A Growth Diagnostic of Kazakhstan

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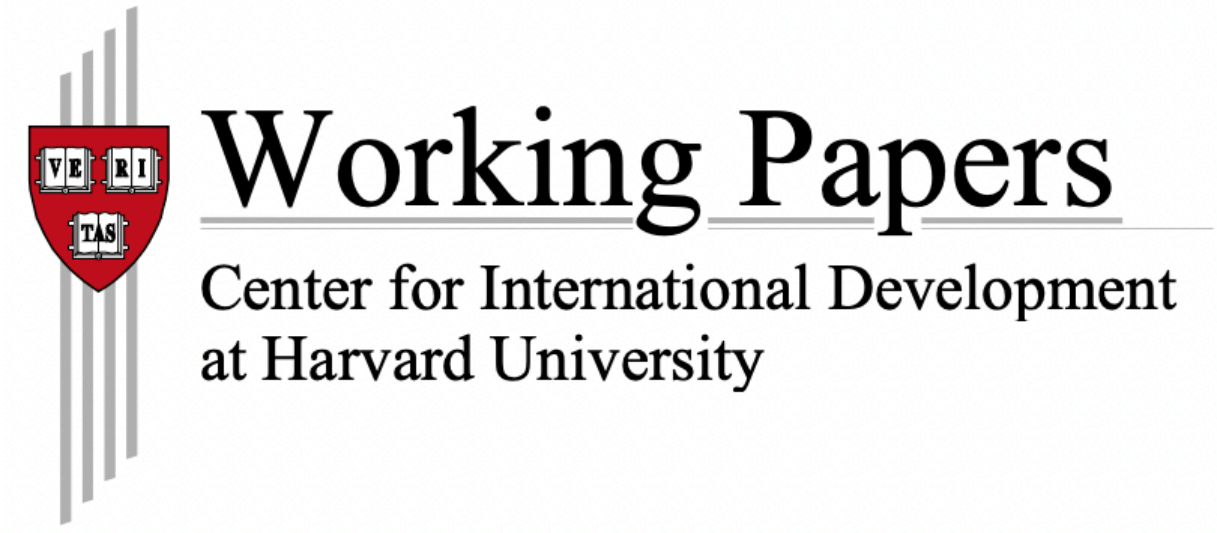

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Glossary

The following glossary is meant to provide an intuitive explanation for some of the jargon related to the framework of economic complexity and growth diagnostics found in this document. Additional mathematical detail can be found online at the Growth Lab website: www.atlas.cid.harvard.edu/glossary.

Complexity Outlook Gain (COG)

Measures how much a location could benefit in opening future diversification opportunities by developing a particular product. Complexity outlook gain quantifies how a new product can open links to more, and more complex, products. Complexity outlook gain classifies the strategic value of a product based on the new paths to diversification in more complex sectors that it opens up. Complexity outlook gain accounts for the complexity of the products not being produced in a location and the distance or how close to existing capabilities that new product is.

Complexity Outlook Index (COI)

A measure of how many complex products are near a place's current set of productive capabilities. The COI captures the ease of diversification for a place, where a high COI reflects an abundance of nearby complex products that rely on similar capabilities or knowhow as that present in current production. Complexity Outlook captures the connectedness of an economy's existing capabilities to drive easy (or hard) diversification into related complex production. A low complexity outlook indicates that a place has few products that are a short distance away, so it will it difficult to acquire new knowhow and increase its economic complexity.

Diversity

A measure of how many different types of products a place can make. The production of a good requires a specific set of knowhow; therefore, a place's total diversity is another way of expressing the amount of collective knowhow held within that place.

Economic Complexity

A measure of the knowledge in a place as expressed in the products it makes. The economic complexity is calculated based on the diversity of products a place produces and their ubiquity, or the number of the places able to produce them (and those places' complexity). Places that can sustain a diverse range of productive knowhow, including sophisticated, unique knowhow, are able to produce a wide diversity of goods, including complex products that few other places can make.

Economic Complexity Index (ECI)

An index of places based on how diversified and complex their production basket is. Places that are home to a great diversity of productive knowhow, particularly complex specialized knowhow, can produce a great diversity of produce, including highly unique products. The complexity of a place's production is found to be highly predictive of current income levels, or where complexity exceeds expectations for a place's income level, the place is predicted to experience more rapid growth in the future. ECI therefore provides a useful measure of economic development.

Knowhow

Knowhow is the tacit ability to produce a product. Also known as productive capability, knowhow refers to productive knowledge that goes into making products. Places grow faster by diversifying the

productive knowledge they have to make a wider variety of products of increasing complexity. Knowhow, as tacit knowledge that only exists in brains, stands in contrast to embedded knowledge where all knowledge is held in technology (e.g., in an iPhone); and codified knowledge, where all knowledge is explained and detailed in codes or blueprints. Knowhow is better conceived as the ability to walk, as tacit knowledge that cannot be fully explains using words and is the slowest to transfer by requiring time-intensive processes of imitation and repetition. While embedded knowledge (e.g., iPhones) can be shipped across the world and codified knowledge (e.g., Wikipedia) can be accessed through media, we believe it is the slow transfer of knowhow that explains the slow, incomplete diffusion of technology and production around the world and stands at the heart of the economic growth process. Policies that aim to speed up the diffusion of or diversify the knowhow of a society hold important implications on the pace of economic growth – and its fairness.

