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THE FUTURE OF WORK: PESTLE ANALYSIS OF FLEXIBLE WORK IN KAZAKHSTAN

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Abstract. This article examines the macroeconomic factors influencing flexible work in Kazakhstan, addressing the roles of political, economic, social, technological, legal, and environmental (PESTLE) factors. The research explores two main questions: (1) How significant are each of these factors in shaping flexible working in Kazakhstan? and (2) Are there statistically significant differences in their impact? The study employed an expert survey, which was analyzed using descriptive statistics and an analysis of variance (ANOVA). The findings highlight the pivotal role of technological and social factors in driving flexible work adoption, while environmental considerations remain less influential. The findings provide empirical insights into the dynamics of flexible work in Kazakhstan, offering a foundation for policy recommendations aimed at fostering a more adaptive and resilient labor market.

Keywords: *flexible work, public policy, Kazakhstan, labor legislation, work–life balance, expert survey.*

Reikšminiai žodžiai: *lankstus darbas, viešoji politika, Kazachstanas, darbo teisės aktai, darbo ir asmeninio gyvenimo pusiausvyra, ekspertų apklausa.*

Introduction

Flexible working has become a more prominent feature of the modern labor market, reflecting the needs of both employees and employers as globalization, digitalization, and demographic shifts take place. The work environment has become more diverse and dynamic, emphasizing knowledge, skills, and flexibility (Barley et al. 2017). The COVID-19 pandemic, which erupted in 2020, profoundly impacted the global economy, health

systems, and society. As countries worldwide implemented measures to contain the virus, including vaccines and effective treatments, the pandemic also drove significant changes in working patterns. As a result of the crisis, more and more organizations are acknowledging the value of flexible work in attracting and retaining talent (Spurk and Straub 2020, 1).

Despite growing recognition of flexible work, existing research remains fragmented, with limited focus on its macroeconomic and policy implications. This study addresses that gap by analyzing PESTLE factors shaping flexible employment, particularly in Kazakhstan. During the 2020 lockdown, organizations in Kazakhstan swiftly implemented telework and flexible schedules. Following COVID-19, the government actively modernized labor laws, incorporating remote work and flexible hours into the Labor Code to align with global trends (Alshanskaya et al. 2024, 639).

Our research, conducted at a time when the role of the macroeconomic environment in shaping flexible employment is more crucial than ever, aims to provide valuable insights into the relative impact of various factors influencing flexible jobs and assess the likelihood of changes in these factors. By doing so, we aim to deepen our understanding of the macroeconomic environment's role in shaping labor market trends.

Literature review

Flexible working encompasses a range of working patterns, including reduced hours, non-standard work hours, various types of remote working, and compressed workweeks. The emergence of this concept began gaining traction among scholars in the late 20th century. Undoubtedly, the COVID-19 pandemic has significantly accelerated the adoption of flexible work (Spurk and Straub 2020, 1–2). As a result, the existing body of literature on flexible work has expanded, offering insights into the advantages and challenges of flexible work across various sectors, industries, and countries. However, most studies on flexible work remain micro-level in focus, examining individual or organizational experiences, preferences, and outcomes related to flexible work arrangements (Gerards et al. 2018, 517; Shepherd-Banigan et al. 2016, 103; Bellmann et al. 2021, 425).

This micro-level focus, while valuable, tends to overlook macroeconomic factors, particularly those related to PESTLE influences. This gap is particularly relevant for Kazakhstan, where flexible employment is still evolving. Our study addresses this by employing a PESTLE analysis to systematically assess the macroeconomic and policy-related drivers and barriers shaping flexible work arrangements. Each category is described below in the context of flexible work.

Research on political influences in flexible working highlights the role of government policies and labor regulations. Burgoon and Dekker (2010, 126) argue that flexible work policies often respond to economic uncertainty, with measures like employment subsidies stabilizing labor markets (Carranza et al. 2020, 3). However, in some European countries, particularly Germany, access to flexible work is shaped by collective bargaining and

firm-level negotiations rather than direct state intervention (Lyness et al. 2012, 1023).

Economic transformations are analyzed for their impact on labor market flexibility and evolving work arrangements. Empirical evidence links flexible employment to shifts in economic structures, particularly in economies where the service sector dominates gross domestic product (Geng and He 2021, 307). At the same time, Morelli et al. (2020, 187) emphasize that global economic shifts are driving industrial economies from mass production toward more customized, service-oriented models. The rise of Industry 4.0 has facilitated the adoption of flexible organizational structures, integrating automation, artificial intelligence, and smart manufacturing. However, while these advancements enhance productivity and efficiency, they also pose challenges such as workforce displacement in traditional manufacturing sectors (Morelli et al. 2020, 187–188).

