

## MANAGERIAL PERSPECTIVES ON LEVERAGING THE CORRELATION BETWEEN HEALTH AND HUMAN CAPITAL IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT

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**Purpose of the article:** *The article aims to analyze the adaptation of human resource management policies and practices to contemporary demographic challenges, such as population aging, labor migration, and declining birth rates. It seeks to identify managerial mechanisms that can help organizations and public institutions maintain labor market stability and human capital sustainability amid globalization and workforce mobility.*

**Methodology:** *The study applies statistical and comparative analysis to demographic data and employment indicators, examining correlations between population trends and labor market dynamics. It also includes applied research on migrant integration and employee retention strategies, focusing on flexible recruitment, continuous professional training, and motivation adapted to generational diversity.*

**Conclusions:** *The findings show that demographic changes require innovative, adaptive, and inclusive approaches to human resource management. Strengthening cooperation between the state, businesses, and educational institutions is essential for developing coherent policies that enhance labor market resilience and long-term competitiveness.*

**Originality:** *The originality of the study lies in its integrated approach linking demographic evolution with innovative managerial practices, emphasizing sustainable human capital as a key driver of competitiveness.*

**Keywords:** *Human resources, Management, Public policies, Demographic trends, Sustainability, Competitiveness.*

**JEL classification:** *M12, O15, J24.*

### INTRODUCTION

Health was enshrined by the World Health Organization as „a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2000). This definition marked a paradigmatic shift in how health is understood, reframing it from a purely biological condition into a multidimensional construct with social, economic, and cultural implications. Today, health is recognized not only as a fundamental human right, but also as a strategic investment in sustainable development and in human capital.

The expanded concept of health reflected in modern theories goes beyond the classical biomedical approach. Contemporary frameworks - such as health as a social function, as a personal resource, or as an ideal state of equilibrium - underscore that health is a necessary condition for individuals to realize their biological, intellectual, and economic potential. In this sense, health becomes a prerequisite for skills development, social integration, and active participation in economic life - core elements in human capital theory.

From the perspective of sustainable development, health is not only an end in itself but also a transversal instrument for achieving other major objectives. The 2030 Agenda of the United Nations, through Goal 3, „Ensure healthy lives and promote well-being for all at all ages” (UNGA, 2015), enshrines this integrative approach, linking health to domains such as education, social equity, employment, and environmental protection.

At the same time, the specialized literature (Grossman, 1972; Schultz, 1961; Bloom, 2004; Sârbu, 2013) highlights a direct correlation between the population’s health status and socio-

economic development indicators, such as GDP per capita, life expectancy, educational attainment, and employment rates. Recent statistical models – supplemented by analyses of the social determinants of health, including income, living conditions, access to education, a clean environment, and prevention policies - confirm that population health is a key factor in a nation's sustainable growth.

## **MATERIALS AND METHODS**

To conduct this research, an interdisciplinary approach was employed - typical of studies in sustainable development and health economics - with an emphasis on the conceptual and empirical analysis of the relationship among health, human capital, and sustainable development. The work proceeded along two main methodological directions: a theoretical - documentary analysis and a comparative analysis of relevant statistical indicators.

The theoretical - documentary analysis consisted of a critical review of the scholarly literature, including: conceptual definitions of health as formulated by the World Health Organization (EUROSTAT 2025, WHO,2024) and other international bodies; the classification and interpretation of health theories (biomedical, functional, constructivist, economic, etc.); human capital theories (Schultz, 1961; Becker, 1993) and their linkage to public health policies; and strategic documents concerning the Sustainable Development Goals (particularly SDG 3 and its connections with SDGs 4, 8, 10, and 16). The sources reviewed included WHO, World Bank, and UNDP reports, international academic studies, and instructional materials, all of which provide a broad conceptual framework for understanding health as a core objective of human development.

To support the empirical dimension of the study, the following health and human development indicators were selected and analyzed: life expectancy at birth; infant mortality rate; fertility rate; public health expenditure (% of GDP); the Human Capital Index (HCI); and the Human Development Index (HDI). Data were collected from official sources: World Bank Open Data, WHO - World Health Statistics, UNDP Human Development Reports, Eurostat, and the National Bureau of Statistics of the Republic of Moldova.

The primary analytical method was descriptive correlation between health indicators and economic development indicators, complemented by comparative analysis across countries with differing levels of investment in health. In addition, a qualitative assessment of the social determinants of health was integrated, drawing on the WHO's classification of individual, socio-economic, behavioral, and environmental factors.