Matrix Country Product (MCP)

When the RCA is greater than one, this may also be referred to as "MCP" (Matrix Country Product).

Product Complexity Index (PCI)

Ranks the diversity and specialization of the productive knowhow required to produce a product. PCI is calculated based on how many other places can produce the product and the economic complexity of those places. In effect, PCI captures the amount and sophistication of knowhow required to produce a product. The most complex products (that only a few, highly complex places can produce) include sophisticated machinery, electronics, and chemicals. The least complex products (that nearly all places including the least complex can product) include raw materials and simple agricultural goods. As an example, specialized machinery is said to be complex as it requires a range of knowhow in manufacturing, including the coordination of a range of highly skilled individuals' knowhow.

Revealed Comparative Advantage (RCA)

A measure of whether a place produces a certain good, based on the relative advantage or disadvantage a place has in the export of a certain good. We use Balassa's definition, which says that a place is an effective producer of a good if it produces more than its "fair share," or a share that is at least equal to the share of total world production that the product represents (RCA greater than one). One example: in 2010, soybeans represented 0.35% of world trade with exports of $42 billion. Of this total, Brazil exported nearly $11 billion worth of soybeans. Since Brazil's total exports for that year were $140 billion, soybeans accounted for 7.8% of Brazil's exports. By dividing 7.8% / 0.35%, we find Brazil has an RCA of 22 in soybeans, meaning that Brazil exports 22 times its "fair share" of soybean exports so we can say that Brazil has a high revealed comparative advantage in soybeans.

Ubiquity

Ubiquity measures the number of places that are able to make a product.

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Executive Summary

Growth Diagnostics exercises aim to identify the most binding constraints to economic growth in a place, taking account of historical patterns of growth and testing all potential roadblocks at present. Since not all constraints are equally binding and both policy resources and state capacity are limited, reforms will be successful only if they address the areas with the largest potential impact.

To conduct a growth diagnostic exercise, it is useful to first characterize the recent growth dynamics of the place of study. From the end of the 1990s, Kazakhstan's growth has been correlated with oil and gas dynamics. Over the last two decades, Kazakhstan's economy underwent a transformational growth process, as real GDP per capita multiplied by 2.5x (2000-2020). The early and mid-2000s saw higher than 8% GDP growth and a large reduction in poverty in the context of a global commodity boom. After a comparatively mild slowdown caused by the 2008-09 global financial crisis, growth rebounded, never returning to the peak reached in the early 2000s, but still outperforming most peers. After a second slowdown, mainly caused by the crash in global oil prices starting in 2014, Kazakhstan's economy rebounded, again outpacing most peers by 2017. While its economy reeled from the COVID-19 crisis, Kazakhstan seemed better positioned than some other emerging economies at the end of 2021, although it came at a high fiscal cost. At the beginning of 2022, domestic political change and geopolitical instability made immediate growth prospects less predictable.

The country's economic trajectory illustrates the limitations of relying on natural resources to drive development. The dominance of oil in Kazakhstan's economy has created challenges, both in terms of a dependence on volatile oil prices and the sustainability of growth. With inflows of oil revenue, non-tradable activities developed strongly. This central role played by non-tradable activities poses challenges both in terms of employment quality and certain risks. Because non-tradable activities have so far been intensive in lower-productivity, lower-wage jobs, their prominence presents a challenge to providing good paying, stable jobs that meet the population's aspirations. Non-tradable activities have also historically contributed to domestic imbalances in the form of excessive investment in residential construction, the proliferation of non-performing loans in the banking sector, and possibly contributing to persistent inflation.

Economic diversification towards non-oil, complex economic activities is a policy objective that is well-identified by Kazakhstani policymakers but has proven difficult to achieve. Prior to 2015, diversification policy efforts were counteracted by the overvaluation of the currency, putting non-oil tradable activities at a structural disadvantage that policy support could not offset. Accordingly, the boom during the commodity supercycle did not result in the development of non-oil industries as complementary engines of growth. Through the early 2010s, the growth of Kazakhstan's nonmineral tradable economy remained largely confined to the expansion of metal and chemical exports.

Since 2015, the transition to a floating exchange rate regime and improvements in the fiscal framework that aim to make transfers from the National Fund more rule-based, have provided a macroeconomic environment that is more conducive to the development of tradable activities and exports. There remains, however, residual macroeconomic issues that are examined in this report. In the new macroeconomic environment, Kazakhstan has not yet seen decisive success in diversifying its economy, despite inroads in a few new products, mainly in low-complexity agricultural goods. Today, the country relies on few obvious diversification opportunities in tradables, and the most attainable opportunities are of limited strategic value.

Recognizing the ongoing dominance of the oil economy and the limitations of that growth engine, this growth diagnostic is geared towards answering the following question: what are the factors holding

back the development of Kazakhstan's non-oil tradables? To answer that question, this report performs a comprehensive analysis of the constraints to sustainable growth and diversification, and it further asserts these constraints in a growth "syndrome" or framework of interrelated challenges. The growth syndrome has two main objectives. First, it aims to recognize the complex interplay between the dynamics observed in individual diagnostic branches, which could be overlooked if only examining each policy area in isolation. In doing so, the growth syndrome illustrates how a general equilibrium that may be sub-optimal in terms of growth characteristics persists over time. Second, the growth syndrome strives to connect the observed symptoms to their underlying and sometimes unobservable causes.

