МРНТИ 06.77.59
УДК 331.522
DOI 10.58319/26170493_2025_2_57

ANALYSIS OF KAZAKHSTAN'S HIGHLY INTELLECTUAL LABOR POTENTIAL

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ABSTRACT. Sustainable Development Goal 8 aims to implement development-oriented policies that contribute to the creation of decent jobs. And since only with the help of human ingenuity, which is embodied by intellectual work, is it possible to develop new solutions, the research aim was to analyze Kazakhstan's labor potential in the field of highly intellectual work and develop appropriate recommendations for public policy. A quantitative study was conducted to determine the available labor resources in the field of highly intellectual work and to identify the possibility of increasing the country's labor potential by creating jobs for the unemployed and involving university graduates in the workforce. Data from the Bureau of National Statistics of the Republic of Kazakhstan for 2022 was used. The study revealed that the highly intellectual labor market in Kazakhstan is characterized by high labor potential, an excess of labor among professionals, and a shortage of labor in managerial positions. Based on the findings, recommendations were developed aimed at reforming the educational system, stimulating the creation of new jobs, and promoting balanced growth between economic sectors.

KEYWORDS: sustainability, SDG 8, highly intellectual potential, professional specialists, socio-economical public policy, education.

ҚАЗАҚСТАННЫҢ ЖОҒАРЫ ЗИЯТКЕРЛІК ЕҢБЕК ӘЛЕУЕТІН ТАЛДАУ

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АҢДАТПА. Тұрақты даму мақсаты 8 лайықты жұмыс орындарын құруға ықпал ететін дамуға бағдарланған саясатты іске асыруға бағытталған. Зияткерлік еңбекте іске асырылатын адам тапқырлығының көмегімен ғана жаңа шешімдерді әзерлеуге болатындықтан, зерттеу мақсаты жоғарғы зияткерлік еңбек саласындағы Қазақстанның еңбек әлеуетіне талдау жасау және мемлекеттік саясат үшін тиісті ұсыныстар әзірлеу болды. Жоғары зияткерлік еңбек саласындағы қолда бар еңбек ресурстарын айқындау және жұмыссыздар үшін жұмыс орындарын құру және ЖОО түлектерін жұмыс күшіне тарту есебінен елдің еңбек әлеуетін арттыру мүмкіндігін анықтау мақсатында сандық зерттеу жүргізілді. Қазақстан Республикасы Ұлттық статистика бюросының 2022 жылғы деректері пайдаланылды. Зерттеу барысында Қазақстандағы жоғары зияткерлік еңбек нарығы жоғары еңбек әлеуетімен, кәсіпқойлар арасында жұмыс күшінің артық болуымен және басшылық лауазымдардағы жұмыс күшінің тапшылығымен сипатталатыны анықталды. Алынған нәтижелер негізінде білім беру жүйесін реформалауға, жаңа жұмыс орындарын құруды ынталандыруға және экономика секторлары арасында теңгерімді өсуге жәрдемдесуге бағытталған ұсыныстар әзірленді.

ТҮЙІН СӨЗДЕР: тұрақтылық, ТДМ 8, жоғары зияткерлік әлеует, кәсіби мамандар, әлеуметтік-экономикалық мемлекеттік саясат, білім беру.

АНАЛИЗ ВЫСОКОИНТЕЛЛЕКТУАЛЬНОГО ТРУДОВОГО ПОТЕНЦИАЛА КАЗАХСТАНА

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АННОТАЦИЯ. Цель устойчивого развития 8 направлена на реализацию политики, ориентированной на развитие, способствующей созданию достойных рабочих мест. И поскольку только с помощью человеческой изобретательности, которая воплощается в интеллектуальном труде, возможна разработка новых решений, целью исследования стал анализ трудового потенциала Казахстана в сфере высокоинтеллектуального труда и разработка соответствующих рекомендаций для государственной политики. Было проведено количественное исследование с целью определения имеющихся трудовых ресурсов в сфере высокоинтеллектуального труда и выявления возможности повышения трудового потенциала страны за счет создания рабочих мест для безработных и вовлечения в рабочую силу выпускников вузов. Использованы данные Бюро национальной статистики Республики Казахстан за 2022 год. В ходе исследования выявлено, что рынок высокоинтеллектуального труда в Казахстане характеризуется высоким трудовым потенциалом, избытком рабочей силы среди профессионалов и дефицитом рабочей силы на руководящих должностях. На основе полученных результатов были разработаны рекомендации, направленные на реформирование системы образования, стимулирование создания новых рабочих мест и содействие сбалансированному росту между секторами экономики.

