

EDUCATION AS A CRUCIAL FACTOR IN THE FORMATION OF HUMAN CAPITAL

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Introduction

The higher education system is one of the critical foundations for the development of any country. It acts as a significant prerequisite and driving force for socio-economic progress. In the Republic of Armenia (RA), the higher education system is undergoing a complex phase of reforms while facing numerous challenges such as declining quality of education, insufficient funding, mismatches between specializations and labor market demands, and limited access to education.

In recent years, globalization and technological advancements have presented new challenges to the higher education system, compelling it to become more flexible, modernized, and competitive. In this context, addressing the fundamental issues of higher education in Armenia and developing mechanisms for their resolution are crucial for aligning with the strategic goals of the country's development.

The purpose of this article is to analyze the current issues in Armenia's higher education system, focusing on their economic, social, and cultural consequences. The research examines contemporary challenges in the field, emphasizes the necessity of integrating international best practices, and proposes practical solutions to improve the efficiency of the educational system.

Literature Review

Recent studies emphasize the transformative power of education on human capital formation, suggesting that a well-designed educational system can have far-reaching effects on economic and social development. The foundational theory on human capital [Schultz, 1961, 17] has been expanded upon by contemporary researchers to encompass a wider array of educational outcomes that directly impact economic growth and societal progress [Becker, 2013, 34-35; Heckman, 2010, 22.]

In the past decade, the relationship between education and labor market outcomes has been the focus of extensive empirical research. Becker's updated analysis on human capital [Becker, 2013, 50-51] explores the direct correlation between investment in education

and increased productivity and innovation. This work is supported by Heckman and Kautz's (2012) findings, which advocate for the integration of soft skills development into curriculums to enhance employability and adaptability in changing job markets [Heckman et al., 2012, 451-464]

Lucas (2012) and Romer (2012) further develop the concept of endogenous growth theories by integrating technological advancements in education, emphasizing that technology in educational delivery not only enhances learning outcomes but also stimulates economic growth by producing a more skilled workforce [Lucas, 2012, 5-15], [Romer, 2012, 18-27]. The application of AI and machine learning in personalized learning experiences, as explored by Xu and Recker (2022), provides insights into how these technologies can be adapted for use in Armenia to address educational challenges and improve accessibility [Xu & Recker, 2022, 1002.].

Furthermore, the importance of aligning education with labor market demands has been highlighted in several studies over the past decade. Durkheim's theories on the social functions of education [Durkheim, 2013, 14-15] resonate in the context of Armenia, where Grigoryan's (2017) work shows a disconnection between educational outcomes and labor market needs. Grigoryan suggests that curricula reforms, guided by labor market analytics, could significantly enhance the relevance and efficacy of educational programs [Grigoryan, 2017, 71].

Environmental sustainability and education have also become increasingly significant in recent literature. Researchers like Smith and Smith (2019) argue that incorporating sustainable development goals into education systems can prepare students for participation in the green economy, which is especially relevant for Armenia as it aims to expand its renewable energy sector [Smith & Smith, 2019, 1123].

In conclusion, the literature from the last decade underscores a comprehensive approach to educational reform that includes technological integration, curriculum alignment with labor market demands, and the incorporation of sustainability into educational content. These elements are crucial for Armenia as it seeks to enhance its human capital and foster socio-economic development.

Methodology

This research is based on theoretical perspectives from classical and contemporary economists regarding the role of education as a key factor in the formation of human capital. It examines policies impacting the reproduction of human capital and their effects on the economy. Data sources include RA laws, government decisions, and statistical data published by the Statistical Committee of Armenia. Databases of the World Bank and the UN related to human capital were analyzed from 1990 onwards, with a focus on indicators from highly developed countries. Comparative analysis and graphical represent-

tations were used to identify trends and draw conclusions. The dynamics of student numbers in Armenia since 2010 were analyzed, and the key factors influencing these changes were revealed.

Scientific novelty

The research paper presents a series of insightful and strategic innovations aimed at transforming Armenia's higher education system. These innovations are meticulously designed to address both the systemic challenges and the structural misalignments with socio-economic needs, ensuring that education both contributes to and benefits from national development. Below are the key innovative aspects discussed in the paper:

1. *Global Integration of Best Practices:* The study underscores the crucial need for Armenia to adopt international best practices in education. This approach involves the modernization of curricular and pedagogical strategies to elevate teaching standards and align them with global benchmarks. By integrating advanced educational models, Armenia can enhance the quality and relevance of its higher education offerings, making them more attuned to the demands of the global labor market.

