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ARTICLE

# One Kazakhstan, multiple nations: on a growing regional divide amidst economic dynamism

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## Abstract

This article provides a comprehensive analysis of the growing regional divide in Kazakhstan, examining the dimensions and implications of spatial inequality in a country that has experienced robust economic growth in recent decades. We employ convergence analysis, a Regional Development Trap Index, and a Regional Competitiveness Index to measure territorial inequalities across Kazakhstan. Our findings reveal that whilst the country has achieved relatively rapid aggregate economic growth, this has been accompanied by a widening territorial divide. Wealth and economic activities are becoming increasingly concentrated in major urban centres, such as Almaty and Astana, whilst other regions—particularly those in the south—continue to lag significantly behind. These results highlight an increasingly polarised nation, where certain regions benefit from economic dynamism and Kazakhstan's international integration, whilst others remain trapped in low-growth equilibria. The article concludes by offering targeted policy recommendations aimed at promoting inclusive growth, enhancing regional competitiveness, and reducing spatial disparities throughout Kazakhstan.

**Keywords** Regional inequalities · Kazakhstan · Agglomeration economies · Globalisation · Convergence · Development traps · Regional competitiveness · Spatial disparities · Institutional quality · Inclusive growth

**JEL Classification** R11 · O18 · R58 · P25

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## 1 Introduction

Regional inequalities have long been considered an unavoidable step along the development trajectory of emerging economies. According to Williamson (1965), regional inequalities in per capita income initially increase as rapid progress is made in a country's development trajectory before gradually decreasing once a certain development threshold is reached. In this context, regional inequality is often understood as following an inverted U-shape, where inequality rises at first and then declines as less-developed regions catch up. Inequality is thus often regarded as a transient phase in the development trajectory, suggesting that market forces would eventually lead to equilibrium (Glaeser 2008). However, recent evidence suggests that rising inequalities may not be self-correcting, especially in countries undergoing rapid globalisation and urbanisation (Rodríguez-Pose 2018). The concentration of economic activities in specific regions can create a self-reinforcing cycle of growth and development in those areas, whilst peripheral regions may experience stagnation or decline (Scott & Storper 2003).

Indeed, spatial inequalities are on the rise across most countries in the world, both in developed and developing nations. Often driven by agglomeration and globalisation forces, regional disparities risk neglecting much of the economic potential of a country. Territorial divides are also likely to put a country's economic and social cohesion in peril, as economic activity increasingly concentrates in a limited number of specific locations, such as large urban centres and metropolitan regions. The overall scholarly consensus has long stressed the inevitability of regional disparities along the development trajectory of developing countries. Yet, in many parts of the emerging world, territorial divides are growing to a point where they cannot be ignored any longer, as they represent a serious threat to economic prosperity, future growth, and social and political stability (Rodríguez-Pose 2018; Rodríguez-Pose et al. 2024). If inequalities are not self-correcting, inclusive development models are needed to address regional imbalances to create a more equitable society.

To tackle what can now be defined as a global trend, governments need to rethink their growth models and transition towards more inclusive models of development that see regional development issues at their forefront. The determinants of regional imbalances are frequently multi-dimensional and complex to detect. Measuring inequalities, therefore, requires robust methodologies based on solid theoretical and empirical frameworks (Cowell 1995). Determining the magnitude, extent, and underlying drivers of spatial inequalities is not an easy task. The complexity of such an undertaking derives from the many factors traditionally associated with increases in inequalities: on the one hand, exogenous forces such as agglomeration economies and globalisation facilitate the concentration of economic activity; on the other hand, indigenous characteristics of regions—encompassing a mix of economic structure, institutional quality, social, and physical capital—often determine where such concentration takes place.

Kazakhstan has not been immune to the global trend towards territorial polarisation. Its economic scene has, of recent, become increasingly fragmented. On the

whole, and despite some ups and downs, the country has performed rather well relative to the rest of the world over the last three decades. However, rapid growth has come with a sharp rise in regional inequalities, with wealth and economic activities being increasingly concentrated in the two main urban centres: Almaty, the largest city, and Astana, the capital. This concentration has left other regions, especially in the southern and eastern parts of the country, lagging behind economically and socially. The difference between urban centres and non-metropolitan areas is becoming more pronounced, and the gap between better-off and less well-off regions continues to grow. Today, vibrant urban centres in the country stand in stark relief against the muted tones of struggling peripheries. This spatial heterogeneity is not merely aesthetic; it represents a profound economic divide that has emerged over the past three decades of the country's development. This trend poses significant challenges to the country's efforts to achieve sustainable, inclusive development (World Bank 2018; Economic Research Institute 2021).

Kazakhstan's regional inequalities—a country that at the time of independence had very low internal disparities—have become significantly higher than those of most developed countries. This growing internal polarisation may represent a future obstacle for the aspirations of the country to join the ranks of the most developed economies. Recent rises in territorial inequalities have widened the gap between better-off and less well-off regions of Kazakhstan to levels that are economically, socially, and politically unsustainable, especially in the context of Central Asia. The West/North versus East/South divide and the gap between urban centres and non-metropolitan areas are carving the country in ways that were unimaginable just 2 decades ago. Today, regions in western Kazakhstan, such as Atyrau, display exceptionally high levels of wealth—largely due to major natural resources reserves—whilst southern regions, particularly outside major cities, struggle to benefit from economic growth and innovation spillovers (ADB 2021).

Moreover, in Kazakhstan, both more developed regions and those lagging behind are at risk of being trapped in a vicious cycle of economic stagnation and relative decline. The Development Trap Index (DTI) developed in our analysis identifies patterns of economic stagnation across regions. These patterns may constitute reasons behind increasing spatial inequalities, especially if lagging regions are at risk of falling into development traps. *Oblasts* (regions), such as Turkestan and Kyzylorda, have witnessed considerable development slowdowns in relative terms which may further deepen the gap between the more economically advanced regions and rural or remote areas (ADB 2021).

This article explores the theoretical foundations of regional inequalities and assesses methodologies for measuring the regional divide, with a particular focus on their relevance to Kazakhstan. By critically examining convergence processes, identifying regional development traps, and constructing comprehensive competitiveness indices, we seek to provide a robust framework for understanding and addressing spatial inequalities. The assessment of the regional divide in Kazakhstan is key to gaining an in-depth understanding of the root bottlenecks constraining regional growth and steering regional intervention to ensure sustainable, resilient, and inclusive economic development.

Our research confirms that regional divides across regions in Kazakhstan are large and on the rise. The analysis of regional inequalities in the country shows that Gross Regional Product (GRP) per capita and productivity levels differ significantly across regions. In many ways, a dynamic Kazakhstan on the surface has become, from an economic perspective, a divided country. Whereas Gross Domestic Product (GDP) per capita has increased in Kazakhstan since the aftermath and economic upheaval of independence from the Soviet Union, the additional wealth linked to this economic growth has been concentrated in a limited number of regions. In other territories, the recent economic gains deriving from Kazakhstan's greater integration in international markets have been reduced. Similarly, productivity levels have shown an upward national trend, but increases have been mostly concentrated in a small number of places across the country (ADB 2021).

In this respect, Kazakhstan's trajectory offers a cautionary tale and a learning opportunity for emerging economies. The rapid concentration of growth in select regions serves as a case study in the risks posed by uneven economic liberalisation, revealing how global integration, absent strong regional policy, can deepen internal divides instead of closing them.

