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Innovation and Inclusive Agglomeration Development: Impact of Technological Changes on the Labor Market and Equal Opportunities

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ABSTRACT

This article examines changes in the labor market due to the development of high-tech production, as well as under the influence of digitalization of all sectors of the economy. In particular, employers' requirements for employees are changing, but at the same time new horizons are opening up for inclusive employment. The authors describe the methodology for forming the main indicators of the labor market, Kazakhstan's digital labor platforms. The authors studied the employment rate to the population aged 15 years and older in the first quarter of 2023, which amounted to 65%, to the labor force - 95.2%. The article examines the unemployment rate (according to the methodology of the International Labor Organization), the number of unemployed, the proportion of NEET youth who do not work and are not engaged in education or vocational training. The authors show that poor-quality data on the number of unemployed do not allow taking adequate measures to solve employment problems, retraining and optimal territorial distribution of labor resources. At the same time, they reduce the effectiveness of state programs to increase employment.

INTRODUCTION

The relevance of the study aimed at analyzing the relationship between innovation and inclusive development of agglomerations is due to the need to adapt to new economic and social challenges asso-

ciated with rapid technological change and sustainable development. Modern agglomerations play the role of centers of economic growth and social progress, but they face problems of inequality of opportunities in the labor market and social exclusion of certain groups of the population. Innovative technologies, in particular digitalization and the transition to a "green" economy, can serve as tools to improve socio-economic indicators and create equal conditions for all. The study is relevant in the context of the global demographic transition and the transformation of traditional employment models, which require a new system of labor market regulation that promotes a fairer distribution of opportunities. At the same time, an important aspect is ensuring environmental sustainability in response to changing climate conditions and the need for rational use of resources. Analysis of the impact of innovation on the inclusive development of agglomerations will allow developing recommendations for increasing the social and economic sustainability of cities, reducing unemployment and supporting the growth of human capital.

1. LITERATURE REVIEW

The issue of integrating innovations and inclusive development of agglomerations in the context of the impact of technological changes on the labor market and equal opportunities is closely related to the processes of social and economic adaptation, which require the development of various labor market institutions, relevant policies and strategies. The impact of technological changes, such as the growth of self-employment, the spread of online job platforms (OLPs) and the transition to sustainable development, significantly changes the dynamics of employment and requires adaptation both at the level of public and private organizations and at the level of individual workers. The inclusion of environmental and green jobs, support for sustainable business models and the development of green skills are becoming key areas for ensuring inclusive growth. Labor market institutions are responsible for a wide range of policies, regulations and organizations that affect the labor market, although their impact on employment may vary depending on the specific institutions and the economic context in different countries (Giotis, 2024). It should be noted that there are differences in the characteristics of the labor market and the unemployment rate between the European Union and the United States, as well as within the European Union (Bell et al., 2021). The demographic transition occurs at different times and speeds (Kashnitsky et al., 2021). While rapid population growth and high fertility rates remain problems in the least developed countries (Bloom, 2011), governments in developed countries are more concerned about rapid population ageing (Wolfgang et al., 2008), (Bloom et al., 2015) and the associated social and economic challenges for future generations. Population ageing has become a central theme in the demographic debate as the demographic dividend, the period of least burden on the working-age population, has passed in most developed countries (Lloyd-Sherlock, 2000), (Skirbekk, 2008), (Kaare et al., 2009). Regional economic and demographic development paths are becoming increasingly diverse, as reflected in studies by (Rees et al., 2017).

Regional economic (Dimitris et al., 2017) and demographic (Gurrutxaga, 2020) development paths are becoming increasingly heterogeneous, as reflected in studies by Danko and Hanink (2018). Understanding potential trends in future population levels is essential for predicting and planning for changes in age structure, as well as resource, health, environmental and economic needs.An analysis of the current state and prospects for the development of labor mobility within the framework of the general strategy of the third modernization allows us to identify the following main goals of regulating these processes:

A. Meeting the needs of the economy for the necessary labor force, priority direction of migration to achieve medium- and long-term goals of the country's socio-economic development.
B. Creating an optimal system of population distribution across the territory of the Republic of Kazakhstan.
C. Ensuring the national security of the country, especially in the context of threats associated with migration.

The rapid growth of self-employment has significantly changed the nature of global employment and changed the idea of work (DeLaVega et al., 2021). At the same time, online job platforms (OLPs) have recently experienced an accelerated growth in their activity. These platforms allow for the geographical

dispersal of transactions and task execution. They also offer opportunities to enter the labor market, leading to an increase in the number of freelancers. The need satisfaction theory is described in the work of Brand-Correa et al., which is used to develop taxonomies to help distinguish between needs and wants and to identify sustainable and unsustainable employment patterns. The United Nations Environment Programme (UNEP) was the first to define green jobs as employment that contributes to maintaining or restoring the quality of the environment and launched a comprehensive research programm on green jobs. This means that jobs that contribute to reducing the consumption of energy, raw materials and water through impactful strategies, decarbonizes the economy, reduce greenhouse gas emissions, minimize or avoid all forms of waste and pollution, and protect and restore ecosystems and biodiversity.

2. METHODS

The experience of using new approaches and tools for attracting and growing competitive personnel, including the use adoption of information technologies, such as the introduction of automated recruitment, management and training services, the development of accessible online learning systems, the development of corporate methods of staff development, and the creation of corporate personnel motivation systems, holds significant value for Kazakhstan. In preparation of the article and the substantiating of the problem it under study, traditional methods such as analysis, comparison, description, generalization, justification and other forms of research were used.

Practical significance:The labor market in Kazakhstan is continually evolving under the influence of political, economic and social factors, yet in terms of development it still significantly lags behind modern requirements. In 2023, the situation in Kazakhstan’s labor market. Despite active business and production development in the country, there’s a significant scarcity of personnel in the candidate market. Consequently, numerous issues persist unresolved in employment and the social protection of unemployed citizens. The peculiarities of the labor dictate that its problems must be within purview of the country's leadership. Unaddressed issues could result in the inefficient utilization of society primaries productive forces - labor resources, but also in the erosion of the country’s competitive advantages due to a decrease in human resources, potentially escalating into significant social conflicts. Hence, it’s imperatives to promptly resolve employment related issues, enhance methods and forms of state labor market regulation and institutional changes. The primary goal of government is the effective of implementation measures aimed at increasing employment constituting the core of the country’s employment policy at the macro level essential for ensuring full employment as a fundamental right for citizens and achieving a high standard of living.