2. *Comprehensive Educational Reforms:* The paper advocates for sweeping reforms aimed at recalibrating the higher education system to support broader socio-economic growth. This includes refining educational policies to better match the evolving job market, thus ensuring that graduates possess the skills and knowledge needed to thrive professionally and contribute positively to the economy.

3. *Tackling Regional Educational Disparities:* Highlighting the disparity in educational resources between urban and rural areas, the article calls for more equitable distribution policies. Such measures would promote regional development and prevent the concentration of educational and human capital in urban centers such as Yerevan. By fostering equal opportunities for all, irrespective of geographic location, Armenia can achieve a more balanced and inclusive educational landscape.

4. *Financial Innovation in Education:* The paper details the need for innovative financial models within higher education institutions. It suggests overhauling the existing funding mechanisms to ensure sustainable support for universities. This reform would aim to reduce dependence on tuition fees, which often serve as a significant barrier to education for underprivileged students. Improved funding strategies are proposed to enhance accessibility, maintain high educational standards, and support the financial sustainability of higher education institutions

Analysis

Education is a central component of human capital reproduction, forming skills, knowledge, and abilities essential for the labor market and ensuring continuous economic development. Its importance cannot be overstated, ranging from individual professional growth to the economic stability and development of the entire country.

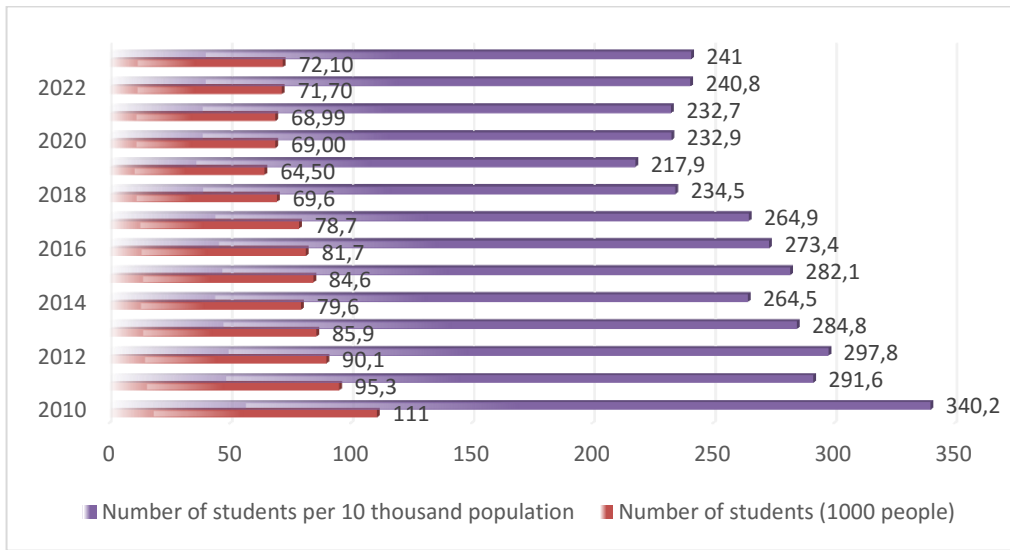


Figure 1. Number of students in the Republic of Armenia (2010-2023)

1. According to the Figure 1, the number of students in Armenia has decreased significantly over recent years. For example, in 2023, the number of students per 10,000 residents decreased by 0.7 times compared to 2010, and their absolute number declined by 0.64 times. The primary factors contributing to this trend include:
2. *Demographic Situation:* Armenia’s permanent population declined from 3,034,600 in 2010 to 2,991,200 in 2023, naturally leading to a decrease in student numbers [Statistical Committee of Armenia, Demographic Database, 2023].
3. *Social Conditions:* High education costs, limited accessibility, and the low likelihood of receiving a commensurate salary after graduation hinder access to education for economically disadvantaged households.