Flexible work is also driven by demographic shifts and societal trends. While it boosts labor market participation and work–life balance, it also raises concerns about job insecurity and inequality. Some studies see flexible jobs as stepping-stones to stable employment in many European labor markets (Auray and Lepage-Saucier 2021, 1), while others highlight risks such as social fragmentation and income insecurity (Nemteanu et al. 2021, 65). For instance, platform work is often perceived as a "social equalizer," offering income opportunities for disadvantaged groups (Hoang et al. 2020, 682), particularly in remote jobs (Schor and Vallas 2021, 369).

Many studies argue that advancements in information and communication technologies (ICT) have also significantly shaped the evolution of flexible work arrangements. These technological developments offer a range of advantages, such as increased productivity, improved well-being, better work–life balance, and more significant opportunities for women and caregivers to engage in paid work (Gerards et al. 2018, 523–527). The COVID-19 pandemic further accelerated these trends, driving the rise of "on-demand" work facilitated by digital platforms, which is often part-time and irregular (Fudge and Mundlak 2020). However, Alfes et al. (2022, 4362–4363) highlight the challenges associated with these technological advances, particularly in maintaining a balance between flexibility and employee well-being.

Legal frameworks are closely linked to flexible working, as highlighted by several key studies that explore the intersection of law, policy, and work arrangements. The UK's "right to request" policy (Cooper and Baird 2015, 568) and legislative changes in Germany and the Netherlands (Hegewisch 2005, 104) illustrate how policies can institutionalize flexible work. Glowacka (2020, 113) explores Austria's legislative efforts to enhance work flexibility, focusing on balancing worker autonomy with job security.

Research on the environmental impact of flexible work is still emerging, particularly in less developed countries, whereas developed nations have made more progress in this area. Studies indicate that flexible work can contribute to sustainability goals by reducing emissions and traffic congestion (Ge et al. 2018, 83; Kelly et al. 2022, 3). Moreover, work schedule adjustments have been proposed as a strategy to mitigate climate-induced labor market disruptions (Feriga et al. 2025, 104).

This literature review underscores a significant shift in the understanding of flexible work, particularly from the pre-pandemic to the pandemic or post-pandemic periods. Flexible work is still evolving, but it has broader implications in emerging economies that are still unexplored.

This study seeks to answer the following questions:

a) How do PESTLE factors shape flexible employment in Kazakhstan?

b) Are there statistically significant differences in the impact of these factors?

By adding structured PESTLE analysis to the research, we can bridge the gap by extending traditional frameworks and evaluating the external macroeconomic and institutional conditions that shape flexible work. Our objective is to offer a broader understanding of the forces behind or against flexible work arrangements, resulting in valuable insights for policymakers, businesses, and researchers.

Methodology

We developed the methodology to collect and analyze expert opinions through a structured survey. Its goal was to capture insights and evaluate the relative importance of various PESTLE factors influencing flexible work. Initially, we identified the primary factors through a comprehensive literature review and preliminary discussions with field experts. This step ensured that the survey encompassed the most relevant aspects of PESTLE factors. To gather insights and collect expert opinions, we conducted an online survey. The survey questionnaire was created using Google Forms and targeted 51 professionals specializing in labor economics and economic and public policy.

Participants with different professional backgrounds were recruited using a purposeful sampling technique, which included employees from central and local government bodies, academics, researchers from universities and research centers, and independent researchers. The selection process took into account the participants' professional expertise, academic credentials, and practical experience to guarantee their knowledge of flexible work and related PESTLE factors. The participants were chosen not because they were representative but because they were "information-rich cases" (Patton 2014, 43). We distributed the survey link via personal and professional networks, and recipients were encouraged to share it within their professional circles. The survey briefly explained the study's purpose, and respondents were allowed to delete their responses.

Participants assessed each PESTLE factor by providing ratings on a Likert scale, ranging from 1 (little importance) to 5 (significant importance), for 5 variables in each category. The survey also collected socio-demographic information, including participants' gender, age, education, total number of years working, and type of workplace. All analyses were conducted using IBM SPSS Statistics 29.0. Descriptive statistics for quantitative variables were reported in terms of frequencies and percentages. Additionally, an ANOVA was applied to test for significant differences between the perceived importance of different

PESTLE factors.

