HUMAN CAPITAL AS A DRIVER OF SUSTAINABLE DEVELOPMENT IN AZERBAIJAN

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ABSTRACT

The article's purpose is to empirically substantiate the impact of human development (HC) on the sustainable development of Azerbaijan in current conditions. Using the principal component method, we have determined the components of HC (a factor of professional development, health status, availability of labor force, financial activation of human potential) and sustainable development (low-tech economic development, medium and high-tech economic, environmental, and social development. Regarding the assessment of the influence of the HC components on sustainable development in Azerbaijan, we used the methods of linear and non-linear regression models. A differentiated nature of the effect of the HC components on sustainable development has been established, depending on the state of health of the population and on the level of technological effectiveness of the economy. It has been substantiated that the driver of sustainable development is the qualitative rather than the quantitative component of HC.

Keywords: human capital; Azerbaijan; sustainable development; sustainable development goals; ecology; economy; social development

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INTRODUCTION

Irreversible processes of deterioration of climatic conditions of human life and regression in the development of the environment put the achievement of sustainable development goals (SDG) in the rank of priority and mandatory

paradigms of humanity and the framework of global partnership (United Nations, 2022a). An affordable and high-quality education system, the prosperity and well-being of the population, the achievement of gender equality, and the good moral and physical condition of the nation are critical drivers of the socioeconomic development of any country and the democratization of society using the principles of the sustainable development model (Aslanli, 2015; Addison & Roe, 2018; Levytska & Romanova, 2020).

Today, Azerbaijan has identified as a critical development priority the formation of an inclusive, fair and equitable model of sustainable development within the framework of the 2030 Agenda (United Nations, 2022b). The country demonstrates an unwavering commitment to the goals of sustainable development. So at the beginning of 2022, the country ranked 50th among 165 countries in the world according to the latest estimates of the World Bank. Demonstrating a stable positive trend over the past 20 years. (Sustainable Development Report, 2022). At the same time, Azerbaijan is leading in implementing the SDG among the countries of the Caspian Sea and the South Caucasus.

According to the 2030 Agenda, due consideration is given to the "Leaving no one behind" pledge – meeting the needs of the poor and developing HC in the country is a priority (EU Reporter, 2021). Over the past ten years, there has been a positive trend in investment in HC and significant progress in the field of education in Azerbaijan. Of the 100 countries surveyed by the World Bank, Azerbaijan represented the ten most prosperous countries in making progress in the development of education and health at the beginning of 2022 (The World Bank, 2022a). The number of students in higher education has increased over the past five years by 21% (The State Statistical Committee of the Republic of Azerbaijan, 2022). The introduction of the reform of the accumulative pension insurance system and the increase in social payments contributed to the income growth of the population and the reduction of poverty in the country. If in 2001, the poverty rate in the country was 49%, then in 2021, it was 6.2% (ABC.az, 2022). Achieving significant results in implementing sustainable development and improvement in HC, Azejbardjan was recognized as one of the 20 most reformist countries in the world (according to the ratings of the International Finance Corporation and the World Bank) (The World Bank, 2022a).

But despite visible progress, problems in the development of HC in Azerbaijan remain, which threaten to reverse the results achieved in achieving the SDG. The government of a country can lower the priorities of its goals in the field of sustainable development and investment in HC (given the unprecedented setbacks they are facing due to the COVID-19 pandemic, the slowdown in the global economy, the war in Ukraine, the European energy crisis, strained relations with Armenia, and more.) But not committing could undermine the progress and momentum that has been made on sustainable development in recent years. According to the latest estimates of the World Bank Human Capital Index 2020, a child born in Azerbaijan today is 58% more productive than if they were of working age, in good health, and received higher education (The World Bank, 2022a).