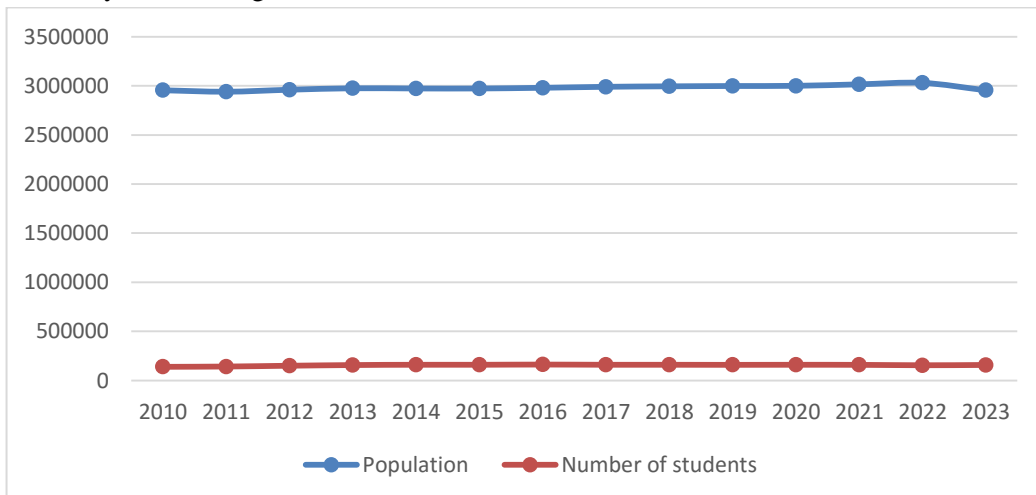


Figure 2. Population and number of students (2010-2023)

Value Systems: Changing societal values, particularly among youth, influence the pursuit of higher education. High costs associated with higher education and other barriers, such as accessibility, often lead economically disadvantaged households to forgo education after secondary school. Statistics confirm a correlation between poverty and limited access to education [Statistical Committee of Armenia, "Poverty Snapshot in Armenia", 2023].

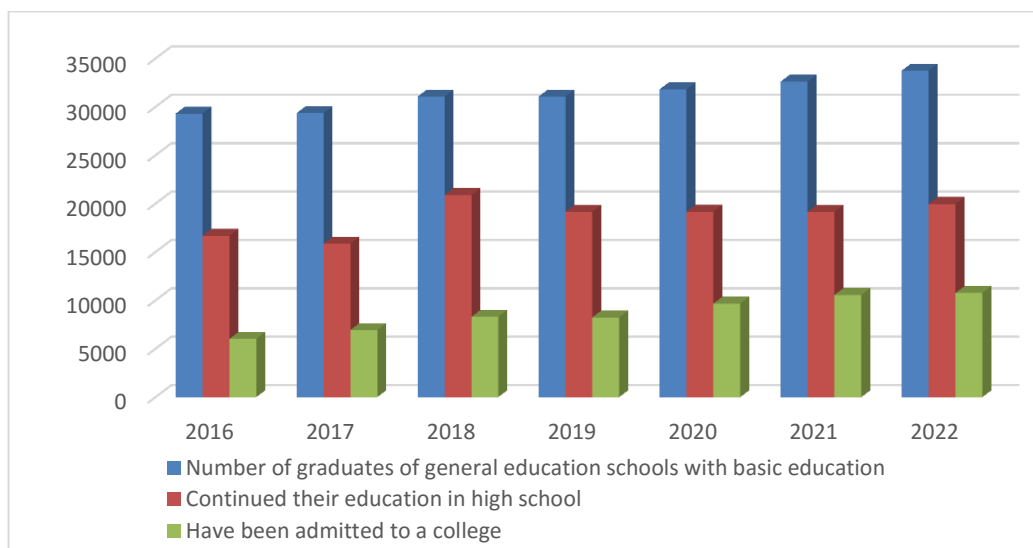


Figure 3. Number of graduates, general education schools, basic education, 2016-2022

The analysis of data on graduates of general education schools from 2016 to 2022, based on reports [Statistical Committee of RA Reports on the Social Status of Armenia (2016-2022)] highlights the following key trends regarding students continuing their studies in high schools and those admitted to colleges and vocational education institutions (VET):

- The total number of graduates increased from 29,304 in 2016 to 33,753 in 2022, reflecting a 15.2% growth.
- The number of students continuing their education in high schools remained stable.
- The number of students admitted to colleges and vocational education institutions (VET) showed steady growth, rising from 6,025 in 2016 to 10,768 in 2022, indicating an increasing demand for vocational education.