## **RESULTS AND DISCUSSIONS**

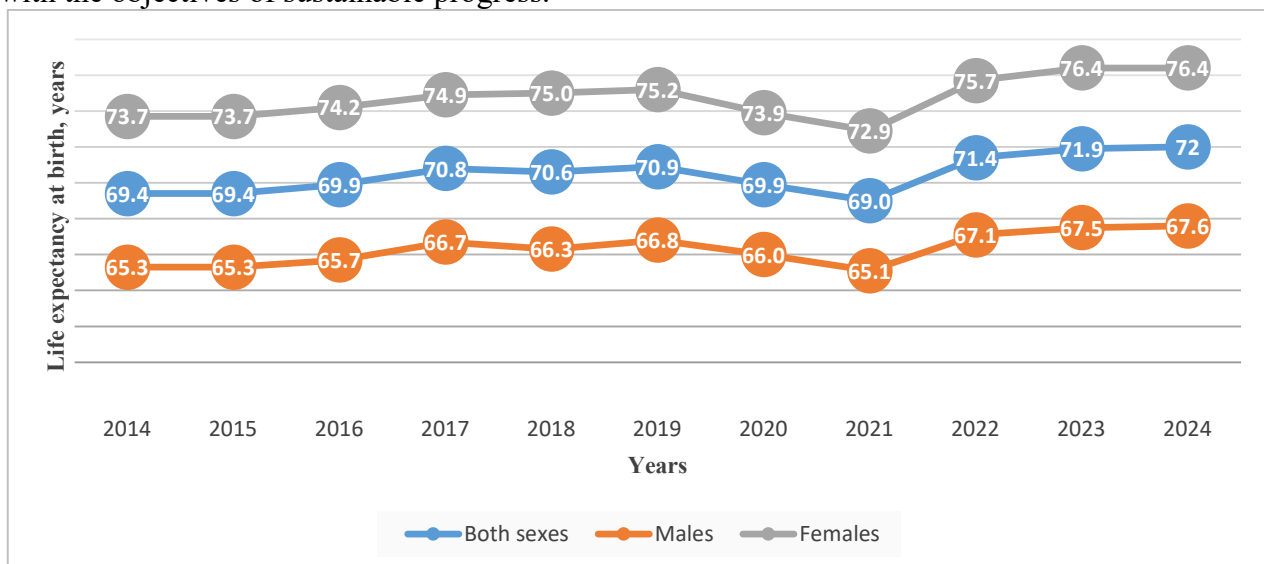
In the context of ongoing socio-economic transformations, population health has become a fundamental pillar of sustainable progress and the consolidation of human capital. The level of health directly influences productivity, labor-market participation, and quality of life, thereby shaping a country's overall economic performance. In this regard, the comparative analysis of key social, economic, and demographic parameters provides an objective basis for assessing managerial perspectives on leveraging the relationship between health and human capital. By integrating these dimensions, the research identifies essential trends that reflect the impact of health on productivity, social inclusion, and sustainable development, thereby informing the design of effective and durable public policies.

Life expectancy at birth is among the most salient demographic and social indicators used to evaluate both the health status of a population and the level of economic and social development of a given entity or country. It reflects the average number of years a newborn is expected to live, assuming that the mortality rates observed at the time of birth remain constant throughout the individual's life. This indicator extends beyond a strictly medical dimension; it captures the cumulative influence of social, educational, economic, and environmental factors on life quality and is widely regarded as a central benchmark of population well-being. The specialized literature underscores that health is a

fundamental determinant of human capital, shaping productivity, learning capacity, and the overall degree of economic and social engagement (Bloom, 2004; Sârbu, 2017; Sârbu, 2020). From the perspective of human capital theory (Becker, 1993; Schultz, 1961), investments in health are analogous to investments in education, as they enhance individuals' value and potential to contribute to economic and social development. Consequently, life expectancy at birth functions not only as a statistical indicator but also as an analytical instrument for understanding the linkage between health and human capital performance.

Internationally, rising life expectancy is associated with the expansion of medical services, reductions in infant mortality, improvements in working conditions and nutrition, and public policies oriented toward social inclusion and the prevention of health risks. Nevertheless, disparities by sex, between urban and rural areas, and across countries with different levels of economic development underscore that health remains an unevenly distributed resource - one that directly affects social cohesion and the prospects for sustainable progress.

In the case of the Republic of Moldova - where life expectancy at birth remains below the European average but exhibits a gradual upward trend - the analysis of this indicator acquires strategic importance. It provides decision-makers and managers with useful evidence, highlighting the need for integrated policies that align investments in health with the development of human capital and with the objectives of sustainable progress.



**Figure 1. Evolution of life expectancy at birth, 2014–2023, years.**

*Source: Author's compilation based on (NBS, 2024).*

The evolution of life expectancy at birth during 2014-2024 reflects a structural transformation in the health status and quality of life of the population of the Republic of Moldova. The data indicate a generally upward trend despite temporary fluctuations driven by exceptional factors, notably the 2020 - 2021 pandemic. Overall, life expectancy rose from 69.4 years in 2014 to 72.0 years in 2024, representing an increase of 2.6 years over the decade. This trajectory suggests a strengthening of key health determinants, including improved access to medical services, better living conditions, and healthier population-level behaviors. At the same time, growth was not uniform: a pronounced setback is evident between 2020 and 2021, when life expectancy fell to 69.0 years, marking the direct and indirect effects of the global health crisis.

Sex-disaggregated analysis reveals a significant yet stable differential over time. Male life expectancy increased from 65.3 to 67.6 years, while female life expectancy rose from 73.7 to 76.4 years. A persistent gap of approximately 8 - 9 years is thus observed, pointing to structural vulnerabilities among men - particularly lifestyle-related risks, occupational exposures, and lower engagement with preventive care. Notably, this gap narrowed temporarily during the pandemic to

about 7.8 years but widened again as overall levels recovered, reaching 8.8 years in 2024. The stability of this gender differential indicates that advances in public health have benefited women more, leaving the sex gap as a consistent feature of the national demographic profile.