The pandemic has reduced education availability and significantly worsened its quality due to the unpreparedness of the Azerbaijani education system to unforeseen social distancing. Due to the desire of the European Union for energy independence from Russian energy resources, Azerbaijan appears in the energy diversification plans of the continent as a reliable exporter. In 2022, it was planned to increase the export of gas to the EU countries from Azerbaijan by 40% (Interfax, 2022). It is intended that as energy capacities increase, the annual transportation of Azerbaijani gas to Europe by 2027 will be doubled (Caspian News, 2022; (President of the Republic of Azerbaijan, 2022). Even though oil production in Azerbaijan is decreasing due to the policy of diversifying the national economy, it is expected that increasing interest of such large international oil and gas companies as BP and Total will stimulate oil production in the country (Mordor Intelligence, 2022).

It can positively affect economic indicators and, as many scientists noted, contribute to the achievement of the SDG (Aslanli, 2015; Addison & Roe, 2018; Sahiti et al., 2022). But on the other hand, it can cause significant environmental damage: air pollution, increased emissions into the atmosphere, aggravation of the problem with cleanliness, etc. (Çakar et al., 2021). In addition, the challenges to gender equality in the country

are exacerbating (Addison & Roe, 2018).

This study aims to substantiate the optimal balance between sustainable development and HC in the example of Azerbaijan. We were searching for answers to the question of how the country's current level of HC development fits into the strategic priorities of sustainable development.

LITERATURE REVIEW

The study of the HC effect on sustainable development in modern literature is among the most popular science topics. The basis of the research was the search for evidence-based approaches to balancing economic, social, and environmental development, especially in countries with low per capita incomes (Sultana, Dey & Tareque, 2022; Vasiljeva et al., 2020; Gulaliyev et al., 2019).

Scholars such as Aslanly (2015) and Levitskaya and Romanova (2020) have proven that improving components boost sustainable development.

Economic literature contains a lot of evidence that developing the qualitative characteristics of HC (combination of professional skills and knowledge) over time impacts implementing SDG positively. Individual scholars Yeh, Tseng, and Lim (2020) and Sultana, Dey, and Tareque (2022) considered various key HC characteristics. For example, it has been shown that organizational forgetting leads to the loss of specific professional skills and reduces the effectiveness of sustainable development in Taiwan's industry (Yeh, Tseng & Lim, 2020).

Scholars such as Sultana, Dey, and Tareque (2022) have explored the demographics of HC. In particular, it was proved that increasing the population's life expectancy affects sustainable development in different ways, depending on the level of economic growth. And in developing countries, it increases government spending, which hurts economic growth. But Çakar et al. (2021) proved that the same is true in developed economies, but in the long run.

Sultana, Dey, and Tareque (2022) studied such components of HC as health and education. Scientists have concluded that changes in the qualitative characteristics of these components of HC have a more significant impact on sustainable development in developed economies. In contrast, in developing countries - quantitative. But a group of such scientists: Çakar et al. (2021), on the contrary, empirically proved that only improving the quality of education is the primary basis for achieving sustainable economic growth in developing economies, increasing labor productivity, improving the health of the nation and caring for the environment.

In the example of African countries, the significant influence of the institutional factor of HC was studied (Ouedraogo et al., 2022). Calm social environment: the absence of violence, social justice, and political equality provide the basis for the qualitative development of HC. At the same time, gender equality in access to education stands out as a fundamental factor in raising the country's education level. At the same time, other scholars have noted that this is characteristic only of countries with developed economies (Gautam, Reining & Holasek, 2017). Eliminating gender inequalities will directly impact sustainable development in developing countries only if the country's employment level is dynamic and consistent with changes in society. And also if the country has a sufficiently developed social infrastructure: kindergartens, preschool institutions, etc.

The study of the intensity of the development of HC and the rate of economic growth is also relevant. Empirical results have shown that low HC quality reduces CO2 emissions into the atmosphere. It ensures low economic growth rates and inefficient natural resources in production, and vice versa. But with the intensification of HC development, an increase in CO2 emissions is observed only with insufficient investment (Çakar et al., 2021).