Results

The internal consistency of the responses for each PESTLE factor was measured using Cronbach's alpha (α) coefficient to ensure the reliability. The results showed acceptable to high reliability for most factors: Social Factors (α = 0.653), Legal Factors (α = 0.843), Economic Factors (α = 0.793), Technological Factors (α = 0.868), Political Factors (α = 0.634), and Environmental Factors (α = 0.893). While the values observed for Political (α = 0.634) and Social factors (α = 0.653) were slightly below the generally accepted threshold of 0.7, they still provide valuable insights for exploratory research. These findings validate the appropriateness of the data for factor analysis.

Based on expert feedback, the descriptive analysis of PESTLE factors highlights the multifaceted interactions among the determinants shaping the development of flexible employment. The resulting mean values and standard deviations (SDs) are presented in Table 1.

The findings indicate that among technological factors, the development of IT and telecommunications scored the highest (mean = 4.63; SD = 0.66). Advancements in digital platforms (mean = 4.55) and automation (mean = 4.33) further underscore technology's critical role in enabling flexible work. Political factors, however, have varying levels of significance. Employment support initiatives (mean = 4.10) are perceived as particularly impactful. At the same time, labor legislation improvements (mean = 4.10) are proving higher values in legal factors, which indicate the need for a regulatory framework for flexible working arrangements.

Economic and social factors present a mixed picture. In the opinion of the experts, the development of the service economy (mean = 4.16) is a critical driver. At the same time, there are more varied expert opinions on factors such as slowing economic growth and inequality as moderately influential, reflecting the complexity of economic dynamics. Social factors, including education (mean = 4.08) and work–life balance (mean = 4.06), emphasize their connection to flexible work. In contrast, the low mean score for trade unions (mean = 2.47; SD = 1.29) indicates a diminished role or substantial divergence in expert views.

Finally, environmental factors demonstrate emerging relevance. While the business transition to environmental, social, and governance (ESG) strategies (mean = 3.29) signals growing awareness, the relatively low influence of factors like environmental degradation suggests that they still need to be central to the discourse on flexible work in the country.

Table 1. Descriptive statistics

	Min	Max	Mean	SD
Political Factors				
Geopolitical tensions	1	5	3.59	1.22
Employment support initiatives	2	5	4.10	0.83
Development of local governance	1	5	3.22	1.06
Active labor market programs	1	5	3.82	0.97
Passive labor market programs	1	5	3.51	1.19
Economic Factors				
Slowing economic growth rates	1	5	3.98	1.10
Escalation of consumer price inflation	1	5	3.80	1.13
Expansion of the service sector	2	5	4.16	0.64
Weak economic diversification	1	5	3.76	1.07
Inequality	1	5	3.96	1.06
Social Factors				
Shifts in the demographic structure of society	1	5	3.90	0.94
Heightened importance of work–life balance	1	5	4.06	1.03
Enhanced role of education	1	5	4.08	1.07
Trade unions	1	5	2.47	1.29
Rising labor mobility	1	5	3.59	0.98
Technological Factors				
Advancements in automation and robotics	1	5	4.33	0.93
Progress in IT and telecommunications	2	5	4.63	0.66
Evolution of artificial intelligence	1	5	4.10	1.08
Emergence of digital work platforms	2	5	4.55	0.73
Inequities in access to digital technologies	1	5	3.96	1.08
Legal Factors				
Improvements in tax legislation	1	5	3.69	1.26
Updates to labor laws	1	5	4.10	0.96
Protection of workers' rights and social guarantees	1	5	3.76	1.11

Institutional and legal support for various forms of employment	1	5	3.88	1.05
Initiatives in training and retraining of workers	1	5	3.59	1.06
Environmental Factors				
Climate change	1	5	3.02	1.10
Environmental degradation	1	5	2.92	1.21
Advancements in green innovations	1	5	3.00	1.17
Adoption of ESG strategies by businesses	1	5	3.29	1.14
Increased public awareness of environmental issues	1	5	2.96	1.23

Source: Authors

Each PESTLE dimension is represented in Table 2 in terms of its minimum (Min), maximum (Max), mean, and standard deviation (SD):