3. ANALYSIS

The peculiarities of the labor market dictate that its problems must be within the purview of the country's leadership. Unaddressed issues could result not only in the inefficient utilization of society's primary productive forces—labor resources—but also in the erosion of the country's competitive advantages due to a decrease in human resources, potentially escalating into significant social conflicts. Hence, it's imperative to promptly resolve employment-related issues, enhance methods and forms of state labor market regulation, and institute institutional changes. The primary goal of the government is the effective implementation of measures aimed at increasing employment, constituting the core of the country's employment policy at the macro level, essential for ensuring full employment as a fundamental right for citizens and achieving a high standard of living. Amidst digitalization, many countries, including Kazakhstan, confront a scarcity of proficient IT specialists. The availability of skilled IT personnel becomes a critical requirement for both company and state development. Consequently, a separate section of the report is dedicated to an overview of the IT market, analyzed based on authentic data from the information systems of the Ministry of Labor and Social Protection of the Population of the Republic of Kazakhstan. In Kazakhstan, as globally observed, the influence of modern information technologies on all facets of human activity escalates annually. Internet-based platforms for digital labor play a pivotal role in facilitating service provision and various work engagements for the public and businesses, constituting a shared benefit. It's evident that the significant surge in the development of platform-based employment began in the pandemic year of 2020, when people were isolated from each other, but at the

same time, online technologies played a decisive role, allowing them to "erase boundaries" and use a remote format of interaction in society. At the same time, it is important to note that Internet platforms did not lose their popularity even after the lifting of strict restrictions related to the COVID-19 pandemic, but, on the contrary, began to be in even greater demand among the population, who really appreciated the possibilities of obtaining certain benefits "without leaving home", and business found in this is an opportunity to optimize expenses.However, a downside to these developments lies in the escalating challenge of safeguarding the labor and social rights of individuals engaged in platform-based employment, a sector that is presently quite challenging to legally categorize as "labor" in Kazakhstan due to weak legislative regulation. The most common platform employments, such as taxi services and courier activities, typically do not necessitate high qualifications, contributing to a stagnation of the workforce in low-productivity sectors. This accentuates the need to create high-quality jobs, professional advancement, and lifelong learning (continuing education).

In the first quarter of 2023, the employment rate for individuals aged 15 years and older was 65%, and for the workforce, it was 95.2% (Figure 1). According to the International Labor Organization's methodology, the unemployment rate stood at 4.8%, with approximately 453.4 thousand people unemployed. The share of NEET youth, not engaged in work, education, or vocational training, accounted for 7.9%.

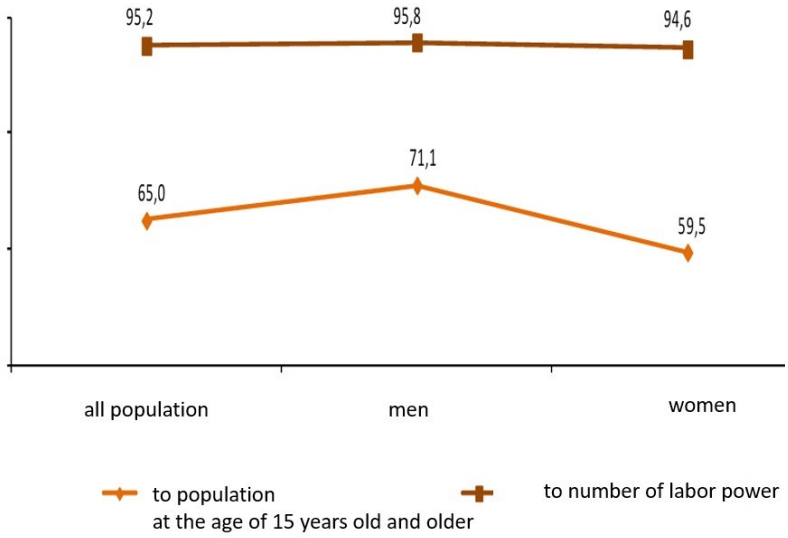

Figure 1. Employment rate
Source*:* Author's own research

Simultaneously platform employment, which demands professional experience and skills, is also on the rise. It is primarily focused on providing household services to the population and is concentrated in major cities, despite broadband Internet accessibility across nearly all regions of the country. In both scenarios, the responsibility for social security, labor rights, and employees' interests falls upon the workers themselves. The internet platform aggregator typically absolves itself of obligations outlined in labor legislation by positioning its activities as intermediaries, refraining from directly hiring employees to provide services or work under its own brand. This stance is corroborated by the statement from the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan, emphasizing that workers engaged in such roles "will be unable to access social benefits from the State Social Insurance Fund" in cases of job loss, pregnancy, childbirth, and other social risks. The labor market in Kazakhstan is in constant flux under the influence of political, economic, and social factors, yet its progress still lags far behind contemporary demands. Consequently, numerous unresolved issues have accumulated concerning employment and social protection for unemployed citizens. The intricacies of the labor market mandate that these issues should be on the radar of policymakers. Failing to address these concerns can not only result in the inefficient utilization of society's primary productive forces—labor resources—but also diminish the country's competitive advantages due to a decline in human resource potential, potentially

escalating into significant social conflicts. Therefore, addressing employment issues necessitates enhancing methods and forms of government intervention in labor market functioning and implementing institutional changes, particularly during periods of escalating economic crises.