КЛЮЧЕВЫЕ СЛОВА: устойчивость, ЦУР 8, высокоинтеллектуальный потенциал, профессиональные специалисты, социально-экономическая государственная политика, образование.

INTRODUCTION. The concept of sustainable development is aimed at finding a balance between the socio-economic needs of humanity and the preservation of the natural environment [1]. Within this concept, sustainable development presupposes the trinity of sustainable economic, social, and environmental development, where labor and employment are important components of sustainable economic development [2]. Thus, one of the Sustainable Development Goals is to "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" (SDG 8). This Goal aims to "promote development-oriented policies that support decent job creation" (SDG 8.3) [3].

To solve this problem, the country needs to determine what its labor potential is. It should be noted that an important tool for achieving the SDGs is intellectual work, since only with the help of human ingenuity, which is embodied by intellectual work, is it possible to develop new solutions that will eradicate poverty, improve the quality of education and healthcare, ensure food security, protect the environment, and make economic growth more sustainable [4]. The implementation of all Sustainable Development Goals is facilitated by the development of intellectual capital, which represents the knowledge, skills, innovations, and capabilities necessary to solve pressing global problems of sustainable development [5].

Professions of intellectual work cover many areas that require advanced cognitive abilities and specialized knowledge. They are often characterized by a need for problem-solving skills, analytical thinking, and creativity. Highly intelligent professions include the following:

1) Leadership positions. This category includes heads of organizations, departments, and others. Their work requires the ability to conclude multimodal data signals and make quick and complex decisions, as well as competencies such as agility, strategic thinking, leadership, environmental assessment, emotional strength, responsibility for human safety, functional, social, and managerial. It should be noted that the management of an organization's intellectual capital is formed as a

result of the synthesis of knowledge, intelligence, leadership, entrepreneurship, and experience of a manager [6, 7].

2) Professional specialists in the field of science. This category includes scientists and researchers. They engage in R&D across disciplines, using rigorous methods for exploration and experimentation to develop new knowledge or technologies or new applications of existing knowledge, thereby generating scientific advances and innovations [8-10].

3) Professional specialists in the field of engineering and technology. This category includes engineers and technologists who design, develop, and implement solutions in various industries (mechanical engineering, chemistry, safe and environmentally friendly energy production, television, radio, communications, information and communication technologies, artificial intelligence, etc.). These jobs require a high level of technical knowledge and the ability to solve complex problems. Their activities are related to scientific discoveries of new materials and processes [11, 12].

4) Professional specialists in the field of education. This category includes teachers, incl. master's and doctoral programs, that meet the unique needs of students with high intellectual abilities. They are social actors who promote social innovation and develop curricula that challenge and engage students to develop their full potential. It should be noted that education helps to increase the intellectual potential of the country [13-15].

5) Professional specialists in the field of healthcare. This group includes physicians and other healthcare professionals who use knowledge, clinical skills judgment, and a thorough understanding of the human body and mind to diagnose, treat, and prevent disease. Their work requires a high level of intellectual ability, constant learning, and improvement of their practice to keep pace with medical advances [16].

6) Professional specialists in the field of law. This category includes lawyers, judges, and other legal experts. They interpret and apply the law in different contexts. Their activities require understanding a significant amount of theoretical knowledge and using a significant amount of intellectual abilities and critical thinking skills [17].

At the same time, it should be noted that professions with high IQs, according to Herrnstein and Murray [18], include architects, accountants, doctors, dentists, natural scientists, engineers, mathematicians, college professors, social scientists, computer scientists, chemists, and lawyers. According to Huang [19], occupations with a modified high IQ include librarians, doctors, natural scientists, musicians and composers, writers, college professors, editors and reporters, sociologists, computer scientists (including programmers), mathematicians, chemists, lawyers, and judges.

Increasing highly intelligent labor potential, in particular, the creation of new jobs in the field of highly intellectual labor, is crucial for the creation of high-quality innovative products and services, which will help solve global challenges of sustainable development and accelerate this process. In this regard, the research aim is to analyze Kazakhstan's labor potential in the field of highly intellectual work and develop recommendations for development-oriented policies that will contribute to the creation of decent jobs in Kazakhstan.

MATERIALS AND METHODS OF RESEARCH. There is no generally accepted methodology and system of indicators for assessing the country's labor potential. There are many methods and approaches for analyzing labor potential, incl. method of scoring components, cluster analysis method, index method, integral method, questionnaires, and others [20]. The methodological basis for this study was the proposition that the country's labor potential is "a set of demographic, social and spiritual qualities and abilities of the active part of society who are currently interested in labor or social activities or can be used for such activities in the shortest period" [21].