Table 2. Descriptive statistical values of the six PESTLE indicators

PESTLE Dimensions	Min	Max	Mean	SD
Political (P)	2,20	5.00	3.6471	0.68
Economic (E)	1.60	5.00	3.9333	0.75
Social (S)	1.80	5.00	3.6196	0.69
Technological (T)	1.40	5.00	4.3137	0.74
Legal (L)	1.00	5.00	3.8039	0.85
Environmental (*E*)	1.00	5.00	3.0392	0.98

Note: From this point on, E refers to Environmental factors, while E refers to Economic factors.
Source: Authors

The analysis suggests that technological factors are perceived as the most significant, with the highest mean score (mean = 4.31), reflecting strong expert agreement on their central role in driving modern development. Conversely, the environmental dimension holds the lowest mean (mean = 3.04), indicating a comparatively lower perceived impact. Notably, the environmental dimension also shows the most significant variability (SD = 0.98), pointing to divergent expert views on the urgency of sustainability challenges (see Table 2).

Table 3. The results of the RM ANOVA (Comparison between the importance of the six PESTLE dimensions)

Wilks' Lambda	F-value	Effect Size (η^2)	Differences	Mean Difference (M_{diff})
0.414	**12.997**	**0.586**	**P – E**	-.286
			P – S	.027
			P – T	-.667*
			P – *E*	.608*
			P – L	-.157
			E – S	.314
			E – T	-.380*
			E – *E*	.894*
			E – L	.129
			S – T	-.694*
			S – *E*	.580*
			S – L	-.184*
			T – *E*	1.275*
			T – L	.510*
			E – L	-.765*

*Note: * p-value < .001*

Source: Authors

The Repeated Measures ANOVA (RM ANOVA) confirmed significant differences in how respondents perceive the importance of the six PESTLE dimensions. The Wilks' Lambda value of 0.414 suggests a significant variation in the ratings of the PESTLE dimensions, as confirmed by the F-value of 12.997, with a large effect size ($\eta^2 = 0.586$) (see Table 3).

Technological (T) factors consistently outperformed other dimensions, showing differences with Political (P) (Mdiff = -0.667), Economic (E) (Mdiff = -0.380), Social (S) (Mdiff = -0.694), and Environmental (*E*) (Mdiff = 1.275). Political (P), Social (S), and Legal (L) dimensions displayed intermediate ratings, with fewer significant pairwise differences. Environmental (*E*) factors received the lowest ratings overall, though they showed significant differences with Social (S) (Mdiff = 0.314). This dimension did not differ significantly from Political (P) or Legal (L) factors.

Discussion

Our research indicates that technological factors are the most influential in flexible working. However, existing studies highlight that ICT is an enabler rather than a direct driver of flexible work (Bailey and Kurland 2002, 384; Messenger and Gschwind 2016, 205). While ICT facilitates flexible work, its effectiveness depends on digital infrastructure, including internet access, computer usage, and digital literacy. For instance, countries with advanced ICT systems, such as the Nordic states and Switzerland, have achieved higher telework adoption rates, while those with weaker digital infrastructure, such as Bulgaria and Romania, face significant barriers (Sostero et al. 2020, 58–59).

However, technological advancements alone do not guarantee the widespread adoption of flexible work. Research suggests that social factors play a critical role in determining how technology is integrated into work environments (Wajcman et al. 2010, 257). Our findings also highlight the crucial role of work–life balance as a key social factor in facilitating flexible work, particularly for women. This aligns with global trends emphasizing the importance of flexibility in supporting women's employment. These results are consistent with Fuller and Hirsh (2018, 3), who suggest that flexible work arrangements can mitigate gender-based wage disparities by improving access to higher-wage employment opportunities. At the same time, Palumbo (2020, 786), for instance, argues that specific human resource management practices tailored to the needs of flexible workers should be designed, recognizing the special challenges that affect the activities and the performances of people who work from home.

According to our findings, environmental factors were the least favored, suggesting that flexible work adoption in Kazakhstan is not primarily driven by environmental benefits. However, international studies show that flexible work arrangements, including remote work and flexible hours, significantly reduce traffic congestion and environmental impact (Ge et al. 2018, 83). Similarly, a two-day-a-week remote work model in Ireland could eliminate approximately 1 billion car commuter miles annually, leading to substantial environmental gains (Kelly et al. 2022, 3–4).