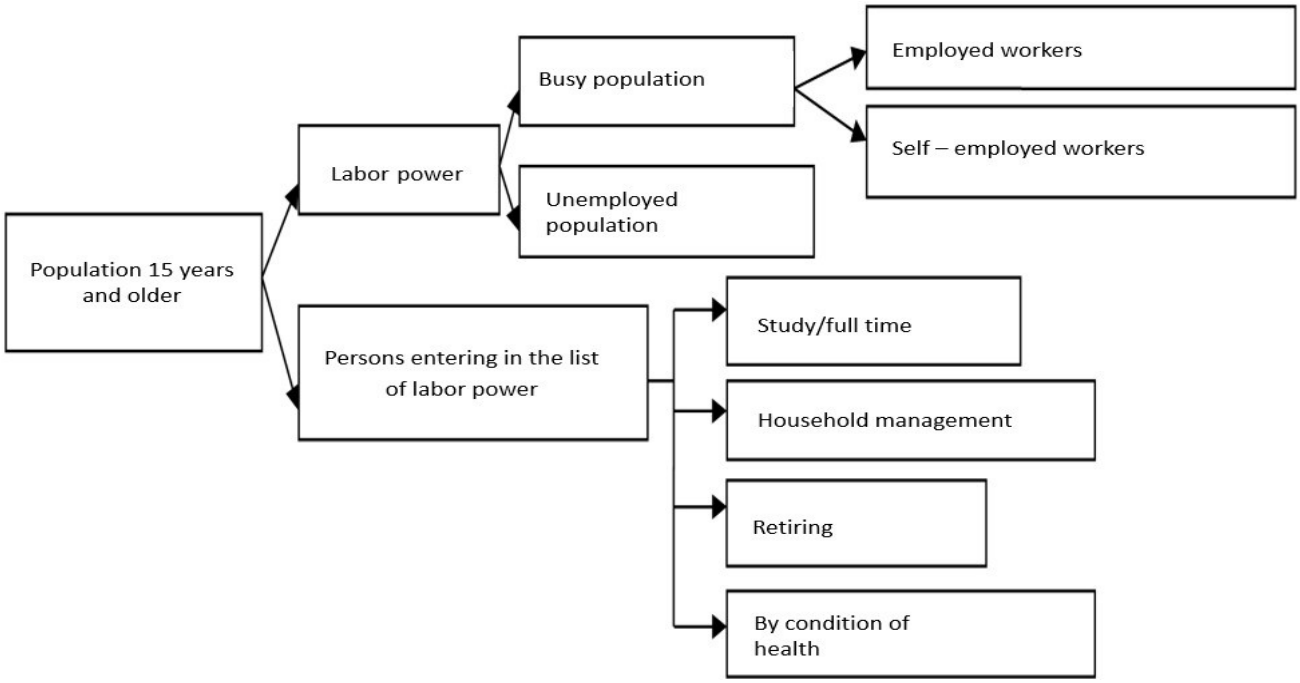

Figure 2. Methodology for the formation of the main indicators of the labor market
Source*:* Author's own research

According to the employment sample survey for the first quarter of 2023, 9 million people were employed across various sectors of Kazakhstan's economy. Among them, 6.9 million individuals were employees (constituting 76.4% of the total employed), while 2.1 million were self-employed (23.6% of the total employed). Compared to the first quarter of 2022, total employment increased by 250.8 thousand individuals, primarily attributable to employee roles (197.7 thousand people) and self-employed positions (an increase of 53.1 thousand people). The highest proportion of employed individuals was observed in trade (17.2%), education (12.9%), industry (12.6%), and agriculture (11.5%). On average, in primary job roles, the actual weekly hours worked per employed individual amounted to 38 hours, 40 hours for employees, and 34 hours for self-employed workers. The number of individuals not seeking employment or not ready to start work (potential workforce) totaled 28.2 thousand people. The percentage of individuals outside the labor force constituted 31.7% of the population aged 15 years and older (Figure 2).

Ecology often takes a back seat to populations inclined to live in certain areas. The benefits that come with relocating hold greater significance compared to the environmental considerations of living spaces. Factors like a higher standard of living, a well-developed transportation network, and various other advantages in large cities prompt the more affluent population to relocate. Additionally, agglomerations exhibit the utmost stability, a crucial aspect of a market economy. This stability stems from possessing all the necessary components that foster regional development, curbing population migration, attracting investments, and developing adjacent territories. Presently, agglomeration processes are evolving under the state's economic policy, undergoing significant changes—one of which is a new paradigm in spatial economic development. This paradigm shift replaces the concept of alignment within regional and interregional socio-economic development with the identification and support of growth focal points. Efficiently managing all aspects of an urban agglomeration's activities is crucial to reap positive effects from its formation and development. Building an agglomeration artificially is implausible; instead, controlling the development of an already established one is viable. Therefore, the primary focus of this development should involve stimulating horizontal ties to facilitate coordinated territorial develop-

ment decisions. Competent management of these processes is imperative to achieve a positive agglomeration effect, ensuring a high quality of life for the population and creating a conducive environment for business. This, in turn, fortifies the country's competitiveness on the global stage, especially as it aligns with an innovative development trajectory for the nation and its regions.

The introduction of new technologies will bring about a multifaceted impact on the state of the labor market. This impact is a subject of debate among scientists across various fields, particularly concerning the labor market. In developed countries, the effect of new technologies on the labor market is observable: low-productivity and low-paid sector jobs have been replaced by new technologies (for instance, in agriculture), while labor productivity has surged. This increase in productivity has allowed investments in services and innovative technologies, consequently generating new job opportunities. Innovative technologies, particularly in automation and informatization, have shifted the focus from industrial sectors to business services, emphasizing highly skilled activities such as design, 3D modeling, and research and development. Although the adoption of new technologies necessitates additional professional development costs, it concurrently elevates labor productivity. This process elevates employee qualification requirements, resulting in an upsurge in education levels. However, the use of any new technologies, including online digital labor platforms, is typically aimed at enhancing people's lives. They simplify access to various benefits, improve conventional public relations processes, expedite and facilitate interactions, and reduce transaction costs.

The globalization of the world economy over the past three decades has significantly altered socio-economic development guidelines and forms. This transformation impacted financial and foreign exchange markets, amplifying their growth, which, in turn, influenced the shift in the economic growth model, favoring capital over labor. These changes permeated not only emerging economic relations but also all facets of public life. The accumulation of capital, liberalization of economic policies promoting increased public debt, and protectionist mechanisms to bolster national economic systems led to growing spatial and structural inequality within individual states. This increasing inequality was viewed as a trade-off for rapid economic growth and modernization within a globalized context. While the global financial crisis of 2008–2009 weakened these trends to some extent, it's premature to claim a reversal of established trends. National governments concentrated efforts on rescuing economies and adopted austerity measures, which somewhat compromised the social sphere, leaving certain societal groups vulnerable amidst ongoing systemic transformations. This fostered the rise of the anti-globalist movement, resulting in systematic demonstrations and rallies in European countries (such as the "yellow vests," Brexit, and climate change strikes). Moreover, to mitigate negative externalities from globalization, "trade wars" were increasingly waged, limiting the potential of individual economic systems and perpetuating spatial inequality. In response to these circumstances, the global community proclaimed a new development agenda in 2015 at the UN summit, proclaimed a new development agenda based on ensuring sustainable development goals that combine economic growth with the need to eliminate poverty and inequality in society, and improve environmental well-being, including within the framework of implementing the concept of ensuring socio-economic and environmental well-being for future generations. Expressed in modern economic terms, the model of inclusive economic growth has been postulated as a priority development direction, proclaiming the need to eliminate inequality and maximize the involvement of all social and demographic groups in the process of creating and distributing the final gross product. The increased interest in the problem of ensuring an inclusive model for the development of economic systems at the level of international institutions has predetermined the growth of research activity in this area. To the greatest extent, the popularization of the theory of inclusive economic growth was received within the framework of the publication of research by Stiglitz and Piketty. Notable contributions to this field of economic theory by Kazakhstani researchers include works by Ibragimov et al.