The structure of the article is as follows: Sect. 2 provides a brief overview on the theory behind spatial inequalities, highlighting the forces of agglomeration and globalisation and their impact on regional development. Section 3 looks at the specific situation in Kazakhstan, before discussing various methodologies for measuring regional inequalities in Sect. 4, including convergence studies, the identification of regional development traps, and the construction of comprehensive indices. Section 5 proposes a regional convergence study tailored to Kazakhstan, integrating international best practises with the country's specific context. Finally, Sect. 6 offers some concluding remarks, emphasising the importance of nuanced policy interventions to mitigate regional disparities.

## 2 Spatial inequalities and development theory

The traditional economic narrative posits regional inequalities as an inevitable corollary of growth. The 'Williamson Hypothesis' (Williamson 1965) suggests that disparities initially rise as economic activity concentrates in urban centres, only to subside as factor mobility and spillover effects trigger new convergence forces (Glaeser 2008). This conceptualisation of regional disparities as a transient phase in economic development has been challenged by more recent theories of cumulative causation and path dependency (Myrdal 1957; Arthur 1989), which posit that the initial advantages can become self-reinforcing, leading to persistent spatial inequalities. Indeed, empirical evidence from both developed and emerging economies challenges this self-correcting paradigm (Lessmann et al. 2012; Rodríguez-Pose & Ezcurra 2011). Instead, we observe a reinforcing cycle: prosperous regions attract capital, labour, and innovation, whilst their less-fortunate counterparts often languish (Rodríguez-Pose & Gill 2006; Brakman & van Marrewijk 2008).

The genesis and persistence of regional imbalances are multi-faceted, stemming from a complex interplay of exogenous and endogenous factors. Agglomeration

economies—the benefits firms and individuals derive from proximity—foster increased productivity, reduced transaction costs, and enhanced knowledge diffusion (Scott & Storper 2003; Duranton & Puga 2004). Globalisation, too, is essential for shaping spatial inequalities (Rodríguez-Pose 2012). In brief, some regions harness global economic integration to their advantage. Others, by contrast, lack the requisite infrastructure, skills, and institutional capacity to do so.

The concept of agglomeration is particularly salient in understanding the surge of regional inequalities in emerging Asian economies. Robust agglomeration economies can catalyse self-reinforcing growth in already prosperous regions through three key mechanisms: sharing, matching, and learning (Duranton & Puga 2004). Sharing allows firms to use indivisible facilities and infrastructure, reducing costs. Matching enhances the quality and quantity of employer–employee pairings. Learning facilitates the generation and dissemination of knowledge and skills, fostering innovation. Notwithstanding these theoretical predictions, these benefits often accrue disproportionately to regions with strong economic foundations, exacerbating divergence (Rodríguez-Pose 2018).

Institutional factors are equally crucial in deciphering regional inequalities. Institutions shape the economic milieu by influencing property rights, the rule of law, and administrative efficiency (North 1990; Acemoglu et al. 2001; Rodrik et al. 2004; Rodríguez-Pose 2013). Significant intra-country variations in institutional quality contribute to divergent economic outcomes. Regions with robust institutions are better positioned to attract investment, foster innovation, and support economic growth. Those with weaker institutions face significant barriers to development (OECD 2020).

The interplay between agglomeration, globalisation, and institutional quality affects regional competitiveness and economic dynamism, resulting in the emergence of 'winning' and 'losing' regions. The former leverage their competitive advantages, attract investment, and foster economic growth. The latter grapple with structural challenges that impede their ability to compete, including inadequate infrastructure, limited access to education and healthcare, and weak institutional capacity. Addressing these challenges requires targeted policies focussed on building regional competitiveness and fostering inclusive growth (Barca et al. 2012; Pike et al. 2017a).

To formulate effective policies, one must first determine and measure the components of growth and, by extension, inequality. In this context, the concept of regional competitiveness has become central. It refers to a region's capacity to offer an attractive and sustainable environment for firms and residents (Kitson et al. 2004). Competitiveness is influenced by both 'hard' factors, such as infrastructure and economic structure, and 'soft' factors, including social capital, institutional quality, and innovation capacity (Annoni & Dijkstra 2019).

Another important concept in understanding regional inequalities is that of the 'regional development trap' (Diemer et al. 2022). This concept relates to the economic dynamism of regions and is an extension of the middle-income trap (Gill and Kharas 2015) often discussed at the national level. Regional development traps occur when regions experience a stagnation in economic dynamism, preventing them from catching up with more developed regions (Iammarino et al. 2020).

This article measures inequalities within Kazakhstan, a country that epitomises the experience of many emerging economies in Asia and elsewhere, where economic growth has bred territorial inequality to levels that potentially threaten further economic progress. Such measurements of inequality entail discerning regional variations in competitiveness and economic dynamism.

## 3 Growth and spatial inequalities in Kazakhstan

For the past quarter-century, Kazakhstan has witnessed remarkable economic growth, outpacing most countries globally. The post-independence period brought economic turbulence, with the economy contracting by an average of 5.4% annually between 1991 and 1999. However, as the economic and political situation stabilised, the country embarked on a trajectory of rapid growth. From 1999 to the 2008 financial crisis, Kazakhstan became one of the world's fastest-growing economies, with average growth rates of 9.3%. Although this pace has not been sustained since the financial crisis, Kazakhstan has remained relatively dynamic. Nevertheless, there are increasing signs that the country's growth momentum is losing steam, with average economic growth declining from 5% between 2008 and 2013 to 3.2% between 2014 and 2020. The pandemic and its aftermath have further dampened growth, reducing it to 2.5% between 2020 and the end of 2023.

Perhaps more concerning than the deceleration in economic growth is the country's growing internal polarisation. A nation that knew virtually no territorial disparities at independence has witnessed a rapid process of divergence. Spatial inequality has deepened due to the concentration of economic activity and wealth in regions, such as Almaty, Astana, and Atyrau. Figure 1 brings to light the widening economic chasm between Kazakhstan's regions, with the Gini coefficient for regional GDP per capita increasing from 0.25 in 2000 to 0.38 in 2020, a stark illustration of the country's growing spatial inequality. Almaty and Astana have benefited from agglomeration economies and globalisation, whilst Atyrau has profited from the concentration of oil in the region and along the shores of the Caspian Sea. In contrast, lagging regions struggle to attract investment, retain talent, and achieve economic dynamism (Fan et al. 2011). This situation mirrors the 'place-based inequalities' discussed by Iammarino et al. (2020), where regional economic opportunities are unevenly distributed based on significant variations in the endowment of natural resources, infrastructure, and institutional capacity.

These variations in regional endowments are behind the fanning out of disparities in Kazakhstan. On the one hand, more competitive regions, such as Astana and Almaty, enjoy relatively strong institutional frameworks, high levels of human capital, and better infrastructure. On the other, most lagging *oblasts* struggle with poor institutional quality, low skills, and insufficient infrastructure. They also miss—with the possible exception of the city of Shymkent city—the agglomeration forces behind the dynamism of the two main cities.