The growth syndrome that Kazakhstan's economy is facing today could be summarized as "stacked odds against diversification." We ultimately trace the difficulties observed in successfully growing Kazakhstan's non-oil economy back to three defining features of Kazakhstan's overall economy, society, and geography and discuss how these features interact with each other, the existing policy framework and exogenous dynamics. These defining features include: (i) the oil and gas endowment, which poses challenges that are common to many countries with a rich natural endowment of resources; (ii) the soviet legacy, key features of which still partly shape existing infrastructure and institutions; and (iii) the geographic constraints of remoteness and sparse population, which pose unique challenges in terms of agglomerating logistics, infrastructure, spatial inclusion, access to inputs and markets, and the local provision of adequate public goods.

These three defining features, through their individual effects and their interactions, constrain the development of a successful non-oil economy. They constitute the root causes behind the following three main symptoms: (i) macroeconomic instability, manifesting in the form of currency risk, persistent inflation, and ultimately contributing to a high unsubsidized cost of finance and a general lack of confidence in future macroeconomic dynamics; (ii) an uneven economic playing field for private businesses, resulting in diminished opportunities for enterprise creation and disincentives to scale up and invest in improvements to productivity; and (iii) difficulties in acquiring productive capabilities, agglomerating them locally, and accessing export markets. This creates barriers to the development of complex economic activities, raising the bar for success in diversification efforts.

The combination of these features creates a coordination problem in which solving one issue is disincentivized by the existence of the other two: the demand for more knowhow is constrained by macroeconomic uncertainty and the uneven playing field, which deters private actors from expanding into new non-oil tradable products. The uneven playing field goes unchallenged, and markets remain uncompetitive in the absence of macroeconomic certainty and firms that can agglomerate knowhow and capabilities. Finally, macro-economic uncertainty is aggravated by the non-existence of a non-oil tradable growth engine, which in turn would require complex knowhow and a level playing field.

To arrive at the growth syndrome, the growth diagnostics methodology entails examining numerous dimensions that are relevant to understanding the constraints to economic growth and diversification in Kazakhstan, including: access to finance, macroeconomics, human capital, communication infrastructure, logistics and power infrastructure, taxes, bureaucracy, corruption, market competition, as well as selected issues in agglomeration, self-discovery, and coordination. Relying on economic tests wherever data is available, as well as structured interviews with local stakeholders in the country, we identified a number of constraints to sustainable growth and diversification in Kazakhstan.

Access to finance and macroeconomic management

We investigate possible signals of financing issues in Kazakhstan, which could in turn have adverse effects on entrepreneurship, scaling up, innovation, and ultimately economic growth. We observe that domestic credit to the private sector is notably low compared to peer countries, even when exclusively focusing on the non-oil economy. We interpret this low credit volume as driven both by supply factors such as high interest rates and collateral requirements, and demand factors, in the form of low solvable demand by high-potential businesses. We additionally note potentially lasting impacts of past non-performing loans, which are largely a legacy issue and can be traced back to a banking crisis starting after 2008 that constrained banks' ability until the end of the 2010s.

We explain the level of interest rates by examining the macroeconomic situation. The combination of a free-floating exchange regime and inflation targeting with incomplete fiscal reform has proven sub-optimal, and the resulting equilibrium has seen an elevated currency risk premium and persistent inflation. This has led monetary policy to tighten, resulting in high lending rates. We also highlight other issues pertaining to the functioning of the credit market, such as scarce availability and reliability of financial information and issues with the collateral market and resolution mechanisms.

Overall, we do not identify access to financing and macroeconomic management as standalone binding constraints to economic growth in the strictest sense. Major financing subsidies by the government have so far not led to a major expansion of credit, signaling issues on the demand side, and a significant improvement regarding real exchange over-appreciation has not led to an expansion of the tradable sector. We do identify issues with macroeconomic management beyond access to credit that relate more to management of the oil and gas endowment, confidence and uncertainty and this constitutes one of the pillars of the growth syndrome. With this understanding, we examine other policy areas in order to uncover specific constraints behind the apparent lack of solvable demand for credit by businesses.

Human capital

The stock of skills is a crucial input to the production process. Human capital results from the acquisition of economically relevant knowledge and skills through education and experience, ultimately making up an aggregate stock of diverse knowhow in an economy. Therefore, insufficient or inadequate human capital can constrain economic growth, especially when attempting to diversify into new and more complex activities. Accordingly, we examine the availability of human capital in Kazakhstan and possible signs of constraints to growth and diversification. Kazakhstan records high educational attainment relative to benchmarks across all education levels. We however observe issues with the quality of education and skills-biased emigration, which may explain why local firms and investors report an inadequately trained workforce as a key concern. There is evidence of lagging quality of education, which may be limiting the ability of the domestic labor supply to satisfy the needs of the market. We describe how current avenues to obtain and promote the acquisition of skills – particularly of high-skilled labor – appear to be only a minor constraint to today's non-tradable service economy but would prove insufficient to meet the economy's demands for diversification. We place a special emphasis on the value of foreign skills in injecting new knowhow into the economy and identify potential constraints to the acquisition of these foreign skills.