Quantitative research is based on a structural approach using statistical methods to measure labor potential in natural values. In particular, the number of employed, the number of unemployed, the number of vacancies, and the expected need for workers by occupation (position, profession), as well as the number of undergraduate, master's degree, and doctoral graduates by specialty were selected as indicators characterizing the labor potential. The source base for the study was data from the Bureau of National Statistics of the Agency

Table 1 - Source base of the study, 2022

Indicator	Statistical bulletin
Number of employed population at a main job, people	Employed population https://stat.gov.kz/api/iblock/element/19920/file/ru/
Number of unemployed population in last place of employment, people	Unemployed population https://stat.gov.kz/api/iblock/element/19923/file/ru/
Number of vacant jobs at the beginning of the reporting period, people	Number and demand for personnel of large and medium-sized enterprises of the Republic of Kazakhstan (as of January 1, 2022) https://old.stat.gov.kz/api/getFile/?docId=ESTAT450274
Expected need for workers for the reporting period, people	
Number of undergraduate graduates, people	Distribution of students by specialty in higher educational institutions of the Republic of Kazakhstan (at the beginning of the 2022/2023 academic year) https://stat.gov.kz/api/iblock/element/8762/file/ru/
Number of master's degree graduates, people	About postgraduate education (2022/2023 academic year) https://old.stat.gov.kz/api/getFile/?docId=ESTAT474126
Number of doctoral graduates, people	

for Strategic Planning and Reforms of the Republic of Kazakhstan for 2022 (Table 1).

A limitation of the study was the lack of data on the number and personnel requirements of small enterprises and data on specific professions for all indicators.

The study is aimed at identifying the available labor resources in the field of highly intellectual work and identifying the possibility of increasing the country's labor potential by creating jobs for the unemployed and involving university graduates in the workforce. In this regard, an analysis of labor potential was carried out for such occupations (positions, professions) as "managers and civil servants" and "professional specialists", incl. in the fields of science and technology, health care, education, business and administration, information technology, law, humanities, and culture.

RESULTS AND THEIR DISCUSSION. In Kazakhstan, the number of people employed in the field of highly intellectual labor in 2022 amounted to 2,732,162 people, which amounted to 30.45% of all employees in the economy of the republic. At the same time, the number of unemployed in this area amounted to 75,684 people, or 17.7% of all unemployed. The largest number of unemployed people are professional specialists in the fields of education, business and administration - 14,107 people and 26,993 people, respectively. As of 2022, there were 11,772 vacant jobs in professions of high intellectual work, which was equal to a quarter of the vacancies available in Kazakhstan's labor market among medium and large enterprises. At the same time, these professions accounted for 22.68% of the expected need for workers - 2,585 people. The largest number of vacancies and expected demand for workers was in the fields of science and technology and healthcare. In general, without taking into account the training of personnel in relevant specialties, it is possible to determine a significant surplus of labor in the field of highly intellectual labor (Table 2).

Taking into account the existing labor resources and creating new jobs for the unemployed and graduates of educational programs, the country's labor potential in the field of highly intellectual labor will increase by 9.2%. At the same time, the greatest growth is possible among professional specialists in the field of science and technology (23.83%), law, humanitarian fields and culture (13.8%), and education (10.53%). It is in these areas that a large number of specialists have graduated from undergraduate and graduate programs.

Thus, in Kazakhstan's market of highly intellectual labor, there are differences in the number of available and potential labor resources, namely a significant number of managers and professionals, while the number of potential candidates for vacant positions significantly exceeds the demand for labor in all categories of professionals, i.e. there is a significant surplus of labor in the market, especially in the fields of science and education. While in the field of management, there is a labor shortage, which indicates a discrepancy between the level

Table 2 - Labor potential of Kazakhstan in the field of highly intellectual labor

