productivity depends almost entirely on "capital deepening"—the ability to increase the amount of capital per work [5, p. 69]. However, this capacity is becoming increasingly precarious due to an impending demographic shock. The European Commission's 2024 Ageing Report projects that, by 2070, the old-age dependency ratio in the EU will reach a critical threshold of two working people for every pensioner. This shift poses not only a social challenge but also a threat to economic growth, necessitating a rigorous comparative analysis of the two dominant fiscal architectures: the pay-as-you-go (PAYG) model and the fully funded model. Each system has distinct advantages and liabilities that affect a nation's macroeconomic ceiling [8, p. 24].

The pay-as-you-go system is prevalent in major economies such as France, Germany, and Italy. It operates based on an intergenerational social contract in which current workers fund current retirees. The primary advantage of this system is that it is insulated from financial market volatility. Retirees are shielded from stock market crashes, which ensures social stability and predictable income streams from the state tax authority. However, PAYG's structural liability becomes existential during demographic decline. In countries like France, where life expectancy at retirement exceeds 23 years, the system creates a "fiscal pincer" movement. To fulfill pension obligations with fewer workers, the government must raise labor taxes aggressively. This tax burden mechanically reduces the disposable income available for private investment and corporate research and development (R&D). Consequently, PAYG systems tend to suffer from a "crowding out" effect, whereby the state absorbs most of the available liquidity to fund consumption (i.e., pensions), leaving little for investment in the technological upgrades required to boost productivity. The risk here is demographic rather than financial. The solvency of the system is mathematically tied to birth rates, which are declining across the Western regions [9, p. 16].

Conversely, the Fully Funded system, utilized by nations such as the Netherlands, Switzerland, and increasingly Sweden, decouples retirement security from demographics and ties it to capital accumulation. In this model, workers save for their own future, creating a direct link between contributions and benefits. A key economic advantage is the generation of substantial domestic capital pools.

Figure 1 illustrates the significant difference in capital availability, showing that countries with funded systems have pension assets that exceed 145% to 210% of their GDP. This accumulated wealth acts as "long money," providing patient capital that is reinvested in the economy to fund infrastructure, corporate expansion, and technological innovation. However, this system is not without significant risks. The main downside is exposure to market volatility. Unlike a guaranteed state pension, a funded pension can shrink during a global recession, transferring risk from the state to the individual. Additionally, transitioning from a pay-as-you-go (PAYG) system to a funded system is notoriously difficult, creating a "double payment" problem where

one generation must pay for current retirees while simultaneously saving for themselves [10, p.17; 11,p. 24].