Globalisation is another factor driving the rising divide. Regions with better access to international markets and resources have thrived, whilst those not afforded that capacities have lagged behind (Pike et al. 2017a). The inequality

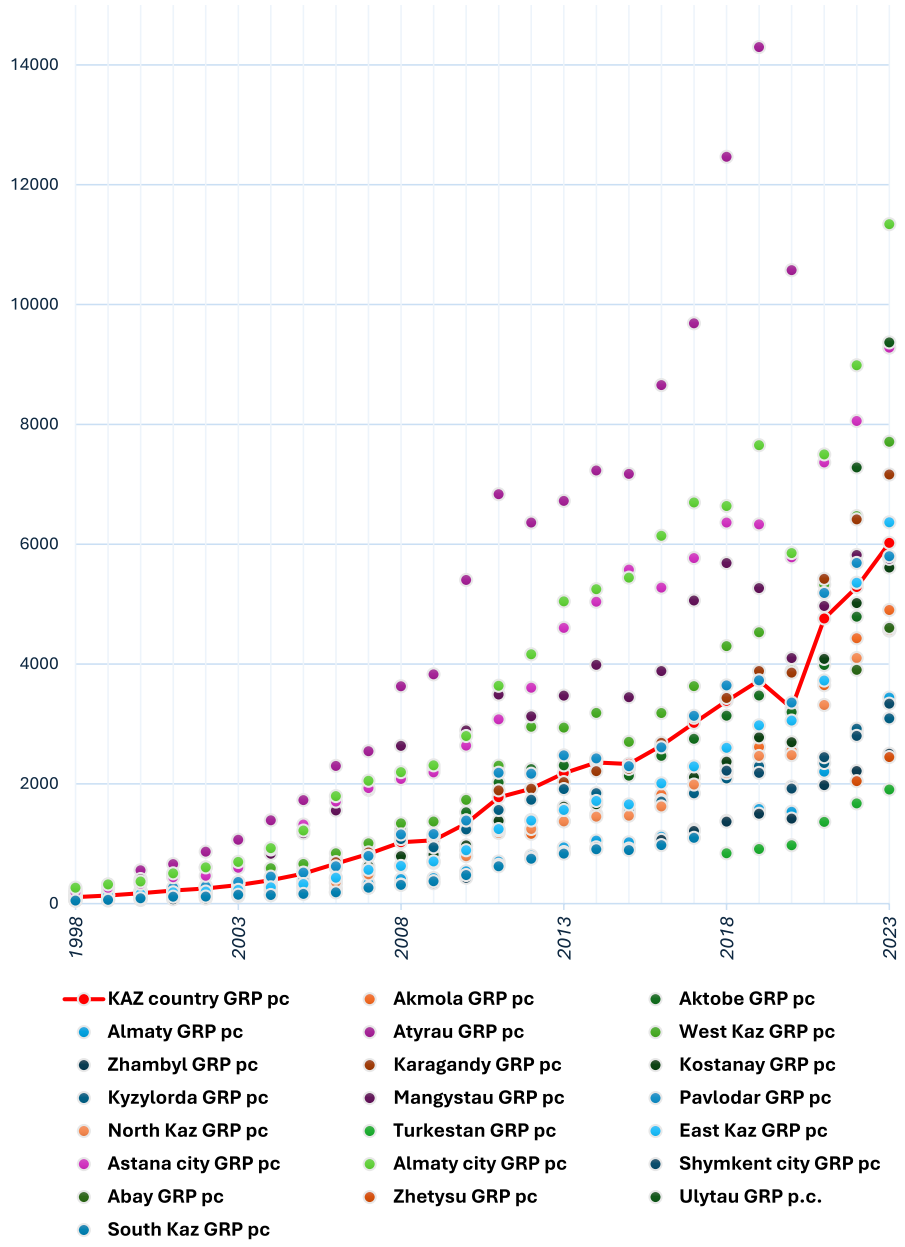


**Fig. 1** GDP levels and the growth of regional inequality in Kazakhstan. Source: Own elaboration with Kazakhstan Statistical Department data

amongst oblasts in the country has reached such levels that imagining the market correcting these imbalances has become difficult. The reality is that recent economic polarisation can further ingrain disparities, with richer and more dynamic

regions steaming ahead, whilst other regions—often poorer, at times better off but stagnating—fall farther behind (Rodríguez-Pose & Gill 2006; Brakman & van Marrewijk 2008). This has significant implications for Kazakhstan, where the lack of convergence threatens both economic sustainability and social cohesion.

The notion of agglomeration and its impact on regional inequalities is particularly relevant for Kazakhstan. Agglomeration economies can lead to self-reinforcing growth in already prosperous regions. The already mentioned mechanisms of sharing, matching, and learning (Duranton & Puga 2004) are often restricted to regions that already have strong economic fundamentals, leading to increased divergence between regions (Rodríguez-Pose 2018).

The theoretical and empirical literature also points to the importance of institutional factors in determining regional inequalities. Institutions shape the economic environment by influencing factors, such as property rights, the rule of law, and the efficiency of public administration (North 1990; Rodríguez-Pose 2013). In Kazakhstan, the quality of institutions varies significantly across regions, contributing to divergent economic outcomes. Regions with stronger institutions are better able to attract investment, foster innovation, and support economic growth, whereas regions with weaker institutions face barriers to development (OECD 2020).

The combination of unequal globalisation and agglomeration with variations in institutional conditions affects the competitiveness and dynamism of regions in Kazakhstan. In this respect, the concept of regional competitiveness has become central to understanding spatial inequalities in the country. Kazakhstan is a country where the more competitive regions such as Astana and Almaty are characterised by a strong institutional framework, high levels of human capital, and better infrastructure. Lagging-behind regions, in contrast, struggle with poor institutional quality, low skills, and insufficient infrastructure (Annoni & Dijkstra 2019).

Moreover, in Kazakhstan, many regions face a high risk of falling into development traps due to limited economic diversification, a high dependency on low-productivity sectors, and poor access to education and innovation. These regions exhibit characteristics, such as low productivity, high unemployment, and limited economic dynamism, which inhibit their potential for growth and development (World Bank 2018).

The interplay between agglomeration, globalisation, and institutional quality has led to the emergence of ‘winning’ and ‘losing’ regions in the country. This is a tale of two Kazakhstans. Winning regions, such as Astana and Almaty, have managed to leverage their competitive advantages, attract investment, and foster economic growth. Losing regions—mostly concentrated in the demographically dynamic South, but also in the oil-rich West—face structural challenges that limit their ability to compete. These challenges include poor infrastructure, limited access to education and healthcare, and weak institutional capacity. Addressing these challenges requires targeted policies that focus on building regional competitiveness and fostering inclusive growth (Pike et al. 2017a). Figure 2 reflects the differences in GDP per capita amongst regions in Kazakhstan.