The signals we observe point to specific challenges in adequate training and skills quality, as well as the allocation of skills to job market opportunities. In the face of strong data limitations, we propose that while there are only limited signs of a currently binding constraint related to human capital, skills availability is likely to present a major obstacle to any vigorous economic diversification drive.

Communication infrastructure, logistics and electricity

The availability of modern and adapted infrastructure is a key determinant of a country's competitiveness and hence conditions economic growth. The stakes are especially high in Kazakhstan, where geospatial features and legacy factors pose an additional challenge to infrastructure development and maintenance. Much of Kazakhstan's infrastructure – electricity grids, water and irrigation connectivity, roads and railways – was inherited from the Soviet Union. To some extent, the challenges in infrastructure are less related to access and coverage and more to upgrading quality and expanding access for the export of goods and movement of people.

We find economically relevant challenges in road infrastructure and possible constraints in passenger air transportation. The underdevelopment of air cargo and logistical services seems to be related to low demand by the real economy. Signals of ICT connectivity and water access in rural areas are important vis-à-vis social development and equity but are not of immediate relevance for growth beyond agricultural activities. Overall, we conclude these issues can be binding for certain economic activities and in certain locations but are at least partly attributable to the country's challenging geography.

Micro risks, state-owned-enterprises, and competition

We assess if potentially profitable investments are not undertaken because of a limited appropriability of investment returns. This area of the analysis touches upon several micro risks such as political risk and policy uncertainty, corruption, effectiveness of public administration and bureaucratic procedures, "elite capture," and taxes. Our analyses find that several of these issues are actively constraining the growth of existing private firms and the entry of new ones: risks to property rights especially when scaling up, the outsized role played by SOEs and preferential access to public or quasi-public procurement stood out as key constraints in stakeholder interviews. Several recent reforms have aimed to address forms of policy uncertainty and corruption, such as bribery, judiciary inconsistencies, and preferential access to public or quasi-public procurement. Overall, the lack of a level playing field may constrain existing firms from overcoming fears of expropriation and prevent new players from entering who see no clear path to appropriating their returns to investing.

Agglomeration dynamics, self-discovery, and coordination

Economic growth and diversification rely on the acquisition and combination of new productive capabilities, including specialized knowhow. As more individuals specialize into specific capabilities, collective knowledge agglomerates at the societal level, leading to growth and wealth creation. Our analysis explores the historical development of Kazakhstan's exports as well as the challenges to diversification that the country faces due to the dominance of the extractives industry, low levels of economic agglomeration and population sparsity. While Kazakhstan's concentrated export basket is largely the same today as it was in 2000, the country has few opportunities to diversify into, and those are of limited strategic value. We show that this is a common challenge for oil-rich economies.

The avenues for Kazakhstan to accumulate more knowhow seem to be constrained: the inherited legacy of centralized economic planning exacerbates the concentrated nonmineral export basket, FDI is concentrated in the extractives sectors as well and has not diversified meaningfully into efficiency-seeking inflows, and the spatial heterogeneity of production and geographic constraints further limit the sustainability of economic agglomerations that can support diversification into new activities.

1. Introduction

This Growth Diagnostic Report is a written deliverable from a research engagement between the Growth Lab at Harvard University and the Astana International Financial Centre (AIFC) between June 2021 and December 2022. The purpose of the engagement was to formulate evidence-based policy options to address critical issues facing the economy of Kazakhstan through innovative frameworks such as growth diagnostics and economic complexity. This report is accompanied by the *Economic Complexity Report* that applies findings from this report on economy-wide challenges to growth and diversification in order to formulate attractive and feasible opportunities for diversification.

Kazakhstan faces multifaceted challenges to sustainable and inclusive growth: macroeconomic uncertainty, an uneven economic playing field, and difficulties in acquiring productive capabilities, agglomerating them locally, and accessing export markets. Underlying Kazakhstan's transformational growth in the last two decades—during which real GDP per capita multiplied by 2.5x—are two periods that underscore how Kazakhstan's growth trajectory has been correlated with oil and gas dynamics. The early and mid-2000s characterized by the global commodity supercycle led to an expansion of the economy upwards of 8% annually, with a mild slowdown during the global financial crisis. In 2014, Kazakhstan's growth slowed with the collapse of commodity prices, and alternative engines of growth have not been strong enough to fend against volatility since. These trends, along with growing uncertainty in the long-run demand of oil and gas, continue to highlight the limitations of relying on natural resources to drive development.

As in the experience of other major oil producers, diversification of Kazakhstan's non-oil economy is a critical pathway to drive a new era of sustainable and inclusive growth and mitigate the impacts of commodity price shocks on the country's economy. Kazakhstan's growth trajectory demonstrates that the country has enough oil to suffer symptoms of Dutch disease, but not enough to position it as a reliable engine of growth in the future. Development of non-oil activities has been a policy objective of the government of Kazakhstan for some time, but previous efforts for target sectors have failed to generate sufficient exports and investments to produce alternative engines of growth. This report characterizes the relationship between growth, industrial policy, and the constraints to diversification in Kazakhstan. It utilizes the growth diagnostics framework to understand why efforts to diversify into non-oil tradables has been challenging. The report proposes a growth syndrome to explain the constraints preventing Kazakhstan from achieving productive diversification and sustainable growth.