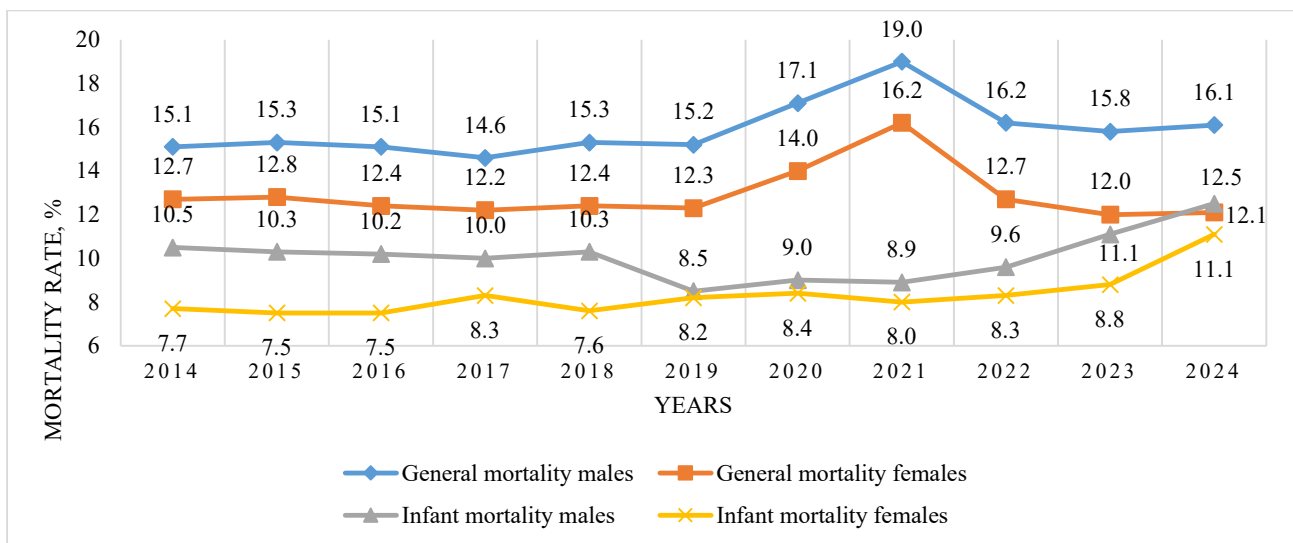
Overall, the period 2014 - 2019 was one of steady, balanced growth, followed by a sharp decline in 2020 - 2021 due to the pandemic and then a rapid recovery in 2022 -2024. This V-shaped pattern indicates a relatively high degree of resilience in the health system and an effective adaptation by the population after a severe epidemiological shock. Moreover, the fact that life expectancy rebounded and surpassed its pre-pandemic level suggests a strengthening of medical infrastructure and an improvement in social awareness regarding health. From the perspective of public management and development policy, these results confirm the direct link between health and human capital, highlighting that investments in medical services, prevention, and health education translate into tangible economic and social benefits. A healthier and longer-lived population contributes to extending the duration of working life, increasing productivity, and reducing pressure on the social protection system.

Despite this positive trajectory, the analysis also reveals major challenges that must be addressed from a strategic managerial perspective. The persistence of the gender gap in life expectancy, vulnerability to epidemiological crises, and the polarization of health outcomes across social groups call for an integrated approach to health as a fundamental dimension of human capital. Prevention programs, the promotion of healthy lifestyles, and equitable access to medical services become priorities for sustaining durable progress. Thus, the evolution of life expectancy over the past decade should be viewed not only as a public health success but also as a strategic indicator of sustainable development, demonstrating that economic progress and health advances are interdependent and mutually reinforcing.

One of the most relevant demographic indicators for assessing the overall health status of the population and the efficiency of the health system is the mortality rate. Analyzing the evolution of this indicator makes it possible to identify trends in the level and structure of deaths, as well as the impact of socio-economic, medical, and environmental factors on population longevity. In the context of research on the relationship between health and human capital, the dynamics of the mortality rate provide essential insights for understanding demographic vulnerabilities and for designing public policies oriented toward sustainable progress.

The evolution of the mortality rate during 2014-2024 (Figure 2) outlines a demographic profile characterized by persistent gender differences and pronounced conjunctural effects, particularly in the pandemic years. Overall mortality among men remains consistently higher than among women throughout the entire period, peaking in 2021 (19.0 versus 16.2) and declining thereafter; however, in 2024 the male level (16.1) still exceeds that of 2014 (15.1), whereas the female level falls below its initial benchmark (12.1 in 2024 versus 12.7 in 2014). This asymmetry reflects both differentiated exposure to risk and harmful behaviors and men's lower adherence to prevention and treatment, with direct implications for life expectancy and socio-economic costs. The long-term profile is therefore clearly V-shaped in relation to the pandemic: a moderate rise in risks in the run-up to the health crisis, a peak shock in 2020–2021, followed by a partial recovery for men and a more robust one for women - widening the relative mortality gap to the detriment of the male population.

In the sphere of infant mortality, a more concerning dynamic is observed: a slight improvement up to 2019 - 2021 is followed by a trend reversal and a pronounced increase in recent years. After relatively lower values in 2019 - 2021 (for example 8.5 - 9.0 for boys and 8.2 - 8.0 for girls), the indicator rises markedly after 2022, reaching 12.5 for boys and 11.1 for girls in 2024 - both above the 2014 levels (10.5 and 7.7, respectively).



**Figure 2. Evolution of the mortality rate, 2014 - 2024 (%), %.**

*Source: Author's compilation based on (NBS,2025).*

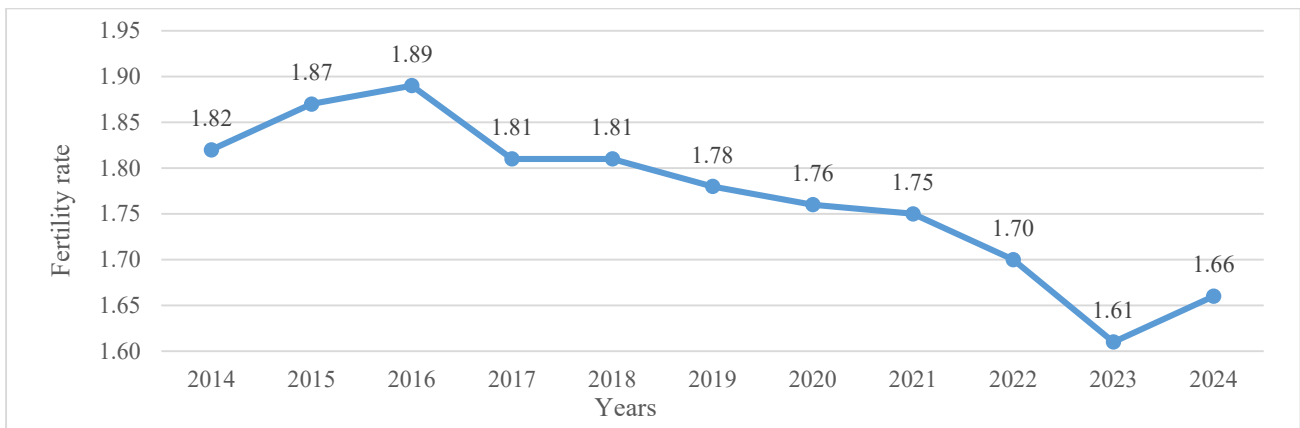
Although the gender gap under age one narrows at the end of the period, the key fact is the simultaneous deterioration of both series, suggesting recent problems in perinatal and neonatal care, access and quality of services, adherence to infection-control programs, vaccination coverage, and monitoring of high-risk pregnancies. This post-2022 reversal of the trend runs counter to the expected post-crisis resumption of improvements and calls for a targeted audit of specific causes by district, settlement type, and social category.