It is important to focus efforts on the harmonious development of public relations under the influence of new technologies, in this case, new forms of employment, in particular, platform employment, in order to ensure a balance of interests of all stakeholders. This is possible only with the effective use of mechanisms of social dialogue and mutually beneficial cooperation in the labor sphere. At the same time, according to current legislation, the self-employed, including those using online digital labor platforms, are actually deprived of the opportunity to unite in trade unions to represent and defend their rights and legitimate interests. It is also very difficult to identify social partners on the part of employers,

since aggregators of digital labor platforms do not position themselves as such. Another important factor complicating the development of measures for the balanced development of platform employment is the lack of official statistical data on the current state in this area. For example, according to the information of the Minister of Labor and Social Protection of the Population of the Republic of Kazakhstan, announced at a government meeting on June 7, 2022, "*according to expert data, platform employment in Kazakhstan reaches up to 500 thousand people*". The unemployment rate (according to the ILO methodology) decreased to 4.8% compared to the first quarter of 2022. Officially, at the end of March this year, 265.8 thousand people were registered as unemployed by the employment authorities of the Ministry of Health of the Republic of Kazakhstan. The share of registered unemployed increased by 0.9 percentage points compared to the first quarter of the previous year and amounted to 2.8% of the workforce. The unemployment rate among young people aged 15 to 34 compared to 4.1% (Figure 3).

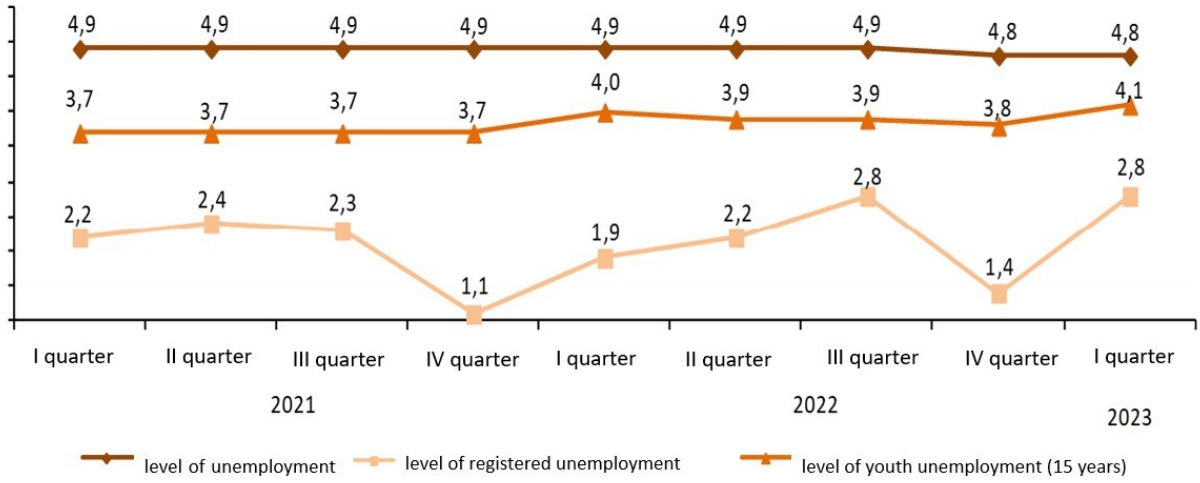

Figure 3. Unemployment rates as a percentage
Source: Author's own research

Digital platforms have opened up new employment opportunities, particularly for demographics traditionally disadvantaged in conventional labor markets, such as women, people with disabilities, young individuals, and those facing socio-economic challenges. Simultaneously, these platforms offer businesses access to a flexible and diverse workforce, expanding their customer base. However, platform employment represents a hybrid form that combines elements of wage labor and self-employment, requiring the clarification and identification of the status of workers engaged in such arrangements, along with the digital labor platforms themselves. Ensuring the social protection of these workers faces several challenges: A. Employees lack a direct employer-employee relationship, which, in traditional employment, would entail responsibility for providing social benefits and guarantees; B. Self-employed individuals, who can become employers by hiring other workers, complicate the establishment of a social dialogue system in this sector; C. Freelancers, often engaged in short-term projects under civil contracts or as sole proprietors, usually lack contractual labor relations unless involved in long-term projects; D. Self-employed individuals bear the responsibility and expenses for ensuring safe working conditions, with accident classification falling outside the confines of labor legislation; E. Many self-employed workers avoid burdensome insurance obligations, except for mandatory types of insurance (e.g., civil liability of motor vehicle owners), contributing to the prevalence of informal work. Ultimately, what is meant here is the development and adoption of effective legal and practical measures aimed at creating decent working conditions for workers in non-standard labor relations, mainly through Internet platforms, as well as helping to reduce the level of the informal economy.

Digital labor platforms are also developing quite rapidly in Kazakhstan, with foreign and international companies being the main players in the online platform market. A significant level of involvement of the working-age population in the field of platform employment naturally leads to the need to introduce state regulation of such activities. At the same time, as in other countries, it is difficult to calculate the real

scale of labor force involvement in platform employment. So, for the first time at a high state level, the President of Kazakhstan Tokayev spoke about platform employment in his Message to the People of Kazakhstan dated September 1, 2021 and noted that "total digitalization has led to new forms of employment based on Internet platforms," stating the need for state assistance in this area from the point of view of social and medical insurance, pension provision, and taxation. As a result, the government, together with the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan, was instructed to develop a mechanism for regulating new forms of employment, including those carried out on the basis of Internet platforms (including issues of social and medical insurance, pension provision, and taxation) by February 2022. In March of this year, the Ministry of Health of the Republic of Kazakhstan reported that a job search service for freelancers, freelance.enbek.kz, is under development, which will make it possible to transfer the activities of Kazakhstani freelancers to a digital format, thereby providing them with official employment. It was also noted that "almost 900 thousand people are employed in this area, some of whom provide one-time services outside the law and are not protected from the customer in any way." According to the Ministry of Health of the Republic of Kazakhstan, the electronic service "platform employment" will facilitate the registration of employees' activities, expedite the process of finding specialists, and formalize relationships with customers. This initiative aims to elevate people to a standard business environment. Meanwhile, the Comprehensive Plan "Program for Increasing Household Incomes until 2025", approved by the Government of the Republic of Kazakhstan on April 14, 2022, provides for such measures as promoting employment and formalizing the activities of persons providing services (freelance) through digital services (platform employment), with consideration of the possibility of introducing a simplified system for paying taxes and social payments (December 2023) and the development of approaches to the legislative consolidation of the regulation of new forms of employment based on Internet platforms (Q2 2022). On June 3, 2022, the Ministry of Health of the Republic of Kazakhstan held a meeting with the heads of online platforms operating in Kazakhstan, during which approaches to regulating new forms of employment based on Internet platforms were considered. In particular, representatives of 10 online platforms were invited: naimi.kz, quickwork.kz, market.kz (Kolesa group), Yandex.Taxi, Yandex.kz/Uber, Wolt Technologies Kazakhstan, Glovo.kz, Chocofood, Chocotravel, and Aviata. The Minister noted that the lack of an officially fixed status of freelancers and mechanisms for regulating the provision of social guarantees to citizens employed through online platforms carries certain risks for the population involved in platform employment, especially when it is the main and only source of their income. According to the Minister, the risks lie primarily in the absence of social contributions made by the customer, entitling employees to social benefits, for example, in case of temporary disability or loss of work and income. On the other hand, in the modern world of globalization, freelancers using foreign online platforms can provide their services to clients from any location worldwide. In such cases, attempts to regulate the activities of online platforms outside Kazakhstan's jurisdiction may be futile.Education plays a crucial role in preparing individuals to effectively, safely, and profitably provide freelance services. For example, a Freelance school operates on the basis of Astana Hub, 16 courses of which are designed to help both beginners and experienced professionals determine their own niche on the international Upwork platform, create a "selling" profile, develop strategies for choosing projects and working with the customer, and form an informed approach to income on freelancing. As for the Internet platforms themselves, they usually provide their platform to both customers (employers) and performers (employees) on the basis of a public offer, without concluding contracts with each individual. As an example, the Agreement on the use of the Internet resource naimi.kz, one of the first Kazakhstani digital labor platforms (since February 2015), was analyzed. It is worth noting that the company naimi.kz, like all digital platforms, operates in an organizational and legal LLP, which, unlike public interest organizations (for example, JSC), is quite flexible and is not burdened with the need to carry out a large number of control measures, mandatory publication of financial statements, and also has less complex aspects of registration and corporate issues. Thus, there is no generalized information on the platform's website about the number of specialists (employees), their remuneration, and types of activities, including in the regional context. However, some information about the work of the platform was shared by its head YerlanYessimseitov in an interview with Forbes Kazakhstan. According to him, over 800 thousand specialists are registered on the platform, with around 35 thousand active employees per month. In 2021, 134 thousand people were employed through the platform, with 50% of specialists working in Almaty, 45% in the capital, and the rest of the specialists in other regions of the country. According to the types of work per-