This report is organized in six sections, including this brief introduction. Section 2 provides an overview of the methodological approach to the Growth Diagnostics analysis. Section 3 describes Kazakhstan's growth trajectory and macroeconomic performance, as well as the motivations behind pursuing a diversification strategy to strengthen the non-oil economy. Section 4 summarizes three features of the country that manifest in a set of economy-wide constraints to growth and diversification. Section 5 analyzes each of the identified constraints in detail, describing their dynamics and breaking down the aspects that appear to be binding. Section 6 concludes by suggesting potential policy guidelines towards alleviation of the identified constraints.

2. Growth Diagnostics Methodology

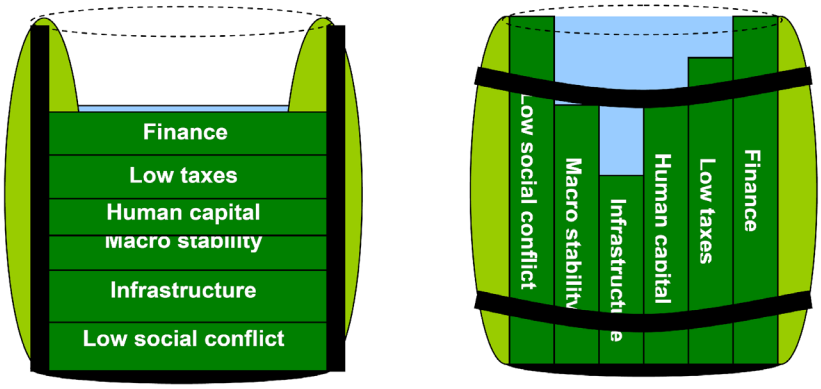
This section briefly outlines the Growth Diagnostics methodology and describes the principles that underlie the analyses carried out and the interpretation of outputs and findings. Growth Diagnostics exercises are aimed at identifying the most binding constraints to private investment and economic growth in a place, taking account of historical patterns of growth and testing all potential roadblocks at present. Since not all constraints are equally binding and both policy resources and state capacity are limited, reforms will be successful only if they address the areas with the largest potential impact.

Some of the guiding principles behind the Growth Diagnostics approach include:

- **Economic growth is key**: Improving people's standards of living should be the main goal of economic and social reforms enacted by governments. In some places, economic growth may be sluggish, unsustainable, or inequitable. Understanding a place's specific growth problem is important, but in any case, standards of living cannot sustainably improve if the economy does not expand.
- **Adequate prioritization:** A long list of structural reforms is rarely of much use for governments, particularly given the administrative, political, and budgetary restrictions they face. Growth Diagnostics prioritizes interventions by impact and therefore produce the biggest bang for the reform buck.
- **Focus on local problems:** Reforms based on one-size-fits-all approaches or on international best practices have a high probability of failure. The Growth Diagnostic methodology is an approach that combines a wide array of aspects of economic theory and empirics and deploys them to the specifics of the country context, rather than blindly applying a given theory or set of models over another.

In identifying which of the many possible elements of an economy is constraining, the framework recognizes that factors that influence growth are complements rather than substitutes. The contrast can be visualized by through the structure of the two barrels in Fig. 2.1. The left-hand barrel has horizontal wood slabs, while the right-hand side barrel has vertical slabs. The volume in the first barrel depends on the sum of the width of all slabs, consistent with the notion of substitutes. Increasing the height of any slab will increase the volume of the barrel. The volume in the second barrel is constrained by the length of the shortest slab. The impact of a change in a slab on the volume of this barrel depends on whether it is the binding slab (constraint) or not. If it's not binding, the impact is negligible. In general, economies tend to be like the second barrel.

Figure 2.1. Determinants of Adequate Growth – Complements or Substitutes?



Source: Hausmann, Klinger and Wagner (2008)

To identify the most relevant restrictions (the shortest slabs), the methodology hinges on several diagnostic tests applied from top to bottom on a Growth Diagnostic Tree (Fig. 2.2). The tree is meant to be instructive, helping to organize the issues potentially constraining private investment and economic growth in an economy. It should not be considered exhaustive or complete, as each context might have its own sets of particular issues that shall be tested. To go down the diagnostic tree, we start by asking why do we observe low levels of investment and entrepreneurship? From then downwards, the decision tree breaks into issues constraining productivity (left hand side) or finance (right hand side). Is there low productivity or returns to economic activity or are returns high, but access to finance is prohibitive? In turn, low productivity or returns to economic activity can be broken into low social returns (driven by low human capital or insufficient infrastructure) or low appropriability (government and collective knowhow failures). At each point, depending on which branch most closely describes the constraints in that place, the diagnostic tree outlines possible areas to test further.

To test for the most binding constraint down the tree, the Growth Diagnostics framework uses four principles of differential diagnosis:

- **The shadow price is too high:** A high "shadow price" indicates the relative scarcity of a factor in the economy. The "shadow price" test should seek to complement measuring scarcity via quantity, since low availability alone can be a signal of either low supply of something or low demand for it. Some inputs to production have a market price that can be measured, but certain factors face price controls or lack explicit prices. Hence, the definition of "shadow prices" may extend to the cost of safeguarding access to the factor or to the losses faced for lack of appropriate access to the factor.