Occupation (position, profession)		Labor resources							Availability of possible vacant jobs (labor demand)	Potential candidates for vacant positions (labor supply)	Shortage (-) / surplus (+) of labor
		Available	Possible								
		Employed population	Unemployed population	Vacant jobs	Expected need for workers	Number of graduates					
						bachelor degree	master degree	doctoral degree			
Managers & civil servants, including:		602,004	17,039	1,644	268	-	-	-	1,912	1,644	-268
senior managers & officials, legislators, government officials		112,489	3,282	N/A	N/A	-	-	-	-	-	-
corporate sector	managers (first & functional)	157,001	7,029	368	60	-	-	-	428	368	-60
	managers of specialized divisions (production & specialized services)	228,977	4,960	927	155	-	-	-	1,082	927	-155
	managers of specialized divisions (food, trade, accommodation, etc.)	103,537	1,768	349	53	-	-	-	402	349	-53
Professional specialists, including in the field of:		2,130,158	58,645	10,128	2,317	150,994	20,703	3,603	12,445	185,428	172,983
science & technology		221,933	7,063	2,644	555	41,002	4,222	593	3,199	48,461	45,262
healthcare		241,577	4,874	3,410	671	7,781	331	2,275	4,081	13,797	9,716
education		751,886	14,107	964	226	55,330	9,502	221	1,190	66,017	64,827
business & administration		606,265	26,993	1,446	237	17,624	2,561	150	1,683	21,781	20,098
information technology		70,448	1,430	766	527	3,726	1,172	127	1,293	5,791	4,498
law, humanities & culture		238,049	4,178	898	101	25,531	2,915	237	999	29,581	28,582

Notes: 1) N/A – no data; 2) Compiled by the authors based on data from Table 1

of supply and demand for management positions. Potential candidates are characterized by a high level of education, which corresponds to one of the requirements for this category of profession. However, a high concentration of graduates in certain sectors, namely science, education, and healthcare, can lead to market saturation. Certain industries, such as information technology and healthcare, have greater demand for new jobs, which could indicate faster growth or change in these industries.

CONCLUSION. Based on the results of the study, the following conclusions can be drawn.

Firstly, the highly intellectual labor market in Kazakhstan is characterized by high labor potential, which may increase when new jobs are created for the unemployed and graduates of educational programs. However, the market is also characterized by a surplus of labor among professional specialists and a shortage of labor in managerial positions.

Secondly, the number of graduates significantly exceeds market demand, especially in the fields of education and science, which indicates a possible oversupply of personnel in these areas. This requires a revision of educational programs. Given the significant surplus of specialists in some areas, it is necessary to adapt educational programs to the needs of the labor market. While the leadership shortage highlights the need for improved management training and development programs.

Third, support is needed for sectors with high potential. Thus, areas with high labor demand, such

as information technology and healthcare, require additional support for sustainable development.

Based on the results obtained on the labor potential of Kazakhstan in the field of highly intellectual labor and the identified trends, the following directions for public policy are recommended:

1. Reform of the educational system, aimed at training personnel that meets the needs of the labor market, as well as encouraging programs for advanced training and retraining, especially in areas with a high shortage of specialists. Education programs must be reviewed and adapted following current and projected labor market needs to reduce the oversupply of specialists in oversaturated sectors. Stimulating interest and creating more attractive conditions for learning in areas with a shortage of specialists, for example, in management disciplines. To develop management personnel, advanced training and retraining programs for managers at all levels can be introduced, taking into account modern requirements for management skills, as well as mentoring and coaching systems to support young and aspiring managers, incl. from among professional specialists in each field. Measures should be developed to increase labor market flexibility, aimed at developing retraining programs for the unemployed and people employed in declining industries, with an emphasis on fast-growing industries.

2. Stimulating the creation of new jobs to reduce the shortage of jobs in highly intelligent areas and solve problems with excess labor. For example, by attracting investment in industries that require highly qualified specialists, such as information and communication technologies, healthcare, biotechnology, engineering, etc. And also by encouraging entrepreneurship and the creation of new enterprises, start-ups, and innovative projects that can absorb surplus labor.

3. Promote balanced growth across sectors to facilitate the reallocation of surplus labor to more productive sectors. This involves improving infrastructure and access to markets for industries that are likely to expand and employ additional labor.

These measures will help mitigate the problems associated with excess labor, make the labor market more dynamic and adapted to changes in the economy, and also increase the efficiency of using the country's labor potential, which in turn will contribute to achieving not only the eighth Sustainable Development Goal but also their everyone. To effectively implement the proposed measures, it is necessary to collect and detailed analysis of labor market data to ensure the accuracy and relevance of the information, which will allow for more efficient management of labor resources. And also conduct regular monitoring of the labor market to adapt public policy following changing trends and needs of the economy.

Acknowledgement. The article was prepared within the framework of the grant funding project of the Ministry of Science and Higher Education of the Republic of Kazakhstan (AP19680246 "Building up highly intelligent human resources in the conditions of digitalization of the economy of Kazakhstan: problems and prospects").