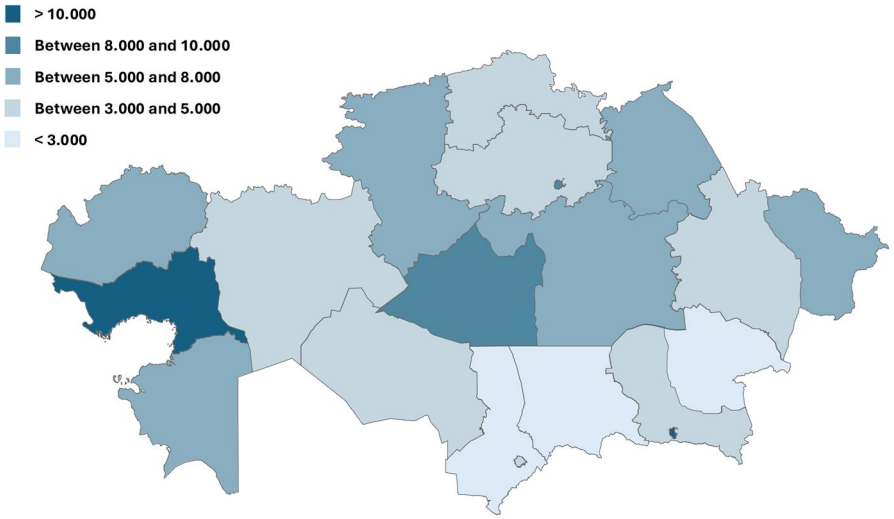


**Fig. 2** GDP per capita in Kazakhstan region, 2023 ('000 Tenge). Source: Own elaboration with Kazakhstan Statistical Department data

## 4 Measuring the regional divide in Kazakhstan

But how important is this growing regional divide in Kazakhstan? Are we really witnessing the emergence of two Kazakhstans? The question of the magnitude of the regional divide in Kazakhstan has long loomed but has been inadequately addressed due to both a lack of suitable data and a theoretical framework that considers regional inequalities from a multi-dimensional perspective. This section examines the data and diverse methods required to gain a comprehensive understanding of the dimension and importance of regional inequality in Kazakhstan.

### 4.1 Gathering the data

The empirical analysis draws on data from the Kazakhstan Statistical Department, the World Bank, and the Asian Development Bank (ADB). To comprehensively assess regional inequality, several key indicators are included. Gross Regional Product (GRP) per capita serves as a measure of economic output per person, providing a snapshot of each region's prosperity. Productivity—calculated as GRP per worker—captures the efficiency of economic activity within each region and is closely linked to standards of living and competitiveness. Employment rates offer insight into labour market participation, with higher rates suggesting stronger economic conditions and lower rates indicating underuse and/or neglect of human capital. Poverty rates are used to assess social welfare, highlighting regions where economic difficulties intersect with limited access to public services.

Infrastructure quality, encompassing transportation networks, utilities, and digital connectivity, is also key for measuring regional competitiveness; regions with better infrastructure are better positioned to attract investment and support higher productivity. Human capital, measured by indicators such as literacy rates, higher education attainment, and vocational training enrolment, reflects each region's workforce potential. Institutional quality, comprising factors like governance effectiveness, regulatory frameworks, and corruption levels, further shapes the economic environment of each region, with stronger institutions fostering growth and resilience.

The dataset spans all 20 administrative regions of Kazakhstan—including the three regions created in 2022, namely Abay, Zhetysu, and Ulytau—over a 23-year period from 2000 to 2023, allowing for both cross-sectional and longitudinal analysis. This extended timeframe enables a robust examination of trends and persistent inequalities, capturing the long-term effects of Kazakhstan's economic development trajectory on its regional landscape.

### 4.2 Methodology

The analysis combines convergence analysis, a regional development trap index, and a regional competitiveness index. This methodological framework enables a multidimensional assessment of regional disparities in Kazakhstan, capturing not only economic performance but also competitiveness and vulnerability to stagnation.

#### 4.2.1 Convergence studies

Convergence analysis evaluates whether economically weaker regions in Kazakhstan are catching up with wealthier ones over time. We employ an approach which has been common since the seminal work of Barro and Sala-i-Martin (1992) to provide a comprehensive assessment of regional convergence dynamics. Amongst the many potential indicators of territorial convergence, we opt for coefficient of variation, a common indicator allowing to measure convergence from a dynamic perspective. Its formula can be written as follows:

$$c = \frac{\sqrt{p_i(x_i - \mu)^2}}{\mu}. \tag{1}$$

A potential alternative is the standard deviation of the logarithms, which can be defined as

$$v = \sqrt{p_i(\log x_i - \tilde{\mu})^2}, \tag{2}$$

where $x_i$ and $p_i$ are, respectively, the regional GDP per head and the population share of region $i$ $(i = 1, 2, ..., n)$ in a given year, whilst $\mu = \sum_{i=1}^{n} p_i x_i$ and $\tilde{\mu} = \sum_{i=1}^{n} p_i \log x_i$. In this context, the study variable, $x$, depicts a vector of variables

considered to influence territorial inequality. In statistical terms, the coefficient of variation can be defined as the ratio of the standard deviation to the mean and is often presented as a percentage by multiplying (1) by 100. The measurement of the coefficient of variation is generally preferred to the standard deviation which requires the mean value in order to be meaningful.

#### 4.2.2 Regional development trap index

The Development Trap Index (DTI) identifies regions at risk of economic stagnation by examining GRP per capita, productivity, and employment rates. Unlike traditional convergence measures, the DTI captures regions that are not only lagging economically but also face structural barriers to growth. By evaluating each region's performance relative to both its historical trajectory and the national average, the DTI highlights areas experiencing slowdowns or at risk of falling into stagnation (Iammarino et al. 2020). The DTI is formulated as

$$DT_{i,t} = \left\{ 1 - \frac{\sum_y D_{i,t}^{y,R} + \sum_y D_{i,t}^{y,S}}{6}, \right. \tag{3}$$

where $D_{i,t}^{y,R}$ and $D_{i,t}^{y,S}$ are dummy variables indicating whether growth acceleration for variable $y$ (such as GDP per capita or productivity per worker) is positive compared to past performance and the national average. Growth acceleration for each region relative to its historical trajectory is calculated by

$$a_{i,t}^{R} = g_{i,t,t-n} - g_{i,t-n,t-2n}, \tag{4}$$

whilst deviation from the national average is given by

$$a_{i,t}^{S} = \mathrm{g_{i,t,t-n}} - g_{t,t-n}^{S}, \text{with i} \in \mathrm{S} \tag{5}$$

with $S$ representing the national context. The DTI ranges from 0 to 1, with higher values indicating a greater risk of stagnation. By combining absolute and relative growth metrics, the DTI enables to identify regions that may be falling behind despite national economic growth. This approach draws on methodologies developed by Eichengreen et al. (2012, 2014) and Hausmann et al. (2005, 2006), traditionally used to detect middle-income traps in cross-country analyses.

The DTI provides a dynamic perspective on regional inequality, which is particularly valuable in Kazakhstan, where some regions struggle to initiate convergence processes, whilst others show signs of prolonged underperformance. The DTI highlights these dynamics, enabling policymakers to focus on regions at risk of becoming trapped in cycles of low growth.

#### 4.2.3 Regional competitiveness index

The Regional Competitiveness Index (RCI) assesses each region's capacity to offer an attractive, sustainable environment for firms and residents. Developed

by the European Commission's Joint Research Centre, the RCI provides a multi-dimensional view of competitiveness, moving beyond economic indicators alone to include social, institutional, and human factors (Annoni & Kozovska 2010; Annoni & Dijkstra 2013; Annoni et al. 2016). This index defines regional competitiveness as "the ability of a region to offer an attractive and sustainable environment for firms and residents to live and work" (Dijkstra et al. 2011, p. 4). This broad definition captures both 'hard' factors, like infrastructure quality, and 'soft' factors, such as human capital, institutional quality, technological readiness, and innovation capacity (Annoni and Dijkstra 2019).

The RCI includes a sustainability dimension, reflecting each region's potential to attract investment and enhance social welfare over both the short and long term. For Kazakhstan, the RCI is calculated using data on infrastructure quality, educational attainment, employment rates, and institutional effectiveness. High scores on the RCI indicate regions that are well positioned to attract investment, retain skilled workers, and foster innovation, all of which are essential for sustainable economic growth. The RCI thus serves as a comprehensive measure, capturing the range of factors that contribute to each region's economic vitality and its potential to sustain a high quality of life for residents.