From a managerial perspective, the combined picture of general and infant mortality points to two complementary priorities. First, a targeted strategy is required to reduce excess male mortality through cardio-metabolic prevention, control of alcohol and tobacco use, occupational safety, proactive screening, and easier access to family physicians; gains in this area would translate quickly into years of life saved and higher productivity. Second, urgent action is needed to stabilize and reduce infant mortality by strengthening perinatal and neonatal care, supporting high-risk pregnancies, ensuring proximity and continuity of care for mothers and newborns, and implementing community-level public-health interventions. In the absence of these measures, losses of human capital will materialize both through reduced healthy life years in adulthood and through the direct impact on younger cohorts, with long-term consequences for sustainable progress.

The fertility rate is a strategic demographic indicator that reflects a population's capacity for renewal and directly influences age structure, labor-market pressure, and the sustainability of social systems. Analyzing its dynamics makes it possible to capture the combined effects of the economic context, family policies, migration, and access to reproductive health services. In relation to the research objective concerning the health - human capital nexus, fertility trends provide essential benchmarks for designing managerial interventions and public policies oriented toward sustainable progress.

The evolution of the total fertility rate in the Republic of Moldova over 2014 - 2024 (Figure 3) reveals a robust downward trend, interrupted only by a minor correction in the most recent year.

The decline from 1.82 to 1.66 children per woman - with a peak in 2016 and a trough in 2023, confirms the consolidation of birth-postponement behaviors, rising direct and indirect costs of childrearing, economic uncertainty, and the pressure of external migration on younger cohorts. Persistently remaining below the replacement threshold implies, over the medium and long term, a contraction of the labor-market recruitment pool, an intensification of population ageing, and an increasingly unfavorable dependency ratio, with consequences for the sustainability of public finances and the economy's growth potential.



**Figure 3. Evolution of the total fertility rate, 2014–2024, children per woman.**

*Source: Author's compilation based on (NBS, 2025).*

Compared with European benchmarks, Moldova's current position remains modest - similar to levels observed in many Central and Eastern European states and markedly below those of countries that have stabilized fertility through predictable, broad-coverage family policies. This configuration indicates that demographic outcomes are shaped not only by individual preferences but also by the institutional architecture that determines the opportunity cost of parenthood and the compatibility between family and professional roles. To the extent that the current policy mix does not offset material and organizational barriers, fertility will remain trapped at low levels, and losses of human capital will be transmitted across generations.

Public policy responses must be coherent, gradual, and evaluable, structured around several strategic pillars. Financial support should be adequate, predictable, and aligned with labor-market participation objectives to avoid undesirable dependency and to encourage a rapid return to work after childbirth. Early-childhood care infrastructure - from crèches to after-school services - should be expanded in a regionally balanced manner and tailored to families' actual needs, including through public-private partnerships. Employment policies can incorporate flexible work arrangements, high-quality part-time options, and incentives for employers, so that the organizational costs of parenthood are shared fairly among the state, employers, and families. A complementary pillar consists of "brain-gain" measures and reduced reintegration costs for couples in the diaspora, given that international mobility remains a key determinant of effective fertility.

At the operational level, the effectiveness of interventions depends on continuous monitoring of target indicators and on transparent impact-evaluation mechanisms. In addition to the total fertility rate, time series on age at first birth, urban - rural differences, distribution by educational attainment, access to childcare services, and housing costs are needed to calibrate policies at territorial and socio-economic levels. A coherent strategy that combines material support with accessible services and flexible work arrangements can turn the modest correction in 2024 into the beginning of a stabilization toward levels compatible with long-term development objectives. In the absence of such an architecture, declining fertility will continue to erode the stock of human capital, increase pressure on public systems, and limit the potential for economic convergence.

Public health expenditure, expressed as a share of GDP, synthesizes the budgetary priority accorded to health and the state's capacity to undertake investments with high social returns. The dynamics of this indicator highlight both the available fiscal space and the efficiency of allocations in relation to demographic needs. Stability and efficiency in spending not only strengthen the health system's resilience to shocks but also enhance the formation and maintenance of human capital, thereby accelerating convergence toward sustainable development goals.