Based on the preceding, it can be assumed that the development of HC has a positive effect on economic and social development. A large, economically active, healthy, and educated population is a prerequisite for economic growth. The standard of living (as a component of the development of HC) is an integral part of economic and social development. At the same time, scientists (Sultana, Dey & Tareque, 2022) point to the negative impact of the HC's development level on economic and social development, arguing this with an increase in the dependency ratio.

HC has a contradictory effect on environmental sustainability: on the one hand, it stimulates the development of ecological literacy. On the other

hand, it is leading to the development of industry and an increase in pollution (Çakar et al., 2021).

Based on the above, the following hypotheses we formulated:

H1. The development of HC has a positive effect on economic and social development.

H2. HC has a contradictory effect on ecological development. A positive effect with an increase in the level of education and involvement in research activities. And negative effects with an increase in the amount of the labor force.

The development of HC in Azerbaijan is constraining gender inequality, which manifests in different levels of wages for men and women and higher unemployment among women, which hinders the development of the human potential of women (United Nations Economic Commission for Europe, 2020). Based on this and hypotheses H1 and H2, an assumption was made that sustainable development in Azerbaijan is facilitated by decreased gender inequality (H3).

METHODOLOGY

Of the integral statistical indicators characterizing the development of HC in the country, the Human Capital Index is used, which has been calculated since 2018 but does not have a sufficient number of observations for statistical analysis in Azerbaijan. The second integral indicator - the Human Development Index - has an adequate sample (since 1995). Still, a small number of private hands: life expectancy at birth, expected years of schooling, mean years of education, and gross national income per capita, the calculation method of which has changed over the years—study period. These private indicators do not allow us to assess the dynamics of the population and the economically active population. Therefore, to test the hypotheses, statistical indicators were used (Table 1), which determine the development of HC and sustainable development in Azerbaijan for 1990-2021 (The World Bank, 2022a; The World Bank, 2022b; The State Statistical Committee of the Republic of Azerbaijan, 2022). The list of research indicators for assessing the impact of HCto achieve sustainable development goals in Azerbaijan is formed based on a generalization of scientific literature (Vasiljeva et al., 2020; Sultana, Dey & Tareque, 2022; Megits et al., 2022; Çakar et al., 2021; Gulaliyev et al., 2019; United Nations Development Programme, 2022).

Table 1: Indicators for assessing the impact of HC on sustainable development in Azerbaijan for 1990-2021

Symbol	Indicators
HC Development Indicators	
POP_m	Population - men, thousand
POP_w	Population - women, thousand
LIF_m	Average life expectancy for men, years
LIF_w	Average life expectancy for women, years
EAP_m	Economically active population - men, thousand
EAP_w	Economically active population - women, thousand
EHE_m	Number of the economically active population with higher education (men, thousand)
EHE_w	Number of the economically active population with higher education (women, thousand)
EMP_m	Employed population (men, thousand)
EMP_w	Employed people (women, thousand)
$QUAL_m$	The number of employed men with undergone advanced training, thousand
$QUAL_w$	The number of employed women with undergone advanced training, a thousand
WAG_m	Average monthly real wages among men, USD
WAG_w	Average monthly real wages among women, USD
GEN_m	Amount of boys in public education institutions, pers.
GEN_w	Amount of girls in public education institutions, pers.
$PROF_m$	Amount of male students in vocational schools, pers.