Using the RCI, this study sheds light on Kazakhstan's regional dynamics and highlights the conditions that support economic dynamism. The RCI's multi-dimensional approach to competitiveness aligns with a broader, GDP-independent understanding of economic success, recognising that the long-term prosperity of regions is grounded in more than just economic output.

## 5 Regional inequality in Kazakhstan

As indicated earlier, Kazakhstan's economic geography is characterised by stark inequalities. The disparities are not mere statistical anomalies; they reveal an economy that has developed at two speeds, with growth concentrated in select areas and stagnation in others. Over 2 decades, regional divides have become entrenched, tracing the contours of a nation split between resource-rich western regions, urban centres like Almaty and Astana, and the struggling peripheries in the south and east. Below, we have quantified those divides, employing the diverse types of indicators presented above with the aim of offering a novel and detailed look at the forces shaping each region's economic fate.

### 5.1 Convergence analysis

In theory, regions within a nation should move towards convergence, with poorer areas growing faster than their richer counterparts, gradually narrowing the economic gap. In Kazakhstan, however, convergence remains largely theoretical. An examination of GRP per capita across regions shows little evidence that the poorer parts of the country are catching up. Using both parametric and non-parametric

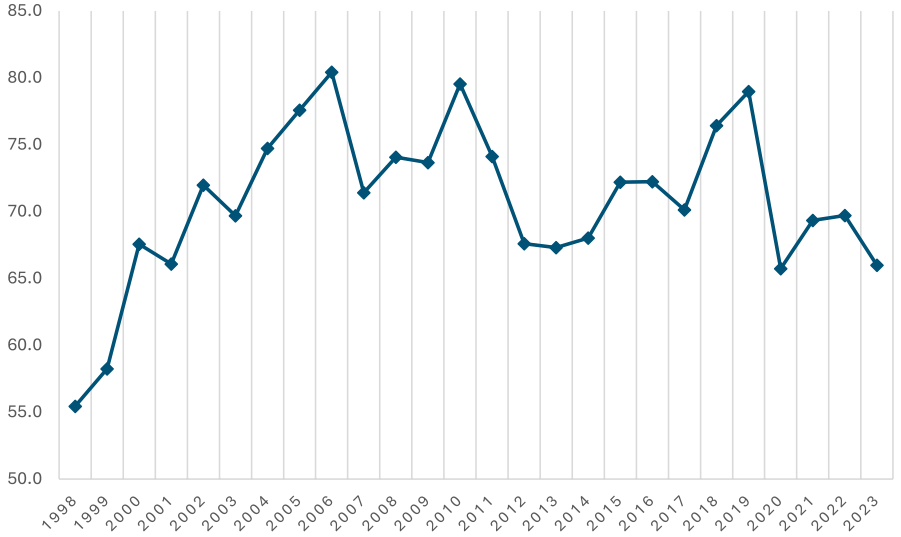


**Fig. 3** Coefficient of variation (%) in GRP per capita levels, 1998–2023. Source: Own elaboration with Kazakhstan Statistical Department data

methods, we detect not convergence but divergence, with inequalities in GRP per capita actually increasing over time.

The coefficient of variation—our measure of income dispersion—has trended upwards, rising from 55.4% in 1998 to 66% in 2023 (Fig. 3). Economic growth, far from lifting all boats, has pooled in a few select regions, especially those endowed with natural resources. The early 2000s witnessed an intensification of this inequality, forming a U-shaped curve that saw some reduction during the financial crisis and austerity crisis that ensued in the 2010s, only to rise again towards the decade's end. The COVID-19 pandemic in 2020 briefly disrupted this trend, compressing disparities as urban centres and export-driven regions bore the brunt of the shock whilst more insulated areas remained relatively stable.

A closer examination reveals that population size complicates the narrative. The population-weighted coefficient of variation, which adjusts for demographic imbalances, shows a steeper rise in inequalities from 2014 onwards (Fig. 4). The recent inclusion of Turkestan as a separate statistical unit—with the carving out of the relatively more affluent city of Shymkent, the third-largest city in Kazakhstan—has highlighted the economic chasm within the country. Turkestan, with its high population and low economic development, reinforces a picture of a nation divided, where prosperity clusters in resource-rich regions and urban hubs, leaving large areas economically marginal.

From an international perspective, Kazakhstan's regional inequalities place it in a curious position on the global stage. Until 2012, its disparities were less severe than those in much of Central Asia or Russia and roughly on par with China (Lessmann & Seidel 2017). Historically, Kazakhstan's regional divides have been narrower than those of Uzbekistan and Kyrgyzstan but wider than in Tajikistan and Turkmenistan.

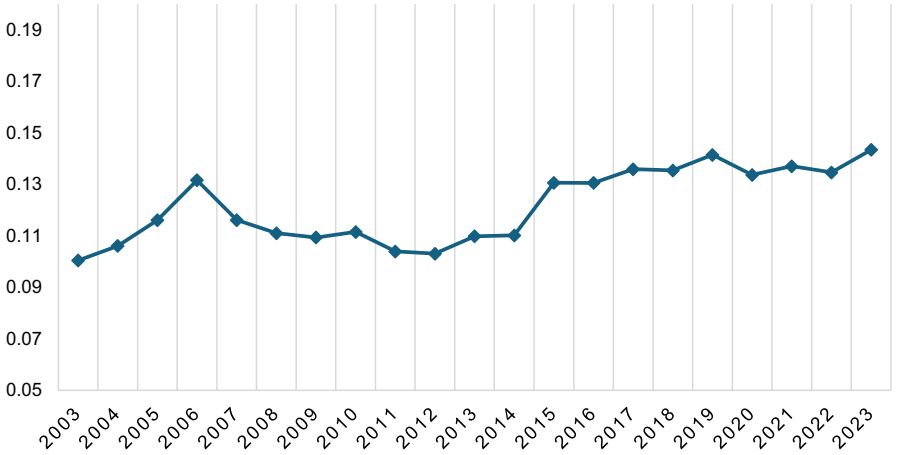


**Fig. 4** Population-weighted coefficient of variation, GRP per capita levels, 2003–2023. Source: Own elaboration based on data from Kazakhstan Statistical Department

After 2014, however, a marked increase in spatial inequality emerged, with 2018 and 2019 levels approaching pre-2012 figures for Uzbekistan and Kyrgyzstan.

Comparatively, Kazakhstan's regional inequalities have remained near those of other emerging countries, such as Turkey, but still below those of emerging giants like Brazil and South Africa. Yet, the GRP per capita gap between Kazakhstan's regions remains significantly larger than in developed economies like France, Italy, Germany, the UK, and the US. Adjusting for population size reinforces Kazakhstan's alignment with other emerging markets, yet the contrast between interpersonal and territorial inequalities remains stark. The Gini index (Fig. 2) shows that personal income inequality in Kazakhstan is only slightly above developed-country averages, whilst population-weighted measures of spatial inequality reveal much sharper regional divides. This divergence suggests that, contrary to trends elsewhere, Kazakhstan's inequality is less about income differences between individuals and more about fundamental divides between its regions.