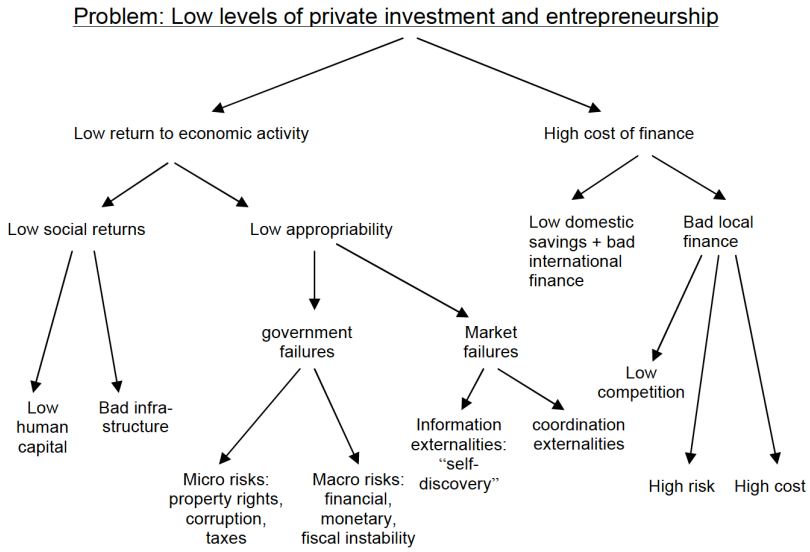
- **Movements in the constraint shall produce movements in the objective function:** By definition, if a binding constraint is relaxed this should increase the value of the objective function. In the context of growth diagnostics, if a particular constraint is relaxed, there should be an associated payoff in terms of growth, investment, job creation, or whatever the specific economic objective is. Similarly, if a particular constraint is tightened then we should observe a deterioration on the objective function. However, it should be noted that for many factors

the relevant statistics are not updated as frequently as the objective variables, hence it is not always possible to adequately pursue this test.

- **Agents in the economy should be attempting to overcome or bypass the constraint**: Local stakeholder actions signal the constraints holding back economic progress, even if those constraints may not be vocalized. If relevant local agents are observed attempting to overcome a particular problem related to a factor in the diagnostic tree, it may be a signal that the factor is a binding constraint to the economy. For example, if firms are investing heavily in capacity to pump water, this is a signal that water may be a constraint to production. This type of test generally requires complementing quantitative analysis with carefully considered qualitative analysis, as standard statistical tools may not be geared at identifying the nature and frequency of these trends.

- **Agents less intensive in a binding constraint should be more likely to thrive (and *vice versa*):** Looking at the nature of the most successful sectors in a place can be informative of the constraints. Sectors that tend to be less intensive in the constrained factor shall be doing comparatively well and be more prevalent within the structure of the economy. Conversely, those sectors most intensive in the constraint should be doing relatively poorly or be less prevalent. For example, if electricity is a binding constraint, one would see that the sectors of the economy that are more electricity-intensive factor (e.g. manufacturing) might struggle in comparison to sectors that are less intensive in the use of electricity (e.g. financial services).

Figure 2.2. A Growth Diagnostics Tree



Source: Hausmann, Klinger and Wagner (2008)

The Growth Diagnostics methodology is a means of organizing an investigation into what holds an economy back from better growth performance and, ultimately, slower improvement in living standards. It allows for the use of many economic disciplines and tools in a practical and place-focused way. For some economies, it is useful to work explicitly through the entire diagnosis tree to test competing theories for what is holding its economic potential. The process allows for a focus on evidence rather than instincts and can help policymakers focus scarce resource – including human

resources – on solving problems most critical to growth that may have been poorly understood prior to the exercise. It is sometimes the case that multiple constraints are critical and that the underlying forces that have allowed these constraints to fester are deeply related.

Once the most binding constraints have been identified, the Growth Diagnostic exercise should focus on explaining why these issues have persisted and become an equilibrium. Reaching this level of understanding entails elaborating further hypotheses and testing their implications and how these different constraints interact. That is fertile ground for active collaboration with domestic stakeholders and technical subject matter experts. The result should be a process of collective thinking that is both dynamic and iterative, strengthens the robustness of the analyses and gradually narrows the set of relevant hypotheses. That process may require multiple iterations until an acceptable level of convergence towards a consistent hypothesis is reached.

As is the case in medicine, where diagnostic tools are used to identify a syndrome that can then be cured through a holistic internally coherent treatment plan that attacks the disease (and just the symptoms), the findings from this report could be leveraged to outline a treatment plan for the economic syndrome of Kazakhstan.

