

HUMAN CAPITAL DEVELOPMENT THROUGH INVESTMENT: INTERNATIONAL EXPERIENCE OF DEVELOPING COUNTRIES

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Abstract

This article examines the role and importance of human capital in the formation and development of a country's economy. It analyzes the impact of investments in education, healthcare, and innovation on sustainable growth, with a particular focus on developing countries. The paper also presents comparative information on the share of human capital in the national income of Uzbekistan and selected developed countries. Based on international experience, the study highlights effective strategies—such as promoting circular migration, improving ICT skills, and strengthening gender equality—that can enhance the efficiency of human capital formation and its contribution to economic development.

Keywords: human capital formation; investment; developing countries; Uzbekistan; national income; education; healthcare; innovation; sustainable development.

Annotatsiya

Mazkur maqolada inson kapitalining mamlakat iqtisodiyotini shakllantirish va rivojlantirishdagi o'zini hamda ahamiyati tahlil qilinadi. Unda ta'lim, sog'liqni saqlash va innovatsiyalarga yo'naltirilgan investitsiyalarning barqaror iqtisodiy o'sishga ta'siri, ayniqsa rivojlanayotgan mamlakatlar misolida ko'rib chiqiladi. Maqolada shuningdek, O'zbekiston va ayrim rivojlangan mamlakatlarda inson kapitalining milliy daromaddagi ulushi bo'yicha solishtirma ma'lumotlar keltirilgan. Xalqaro tajriba asosida inson kapitalini shakllantirish samaradorligini oshirish va uning iqtisodiy rivojlanishga qo'shadigan hissasini kuchaytirish imkonini beruvchi samarali strategiyalar — xususan, aylanma migratsiyani rag'batlantirish, AKT ko'nikmalarini rivojlantirish hamda gender tengligini mustahkamlash yo'nalishlari yoritilgan.

Kalit so'zlar: inson kapitalini shakllantirish; investitsiya; rivojlanayotgan mamlakatlar; O'zbekiston; milliy daromad; ta'lim; sog'liqni saqlash; innovatsiya; barqaror rivojlanish.

Аннотация

В данной статье рассматривается роль и значение человеческого капитала в формировании и развитии экономики страны. Анализируется влияние инвестиций в образование, здравоохранение и инновации на устойчивый экономический рост, с особым акцентом на развивающиеся страны. Представлены сравнительные данные о доле человеческого капитала в национальном доходе Узбекистана и ряда развитых стран. На основе международного опыта в исследовании выделяются эффективные стратегии, такие как содействие циркуляционной миграции, повышение ИКТ-компетенций

и укрепление гендерного равенства, которые способны повысить эффективность формирования человеческого капитала и его вклад в экономическое развитие.

Ключевые слова: формирование человеческого капитала; инвестиции; развивающиеся страны; Узбекистан; национальный доход; образование; здравоохранение; инновации; устойчивое развитие

INTRODUCTION

Attracting investment in human capital has become an integral component of every nation's long-term economic development strategy today. Human capital—encompassing education, healthcare, knowledge, and skills—represents a critical resource that ensures societal well-being and supports economic stability. For developing countries, mobilizing investments in human capital is essential to enhance global competitiveness, foster sustainable development, and promote social equity.

Uzbekistan, with its young and rapidly growing population, possesses significant potential for human capital development. However, in order to effectively harness these opportunities, it is crucial to study and adapt the experiences and strategies of advanced economies. For instance, countries such as Singapore and South Korea have achieved robust economic growth and high levels of social welfare through targeted investments in human capital. Their experiences serve as valuable examples for Uzbekistan, providing insights that can guide the formulation of effective state policies in this area.

LITERATURE REVIEW

The empirical literature establishes that investment in education remains one of the most consistent channels for human capital accumulation in developing countries. George Psacharopoulos's comprehensive reviews demonstrate robust private returns to an additional year of schooling across low- and middle-income economies, reinforcing the economic rationale for education subsidies and expanded access.

Complementing the returns-to-education literature, James J. Heckman and collaborators emphasize the primacy of early childhood interventions: skill formation is dynamic and cumulative, and investments targeted at the earliest years yield disproportionately high economic and social returns, especially for disadvantaged children. Policy implications follow: sequencing and quality matter as much as quantity.

A parallel strand led by Eric A. Hanushek and Ludger Woessmann shifts attention from years of schooling to cognitive skills. Their analyses show that measurable cognitive achievement — rather than mere attainment — correlates strongly with economic growth, implying that policies focused solely on enrollment expansion may fail unless school quality and learning outcomes are simultaneously improved.

Development practitioners and institutions have translated these findings into large-scale frameworks. The World Bank's Human Capital Project and Human Capital Index operationalize the link between health, learning, and future productivity, providing cross-country metrics that guide investment priorities and financing decisions in developing economies.

Policy evaluations also identify effective delivery mechanisms. Conditional cash transfers and targeted nutrition and health programs have a demonstrated record of raising school attendance, improving child health, and thus strengthening long-term human capital, while Pritchett’s work on the “learning crisis” warns that expanded access without learning gains undermines these investments. Taken together, the literature argues for integrated, quality-focused, and early-targeted investment strategies to build productive human capital in developing-country contexts.