formed, household services are mainly provided through the platform: cleaning, plumbing, electrics, turnkey repairs, and short-term services.

The impact of the COVID-19 pandemic has had a strong impact on global employment, particularly in 2020, with a gradual recovery in 2022–24. The stability of the half-year and country income levels confirm that in low-income countries, the EPR remains above average, reflecting the need for basic income security (Table 1).

Table 1. Employment and employment-to-population ratio 2019-2024 by sex, world and country

Country group	*Sex*	*EPR (percentages)*						*Employment (millions)*					
		2019	2020	2021	2022	2023	2024	2019	2020	2021	2022	2023	2024
World	Total	56,9	54,5	55,7	56,4	56,3	56,1	3273	3176	3283	3359	3393	3430
	Women	45,0	43,0	44,0	44,7	4,5	44,4	1299	1256	1301	1335	1347	1360
	Men	68,8	66,1	67,5	68,2	68,1	68,0	1974	1920	1982	2024	2046	2070
Low-income countries	Total	62,0	60,7	61,0	61,3	61,4	61,4	242	245	254	263	272	281
	Women	53,1	51,8	52,2	52,1	52,1	52,1	105	106	110	113	117	121
	Men	71,2	69,8	70,1	70,8	70,9	71,0	137	139	144	150	155	160
Lower-middle-income countries	Total	52,0	49,8	50,6	51,4	51,5	51,6	1205	1174	1213	1249	1272	1296
	Women	33,7	32,3	32,8	33,5	33,6	33,7	388	378	390	405	413	421
	Men	69,9	67,1	68,2	69,0	69,2	69,2	816	796	823	845	859	875
Upper-middle-income countries	Total	61,0	58,0	60,1	60,4	60,0	59,8	1225	1173	1223	1237	1239	1243
	Women	53,2	50,4	52,3	52,7	52,4	52,1	539	514	537	545	545	546
	Men	68,8	65,7	67,9	68,1	67,8	67,6	686	659	685	692	694	696
High-income countries	Total	58,1	56,3	57,0	58,2	57,9	57,7	602	585	594	610	611	610
	Women	51,0	49,3	50,2	51,4	51,1	50,9	267	259	264	272	273	272
	Men	65,4	63,3	63,9	65,1	64,8	64,6	335	326	329	338	338	338

Source: compiled by the authors according to ILOSTAT

Table 2. Analysis of average annual employment growth for each category of employed population for 2019-2024, broken down by gender, world and country

Country group	Sex	Average annual employment growth (million)	Average annual change in EPR (%)	Average percentage increase in activity (%)
World	Total	31,4	-0,16	0,96
	Women	12,2	-0,12	0,9
	Men	19,2	-0,08	1,05
Low-income countries	Total	7,8	-0,18	3,04
	Women	3,2	-0,20	2,88
	Men	4,6	-0,04	3,16
Lower-middle-	Total	18,2	0	1,43
	Women	6,6	-0,08	1,68
	Men	11,6	-0,06	1,29
Upper-middle-income countries	Total	3,6	-0,30	0,57
	Women	1,4	-0,22	0,41
	Men	2,2	-0,22	0,67
High-income countries	Total	1	-0,08	0,28
	Women	1,0	-0,02	0,39
	Men	0,6	-0,02	0,19

Source: compiled by the authors

Global volatility indicators have improved markedly in 2022 compared to the significant readings recorded between 2019 and 2024. While the EPR has recovered from a significant decline in 2020, remaining below the 2019 pre-crisis level, there have been some notable changes in the speed of recovery. In particular, low-income countries have lagged 0.7 percentage points behind their pre-crisis performance, while high-income countries have limited their pre-crisis performance, indicating different paces of progress. Women have fared better in the labour market than men, with their employment rate almost reaching the 2019 level. However, this recovery came at the expense of increased informality: about 80% of new jobs for women in 2022 were informal, compared to 66% for men. In high-income countries,

women's WPI in 2022 increased by 0.5 percentage points compared to 2019, while it decreased by 0.3 percentage points for men. In lower-middle-income countries, women's employment recovery also led the way, while men's remained 0.9 percentage points below their 2019 level. In low- and upper-middle-income countries, employment showed similar dynamics to women, indicating a continuing gap compared to 2019 levels. Despite the improvement in the labour market, the geographic gap remains globally (Table 2).

The global employment-to-population ratio (EPR) hit a low in 2020 (54.5%) due to the economic downturn caused by the pandemic. The recovery has been slow in recent years, with the level in 2024 projected to be below the pre-crisis 2019 level (56.1% vs. 56.9%). In low-income countries, the employment-to-population ratio (EPR) is higher than the global average, at around 61–62%. This is because most people in these countries typically work to provide a minimum level of income. However, this high employment is often associated with low job quality and precarious employment. In lower-middle-income countries, the activity rate also fell significantly in 2020 (49.8%), before recovering to 51.6% by 2024, which remains below the 2019 level. In upper-middle income countries, the failure rate also declined in 2020 (from 61% to 58%) and remains at 59.8% by 2024, below the 2019 level. This suggests a slower recovery compared to low income, which may be due to increased demands on places and labor market constraints. In high-income countries, the recovery was faster than in other categories. By 2024, the failure rate had recovered to 57.7%, only slightly below the 2019 level (58.1%). Given that changes in the labor market situation and crises, including the COVID-19 pandemic, determine unemployment rates among men and women in different countries, we will consider global trends and approaches using countries with different levels of income and economic development as examples.