The legal framework governing flexible work in the context of Kazakhstan has been evolving to accommodate emerging labor market trends. Recent legal reforms, such as those permitting remote work and flexible hours, represent a step forward in enabling flexible employment. This trend aligns with international models where strong legal frameworks support flexible work adoption. For instance, the UK's "right to request" policy (Cooper and Baird 2015, 575; Bird and Brown 2018, 53) institutionalized flexible work, though it remains a request-based right rather than a guaranteed entitlement (Dobbins 2021, 35–37). In Germany and the Netherlands, employees have been granted the right to request flexible work adjustments since 2000, though restrictions based on company size and other factors remain in place (Fouarge and Baaijens 2004, 20–22). These examples underline the importance of balancing legal reforms with practical considerations to ensure equitable and effective implementation.

The importance of employment support policies in shaping these dynamics is highlighted by the findings of this study. This can correspond with the perspective that economic uncertainty necessitates more robust state-backed social protection for temporary or part-time workers. Burgoon and Dekker (2010, 138) found that these types of employment in Europe frequently increase workers' perceptions of economic insecurity. As a result, it can heighten the population's vulnerability and raise the need for social welfare policies. During the COVID-19 crisis, many EU countries introduced measures that combined temporary employment subsidies, reduced work hours, and greater flexibility to sustain employment (Carranza et al. 2020, 5–6).

This study further underscores a significant correlation between the growing demand for flexible work and the evolving service-oriented economy, reflecting the global labor market trends. The growth of digitally enabled crowd work, the rise of freelancing, the use of platform ecosystems (Kapoor et al. 2021, 94), and the intensity of project-based work were challenging standard full-time employment models (Hagel et al. 2017, 34–37). For instance, Chen et al. (2019, 2735) demonstrated that real-time flexibility enables workers, such as Uber drivers, to adjust their work schedules to unpredictable changes in reservation wages and earn over twice the surplus compared to less flexible arrangements. These trends indicate that flexible work arrangements will continue to expand, necessitating adaptive policies that balance worker protections with labor market flexibility.

Conclusion

1. This study provides a comprehensive analysis of flexible work in Kazakhstan, examining its prevalence, influencing factors, and implications for labor market policies. Using a PESTLE framework and statistical analysis, the research pinpoints the main factors that influence flexible work arrangements and provides empirical insights into their role in Kazakhstan's labor market transformation. Furthermore, our study contributes to the ongoing debate about flexible work by highlighting the interaction between technological advancements, societal changes, regulatory and policy frameworks, as well as economic conditions.
2. Kazakhstan is moving towards adopting more flexible work arrangements, but infrastructure, cultural attitudes, and legal frameworks pose challenges. Flexible work arrangements will likely grow in the coming years due to the increasing demand for work–life balance, technological advancements, and labor laws.
3. To facilitate this transition, policymakers should develop a comprehensive national strategy that integrates flexible work into broader labor market policies. This strategy should ensure that flexible work models remain adaptable to future challenges, fostering a dynamic and resilient workforce. To implement key measures, it is important to invest in digital infrastructure, reform regulatory policies, and provide targeted incentives for businesses to adopt flexible employment practices.

Kazakhstan could incorporate mechanisms like a "right to request" flexible work arrangements, similar to those in developed countries, to give employees greater flexibility while maintaining stability in the labor market, based on international best practices.

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DARBO ATEITIS: LANKSTAUS DARBO PEST ANALIZĖ KAZACHSTANE

Anotacija. Šiame straipsnyje nagrinėjami makroekonominiai veiksniai, darantys įtaką lanksčiam darbui Kazachstane, sprendžiant politinių, ekonominių, socialinių, technologinių, aplinkosaugos ir teisinių PEST (PESTEL) veiksnių vaidmenis. Tyrime nagrinėjami du pagrindiniai klausimai: (1) Kiek kiekvienas iš šių veiksnių yra reikšmingas formuojant lankstų darbą Kazachstane? ir (2) Ar yra statistiškai reikšmingų jų poveikio skirtumų? Tyrime buvo atlikta ekspertų apklausa, kuri buvo analizuojama naudojant aprašomąją statistiką su ANOVA (trumposios dispersinės analizės) pagalba. Išvadose pabrėžiamas esminis technologinių ir socialinių veiksnių vaidmuo skatinant lankstų darbo priėmimą, o aplinkosaugos aspektai išlieka mažiau įtakingi. Išvados suteikia empirinių įžvalgų apie lankstaus darbo dinamiką Kazachstane ir sudaro pagrindą politikos rekomendacijoms, kuriomis siekiama skatinti labiau prisitaikančią ir atsparesnę darbo rinką.

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