Kazakhstan's trajectory offers a cautionary tale and a learning opportunity for emerging economies that have opened themselves to global trade. The rapid concentration of growth in select regions serves as a case study in the risks posed by uneven economic liberalisation, revealing how global integration, absent strong regional policy, can deepen internal divides instead of closing them.

When looking at productivity and adjusting for population size across regions in Kazakhstan, a stark upward trend in productivity disparities is revealed (Fig. 5). The upward slope of the trendline suggests that, although productivity dispersion has not grown as the same rate as GDP dispersion, the underlying inequalities have quietly intensified, especially in the last three years. Notably, spatial productivity gaps—the output per worker—have largely stabilised since 2015. By 2020, these disparities narrowed, likely reflecting the short-term impact of COVID-19, where open and urban economies, typically more vulnerable during economic shocks, suffered more than insulated, rural areas. That said, a sharp increase can be observed after 2020.

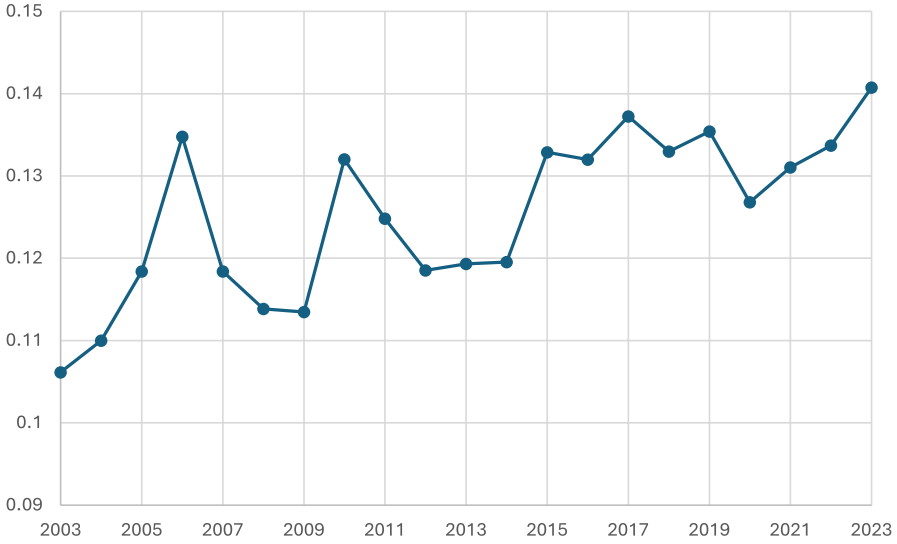


**Fig. 5** Population-weighted coefficient of variation of productivity levels across Kazakh regions, 2003–2023. Source: Author's own elaboration based on data from Kazakhstan Statistical Department

However, this relatively gentle upward trend in productivity polarisation hides a reality of the emergence of a dual economic system. Most productivity gains have concentrated in a handful of high performers—primarily Almaty, Astana, and the resource-heavy Atyrau. However, at the other end of the spectrum, there is a broad base of regions where productivity is low and, more worryingly, has barely grown. This creates a productivity pyramid with the two metropolitan winners (Almaty and Astana) at its apex and a broad base of regions with scant productivity gains to show in recent times. Hence, there is a significant structural productivity gap within Kazakhstan, with a few prosperous regions leaving the rest far behind.

### 5.2 Development traps in Kazakhstan

The notion of a 'development trap' provides additional nuance to understanding why certain regions in Kazakhstan have failed to thrive despite overall national growth. These traps are more than simple economic stagnation; they represent structural barriers that prevent regions from realising their economic potential, locking them into cycles of low productivity, limited job creation, and waning competitiveness. Traditional measures of convergence fall short in capturing these dynamics, as they focus on income levels without addressing the deeper, path-dependent forces that hinder regional development.

The Development Trap Index (DTI) offers a different, additional lens. By examining GRP per capita, productivity, and employment rates, and by comparing each region's performance to both its historical trajectory and the national average, the DTI identifies areas at risk of stagnation. The findings for Kazakhstan are revealing.

Between 2005 and 2015, Kazakhstan saw a sharp rise in regions classified as high-risk for economic stagnation. By 2015, over 90% of regions had drifted into this category, reflecting a broad-based slide into economic inertia. The situation improved somewhat by 2020, but nearly 60% of regions remained vulnerable.

A geographical breakdown of DTI scores (Fig. 6) highlights certain patterns. Western and southern Kazakhstan emerge as the most vulnerable, with several northern regions also showing high risk. South Kazakhstan, including Turkestan and Shymkent, consistently ranks at the top of the risk scale, followed by Mangystau. These findings suggest that even relatively affluent regions, such as Mangystau, are not immune to the problem of long-term stagnation. Although resource extraction has brought wealth, it has not laid the foundations for sustainable growth. The economic vitality of these regions is brittle, relying on external demand and global commodity prices rather than local innovation or industrial diversification.

The persistence of development traps in certain regions of Kazakhstan aligns with the concept of 'low-level equilibrium traps' in development economics (Nelson 1956), where multiple equilibria can exist, and regions can become trapped in a self-reinforcing cycle of underdevelopment. Development traps have also proven elsewhere to be an important source of discontent (Rodríguez-Pose et al. 2024), often planting the seeds for social and political turmoil and future development problems.

The development traps seen in Kazakhstan are instructive for countries in transition or emerging from long periods of state-controlled growth. Similar to South Africa's post-apartheid experience or Brazil's regional economic chasms, the emergence of persistent stagnation in particular regions warns that modernising an economy without addressing spatial imbalances can embed inequalities that are challenging to unwind later (Iammarino et al. 2020; Fan et al. 2011).

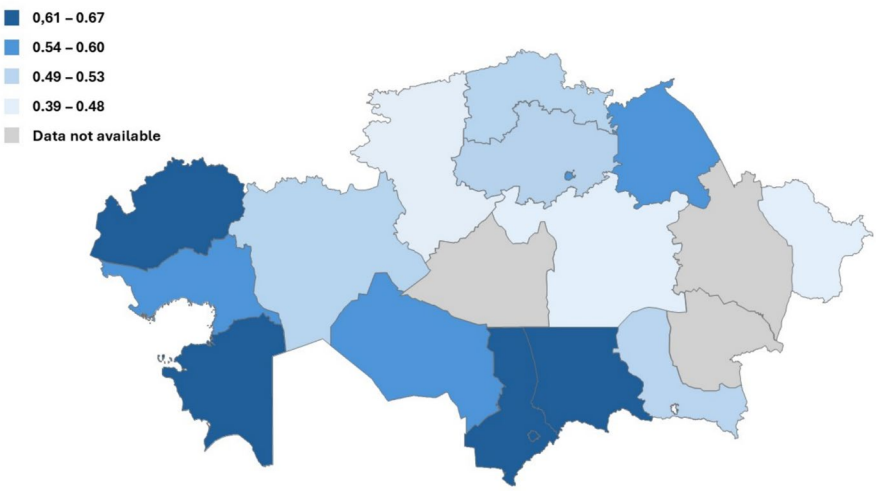


**Fig. 6** Average risk of being trapped in Kazakhstan, quartiles of the distribution over 1998–2023. Since the index assesses the trend over time, there are not enough data points to calculate the index for the new regional units added in 2022, namely Abay, Ulytau, and Zhetysu. Source: Own elaboration based on data from Kazakhstan Statistical Department

### 5.3 Differences in regional competitiveness

Kazakhstan's competitive landscape is also one of stark contrasts. The Regional Competitiveness and Cohesion Index (RCCI), calculated for 2023, reveals a persistent north-west/south-east divide (Fig. 7), with a polycentric pattern in which the capital and a few metropolitan regions perform significantly better than the rest. Western regions near the Caspian Sea, such as Atyrau and West Kazakhstan, score highest, showcasing a business-friendly environment that draws investment. Almaty city and Astana, driven by agglomeration economies, also lead the rankings, highlighting the advantages of urban density in attracting talent and capital.