A. Global unemployment rates. At the global level, the unemployment rate changes with the degree of economic growth under the impact of the pandemic and economic recovery. By 2020, global unemployment increased sharply, and then there was a gradual decline as the economy recovered at its weakest, leading to a decrease in the unemployment rate in 2022-2024. However, unemployment has not yet fully recovered to pandemic levels, and in some countries, rates have increased due to various factors, such as technological automation and structural changes in economic development:

- At the global level, unemployment among women is generally higher than among men, and this gap has widened during the pandemic. For example, according to the International Labor Organization (ILO), women have been hit harder, such as the service sector and tourism. The recovery in employment for women is also slower, partly due to their greater informativeness in the informal sector and domestic work;
- Unemployment among men also increased in 2020, but the increase was less pronounced compared to women. In 2023-2024, men's employment improved faster due to the return of jobs in sectors such as construction, manufacturing and transport. An example is the United States, where some of the unemployed men were able to find work for the minimal economic recovery, especially in classes, with infrastructure projects and construction.

B. Low-income countries. In relatively low-income countries, unemployment is stable compared to more developed ones, but this may be due to the fact that in such countries a high share of the labor force is engaged in the informal economy, where unemployment is not always mentioned in official statistics:

- unemployment among high-income countries has always been higher for women, and the pandemic has worsened the situation, although not as dramatically as in high-income countries. In these countries, women often work in agriculture and other sectors of the economy that experience less dynamic economic fluctuations, which helps maintain employment levels during the crisis. For example, in Africa, women are often employed in the agricultural sector, reducing the risk of unemployment but leaving them vulnerable; - Men in low-income countries are also often employed in sectors with stable demand, which has mitigated the impact of the pandemic. In Italy and Nepal, for example, many men work in agriculture and other sectors that have not been as hard hit by the pandemic.

C. Lower-middle-income countries. In lower-middle-income countries, unemployment also increased markedly in 2020 and has gradually declined since 2021. The recovery in lower-middle-income countries has been slow and unemployment remains high due to slow economic growth and structural challenges:

- Unemployment among women in these countries has increased and the recovery has been slow, due to restrictions in access to formal sectors of the economy. In India, for example, women have been hit harder as they often work in informal and low-paid sectors. Despite government measures to expand opportunities for women, the employment gap remains high;
- Men in lower-middle-income countries have also been hit by the crisis, particularly in construction and tourism. For example, in countries such as the Philippines, male employment declined in 2020 due to travel restrictions and the economic downturn, particularly in industries linked to international tourism. In 2023–2024, gradual recovery in growth rates in construction and manufacturing.

D. Upper-middle-income countries. In upper-middle-income countries, unemployment increased sharply in 2020 and gradually decreased in previous years. However, the recovery is individual and depends on the level of support from the government and structural actors of the economy:

- Women in high-income countries constantly face rising unemployment, especially in the classes associated with the above-mentioned services and the informal economy. In Brazil, for example, female unemployment remained higher than male unemployment, despite measures to support employment. In 2024, the unemployment rate among women is still higher than pre-pandemic;
- Employment among men declined in 2020 due to restrictions on movement and the economic downturn, especially in the segment associated with international tourism. In 2023–2024, gradual recovery in growth rates in construction and manufacturing.

Unemployment rates and unemployment rates by gender, world and country for 2019-2024 are presented in Table 3.

Table 3. Unemployment rates and unemployment rates by gender, world and country for 2019-2024

Country group	Sex	Unemployment rate (percentages)						Unemployment (millions)					
		2019	2020	2021	2022	2023	2024	2019	2020	2021	2022	2023	2024
World	Total	5,5	6,9	6,2	5,8	5,8	5,8	191,9	235,2	216,4	205,2	208,2	210,9
	Women	5,6	6,7	6,2	5,8	5,8	5,9	77,3	90,3	86,5	81,9	83,5	84,7
	Men	5,5	7,0	6,1	5,7	5,7	5,7	114,7	144,9	129,9	123,3	124,7	126,3
Low-income countries	Total	5,2	5,9	5,8	5,8	5,7	5,7	13,1	15,4	15,7	16,1	16,5	16,9
	Women	5,4	6,1	6,1	6,0	6,0	6,0	6,0	6,9	7,2	7,3	7,5	7,7
	Men	5,0	5,7	5,6	5,5	5,5	5,4	7,2	8,4	8,6	8,8	9,0	9,2
Lower-middle-income countries	Total	5,5	7,4	6,4	6,2	6,1	6,2	70,1	93,8	82,8	82,0	83,3	85,3
	Women	5,6	6,8	6,3	6,2	6,2	6,2	70,1	93,8	82,8	82,0	83,3	85,3
	Men	5,5	7,7	6,4	6,2	6,1	6,1	47,2	66,1	56,5	55,4	56,1	57,3
Upper-middle-income countries	Total	6,0	6,8	6,3	6,0	5,8	5,8	78,6	85,3	82,6	78,4	76,9	77,0
	Women	6,0	6,6	6,4	5,9	5,8	5,8	34,3	36,5	36,7	34,3	33,8	33,9
	Men	6,1	6,9	6,3	6,0	5,9	5,8	44,3	48,8	46,0	44,1	43,1	43,1
High-income countries	Total	4,8	6,5	5,6	4,5	4,9	5,0	30,1	40,7	35,2	28,7	31,5	31,8
	Women	5,0	6,9	5,9	4,8	5,2	5,3	14,1	19,2	16,5	13,7	14,9	15,1
	Men	4,5	6,2	5,4	4,3	4,7	4,7	15,9	21,5	18,8	15,1	16,6	16,?

Source: compiled by the authors according to ILOSTAT

The analysis yielded the following findings: A. The largest increase in unemployment was observed in 2020, due to the economic impact of the COVID-19 pandemic. High-income and lower-middle-income countries experienced a sharp increase in unemployment, especially among women; B. A decrease in unemployment has been observed since 2021, but it is more pronounced in high-income countries and globally; C. Women experience higher unemployment rates than men everywhere, especially in low-income countries, where their unemployment rate increased significantly in 2020; D. High-income coun-

tries have the lowest unemployment rates of all country categories, but the increase in the number of unemployed people in 2020 was also noticeable (up to 35% compared to 2019); E. Lower middle income and low income countries showed a higher rate of increase in unemployment, which is associated with less scope for economic recovery and growth in these countries. However, there is a job shortage in 2022 by gender and country group, the dynamics of which are shown in Figure 4.