**Table 1. Evolution of public health expenditure in the Republic of Moldova**

| Years | Health care expenditures |   |                           |                | Health expenditure in the consolidated budget |                                | Share of health expenditure in GDP |                            |
|-------|--------------------------|---|---------------------------|----------------|---|--------------------------------|------------------------------------|----------------------------|
|       | Value, mil. lei          | Δ absolute change vs. previous year, mil. lei | Growth rate, year/year, % | Index 2012=100 | Share, %                                      | Δ change in budget share, p.p. | Share, %                           | Δ change in GDP shar, p.p. |
| 2012  | 4749,80                  | -   | -                         | 100            | 13,4  | -                              | 5,4                                | -                          |
| 2013  | 5226,90                  | +477,1  | +10,04                    | 110,04         | 13,5  | +0,1                           | 5,2                                | -0,2                       |
| 2014  | 5890,30                  | +663,4  | +12,69                    | 124,01         | 13,3  | -0,2                           | 5,3                                | +0,1                       |
| 2015  | 6455,80                  | +565,5  | +9,6                      | 135,92         | 13,9  | +0,6                           | 5,3                                | 0                          |
| 2016  | 6505,50                  | +49,7   | +0,77                     | 136,96         | 13,4  | -0,5                           | 4,0                                | -1,3                       |
| 2017  | 7268,70                  | +763,2  | +11,73                    | 153,03         | 13,3  | -0,1                           | 4,1                                | +0,1                       |
| 2018  | 7799,00                  | +530,3  | +7,3                      | 164,2          | 13,1  | -0,2                           | 4,1                                | 0                          |
| 2019  | 8635,00                  | +836  | +10,72                    | 181,8          | 13,1  | 0                              | 4,1                                | 0                          |
| 2020  | 9990,20                  | +1355,2                                       | +15,69                    | 210,33         | 13,6  | +0,5                           | 5,0                                | +0,9                       |
| 2021  | 13527,80                 | +3537,6                                       | +35,41                    | 284,81         | 16,5  | +2,9                           | 5,6                                | +0,6                       |
| 2022  | 13655,80                 | +128  | +0,95                     | 287,5          | 13,6  | -2,9                           | 5,0                                | -0,6                       |
| 2023  | 15944,10                 | +2288,3                                       | +16,76                    | 335,68         | 13,5  | -0,1                           | 5,3                                | +0,3                       |
| 2024  | 18077,20                 | +2133,1                                       | +13,38                    | 380,59         | 14,7  | +1,2                           | 5,6                                | +0,3                       |

*Source: Author's compilation based on (NBS,2025).*

The data indicate a consistent nominal increase in public health expenditure, from 4.75 billion lei in 2012 to 18.08 billion lei in 2024 - an approximately 3.8-fold rise and an average annual growth rate of about 11.8%. The trajectory is not linear: after stagnation in 2016 (+0.8% relative to 2015), growth resumed, with a more pronounced surge in 2021 (+35.4% year-on-year), followed by a normalization of dynamics in 2022 and renewed increases in 2023 and 2024. This evolution reflects both the shock induced by the pandemic and structural shifts in the post-pandemic period.

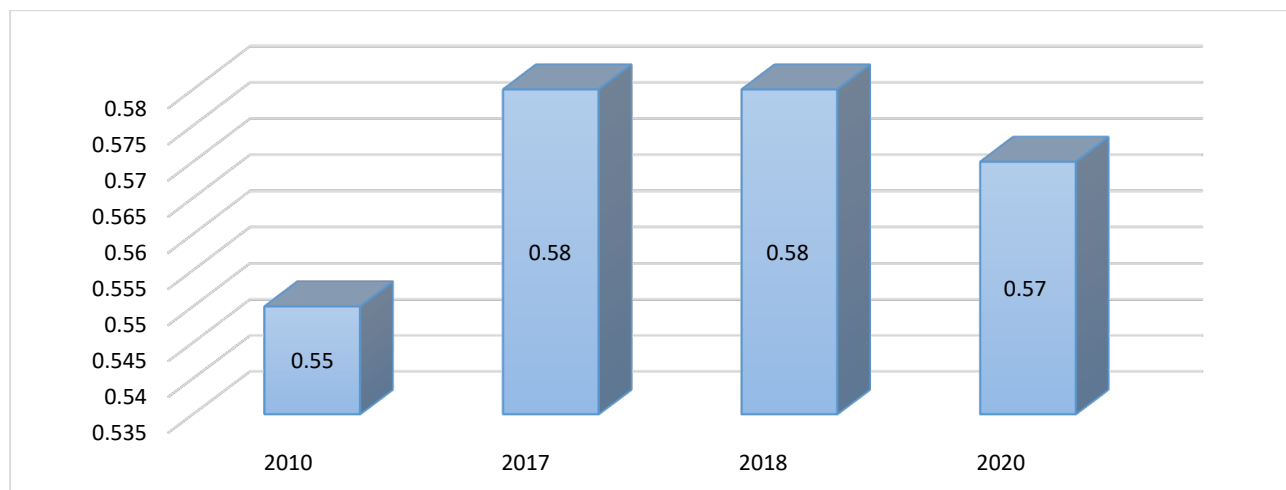
As a share of GDP, the dynamics of health expenditure can be divided into two stages. Between 2012 and 2019, spending fluctuated within the 4.1–5.4% range, averaging approximately 4.69%, with a minimum in 2016 (4.0%). After 2020, it settled at a higher level, averaging 5.3%, with peaks in 2021 and 2024 (5.6%). This trend indicates that, in the wake of the pandemic, the state placed greater emphasis on health, notwithstanding a minor correction in 2022 followed by a subsequent rebound.

With respect to the share in the consolidated budget, health expenditure hovered around 13–14% prior to the pandemic (average ~13.38%), jumped to 16.5% in 2021, and then stabilized at a level still higher than before, reaching 14.7% in 2024 (average 2020–2024 ~14.38%). Post-2020, there is clear evidence of a stronger budgetary commitment to health. While health has gained budgetary and economic priority, the sustainability of these gains depends on translating this momentum into a predictable and efficient financing framework focused on prevention, resilience, and the rigorous use of resources in order to generate durable human-capital benefits.