METHODOLOGY

This scientific article employs comparative and analytical methods to explore the prospects of attracting investments into human capital as a means of reducing unemployment. The methodology includes the analysis of centralized and decentralized investment volumes, as well as the use of comparative, deductive, inductive, and statistical approaches. Based on the results of the research, theoretical conclusions and practical recommendations are developed to enhance the effectiveness of investment in human capital.

ANALYSIS AND RESULTS

According to the latest World Bank Group analysis, the COVID-19 pandemic has had a negative impact on the progress achieved over the last decade in both health and education sectors. Prior to the pandemic, most countries had demonstrated consistent growth in building human capital among children, and low-income economies had achieved the fastest rates of improvement. However, despite this progress, even before the pandemic’s onset, a child born in an average country could only expect to reach 56% of their potential human capital, even with full access to education and healthcare services [1].

The pandemic caused a severe disruption in education: more than one billion children worldwide were unable to attend school, resulting in an estimated six months of lost learning, which translated into considerable long-term economic losses.

Uzbekistan participated in the Human Capital Index assessment for the first time and achieved a score of 0.62 (62%), placing it behind Belarus (70%), Russia (68%), and Kazakhstan (63%) among CIS countries, but ahead of Kyrgyzstan (60%) and Tajikistan (50%) (Table 1) [2].

Table 1.

Analysis of Human Capital Index (HCI) Components among CIS States (2020)

| Country | Probability of Survival to Age 5 | Expected Years of Schooling (Primary + Secondary) | International Test Scores | Learning-Adjusted Years of Schooling | Adult Survival Rate | HCI (2020) |
|------------|----------------------------------|---|---------------------------|--------------------------------------|---------------------|------------|
| Uzbekistan | 0.98 | 12.0 | 474 | 9.1 | 0.87 | 0.62 |
| Russia | 0.99 | 13.7 | 498 | 10.9 | 0.80 | 0.68 |
| Kazakhstan | 0.99 | 13.7 | 416 | 9.1 | 0.87 | 0.63 |
| Kyrgyzstan | 0.98 | 12.9 | 420 | 8.7 | 0.85 | 0.60 |
| Tajikistan | 0.97 | 10.9 | 391 | 6.8 | 0.87 | 0.50 |

Source: World Bank Human Capital Index Database (2020) [2].

Based on the table above, Uzbekistan's results exceed those of its neighboring Central Asian states, though it still trails Kazakhstan in some dimensions such as test outcomes and adjusted years of schooling. Within the CIS context, Uzbekistan ranks fourth, following Belarus, Russia, and Kazakhstan. The index encompasses indicators from birth through education and health outcomes, providing an integrated view of lifelong human capital development.

In recent years, Central Asian countries have placed increasing emphasis on both the quantitative and qualitative dimensions of human capital as they transition toward new stages of economic development. The Kazakhstan National Human Capital Report reveals an intensifying “brain drain” phenomenon, characterized by the emigration of highly skilled professionals—economists, teachers, and technical experts—whose expertise is critical for national growth [3].

Key Structural Challenges in Kazakhstan's Human Capital

1. **Insufficient High-Quality Jobs:** A lack of stable and well-paid employment opportunities motivates specialists to seek work abroad. While official statistics may not fully reflect this, field data indicate that informal employment, limited career growth, and low wages are major push factors.

2. **Skill Replacement Imbalance:** Departing professionals with higher education degrees are often replaced by migrants possessing only basic or secondary education. This has led to a structural mismatch between skill supply and demand within the labor market.

3. **Weak Circular Migration Policy:** Kazakhstan lacks effective mechanisms to promote circular migration—the process by which citizens working abroad return home, bringing back capital, experience, and innovation. Such policies could benefit both sending and receiving countries.

4. **Recognition of Foreign Qualifications:** The absence of formal recognition and integration mechanisms for foreign professionals hinders the efficient use of human capital inflows.

Kazakhstan's national report highlights digitalization as a priority, noting that innovation hubs in Nur-Sultan and other regions play a crucial role in economic modernization. For digital transformation to succeed, however, the development of next-generation ICT specialists is essential. The vocational education system must prioritize areas such as information systems design, cybersecurity, database management, and software engineering.

This experience provides valuable lessons for Uzbekistan. The outflow of qualified professionals also affects Uzbekistan, making it necessary not to suppress migration but to harness circular migration for national benefit. Mechanisms should be created to reintegrate returning workers' knowledge and skills into the domestic economy [4].

Similarly, developing systems to recognize the competencies of immigrant workers, including informal and non-formal learning, will improve labor market efficiency and maximize human capital utilization.

Another strategic task is to create high-quality, stable jobs to reduce informal employment and retain young talent domestically. Strengthening professional development pathways and guaranteeing labor rights can prevent “brain drain” and preserve national expertise.

Digitalization also remains crucial. Under the Digital Uzbekistan–2030 strategy, fostering human capital in ICT—specifically in information systems, cybersecurity, and software development—will enhance the country’s technological competitiveness [5].