The deviation in the number of students who received secondary education completion certificates in 2018 from the trends of previous years is attributed to the transition to a 12-year education system in the 2006/2007 academic year, during which two first-grade cohorts were admitted simultaneously. Overall, during the 2020–2022 period, about 60% of graduates showed consistent interest in continuing their education in vocational (both secondary and higher) educational institutions, according to reports from the [Statistical Committee of the Republic of Armenia's Reports on the Social Status of Armenia (2016-2022)].

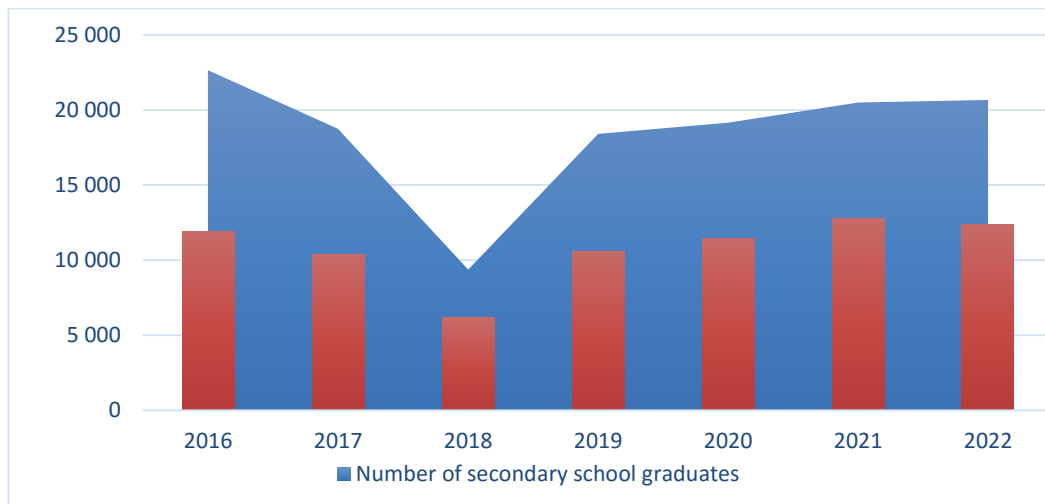


Figure 4. Number of secondary school graduates in 2016-2022

One of the most critical yet underestimated factors influencing education is the value system of society. This factor affects the choice of profession and university, the learning process during studies, and the commercialization of acquired skills and knowledge upon graduation. Sociological studies indicate that 65% of respondents did not make rational choices when selecting their future professions [Grigoryan, 2017, 69]. Specifically:

- 30% chose their future profession based on the university's reputation.
- 20% were influenced by advice from friends studying at that university.
- 15% prioritized the prospect of high-paying jobs after graduation.

Thus, for most students, choices were driven by stereotypes, and only 1/3 expressed genuine interest in their chosen professions and the related prospects [Grigoryan, 2017].

The societal impact of values extends deeply into the quality of knowledge acquisition. In Armenia, plagiarism is formally condemned but informally tolerated and even ingrained as a norm starting from school age. For example, leniency from teachers when cheating is discovered and bullying of peers who oppose cheating contribute to a culture where many students resort to plagiarism or pay others to complete their individual and final assignments. While software tools can detect direct plagiarism, identifying work completed by someone else is nearly impossible statistically. Evidence of this can be seen in the prevalence of online advertisements offering "assignment services." This detrimental phenomenon undermines the legitimacy of many individuals' educational qualifications and restricts the development of analytical skills, which should ideally be cultivated in universities.

The relationship between universities and employers is another crucial issue. Educational programs must align with labor market demands and the outcomes expected by employers. Research on the labor market shows:

- Private sector organizations do not strictly demand higher education qualifications for specific roles.
- In the public sector, both high-performing and low-performing graduates can compete for the same positions.

This trend can demotivate students from striving for academic success and hinder universities from modernizing their curricula to match labor market requirements effectively.

The importance of education in fostering human capital and economic growth is evidenced by correlation analysis. For instance, the Human Development Index (HDI), published periodically by the UN, comprises components such as the average duration of schooling, expected years of schooling, life expectancy, and GDP per capita. Countries with the highest HDI typically enjoy advanced development and prosperity levels.