The Human Capital Index (HCI) provides a rigorous framework through which the relationship between health and education can be cast in managerial terms - future productivity, social returns on investment, and economic resilience. In this regard, it is not merely a descriptive measure but a governance instrument that identifies where capacities are being lost - from early survival and learning quality to the health of adolescents and young adults - and where interventions can generate the greatest value added for human capital.

Leveraging the correlation between health and human capital entails shifting from financing consumed inputs to results-based management: defining a system of key performance indicators (HCI and its components), program-based budgeting across “health–education–nutrition,” cost-effectiveness evaluations, and performance contracts at the institutional level. Such a managerial approach enables the prioritization of prevention, the reduction of learning gaps, the strengthening of

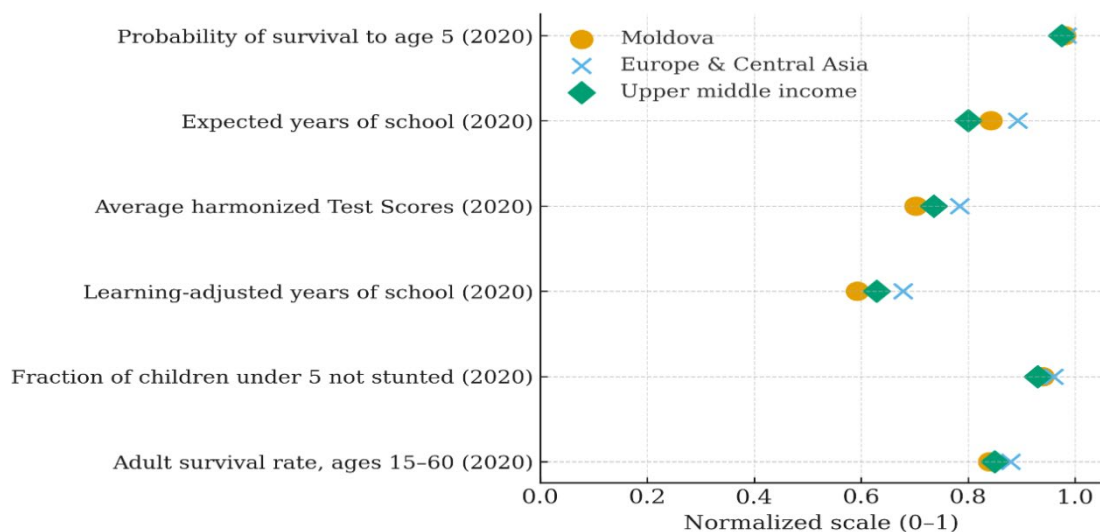
health at working ages, and, ultimately, the systematic conversion of public investments into sustainable productivity gains. Under these conditions, HCI analysis becomes an exercise in managerial policy: it identifies weak links, estimates the rate of return on interventions, and offers a framework for monitoring progress toward sustainable development objectives, in which health and human capital are treated jointly as the economy's primary strategic resource.



**Figure 4. Evolution of the Human Capital Index (HCI) of the Republic of Moldova, 2010-2020.**  
*Source: (WB, 2020; WB 2022).*

The Human Capital Index (HCI) of the Republic of Moldova is estimated at 0.58 on a 0–1 scale, meaning that a child born today would, by adulthood, attain approximately 58% of the productivity they could achieve if they enjoyed full access to quality education and optimal health. The index comprises five essential dimensions. On early survival, 98% of children reach age five, indicating good coverage of maternal and child health interventions. On the education dimension, children accumulate an average of 11.8 years of schooling by age 18; however, adjusting for learning quality reduces this total to 8.2 learning-adjusted years, reflecting a learning gap of about 3.6 years. The average score on harmonized assessments is 436 (with 300 as the minimum threshold and 625 as advanced), suggesting that the cognitive returns to years of schooling are substantially improvable. In terms of adult survival, roughly 83% of 15-year-olds can expect to live to at least age 60, while in the nutrition dimension an estimated 6% of children experience stunting, with potential long-term effects on physical and cognitive development.

Dynamically, Moldova's HCI increased from 0.56 to 0.58 between 2012 and 2020, indicating measurable progress, yet still insufficient for rapid convergence toward higher regional standards. Although the current value is generally below that of some neighboring countries with stronger educational performance, it remains above the average observed in economies with a similar income level. The managerial implications are clear. The priority is not merely to extend the duration of schooling, but to improve learning quality and reduce human-capital losses through integrated policies in public health, nutrition, and prevention. Accelerating progress requires well-targeted investments in early childhood education, teacher training, robust assessment of learning outcomes, school health programs and nutrition interventions, as well as the strengthening of primary health services for children and youth. In this way, years of schooling will translate more faithfully into competencies, and health gains will convert into sustainable productivity.



**Figure 5. Comparative Evaluation of Human Capital Components in Moldova (2020).**

*Source: (WB, 2020; WB 2022).*

The figure 5, provides a comparative representation of the main components of the Human Capital Index (HCI) for the Republic of Moldova, in relation to the regional average of Europe and Central Asia and the group average of upper-middle-income countries. Based on indicators normalized on a scale from 0 to 1, the graph illustrates the country's systemic performance in two fundamental areas of human capital formation – health and education – highlighting the degree of convergence or divergence with international standards.