Table 1: Continued

$PROF_w$	Amount of female students in vocational schools, pers.
$HIGH_w$	Amount of female students in higher educational institutions, pers.
$HIGH_m$	Amount of male students in higher educational institutions, pers.
$MAST_w$	Amount of female students with master's degrees, pers.
$MAST_m$	Amount of male students with master's degrees, pers.
PhD_w	Amount of female graduates with Ph.D., pers.
PhD_m	Amount of male graduates with Ph.D., pers.
$SCIEN_w$	Amount of women employed in research and development work, pers.
$SCIEN_m$	Amount of employed in research and development work, pers.
BEN	The average amount of per capita monthly benefits, USD
PENS	The average amount of fixed monthly pensions, USD
EDU_m	Male literacy rate, %
EDU_w	Female literacy rate, %
GII	Gender Inequality Index
Sustainable Development Indicators	
FUND.ED	State expenditures for education, thousand USD
FUND.RES.I	Internal costs for research and development work, thousand USD
FUND.RES.E	External costs for research and development work, thousand USD
FUND.SC	State expenditures for science, thousand USD
FUND.H	State expenditures for healthcare, thousand USD
INC	Population income, thousand USD
REV	State budget revenues, thousand USD
EXPENS	State budget expenditures, thousand USD
DEBT	State debt, thousand USD
SAV	Population deposit in banks, thousand USD
CAP	Capital investment, thousand USD
FDI	Direct foreign investments, thousand USD
EMIS	CO_2 emissions, metric tons per capita
ELEC	Electric power consumption, kWh per capita
REN	Renewable energy consumption, % of total final energy consumption
MET	Methane emissions, kt of CO_2 equivalent
NIT	Nitrous oxide emissions, thousand metric tons of CO_2 equivalent
GAS	Total greenhouse gas emissions, kt of CO_2 equivalent
PM	PM2.5 air pollution, mean annual exposure, micrograms per cubic meter
INTEL	Charges for the use of intellectual property, receipts, and thousand USD
TEC	Technical cooperation grants, thousand USD
HIGH.VAL	Medium and high-tech manufacturing value-added, thousand USD
HIGH. EX	Medium and high-tech exports, thousand USD
GDP	Gross Domestic Product, thousand USD
EXP	Export of goods and services, thousand USD
IMP	Import of goods and services, thousand USD
POV	Poverty headcount ratio at national poverty lines, % of population

Source: Authors' finding

We used the principal component method in the Statistica 12 program to substantiate the components (factors) of HC and sustainable development inherent in Azerbaijan at this country's socioeconomic development stage. The following formula was used to calculate the values of the HC components:

$$F_i = \sum_{j=1}^{n} \left[\frac{I_j - I_{jmin}}{I_{jmax} - I_{jmin}} \times l_{ji} \right], \quad (1)$$

where F_i – the value of the i-th component of HC/sustainable development;

I_j – the value of the j-th indicator of HC/sustainable development with the

significance (≥ |0.75|) of the factor load with the i-th principal component;
I_{jmin} – the minimum value of the j-th indicator of HC/sustainable development;
I_{jmax} - the maximum value of the j-th indicator of HC /sustainable development;
I_{ji} – significant factor loading between the j-th indicator and the i-th component;
n – the number of indicators with a substantial factor load with the i-th component.

The number of principal components of HC and sustainable development is determined using the Kaiser criterion - these are the main components, the eigenvalues of which are not lower than 1.0 (Menke, 2018). The values of the HC and sustainable development components in Azerbaijan were used in constructing linear and non-linear regression models in the EViews 10 program. The reliability of the regression models was ensured by the excess of the number of observations by at least 6.4 times of the independent variables, the normal distribution of the model variables (the normality test exceeded 0.05 (0.31-0.67)), the excess of the empirical F-criterion values over the critical ones at a significance level of p=0.05.

The direction of cause-and-effect relationships between the HC and sustainable development components is determined using the Granger causality test in the EViews 10 program since the values of the HC and sustainable development components are stationary at the 0-th integration level. To assess the impact of gender inequality on sustainable development, indicators were used that characterize the HC development, differentiated by the characteristics of males and females (Table 1). We used the following formula:

$$GENDER = \sum_{j=1}^{m}\left[X'_j \times l_{ji} \times d_i\right] + \sum_{i=1}^{k}[GII \times l_{GIIi} \times d_i], \quad (2)$$

$$X'_j = \begin{cases} X_{jm}/X_{jw}, & X_{jm} \geq X_{jw} \\ X_{jw}/X_{jm}, & X_{jw} > X_{jm} \end{cases}, \quad (3)$$

$$X_{jm}, X_{jw} = \{POP, LIF, EAP, EHE, EMP, QUAL, WAG, GE MAST, PhD, SCIEN, EDUm\} \quad (4)$$

Where:
X_{jm} – the value of the j-th indicator of HC development among men;
X_{jw} – the value of the j-th indicator of HC development among women (Table 1);
I_{ji} – significant factor loading between the j-th indicator and the i-th component;
I_{GIIi} – significant factor load between the Gender Inequality Index (Table 1) and the i-th component;
d_i – the variance of the i-th component;
m – the number of indicators to calculate gender inequality;
k – the number of principal components between which the Gender Inequality Index has significant factor loadings.