REFERENCES:

1 Naumov, E.A. (2024). Sustainable economic development: Theory of institutional constructivism. *Economics: the strategy and practice, 19*(1), 46-56. https://doi.org/10.51176/1997-9967-2024-1-46-56

2 Nurlanova, N.K., Alzhanova, F.G., & Satpayeva, Z.T. (2023). Sustainable development of cities: Rating assessment methodology and risk analysis (Using Kazakhstan as an example). *Economy of regions, 19* (2), 343-354. https://doi.org/10.17059/ekon.reg.2023-2-4

3 SDG 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all. https://sdgs.un.org/goals/goal8#targets_and_indicators

4 Khandii, O.O., Kramchaninova, M.D., & Liedovska, A.I. (2021). Intellectual work as an instrument to ensure the achievement of the Sustainable Development Goals. *Business Inform, 1,* 217–223. https://doi.org/10.32983/2222-4459-2021-1-217-223

5 Bielienkova, O., Loktionova, Y., Stetsenko, S., & Tytok, V. (2022). Intellectual capital as a factor of innovative sustainable development. *Ways to Improve Construction Efficiency, 50*(2), 281–291. https://doi.org/10.32347/2707-501x.2022.50(2).281-291

6 Antonakis, J., Simonton, D.K., & Wai, J. (2019). *Intelligence and leadership.* In Leader thinking skills. Routledge, 14-45. https://doi.org/10.4324/9781315269573-2

7 Yerzhanov, Y.T., Adilova, V.Kh., Shakaman, Y.B., & Shaimardanov, R.Kh. (2016). The intellectual work management as an essential condition for creativity development of higher education institution. *International Journal of Environmental and Science Education, 11*(4), 2135-2145. https://doi.org/10.12973/ijese.2016.586a

8 Cropley, A. (1967). Divergent thinking and science specialists. *Nature, 215*, 671–672. https://doi.org/10.1038/215671a0

9 OECD. (2015). *Frascati Manual 2015: Guidelines for collecting and reporting data on research and experimental development, The measurement of scientific, technological and innovation activities.* OECD Publishing, 398. https://doi.org/10.1787/9789264239012-en

10 McGregor, D., & Frodsham, S. (2023). Scientific intelligence: recognising it to nurture it. *Journal of Intelligence, 11*(4), e60. https://doi.org/10.3390/jintelligence11040060

11 Barakat, T.A.M. (2016). Intellectual properties – engineer's perspective. *In 7th Annual Conference of Postgraduate Studies and Scientific Research, Basic Sciences and Engineering Studies* (Khartoum, Sudan, February 2016).

12 Mejtoft, T., Cripps, H., Fong-Emmerson, M., & Blöcker, C. (2023). *Enhancing professional skills among engineering students by interdisciplinary international collaboration.* In European Society for Engineering Education (SEFI 2023). https://doi.org/10.21427/NFBV-3930

13 Martín, S.N. & García, M.L.S. (2015). In search of an intellectual teacher. *Journal of Education & Social Policy, 2*(3), 121-127.

14 Giroux, H.A. (1985). Intellectual labor and pedagogical work: Rethinking the role of the teacher as intellectual, Part I. *Phenomenology + Pedagogy, 3*(1), 20-32. https://doi.org/10.29173/pandp14967

15 Kangalakova, D., Dzhanegizova, A., Satpayeva, Z., Nurgaliyeva, K., & Kireyeva, A. (2023). Distribution of knowledge through online learning and its impact on the intellectual potential of PhD students. *Journal of Distribution Science, 21*(4), 47-56. https://doi.org/10.15722/jds.21.04.202304.47

16 Tallis, R.C. (2006). Doctors in society: medical professionalism in a changing world. *Clin Med, 6*(1), 7-12.

17 Wasserstrom, R. (1975). Lawyers as professionals: Some moral issues. *Human rights, 5*(1), 1-24.

18 Herrnstein, R.J. & Murray, C. (1994). *The Bell curve: Intelligence and class structure in American life.* The Free Press, 845.

19 Huang, M.-H. (2001). Cognitive abilities and the growth of high-IQ occupations. *Social Science Research, 30*(4), 529-551. https://doi.org/10.1006/ssre.2001.0710

20 Khadasevich, N.R. (2014). Otsenka trudovogo potentsiala: podkhody i metody [Assessment of labor potential: approaches and methods]. *Naukovedenye - Science, 25*(6), e614. http://dx.doi.org/10.15862/202EVN614 (In Russian)

21 Fedyushina, E.A. & Shishkina, N.V. (2018). Otsenka trudovogo potentsiala i vozmozhnosti yego realizatsii [Assessment of labor potential and the possibility of its implementation]. *Sovremennaya ekonomika: problemy i resheniya - Modern economics: problems and solutions, 108*(12), 40-49. https://doi.org/10.17308/meps.2018.12/2012 (In Russian)

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