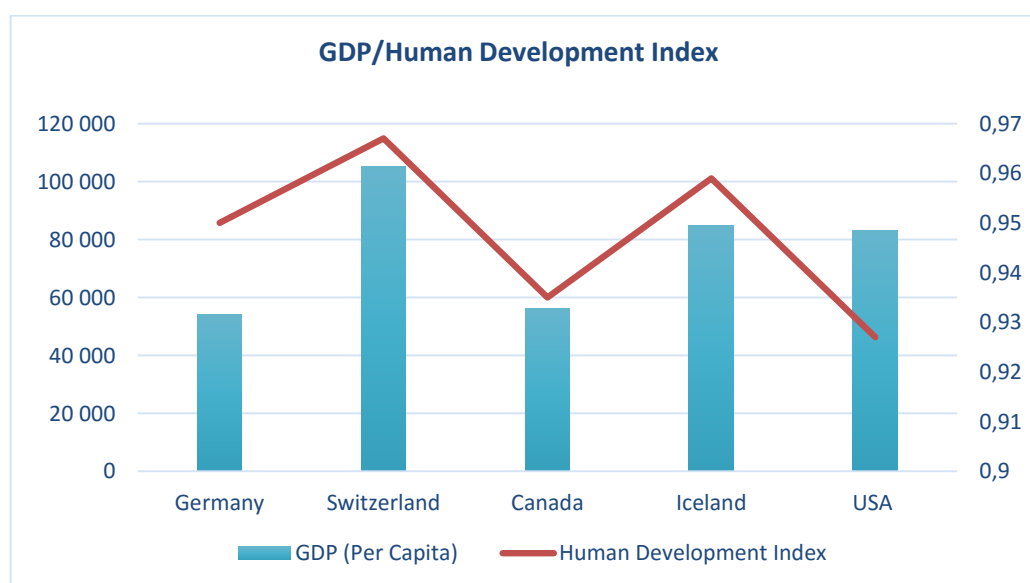


Figure 5. Human Development Index/GDP 2022

For instance, in Switzerland, where the Human Development Index (HDI) is notably high at 0.967, the GDP per capita reaches an impressive 105,000 US dollars¹. Both GDP per capita and the HDI serve as key indicators of a nation's well-being. These metrics effecti-

¹ UNDP, accessed on 09.12.2024. Link: <https://hdr.undp.org/data-center/country-insights#/ranks>]; World Bank, accessed on 09.12.2024. Link: <https://worldpopulationreview.com/countries/by-gdp>

vely illustrate the levels of a country's development and the overall quality of life and prosperity enjoyed by its citizens.