RESULTS

The use of the principal component method made it possible to determine the following HC components (Table 1):

1. Factors that determine the quantitative characteristics of HC development: the factor of availability of labor force characterizes the size of the population, the economically active population, employed among men and women;
2. Factors that determine the qualitative characteristics of HC development: the factor of professional development characterizes the level of education, literacy of the population, advanced training of workers, involvement of the people in research activities; health status factor, which is determined by life expectancy among men and women; the factor of financial activation of HC characterizes the level of wages, and social benefits, which affect the willingness to work and create added value, and hence, economic development. In addition, an adequate level of social security is a necessary condition for physical and professional development.

Table 2: Components of HC and sustainable development in Azerbaijan

Components of HC	Symbol	Component content	Dispersion, %
Professional development factor	Prof	EHE_m, EHE_w, $QUAL_m$, $QUAL_w$, GEN_m, GEN_w, $PROF_m$, $PROF_w$, $HIGH_w$, $HIGH_m$, $MAST_w$, $MAST_m$, PhD_w, PhD_m, $SCIEN_w$, $SCIEN_m$, EDU_m, EDU_w, GII	43.57
Labor availability factor	Lab	POP_m, POP_w, EAP_m, EAP_w, EMP_m, EMP_w, GII	18.69
Factor of financial activation of HC	Fin	WAG_m, WAG_w, BEN, PENS	14.00
Health factor	Heal	LIF_m, LIF_w	12.06
Cumulative variance, %			88.32
Components of sustainable development	**Symbol**	**Component content**	**Dispersion, %**
Factor of low-tech economic development	Econ	REV, EXPENS, DEBT, CAP, FDI, GDP, EXP, IMP	27.32
Factor of medium and high-tech economic development	High	FUND.RES.I, FUND.RES.E, FUND.SC, INTEL, TEC, HIGH.VAL, HIGH.EX	24.52
Environmental development factor	Envir	EMIS, ELEC, REN, MET, NIT, GAS, PM	20.14
Factor of social development	Soc	FUND.ED, FUND.H, INC, SAV, POV	18.13
Cumulative variance, %			90.11

Source: Authors' finding

The composition of the HC and sustainable development components are determined based on indicators that have statistically significant factor loads from the corresponding component. Factor loadings are accepted as significant, with values not lower than 0.75 in modulus (Menke, 2018). The statistical significance of the results obtained is evidenced by the cumulative percentage of the variance of 88.32% for the HC components and 90.11% for the sustainable development components (Menke, 2018). The application of the principal components method to the assessment of sustainable development made it possible to identify the composition of the components: medium and high-tech, low-tech economic development, environmental, and social development. Significant causal relationships established using the Granger test are shown in Table. 3.

Table 3: Causal relationship between the components of HC and sustainable development

Relationship	Probability of no connection	Relationship	Probability of no connection	Relationship	Probability of no connection
Prof → High	0.00	*Fin → High*	0.01	*Lab → Envir*	0.02
Prof → Econ	0.01	*Fin → Econ*	0.01	*High → Heal*	0.01
Econ → Prof	0.01	*Econ → Fin*	0.00	*Envir → Heal*	0.00
Prof → Envir	0.03	*Fin → Soc*	0.00	*Econ → Envir*	0.02
Prof → Soc	0.01	*Soc → Fin*	0.00	*Econ → Soc*	0.00
Heal → Prof	0.02	*Fin → Prof*	0.01	*GENDER→ Econ*	0.00
Heal → Econ	0.01	*Prof → Fin*	0.02	*GENDER→ High*	0.00
Econ → Heal	0.00	*Fin → Heal*	0.00	*GENDER→ Soc*	0.00
Heal → Soc	0.01	*Lab → Econ*	0.02	*GENDER→ Envir*	0.00
Soc → Heal	0.00	-	-	-	-