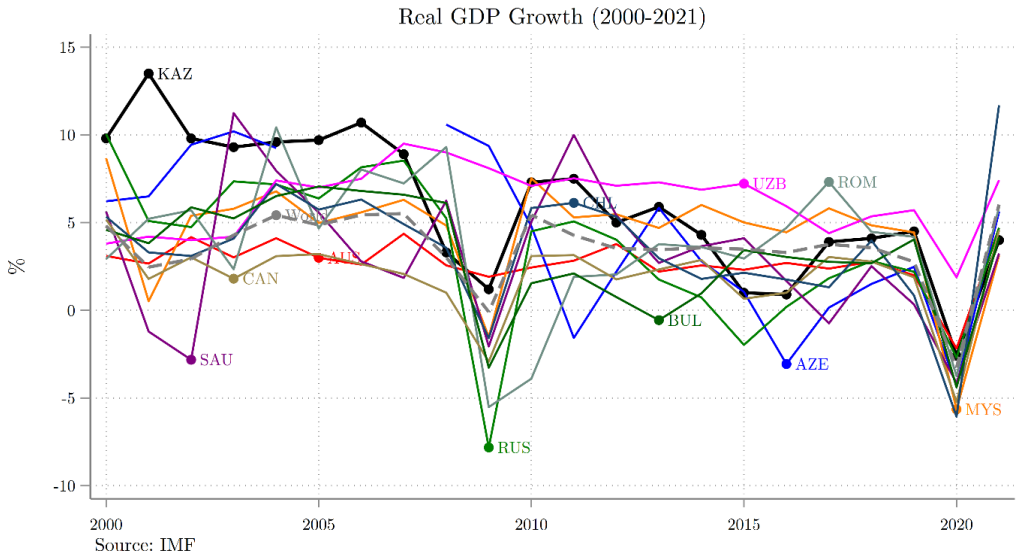
To this end, the Growth Diagnostics methodology is adapted to the Kazakhstan context, with particular focus, where possible, on diagnosing constraints that might hamper diversification and growth at a sector-level and regional-level. We present not only the analytical findings of each branch of the Growth Diagnostics tree, but also an investigation of the factors that give rise to these constraints, leading to suboptimal growth dynamics. Further, this report also lays out the growth "syndrome" – which is the narrative that accounts for the constraints and root causes identified. The growth challenge to Kazakhstan is set in the context of its growth dynamics and reliance on primary commodities; therefore, a suitable set of policy recommendations must take into account what the constraints to overcoming these challenges are as well as how to break the cycle of underlying causes of these constraints to set the country towards a path of sustained and inclusive prosperity.

3. Growth Trajectory

Kazakhstan is an upper middle-income country.[2] With a nominal GDP of $191.7 bn in 2021, Kazakhstan was the 54th largest economy in the world, while its nominal GDP per capita was the 77th highest in the world.[3] At $10,090 in 2021, Kazakhstan's GDP per capita was comparable to Turkey's ($9,497), Bulgaria's ($11,218) or Argentina's ($10,753). GDP per capita in Kazakhstan stood 15.1% below that of Russia's, but five times as high as that of neighboring Uzbekistan. [4]

This is the result of an impressive growth process that started around 1999 and was at its strongest in the 2000s. After a turbulent decade following independence in 1991, Kazakhstan started to show an impressive growth record at the turn of the century. Over 2000-2019, real GDP grew at a yearly average of 6.5%, more than twice the world average (Fig. 3.1). [5]

Figure 3.1



Source: IMF WEO[6]

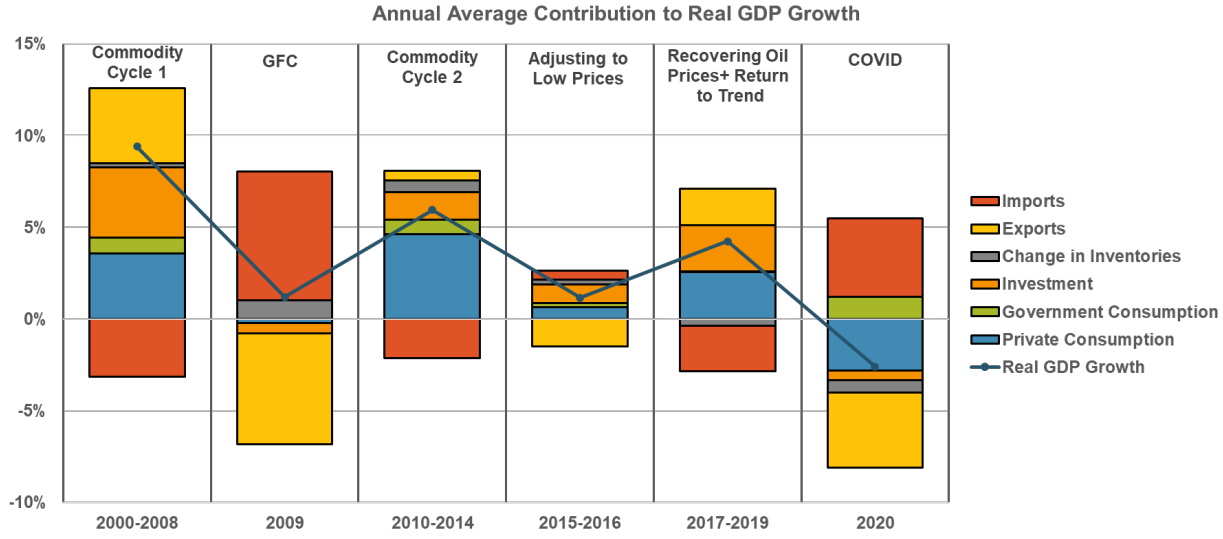
An analysis of growth drivers since 2000 enables us to distinguish six successive periods, with different drivers. Fig. 3.2 depicts these periods with a breakdown of contributions to growth. It is important to note that the breakdown of GDP used to create this chart divides government expenditures into government consumption and investment; as a result, some of the contributions to growth from investment in the figure below originated from public investment. Additionally, the figure reports exports and imports are reported separately for clarity and the latter has a negative

[2] Economic growth is not the only indicator that is relevant for the development and well-being of a nation. However, our report, by definition, most closely focuses on growth. Throughout our analyses, we have most often used per capita income in purchasing power parity terms. With higher-frequency or more recent data, it is often the case that real per capita GDP is not available in PPP terms. In such cases, we report nominal or real (per capita) GDP denominated in the local currency or USD, where appropriate.
[3] The Economist Intelligence Unit.
[4] Ibid.
[5] International Monetary Fund, "World Economic Outlook Database, April 2022."
[6] Ibid.

arithmetic impact on GDP, because expenditures on foreign goods are subtracted from overall expenditures to find domestic output.