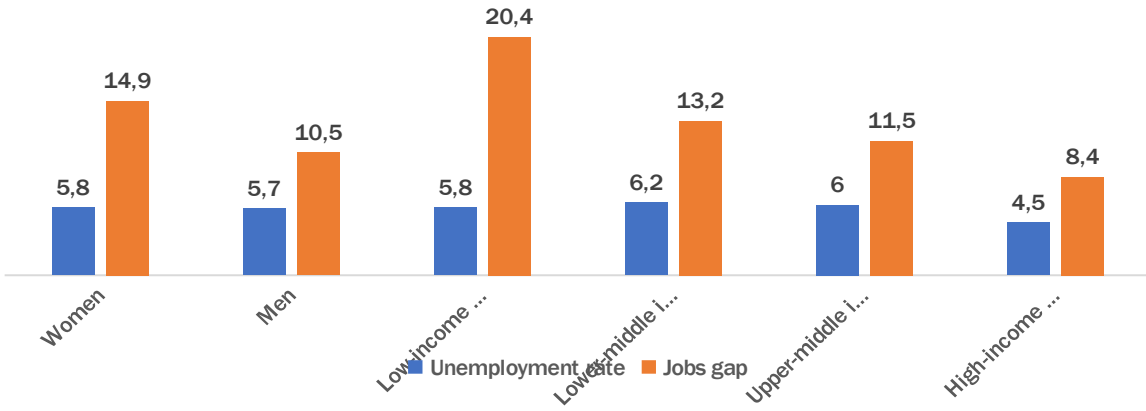

Figure 4. Jobs gap in 2022 by gender and country group
Source: compiled by the authors according to: https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@dgreports/@inst/documents/publication/wcms_865332.pdf

An analysis of the jobs gap in 2022 by gender and country group shows that: A. In 2022, the unemployment rate for women was 5.8%, slightly higher than for men (5.7%). This shows that women face greater difficulties in the labour market, despite the overall downward trend in unemployment. The jobs gap also differs by gender and by country income level; B. Jobs gap by gender: - The jobs gap for women was 14.9 million. This is a relatively high figure, confirming the existing problem of inequality in the labour market, where women in most countries face greater barriers to employment; - The jobs gap for men was slightly lower at 10.5 million. Although the unemployment rate for men was lower than for women, the jobs gap is still significant, indicating problems in the labour market that hinder not only women but also men in finding employment. C. Jobs gap by country group: - Low-income countries - the unemployment rate in 2022 was 5.8%, in line with the world average. However, the jobs gap here was significant - 20.4 million, indicating that there is a significant shortage of jobs in low-income countries, limiting employment opportunities for the population, especially among women; - Lower-middle-income countries - the unemployment rate in these countries was slightly higher - 6.2%. The jobs gap was 13.2 million. Although unemployment rates are slightly higher than in low-income countries, the jobs gap is smaller. This may indicate better conditions for employment compared to the poorest countries; - Upper middle income countries - these countries had an unemployment rate of 6% and a job deficit of 11.5 million. Despite the lower unemployment rate compared to other country groups, the job deficit is still high, indicating the ongoing challenges in job creation in these countries; - High income countries - high income countries had the lowest unemployment rate of 4.5% and a job deficit of 8.4 million. This is the lowest job deficit among all country groups. The high level of economic development and the availability of social programs contribute to a smaller job deficit, although it is still noticeable.

5. RESULTS

The labor market is generally subject to the laws of supply and demand and is a special kind of market that has significant differences from other commodity markets. In the labor market, regulators are not only micro- and macroeconomic factors, but also many factors of a social and socio-psychological nature. In economics, there are several basic concepts of the functioning of the labor market. Neither neoclassical, nor monetarist, nor Keynesian, nor institutionalist concepts individually give a complete and adequate picture of the functioning of the labor market, although they reflect its individual elements. The modern labor market in developed countries with market economies is segmented into several non-competing markets. These are the markets of skilled (primary) and unskilled (secondary) jobs, the markets of

knowledge-intensive and traditional sectors of the economy. In the sectoral structure of the labor force, the following changes can be traced: a decrease in the number of people employed in agriculture and an increase in their number in the service sector. The professional structure of the workforce is dominated by the category of knowledge workers. The number of manual workers is decreasing.Unemployment acts as an excess of the supply of labor over the demand for it. Depending on the causes of unemployment, there are several types of unemployment: structural, cyclical, natural, frictional, seasonal, hidden, etc. On average, our unemployment rate is 7-8% of the workforce. Among the main directions of state regulation of the labor force, it is possible to distinguish:

- programs to stimulate employment growth and increase the number of jobs in the public sector;
- training and retraining programs;
- programs to promote the recruitment of labor;
- social insurance programs for unemployment.

Employment services occupy a special place in the labor market regulation system. They are special institutions that perform intermediary functions in the labor market. Their functions include registration of the unemployed, their employment, study of labor market conditions, testing, vocational guidance and retraining of the unemployed, and payment of benefits. The author developed recommendations as a result of the study:

A. Improving women's access to the labor market. It is important to develop policies aimed at improving women's access to jobs, including vocational training and anti-discrimination programs. B. Stimulating job creation in low-income countries. In low-income countries, it is necessary to take measures to improve the economic situation, stimulate small and medium-sized businesses, and attract investment to create new jobs. C Labor market reform in upper-middle-income countries. In upper-middle-income countries, it is necessary to revise job creation policies, taking into account new trends such as digitalization and automation, which can affect the structure of labor demand. The key points in the analysis of the impact of innovation and inclusive development of agglomerations are as follows: a. Technological change and the labor market, b) The growth of self-employment and freelancing - the emergence of online job platforms (OLP) contributes to the geographic distribution of jobs and the creation of new jobs for freelancers. This trend is causing significant changes in the labour market, increasing the flexibility of labour relations and stimulating demand for new professionals in the fields of technology and digital platforms. The role of innovation in reducing barriers to access to the labour market - innovations in online education, digital platforms and flexible employment models help overcome barriers related to labour migration, territorial mobility and women's employment. This is an important element of inclusive development of agglomerations.

B. Demographic transition and its impact on the labour market. a) Population aging in developed countries - the aging population in countries with highly developed economies requires strategies aimed at maintaining and improving the quality of the workforce, including through increasing the employment rate among older citizens and developing "green" jobs that will ensure sustainability and security in the future, b) Demographic changes in developing countries - in countries with high birth rates and rapid population growth, the main focus should be on job creation in order to avoid job shortages and improve the quality of life; c) Inclusive Development through Sustainable and Green Jobs.