Source: Authors' finding

The results obtained indicate the interdependence between the components of HC and sustainable development. HC is a factor of production that affects economic growth (both medium and high-tech and low-tech). For a medium and high-tech economy, the main driver of growth is professional development and the level of financial activation of human potential. For a low-tech economy, it is also a health factor and the availability of the labor force. For Azerbaijan, the basis of the low-tech economy is the oil and gas industry. The cost of products created in this industry over the past 10 years is 28-50% of the country's GDP (The State Statistical Committee of the Republic of Azerbaijan, 2022). A factor in this industry's development is the labor force's availability and corresponding level of health. Medium and high-tech industries do not involve such physical activity. Professional development is a priority for them: the story of education and research activities. Environmental development is affected by labor availability: directly as solvent consumers of goods and services (primarily energy resources and transport services that cause the most significant harm to the environment) and indirectly through the development of low-tech sectors in the economy. The indirect effect is manifested in the growth in demand for goods and services; the development of access to factors of production (in this case, labor) stimulates the production and leads to environmental pollution, which is especially important for the mining industry. The nature of the influence of the HC components on sustainable development was established using regression models (Table 4).

Table 4: Regression models for assessing the impact of HC components on sustainable development in Azerbaijan

Model	*F-criterion*	*p-value*
Econ = 0.84×Prof+1.24×Heal^2-1.17×Heal+0.28×Lab+0.34×Fin (**for Heal < 0.75**)	17.11 (2.59)	0.00
Econ = 1.12×Prof+1.24×Heal^2-1.17×Heal+0.28×Lab+0.34×Fin-0.17 (**for Heal ≥ 0.75**)	11.56 (2.59)	0.00
High = 4.14×Prof+0.31×Fin-1.83 (**for Heal < 0.75**)	8.15 (3.33)	0.00
High = 5.92×Prof+0.31×Fin-2.92 (**for Heal ≥ 0.75**)	17.37 (3.33)	0.00
Envir = 0.95×Prof^2-0.16×Prof-0.81×Lab+0.65	6.13 (2.95)	0.00
Soc = 1.86×Prof^2-0.21×Prof-0.27×Heal^2+0.65×Heal+0.36×Fin -0.15	22.78 (2.59)	0.00
Econ = -2.53 ×GENDER+3.62	39.53 (4.17)	0.00
High = -4.85×GENDER+6.44	12.63 (4.17)	0.00
Envir = -0.42×GENDER+0.8	13.13 (4.17)	0.00
Soc = -2.94×GENDER+4.27	26.73 (4.17)	0.00

Prof – professional development factor, Lab - labor availability factor, Fin - factor of human potential financial activation, Heal - health factor, GENDER - factor of gender inequality, Econ - factor of low-tech economic development, High - factor of medium and high-tech economic development, Envir - environmental development factor, Soc - social development factor, F-criterion – an empirical value of F-criterion and critical values of F-criterion are indicated at a significance level of p=0.05.
Source: Authors' finding

The constructed models testify to the positive non-linear nature of the influence of the health factor on professional development. With a high level of health, more opportunities for professional development are created than with a low level. As health status improves, the

elasticity of professional development score to health increases from 0.05% at the lowest value of the health status factor to 1.13% at the highest.

We used the Chow test in constructing linear regression models to identify the different strengths of the influence of professional development factors on economic development (low, medium, and high-tech) depending on the state of health. In a poorer state of health, the influence of the professional development factor on economic development is less significant than in a good state of health.

In addition to its indirect impact on economic development, the health factor directly impacts low-tech economic development. A quadratic function describes the influence. The elasticity of the indicator of low-tech economic growth from the health increases as improving health: from 0.2% at the lowest value of the health factor to 1.14% at the highest.