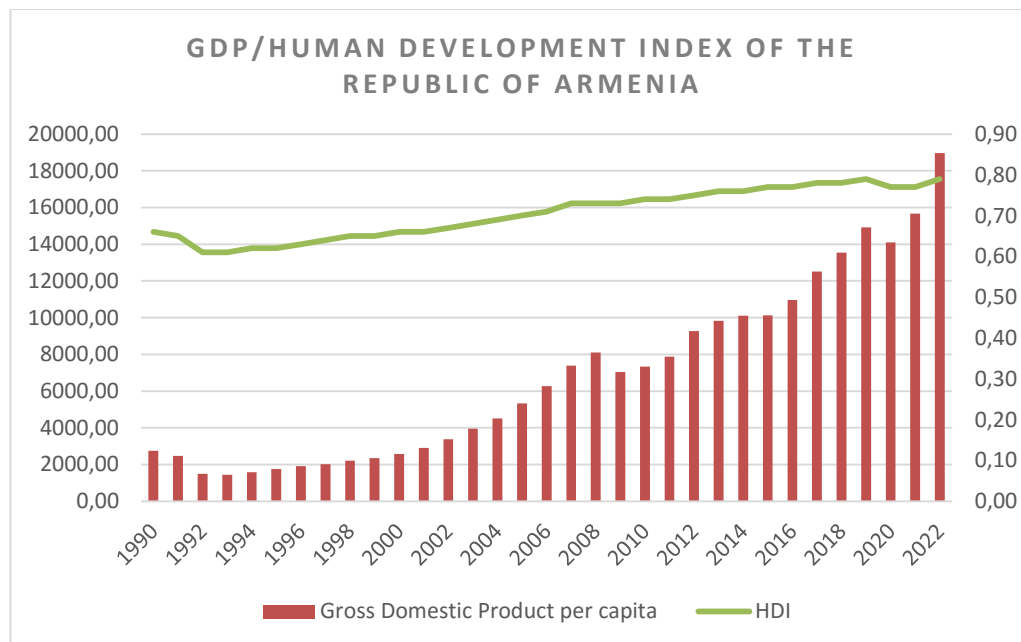


Figure 6. Human Development Index/GDP 2022

The Human Development Index (HDI) is not limited to indicators of material well-being; it also encompasses health and education metrics. Armenia currently ranks 75th out of 204 countries, with an HDI of 0.79, which corresponds to a high level of human development. This represents an increase from 0.66 in 1990. However, the disparity between GDP growth and HDI improvement is notable: GDP has grown nearly sevenfold, from \$2,756 to \$18,965, while HDI has increased by only 15.7 percentage points¹.

This gap suggests that the economic growth of the country has not been evenly distributed across all social groups, with development primarily concentrated in specific sectors. Both sectoral and geographic inequalities contribute to the concentration of human capital, perpetuating a vicious cycle.

For example, the majority of Armenia's human capital is concentrated in Yerevan, the capital city, due to the higher concentration of higher education institutions and better career opportunities. Most graduates prefer to stay in Yerevan to build their careers.

¹ UNDP, accessed on 09.12.2024. Link: <https://data.undp.org/countries-and-territories/ARM#:~:text=Armenia's%20Human%20Development%20Index%20value,of%202024%20countries%20and%20territories>

Additionally, the average nominal salary is highest in Yerevan, recorded at 319,000 AMD (as of the third quarter of 2024¹, which further incentivizes individuals to settle in the capital. This urban-centered focus restricts regional development and reinforces the challenges of human capital distribution across the country.

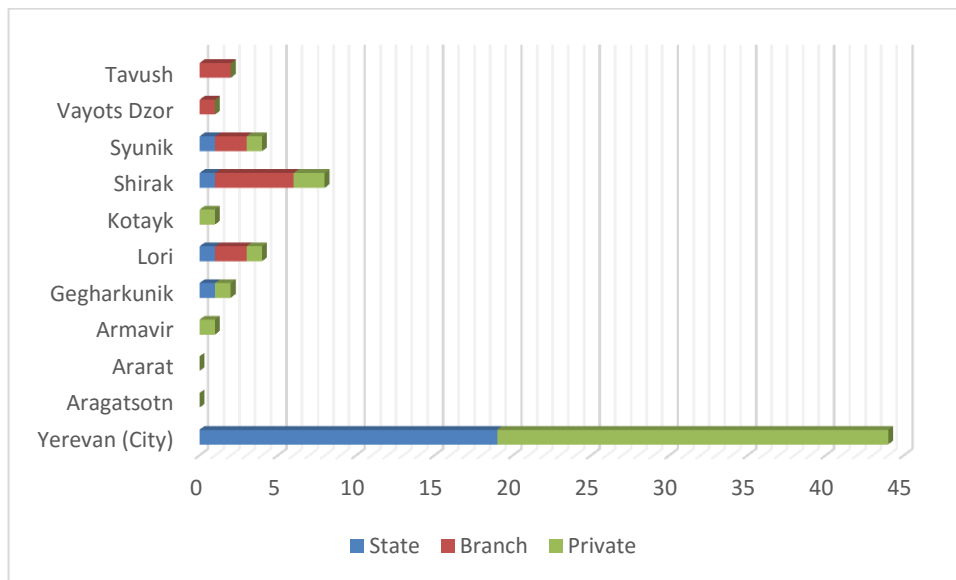


Figure 7. Number of higher education institutions by regions of the Republic of Armenia (2023).

Currently, there are 23 public educational institutions in Armenia, including 12 branches. Most universities are located in Yerevan, while a significant portion of branches is in Shirak Marz. Among the 32+ private universities, 25 are in Yerevan, 2 in Shirak, and 1 each in Armarvir, Gegharkunik, Kotayk, Lori, and Syunik. There are no universities or branches in Aragatsotn and Ararat, though their proximity to Yerevan partially compensates for this absence.

Challenges in University Funding

University funding remains a critical issue in the context of human capital development and economic progress in Armenia. According to UNESCO Institute for Statistics and the World Bank:

- Public expenditure on higher education is extremely low, constituting just 0.02% of GDP², far below the OECD average of 1.3%.