Beneath the top quartile, regions like Mangystau, North Kazakhstan, Akmola, East Kazakhstan, and Karaganda exhibit mid-to-high competitiveness, straddling the line between the top performers and the rest of the country. Below them, regions, such as Aktobe, Kostanay, Almaty, Shymkent City, and Ulytau, register mid-to-low competitiveness, signalling a lack of dynamism. At the bottom of the scale lie the southeastern regions, including Kyzylorda, Turkestan, Zhetysu, Zhambyl, and Abay, whose low competitiveness scores underscore the structural challenges they face.

To clarify these disparities, we have standardised the RCCI into z-scores and plotted these scores into radar charts (Fig. 8). In these radio charts, we can position each region relative to the national average. Atyrau, Astana, and Almaty City stand well above the average, each more than one standard deviation ahead. Meanwhile, Zhetysu and Turkestan lag significantly behind, underscoring the scale of the competitive divide.

A longitudinal view of competitiveness from 2016 to 2023 highlights a concerning trend: no lagging region has made the leap into the higher tiers of competitiveness. Whilst some areas, like Almaty, have shown modest improvements, these

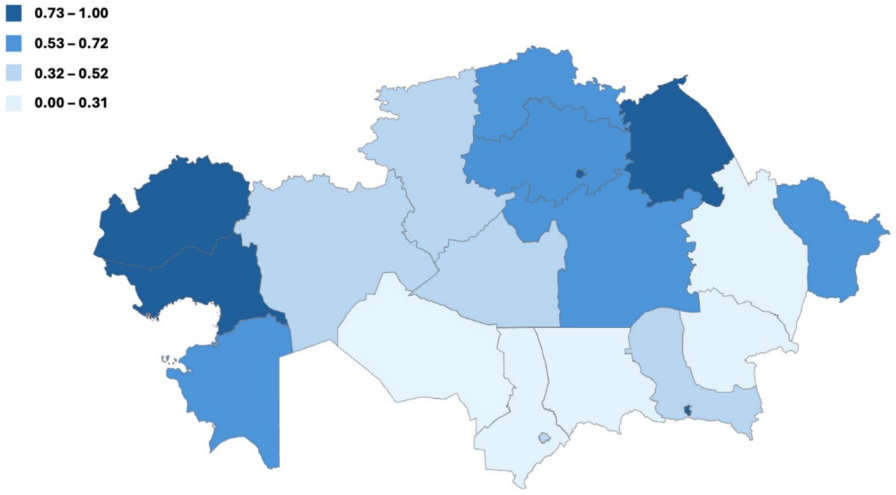


**Fig. 7** Regional Competitiveness and Cohesion Index of Kazakh regions, quartiles of distribution, 2023. Source: Own elaboration based on data sourced from Kazakhstan Statistical Department

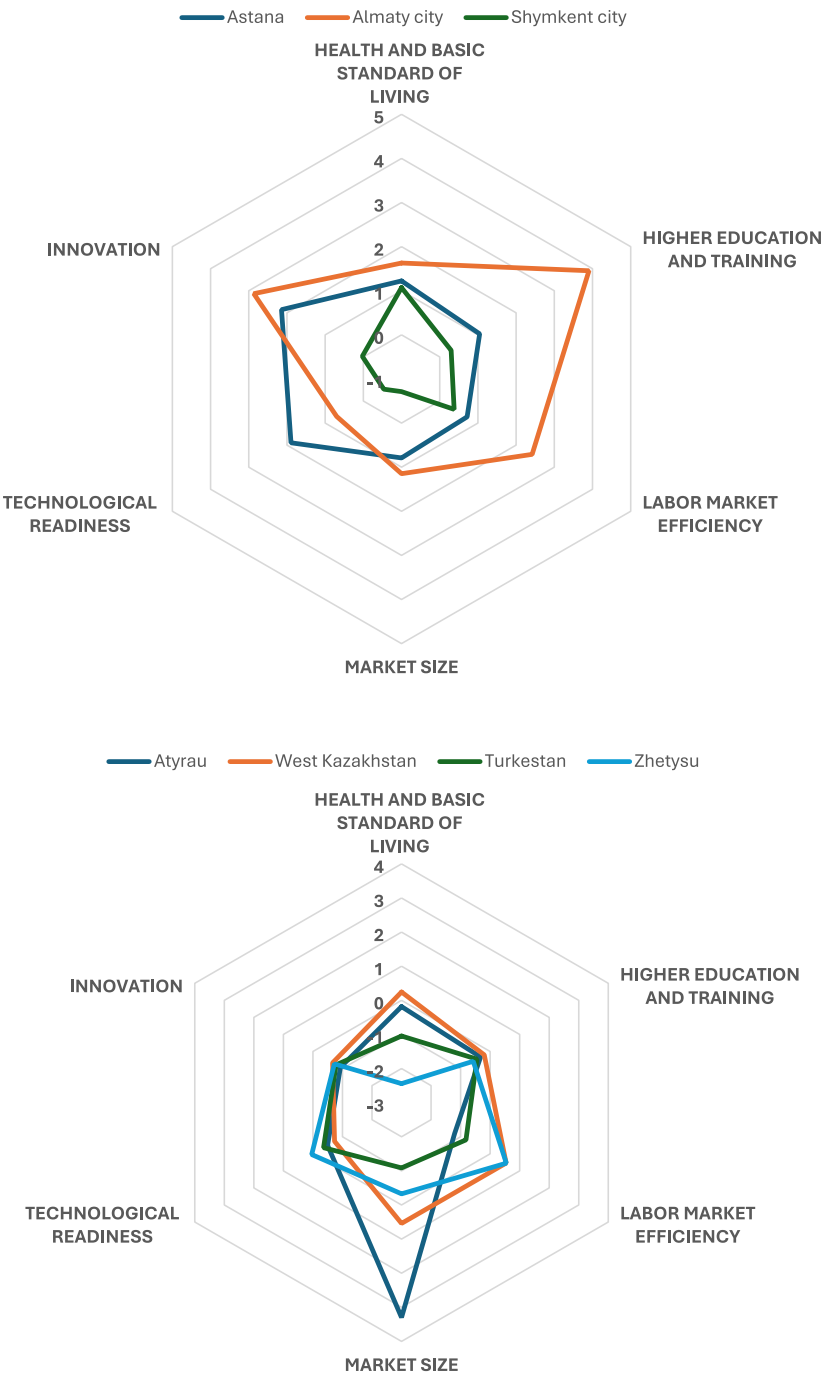


**Fig. 8** Radar chart representing the performance in specific areas of the regional competitiveness index in the city regions and other selected *oblasts*, 2023, z-scores

gains have been limited and short-lived. Conversely, leading regions such as Atyrau and Astana have retained their positions, consolidating an advantage that appears self-reinforcing. This rigidity in the competitive hierarchy reflects structural obstacles—limited access to capital, weaker institutional frameworks, and poorer infrastructure—that prevent lower-ranked regions from catching up. It is a hierarchy that appears to defy convergence, with the gap between leading and lagging regions as entrenched as ever.