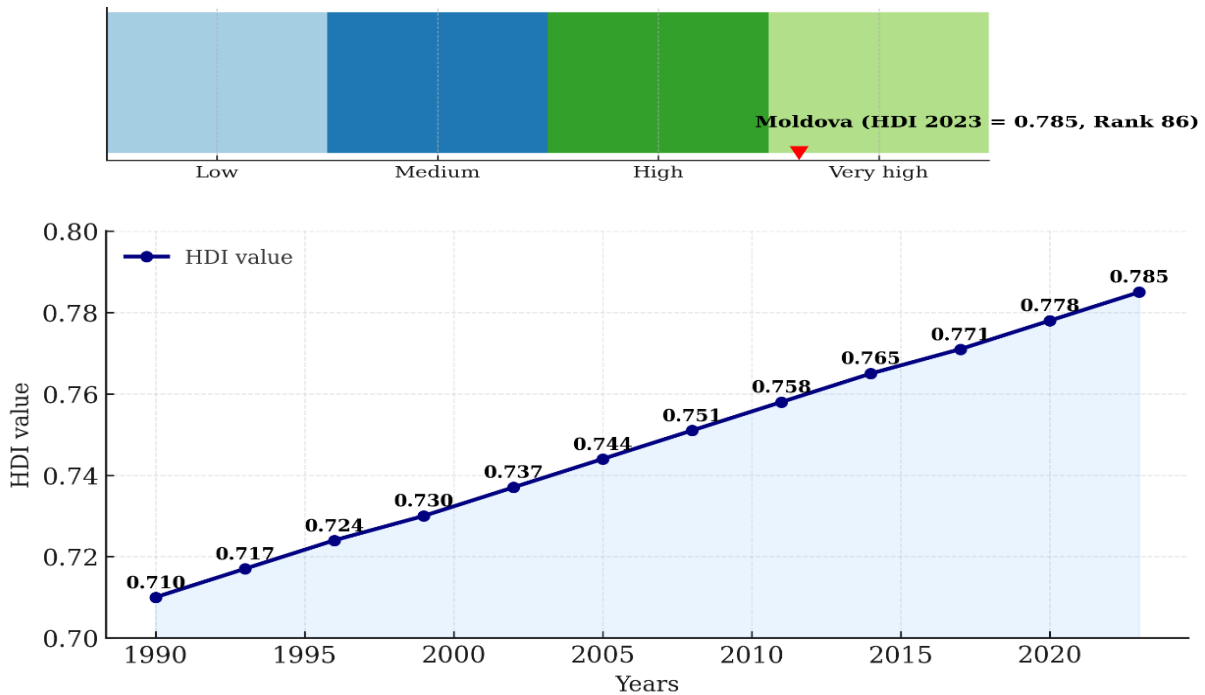
Overall, the Republic of Moldova demonstrates relatively strong outcomes in the field of health, as reflected in the high probability of survival to age five (0.98) and the 0.94 share of children under five who are not stunted. These results confirm the progress achieved in primary healthcare and disease prevention, supported by improved access to basic medical services. At the same time, the adult survival rate (0.84) remains below the regional average, indicating the persistence of structural vulnerabilities in the health status of the active population, including the prevalence of chronic diseases and the impact of high-risk behaviors on longevity.

In the educational dimension, the graph shows an expected duration of schooling of 11.8 years, comparable to the levels observed in upper-middle-income countries. Nevertheless, the qualitative analysis reveals a significant gap between the length and quality of education, as indicated by the average score in harmonized international tests (439 points), which is considerably lower than the regional benchmark. This discrepancy translates into an adjusted learning indicator of only 8.3 years, suggesting efficiency losses in the educational process and a partial utilization of the formative potential of the education system.

Therefore, the figure synthesizes a balanced yet complex image of Moldova's human capital. While health-related performance reflects notable progress and convergence toward European standards, the educational dimension reveals persistent challenges regarding instructional quality and the alignment of learning outcomes with the needs of a knowledge-based economy. In global terms, the HCI value of 0.57 in 2020 positions the Republic of Moldova midway between medium-income and high-performing countries, implying the necessity of strengthening public policies focused on skill development, reducing inequalities, and enhancing social resilience.

The Human Development Index (HDI) consolidates, in a single measure, a country's outcomes in health (longevity), education (years and quality of schooling), and standard of living (income per capita), offering an integrated picture of quality of life. From an economic standpoint, a higher HDI signals a larger stock of human capital and higher potential productivity, with direct effects on sustainable growth and resilience to shocks. This index functions as a benchmark for results-based

management: it shows how investments in health and education are converted into valuable human capital and guides managerial decisions that maximize sustainable progress.



**Figure 6. Trends of the Human Development Index (HDI) of the Republic of Moldova.**  
*Source:* (UNDP, 2023; UNDP, 2024).

The upward trajectory of the Human Development Index (HDI) over 2005 - 2023, culminating in a peak value of 0.785 in 2023, places the Republic of Moldova in the category of countries with high human development. Temporally, the data show a moderate increase during 2005 - 2009, followed by steady gains throughout the 2010 - 2020 decade. Although there were brief periods of decline - a slight reduction in 2015 and a temporary downturn in 2019 – 2020 - both were followed by a resumption of the positive trend. After these episodes, the indicator accelerated and, by 2023, reached levels close to the „very high” threshold, confirming the resilience of progress in health, education, and income.

The observed tendencies suggest that cumulative improvements in life expectancy, education, and gross national income per capita have supported the HDI's positive trajectory. The fact that the 2023 score stands at 0.785, with a relative position around 86th globally, indicates strengthening performance within a competitive region (Europe and Central Asia) and proximity to the very high human development range, albeit still below its threshold.

From a public policy perspective, the predominance of increases confirms the resilience of progress, yet the periods of decline signal vulnerabilities to economic, health, or demographic shocks and call for preventive measures and institutional strengthening. Maintaining the upward trend requires consistent investment in learning quality, public health, and skills-based productivity so that surpassing the 0.800 threshold is not only achieved but also sustained over the long term.