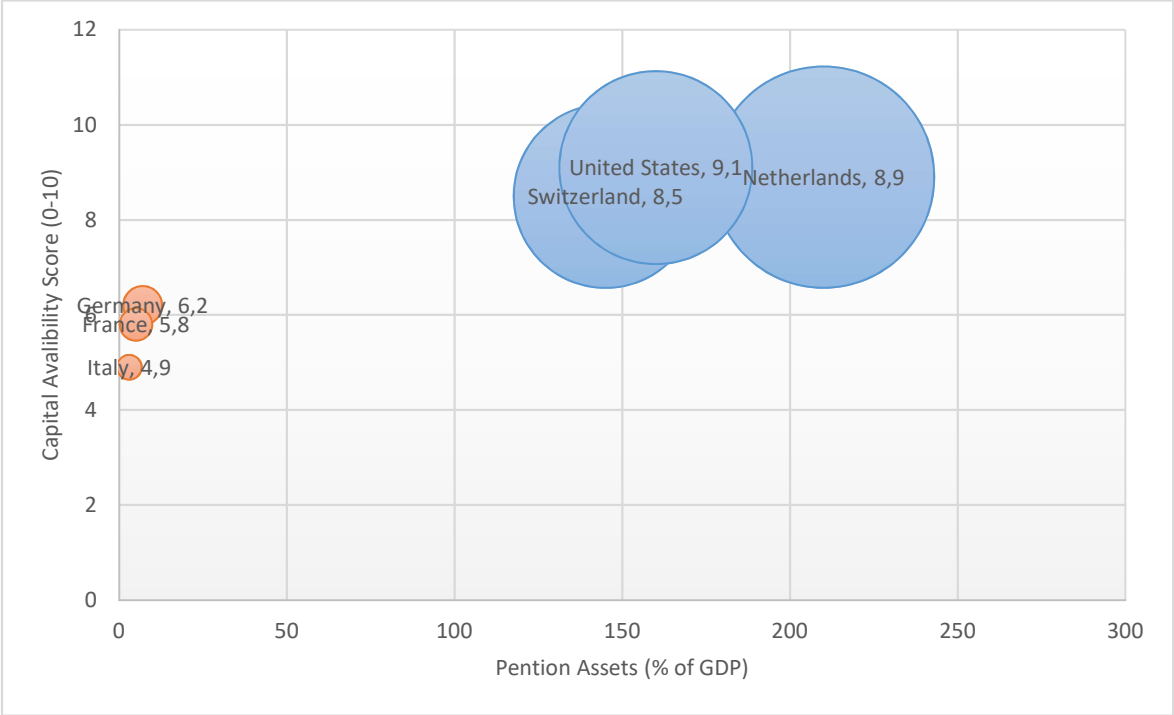

Figure 1 – **Pension Asset Depth vs. Capital Availability**

Source: Author's calculations based on data from McKinsey Global Institute [2]; OECD Pension Markets in Focus [9].

Despite the transition costs and market risks involved, the macroeconomic verdict regarding productivity clearly favors the investment-based model over the transfer-based model. The Lewis Threshold posits that a leap in development requires savings rates of 12–15% of GDP and remains a valid economic law, even for advanced economies (1, p. 164). The McKinsey Global Institute warns that the stagnation of capital intensity in Western Europe since the 2008 financial crisis is a direct result of consumption-led growth models prioritizing current spending over long-term savings. While PAYG systems offer social solidarity, they inadvertently penalize capital formation. Without the forced savings mechanism of mandatory funded pensions, Western economies lack the internal capital generation necessary to robotize and automate their industries at a pace that counteracts their demographic decline. Thus, while the funded system carries market risk, the PAYG system carries the certainty of secular stagnation, forcing a strategic choice between volatility and decline [2, p. 30].

Finally, international trade, specifically the composition of that trade, links the "developing" and "developed" nations. Developing nations cannot reinvent the wheel; they must import it. Madsen's analysis of 130 years of OECD data shows that 93% of productivity growth came from importing knowledge embedded in capital goods, such as machinery, software, and high-tech components [4, p. 475].

However, this transfer mechanism operates within a strict cycle. Importing advanced capital goods requires foreign currency, which necessitates competitive exports. In turn, competitive exports require competitive productivity. This creates a feedback loop in which productive firms need educated staff to operate imported machinery and investment capital derived from savings to purchase it. Currently, many transitioning economies fall into a "consumption trap": they import consumer goods, burning national savings on depreciating assets, rather than capital goods, investing savings in productive assets. This exacerbates the productivity gap because the nation accumulates trade deficits without developing the technological capacity to pay them off.

Conclusions. This article concludes that the "productivity puzzle" does not have a single solution. Instead, it reveals that solutions are strictly contingent upon the economic coordinate system in question. The

analysis shows a clear difference in the necessary policy responses, indicating that the causes of stagnation are fundamentally different between mature and emerging markets.

In developed economies, stagnation is structural and demographic. As the ratio of workers to retirees compresses toward the critical threshold of 2:1, the traditional strategy of increasing labor intensity becomes futile in the face of the harsh mathematics of an aging population. Consequently, the battle for productivity becomes a battle for savings. The study posits that long-term resilience is reserved for nations that transition successfully to funded pension systems. Only these systems can generate the substantial long-term investment capital necessary for sustaining capital deepening and offsetting a shrinking workforce.

In contrast, developing markets face a crisis of allocation and capability. The priority here is the quality of human capital and "institutional hygiene." The findings suggest that increasing education budgets alone is ineffective if curricula are not rigorously aligned with market needs. Furthermore, regulatory friction and barriers to entry create significant resource misallocation. This institutional inefficiency stifles 30-60% of potential total factor productivity (TFP) growth by preventing capital and labor from flowing to the most efficient firms.

Ultimately, sustainable development in the international labor market demands a global pivot from consumption-based to investment-based models. For transition economies, this entails a complex dual mandate:

- Implementing mandatory funded pension pillars to boost domestic savings toward the Lewis threshold of 12-15%.
- Simultaneously deregulating markets to ensure this new capital is not trapped by extractive institutions but flows effectively to productive innovators.

While this framework addresses the macro-level drivers of growth, granular data regarding the micro-level impact of these policies on specific sectors remains necessary. Further research should focus on localized labor market productivity measurements and the specific socio-economic impact of implementing these institutional policies.

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