The results indicate that the priority task of the state and company management is to invest in measures to improve the population's health, which will create the basis for professional development and have a multiplicative effect on economic growth.

The influence of professional development on the economic development of Azerbaijan is statistically significant both for medium and high-tech sectors of the economy and for low-tech ones. Medium and high-tech industries' dependence on the level of professional development is more critical than for low-tech sectors.

Factors of professional development and health status have a positive impact on social development. The intensity of professional development enhances social development's effect (the elasticity index's value increases from 1.45% to 1.52%), with the state of health - on the contrary. Improving health, particularly the increase in life expectancy, creates an additional demographic burden that hinders social development. A minimum change in the health factor by 1% provokes an increase in the social development factor by 0.27%. At the maximum value of the health factor, a growth of 1% causes an increase in social development by 0.08%.

The availability of labor is a factor of production for low-tech sectors of the economy, stimulating economic and social development in the country.

DISCUSSION AND CONCLUSION

The obtained results proved the H1 hypothesis that the development of HC in all components has a positive effect on the economic and social development of the country. That is, it contributes to the implementation of SDG. This, in turn, is consistent with the results of studies (Sultana, Dey & Tareque, 2022). But in our research, we considered the example of Azerbaijan, a developing economy, and our results contradict the study (Sharpe, 2011). Quantitative change in the HC components at the current level of its development act as destructive factors in sustainable development. The constructed regression models testified to the negative impact of the labor force factor on ecological development. Population growth and economically active population lead to environmental pollution. Also, the qualitative component of the workforce's professional development significantly impacts the implementation of SDG in the country. A low level of professional development does not stimulate eco-development; as professional development increases, the incentive for eco-development increases. This is explained by the fact that the primary task of managers and the staff is to acquire professional skills that maximize companies' profits and employees' well-being. As employees develop professional competencies and approach the potential level of companies' efficiency, management focuses on sustainable development by increasing environmental efficiency and reducing the environmental pollution. This is achieved by developing ecological awareness among the population and the company's personnel, participating in scientific developments to improve energy efficiency, and creating a circular economy. The obtained results prove hypothesis H2.

Thus, to ensure sustainable development in Azerbaijan in all components, it is essential to develop the qualitative characteristics of the HC: investing in improving the population's health status and professional development, which can compensate for the negative impact on the environmental effect because of an increasing labor force. A possible way to ensure balance in economic, social, and ecological development is the diversification of the economy and the development of medium and high-tech sectors. In such a case, an increase in the size of the labor

force will not significantly impact environmental development for a mining-oriented economy.

When checking the impact of the gender inequality indicator on sustainable development, the H3 hypothesis was proved. Decreasing gender inequality by 1% compared to 2021, low-tech economic development increases by 3.06%, medium and high-tech economic development - by 4.33%, environmental growth - by 1.31%, and social development - by 2.88%.

It should be noted that achieving economic growth and social well-being in a country with a low level of differentiation in the conditions of Azerbaijan can be sustainable with the accumulation of the quality of human capital: increasing the quality parameters of education of the population. Still, it is also essential that the population is aware of the consequences of environmental pollution, the introduction of a new culture of life: respect for nature, economical water consumption, careful use of pollutants in everyday life and production, etc., waste sorting, etc. A more global process of restructuring the socioeconomic system is possible by introducing energy-efficient technologies through cooperation with countries such as Sweden, Finland, and Germany. Gradual liquidation of the old technological park and transition to high-performance technologies with the training of specialists in this field.

The results in this study are obtained by sampling the development of HC and sustainable development only for Azerbaijan - a country with an emerging economy but with a low level of diversification. Therefore, it is not possible to form the conceptuality of these results. Nevertheless, they are of significant value for a particular country to implement the goals of sustainable development and develop an effective strategy for the development of HC. As for future research directions, our priority will be identifying the components that determine human capital in the countries of the post-Soviet camp. As well as the nature of the impact on sustainable development. Such an approach will make it possible to conceptualize the features of these countries' features and generate an information field for future research.

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