## CONCLUSIONS

The research conducted confirms, on empirical and conceptual grounds, the existence of a durable interdependence between population health and the formation of human capital - a relationship that translates directly into productivity, social cohesion, and macroeconomic resilience. In the Republic of Moldova, structural improvements are observed in health and human development indicators, temporarily interrupted by the pandemic shock and followed by a rapid recovery beyond

pre-crisis levels. However, vulnerabilities with long-term implications persist, including the gender gap in mortality to the detriment of men, the recent reversal of the downward trend in infant mortality, fertility remaining below the replacement threshold, and a gap between years of schooling and competencies effectively acquired. On the budgetary side, the post-2020 increase in the share allocated to health suggests a favorable repositioning of the sector, but converting this intensification into durable outcomes depends on performance-oriented governance, with an emphasis on prevention, allocative efficiency, and rigorous impact monitoring.

The recommendations derive from this diagnosis and entail shifting from predominantly input-based financing to results-based management, through the establishment of a coherent system of performance indicators (including HCI components), program-based budgeting across health–education–nutrition, periodic evaluations of cost-effectiveness, and institutionally mandated performance contracts. It is necessary to prioritize prevention across the entire life course - from maternal and infant care and vaccinations to school health and family medicine - while implementing targeted interventions to reduce avoidable male mortality and stabilize infant mortality through clinical standardization, service proximity, and quality audits. In education, the focus must shift from duration to quality by strengthening early childhood education, continuous teacher training, qualitative evaluations of learning outcomes, and remedial programs. On the demographic dimension, a coherent and stable framework of family policies - expansion of early childcare services, flexible working arrangements, and consistent financial support - complemented by measures to reintegrate families returning from the diaspora, can mitigate the decline in fertility. Consequently, multi-year budget programming, value-based procurement, and the digitalization of health–education data systems are essential conditions for directing resources toward interventions with the highest social returns and for consistently transforming investments into human capital and sustainable productivity.

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#### REFERENCES

1. Becker, G. S. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
2. Bloom, D. E., Canning, D., & Sevilla, J. (2004). The effect of health on economic growth: A production function approach. *World Development*, 32(1), 1–13. <https://doi.org/10.1016/j.worlddev.2003.07.002>
3. Eurostat. (2025). *Health statistics – life expectancy, mortality, health expenditure*. Retrieved October 13, 2025, from <https://ec.europa.eu/eurostat/>
4. Grossman, M. (1972). On the concept of health capital and the demand for health. *Journal of Political Economy*, 80(2), 223–255. <https://doi.org/10.1086/259880>
5. National Bureau of Statistics of the Republic of Moldova (BNS). (2024). *Durata medie a vieții în anul 2024*. Retrieved October 13, 2025, from [https://statistica.gov.md/ro/durata-medie-a-vietii-in-anul-2024-9578\\_61864.html](https://statistica.gov.md/ro/durata-medie-a-vietii-in-anul-2024-9578_61864.html)
6. National Bureau of Statistics of the Republic of Moldova (BNS). (2025). *StatBank: POP032400reg.px – Population and demographic processes (by sex, time)*. Retrieved October 13, 2025, from <https://shorturl.at/xqPHV>
7. Schultz, T. W. (1961). Investment in human capital. *American Economic Review*, 51(1), 1–17.
8. Sârbu, O. (2013). Economic and social aspects of the demographic ageing process in the Republic of Moldova. *Scientific Papers Series: Management, Economic Engineering in Agriculture and Rural Development*, 13(1), 353–360.
9. Sârbu, O., & Cimpoieș, L. (2020). Labor force underutilization as a social and economic problem in Moldova. *Scientific Papers Series: Management, Economic Engineering in Agriculture and Rural Development*, 20(1), 539–548.

INTERNATIONAL SCIENTIFIC CONFERENCE "Modern Paradigms in  
the Development of the National and World Economy", 18th Edition

10. Sârbu, O., & Coşer, C. (2017). Assessment of human potential increase by stimulating the degree of employees' labour satisfaction. *Scientific Papers Series: Management, Economic Engineering in Agriculture and Rural Development*, 17(2), 309–313.
11. United Nations Development Programme (UNDP). (2023). *Human Development Report Data Center – Methodology notes (HDI components)*. Retrieved October 13, 2025, from <https://hdr.undp.org/data-center/documentation-and-downloads>
12. United Nations Development Programme (UNDP). (2024). *Specific country data: Republic of Moldova (Human Development Reports)*. Retrieved October 13, 2025, from <https://hdr.undp.org/data-center/specific-country-data#/countries/MDA>
13. United Nations General Assembly. (2015). *Transforming our world: The 2030 Agenda for Sustainable Development* (Resolution A/RES/70/1). Retrieved October 13, 2025, from [https://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/1](https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1)
14. Weil, D. N. (2007). Accounting for the effect of health on economic growth. *Quarterly Journal of Economics*, 122(3), 1265–1306. <https://doi.org/10.1162/qjec.122.3.1265>
15. World Bank. (2020). *Human Capital Index 2020 update: Data and methodology*. Retrieved October 13, 2025, from <https://www.worldbank.org/en/publication/human-capital>
16. World Bank. (2025). *Human Capital Project – Republic of Moldova (HCI country page)*. Retrieved October 13, 2025, from <https://humancapital.worldbank.org/en/economy/MDA>
17. World Bank. (2018). *If countries act now, children born today could be healthier, wealthier, more productive* [Press release]. Retrieved October 13, 2025, from <https://shorturl.at/YNqGn>
18. World Bank Open Data. (2024). *World Development Indicators (Health, Nutrition and Population)*. Retrieved October 13, 2025, from <https://data.worldbank.org/>
19. World Health Organization (WHO). (2000). *The world health report 2000: Health systems—Improving performance*. World Health Organization. <https://www.who.int/publications/i/item/924156198X>
20. World Health Organization (WHO). (2024). *World health statistics 2024: Monitoring health for the SDGs*. Retrieved October 13, 2025, from <https://www.who.int/data/gho/publications/world-health-statistics>