¹ Armenia Statistical Committee: Data on regional salaries and development indices (accessed on 09/12/2024), <https://armstat.am/am/?nid=964>

² UNESCO Institute for Statistics, accessed on 10.12.2024

- Higher education spending accounts for 13% of total education expenditures, compared to the OECD average of 20% [World Bank, 2024].

Tax Contributions of Universities

Universities significantly contribute to Armenia's tax revenues:

- They are not exempt from profit taxes, as tuition fees and other payments (e.g., evening courses, IT training) are considered profit-generating activities.
- Many universities based in Yerevan rank among the top 1,000 largest taxpayers¹.

Due to low government funding, universities depend heavily on tuition fees for financial sustainability. To maintain steady income, they increase the number of paid seats, which negatively affects the quality of education by reducing competitiveness and selectivity.

Learning from Global Leaders: South Korea

Countries that prioritize investment in higher education have achieved remarkable economic outcomes. South Korea serves as an outstanding example:

- Since the 1960s, the government has allocated a substantial portion of national investment to education, with spending reaching about 5% of GDP [OECD Report: Education at a Glance, 2023].
- This investment strategy led to annual economic growth rates of 6–10% between 1960 and 1990 [EDIFY, 2024].
- South Korea's GDP per capita has grown nearly 300-fold, reaching \$50,600 in 2023 [Trading Economics, 2024].

Improvements in the education system and the development of a skilled workforce have played pivotal roles in fostering technological innovation and industrial growth. These efforts have contributed to the global success of companies like Samsung, Hyundai, and Kia, making South Korea a world leader in electronics and the automotive industry [STEMedia, 2024].

Conclusion

The stability and continuity of investments in human capital are fundamental to the efficient reproduction of human capital and the socio-economic development of any country. However, Armenia's higher education system faces several challenges that limit the prospects for human capital development, particularly:

1. Uneven Regional Distribution and Development of Human Capital

Yerevan, as the educational, economic, and cultural center, attracts the majority of educated and skilled labor. Universities in the capital have greater financial and educational resources and higher rankings, making them more appealing to applicants. Limited job

¹ Armenian Tax Authorities, accessed on 10.12.2024.

opportunities in the regions hinder young people from working in their hometowns after completing their education. Consequently, regional residents prefer to study in Yerevan or abroad and often do not return to their communities.

2. Funding Limitations

Armenian universities often face inadequate funding, which hampers the modernization of educational institutions and the implementation of competitive programs. As a result, universities are compelled to increase the number of paid seats, lowering admission requirements and, in turn, limiting the training of highly qualified professionals. This ultimately negatively impacts the quality reproduction of human capital.

3. Decline in Student Enrollment

The decline in the number of students can be attributed to several key factors:

- *Poverty*: Many families cannot afford to finance their children's education, making higher education accessible only to limited social groups.
- *Shift in Values*: A decrease in interest in education reflects changes in social and cultural values. Families often prioritize short-term income-generating activities over long-term benefits from education.
- *Migration*: The outflow of human capital, including students and highly qualified professionals, reduces the potential of the higher education system. Many students prefer to study abroad and do not return to Armenia.

Final Thoughts

In summary, Armenia's higher education system faces significant challenges that require urgent solutions. It is essential to:

- Revise approaches and mechanisms for financing the education system,
- Stimulate societal interest in education,
- Develop programs that promote the effective utilization of human capital.

Only by overcoming these challenges will it be possible to ensure the sustainable development of the education system and foster social progress.

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Education as a Crucial Factor in the Formation of Human Capital

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This article explores the critical role of education in the formation and development of human capital, emphasizing its significance for socio-economic progress and sustainable growth. Using the Republic of Armenia as a case study, the research delves into the challenges faced by the higher education system, including declining quality, insufficient funding, mismatch with labor market needs, and accessibility issues. Drawing on theoretical frameworks from pioneers like Schultz, Becker, and Durkheim, the study underscores the transformative potential of education in enhancing individual productivity and societal cohesion. The analysis integrates statistical data, global best practices, and trends in higher education reform to offer actionable recommendations. Key findings highlight the demographic and social factors contributing to the decline in student enrollment, the unequal distribution of human capital across regions, and the pressing need for a stronger alignment between educational programs and market demands. The research also sheds light on the role of cultural values, governance, and innovation in shaping an effective education system. By addressing these challenges, the article advocates for targeted reforms to improve the quality, accessibility, and efficiency of education in Armenia, thereby strengthening its human capital and supporting long-term economic and social development.