Kazakhstan’s experience aligns with that of advanced nations such as South Korea and Singapore, which have effectively utilized circular migration and high-skill labor policies to strengthen domestic economies. South Korea’s reintegration programs channel the skills and savings of returning workers into national innovation systems, while Singapore ensures continuous human capital growth through favorable working conditions, high-income employment, and a world-class education system.

For Uzbekistan, these cases underline two policy priorities:

1. Transforming labor migration from a “loss” into a productive investment cycle through circular migration frameworks.

2. Modernizing and digitalizing the labor market to strengthen domestic absorption of human capital and contribute to the goals of Uzbekistan–2030 [6].

Kazakhstan’s population is steadily increasing, with children under 15 years old constituting nearly one-third of the total population [7]. As noted by Florence Bauer, Regional Director for Eastern Europe and Central Asia at UNFPA, this young generation represents both an opportunity and a responsibility for the nation’s future [8].

The demographic youth bulge offers potential for future innovation and economic expansion. Young people entering the labor market in coming years can significantly contribute to national development if properly equipped with relevant skills.

At the same time, life expectancy in Kazakhstan is rising, necessitating policies that promote healthy aging and ensure social protection for all population groups. Accordingly, greater budgetary investment in human capital is required to place people at the center of national policy.

Education and lifelong learning remain pivotal to converting demographic advantage into long-term growth. Preparing youth for green and digital economies through formal and supplemental training opportunities is essential. This approach also supports resilience to digital transformation and climate adaptation.

Investment in reproductive health is another critical component of human capital. Access to accurate information empowers young people—especially girls—to make informed decisions regarding education, careers, and family planning. Such empowerment promotes gender equality and ensures the full utilization of human capital.

However, women remain an underused resource in Kazakhstan’s labor market, constrained by social and institutional barriers. Policies enabling work-life balance—

such as childcare support and flexible working arrangements—are necessary not only for gender parity but also for expanding the nation’s productive labor base.

Furthermore, women’s longer life expectancy has led to the “feminization of aging,” where elderly women often face economic insecurity due to career interruptions. Comprehensive pension and healthcare systems, along with lifelong social protection, are needed to mitigate these disparities.

Addressing domestic violence is also vital for strengthening the social foundation of human capital. Despite legislative improvements, greater efforts are required to shift social norms and engage men and boys in prevention. Early detection and intervention mechanisms are key to breaking intergenerational cycles of abuse.

Kazakhstan’s experience demonstrates that effective human capital investment requires a multidimensional approach—combining education, skills development, gender equality, reproductive health, labor market inclusion, and social protection. Such integrated policies ensure not only economic efficiency but also social cohesion and long-term sustainability.

For Central Asian states, the main challenge is ensuring that youth acquire modern competencies, women participate equally in economic life, and healthy aging policies are institutionalized. These investments can unlock the demographic dividend and guarantee enduring socio-economic stability.

Kazakhstan has identified science and innovation as strategic priorities in its modernization agenda. Currently, R&D expenditure accounts for only 0.12% of GDP, with plans to increase this figure to 1% by 2025. For comparison, developed nations typically allocate 2–4% of GDP to research and development, while the OECD average is 2.48% [9].

Global consultancy Korn Ferry Hay Group projects a shortage of 85.2 million skilled professionals worldwide by 2030, potentially costing the global economy USD 8.5 trillion [10]. Kazakhstan already faces shortages in certain fields, prompting greater participation in the global “talent race” [11].

Between 2019 and 2023, Kazakhstan’s healthcare spending increased 2.5-fold—from 1 trillion tenge (USD 2.2 billion) to 2.5 trillion tenge (USD 5.5 billion). Nevertheless, this represents less than 20% of total government expenditure, compared to 40–50% in developed economies [12]. This indicates an ongoing need to strengthen the health sector as a vital component of human capital.

Experts also recommend introducing leadership programs in higher education institutions, drawing on the Harvard University model, to enhance communication skills, corporate culture, and democratic management practices—often referred to as “soft skills” [13].

Overall, analysts note that the impact of human capital on the economy is largely indirect—manifested through productivity rather than immediate outputs. Kazakhstan has primarily focused on adopting existing technologies over the past two decades, but the creation of new technologies remains limited, underscoring the need for a stronger innovation ecosystem.

CONCLUSIONS AND SUGGESTIONS

The analysis confirms that human capital remains the decisive factor in post-pandemic recovery and long-term development across Central Asia. The pandemic exposed weaknesses in education and health systems, yet also highlighted the critical importance of investing in people.

For Uzbekistan, key lessons from Kazakhstan and global leaders such as South Korea and Singapore include:

- Embracing circular migration as a source of national renewal rather than loss;
- Creating high-quality domestic jobs to retain skilled youth;
- Expanding digital skills through targeted ICT education;
- Strengthening gender equality, social inclusion, and healthy aging policies;
- Increasing R&D and healthcare investments to global benchmarks.

Implementing these measures will not only raise Uzbekistan's Human Capital Index but also reinforce the country's global competitiveness and advance the objectives of the Uzbekistan–2030 Strategy.

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