## 6 Policy implications and recommendations

Kazakhstan's measurement of regional inequalities reveals a deeply embedded hierarchy, one resistant to change and suggestive of a broader problem facing emerging economies with uneven development. The top-performing regions benefit from agglomeration effects, robust infrastructure, and diverse industrial bases that continually attract investment and talent. Meanwhile, the weaker regions find themselves trapped in cycles of underperformance, where limited economic opportunities are compounded by structural disadvantages in institutional quality and investment appeal.

The persistence of a north-west/south-east divide implies that the advantages conferred by geography, infrastructure, and historical capital accumulation are firmly entrenched. For the regions struggling to benefit from the country's economic dynamism, convergence appears distant, if not altogether implausible, without significant policy intervention. As Kazakhstan grapples with its development challenges, this competitive divide serves as both a diagnostic and a call to action. It is a reminder that economic growth, unless balanced and inclusive, risks consolidating inequalities rather than bridging them and is a seed of discontent.

The task for policymakers is formidable: to raise the competitiveness of lagging regions in a way that respects their unique economic structures and potential. Addressing Kazakhstan's entrenched spatial inequalities will require a multi-faceted approach, potentially including targeted infrastructure investments, regionally-tailored human capital development programmes, and fiscal decentralisation measures to empower local governments in lagging regions. Without such measures, Kazakhstan's competitive landscape is likely to remain a tale of two economies—one dynamic and globally connected and the other locked in a cycle of marginalisation, watching prosperity from afar.

There is, therefore, a need for a comprehensive territorial development strategy, targeting both structural causes of disparity and creating a more balanced environment for regional development. A multi-faceted approach is required, where each policy lever is attuned to the specific needs and challenges of individual regions. The following policy recommendations are based on the analysis of Kazakhstan's regional inequality and informed by international best practises (ADB 2021).

First, infrastructure investment is essential. The infrastructure gap between developed areas such as Astana and Almaty and lagging regions like Turkestan and Kyzylorda is one of the primary drivers of regional disparities. Investments in transportation networks, digital connectivity, and utilities can transform these underserved

regions by increasing market access, facilitating labour mobility, and enhancing productivity. Improved infrastructure acts as a foundation upon which other economic activities can build, creating conditions that are more attractive to private investors (OECD 2020).

Equally important is the need to reduce economic overreliance on low-productivity sectors, particularly in Kazakhstan's rural areas. Diversifying these regional economies away from agriculture and other low-yield industries is critical for sustainable growth. The government should promote the development of regional clusters that link local firms to national and international supply chains, enabling them to capture a larger share of value-added activities. Innovation policy—through support for research and development (R&D), start-up ecosystems, and private-sector investment—can stimulate economic diversification and enhance resilience in lagging regions. This approach has seen success in the European Union's cohesion programmes, which target regional innovation as a means to promote economic equality (Annoni & Dijkstra 2019).

Investment in human capital is another fundamental pillar. The disparities in educational attainment across Kazakhstan are stark, particularly between the urban centres and more remote regions. Vocational education and training programmes, aligned with local economic needs, could enhance regional competitiveness by equipping the workforce with relevant skills. Improving the quality of basic education and creating stronger links between educational institutions and local businesses would also make lagging regions more attractive to employers (World Bank 2018).

Institutional reform is foundational to any regional development strategy. Regions with weak governance structures are consistently less competitive, as they struggle to attract investment, enforce policy, and effectively distribute resources. Strengthening institutional capacity at the regional level—through enhanced transparency, accountability, and the empowerment of local authorities—can help lagging areas catch up. Decentralisation reforms that give local authorities more autonomy and capacity to make decisions could also improve policy effectiveness, as regional governments are often better attuned to local challenges than central bureaucracies (Rodríguez-Pose 2013).

The diversity of Kazakhstan's regions, with their varying economic structures and resource endowments, makes a 'one-size-fits-all' approach impractical. Instead, place-based policies tailored to the unique characteristics of each region would be more effective. Drawing from successful examples in OECD countries, Kazakhstan could adopt a more flexible policy approach that recognises regional differences and targets interventions where they are likely to have the greatest impact (Iammarino et al. 2020).

Social policy should not be an afterthought. Economic inequality in Kazakhstan has a social dimension that must be addressed directly. Reducing poverty, improving healthcare access, and expanding social protection systems in disadvantaged regions are necessary steps to foster inclusive growth. Investments in social infrastructure are crucial for tackling migration pressures and social discontent that arise from regional disparities. These initiatives can create a more cohesive society, where all citizens feel the benefits of national growth regardless of their geographic location (ADB 2021).

Inter-regional collaboration should also be encouraged as a way to bridge the gap between Kazakhstan's developed and less-developed regions. Partnerships that facilitate knowledge transfer, joint investment, and coordinated policy efforts could leverage the strengths of more prosperous regions to uplift those that are lagging. Collaborative projects in infrastructure, research, and skills development can create synergies across regions, ensuring that growth is more evenly distributed (Pike et al. 2017b).

Finally, fiscal reform is necessary to enable regions to respond more effectively to local needs. Although recent decentralisation efforts have devolved some revenue collection to regional authorities, local governments remain heavily dependent on central government transfers, which make up close to 55% of subnational budgets. Reforming the fiscal redistribution system—taking into account quality-of-life metrics and conducting regular assessments of regional needs—could empower local authorities and improve resource allocation (ADB, 2021).

## 7 Conclusions

Kazakhstan's regional inequalities are not mere statistical abstractions; they are the lived reality of millions, etched into the country's economic and social fabric. As we have seen, these disparities are deeply rooted, resistant to the simplistic notion of market-driven convergence. They demand a nuanced, multi-faceted policy response that recognises the unique challenges and potential of each region. Only through such a tailored approach can Kazakhstan hope to weave a more equitable economic tapestry, one that offers prosperity not just to a fortunate few, but to all its citizens, regardless of their geographic lottery.

In Kazakhstan, geography is not merely destiny; it is the architect of economic fortune. The persistence of regional inequalities threatens not only the country's economic future but also its social cohesion and political stability. Addressing these disparities requires more than piecemeal interventions; it demands a fundamental rethinking of the country's development model. The path forward lies in embracing inclusive growth strategies that harness the potential of all regions, fostering a more balanced and sustainable economic landscape.

Kazakhstan's experience thus underscores the importance of proactive regional policy for economies undergoing social and political reform. As countries liberalise and integrate more deeply with global markets, policies to spread the benefits of growth across regions become essential to avoid fostering entrenched, 'two-speed' economies. The case of Kazakhstan, with its growing dual economies of prosperous urban centres and stagnant peripheries, illustrates that modernisation alone is insufficient for sustainable national development—a lesson with wide relevance for reforming economies across Asia and beyond.

The challenge for policymakers is formidable, but the stakes could not be higher. By implementing comprehensive, place-sensitive policies that address infrastructure gaps, human capital deficits, and institutional weaknesses, Kazakhstan can begin to bridge its regional divides. This is not merely an economic imperative; it is a

social and moral one. The future of Kazakhstan depends on its ability to transform its patchwork economy into a seamless fabric of shared prosperity.

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**Data availability** The datasets generated and analysed in the current article can be obtained from the corresponding author on reasonable request.



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