C. Transition to a Green Economy - Green jobs are becoming an important aspect of sustainable development strategies as they help reduce carbon emissions and improve environmental quality, while providing new opportunities for job creation in environmentally friendly sectors such as renewable energy, waste recycling and green construction.

D. Skills for Sustainable Development - Developing green skills and training specialists in environmentally friendly industries is a key factor for successfully adapting to changes in the world of work caused by environmental and technological transformations.

E. Labor Market Institutions and Policy Regulation. A) The Role of Public Institutions in Employment Regulation - Labor market institutions play a key role in ensuring the inclusiveness of the labor market and overcoming barriers for women, youth, older workers and migrants. Training, retraining and social

support programs are needed to prepare citizens for new economic challenges; b) 2) Green and social policies - in countries such as Germany and the UK, increased attention to sustainable development by employers is associated with improved productivity, increased employee satisfaction and talent attraction. Public and private initiatives aimed at environmental and social impact contribute to inclusive development.

F. Green employment as part of global economic change. a) Creating "green" jobs - as part of the transition to sustainable development, new challenges arise, such as a shortage of skilled workers in environmentally friendly industries. Jobs aimed at restoring ecosystems and reducing pollution are becoming an important element of strategies to improve social justice and equal opportunity, b) Green transition as a global strategy - the World Labor Organization, as well as other international organizations, are actively developing programs to introduce "green" jobs, which in the long term can become the basis for inclusive development in agglomerations.

The connection between innovation and inclusive development of agglomerations is confirmed through the interaction of technological change, sustainable development and reforms in the labor market. The creation of new “green” jobs, the development of skills for sustainable development and the active participation of public institutions in regulating employment can ensure equal opportunities and inclusive development both at the global and local levels.

CONCLUSION

The absence of a labor exchange complicates the recording of unemployed individuals. Therefore, the number of unemployed in the country is determined not by the name registration of each job–seeking citizen, as is customary in world practice, but by the efforts of the country's statisticians making calculations using the residual principle. It is known that this statistical approach allows for significant errors, and for this reason, it is not possible to determine the real number of unemployed individuals in the country more accurately. On the other hand, when determining the number of unemployed individuals, if one departs from the principle of roll-call registration, then there are temptations to manipulate statistical indicators depending on changes in the political situation in the country. The results of independent research conducted by the audit company E&Y indicate that there is a high proportion of hidden unemployment in the country, although the official unemployment rate has been at 5% over the past few years. Consequently, successful employment and unemployment statistics could have occurred as a result of the inclusion of unregistered unemployed in the category of self-employed population or other related actions.

Kazakhstan exhibits a high proportion of self-employed individuals, surpassing 30% in recent years. Most of these individuals reside in rural areas, and possess low education levels and qualifications. Approximately 40% of the self-employed population engages in unproductive employment, primarily in personal subsidiary farming for self-consumption. Only 13% of the total self-employed population produce goods for sale, and many of them earn incomes below the subsistence minimum. This unproductive employment among a significant portion of the population leads to inefficient utilization of the country's labor resources, restraining citizens' socio-economic advancement. Reliable indicators of employment and unemployment are lacking. Inaccurate data on the number of unemployed individuals hinder the implementation of adequate measures to address employment issues, provide retraining opportunities, optimize territorial placement of labor resources, and reduce the effectiveness of government programs aimed at enhancing employment. Inadequate and unreliable statistical data make it impossible to assess the impact of most government policy measures on the labor market and the overall economy.

Studying the sphere of platform employment, one can conclude that the presence of online digital labor platforms in Kazakhstan is expanding every year, new players are coming, while foreign platforms occupy a large share of the market, which carry out their activities by creating representative offices in accordance with Kazakh legislation. Such platforms position themselves as an information intermediary between customers and performers, unambiguously excluding definitions as an employer for platform employees, but at the same time, they can apply various models of interaction with such employees. Simultaneously, nearly all internet platforms differ in their similar approaches when setting conditions for platform employees: public offers are unilaterally developed, changed, and terminated; the platform re-

tains the discretion to reject an employee's registration or disconnect them without explanation. Despite the platform's declared lack of control over the employee, actual control is exerted through defining methods, deadlines, and service quality, enforcing compliance with platform terms, and applying penalties for violations. Common among online digital labor platforms is the inclusion of limited rights for platform employees in public offers, such as access only to information about orders, and the platform's ability to utilize and share employees' personal data without notification. Numerous platforms impact employees' freedom to select orders or decline them without facing negative consequences, which could result in a downgrade within the system. Consequently, despite the voluntary nature of choosing an Internet platform, once employees accept the terms of public agreements and utilize platform services, they become dependent on the platform. This dependency might even exceed that of employees under civil contracts working for traditional employers. Additionally, online digital labor platforms refrain from disclosing generalized information about the number of platform workers, the nature of their work, estimated work hours, average wage levels, etc., including data categorized by activity type and region.

Meanwhile, the collection and processing of a vast amount of data provide online digital labor platforms with a unique advantage that could serve as a source for conducting comprehensive analyses of labor relations within the platform economy. This data could aid in the development of various sectors of the economy and provide insights into behavioral models within society. The issue of involving platform workers in the trade union movement remains pertinent, necessitating the establishment of a legislative framework and the creation of digital infrastructure to uphold the right of employees on online digital labor platforms to freedom of association in trade unions. Furthermore, legislative amendments are needed to integrate platform employment into the system of social partnership in the labor sphere. In this endeavor, republican trade union associations should play a leading role, working in collaboration with authorized state bodies and online digital labor platforms. It is crucial to communicate to all stakeholders and the public the importance of coordinated actions for the benefit of workers, including platform workers, who also require representation and protection of their rights and legitimate interests. In summary, it's essential to note that in Kazakhstan, particularly in recent years, modern digital technologies have significantly impacted the economy and society as a whole, including the labor market. The expansion of Internet platforms is expected to continue, encompassing more areas of life and influencing the rights and interests of various population groups. In this context, finding the most optimal and effective way to utilize Internet platforms that is beneficial and acceptable for all stakeholders (users, employees, platforms, and the state), becomes extremely important. Perhaps the most effective approach is to conduct an open and trusting social dialogue based on a trilateral partnership.

In the context of rapid technological change and global environmental challenges, innovation is becoming an important factor for the inclusive development of agglomerations, creating opportunities for sustainable economic growth and increasing equality of opportunity in the labor market. Technological solutions such as online employment platforms and digitalization help overcome barriers to access to work, especially for vulnerable groups. At the same time, the transition to a “green” economy opens up new areas of employment, reduces the environmental burden and promotes social stability. Public institutions play a key role in supporting inclusive development by implementing programs to adapt workers to new conditions, train “green” skills and support green jobs. Joint efforts of the private and public sectors to develop a sustainable labor market focused on social equality and environmental safety can contribute to the harmonious growth of agglomerations, improving the quality of life and creating equal conditions for all citizens.

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