- Commodity Cycle 1 (2000-2008): rising oil and gas volumes, combined with rising or high oil prices result in an investment and export-driven boom, with imbalances;
- Global Financial Crisis (2008-2009): mild recession;
- Commodity Cycle 2 (2009-2014): second commodity cycle, increasingly relying on domestic consumption;
- Low Price Adjustment (2015-2016): adjustment to lower oil prices and change in the macroeconomic regime (currency float and inflation targeting);
- Oil Recovery and Return to Trend (2017-2019): return to a lower steady state supported by rising oil prices and fiscal expansion;
- COVID-19 (2020-2021): global pandemic marked by major supply and demand disruptions and fiscal support.

Figure 3.2



The early 2000s experienced the strongest growth in the context of a global commodity boom, with real GDP growing at 9.4% per year from 2000 to 2008. Over this period, Kazakhstan grew among the fastest in the selected peer group,[7] second only to Azerbaijan.[8] Growth in this period was driven by exports and investment focused on oil. As indicated by the size of the contribution of total government expenditures to growth in Fig. 3.3 and how this compares to the contribution of government consumption to growth in Fig. 3.2, the investment boom had a strong public investment component.

The Global Financial Crisis led to a significant drop in growth, as Kazakhstan grew 3.3% in 2008 and 1.2% in 2009. At the same time, the collapse in global oil prices affected growth performance in all the oil-producing peers, but Kazakhstan's growth dynamics were comparatively smooth. While, on

[7] A heterogenous peer group was selected for the purpose of this research project. It includes regional peers (Russia, Uzbekistan, Azerbaijan), global peers (Bulgaria, Malaysia, Romania, Saudi Arabia) and more aspirational OECD peers (Australia, Canada, Chile). Please see the Appendix of the *Economic Complexity Report* for details on the peer selection process. When relevant, selected analyses rely on other ad hoc comparator groups.
[8] This is mainly due to the magnitude of the oil boom in Azerbaijan and base effects.

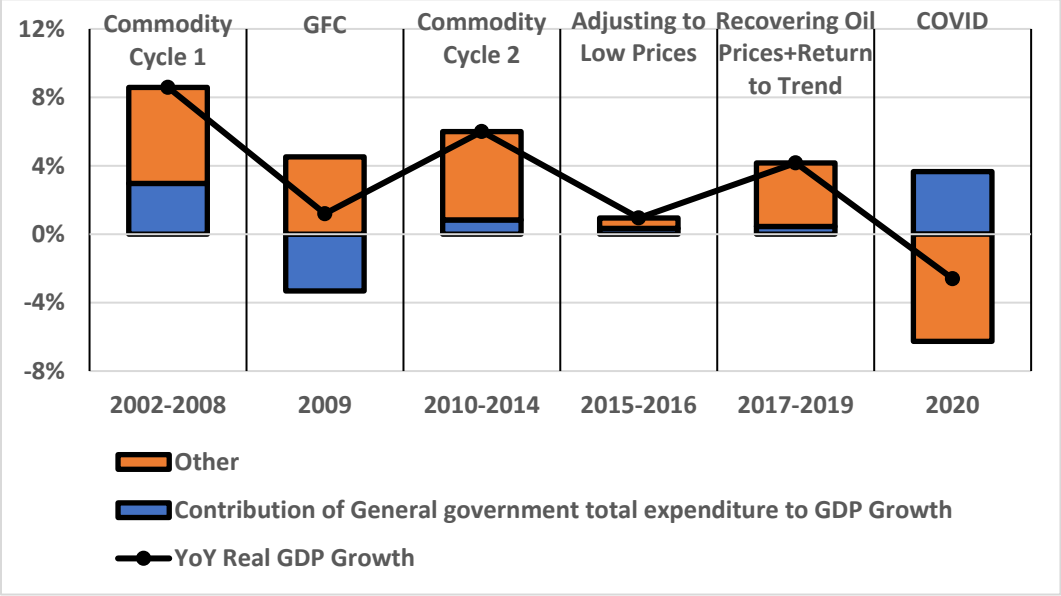
average, the real GDP of peer countries contracted by 0.5% from 2008-2009, Kazakhstan had positive growth at 1.2%.[9]

During a second commodity cycle (2010-2014), growth rebounded without returning to the peak numbers of the 2000s. The economy quickly rebounded, and over 2010-2014, real GDP grew at 5.9% on average, which was meaningfully larger than the world average (4.1%).[10]

On the back of lower oil prices, growth slowed down further after 2014. Over 2015-2016, real GDP growth averaged 0.95%%, affected by the crash in global oil prices, while the world grew faster at 3.4 %. Between 2008-2014, Kazakhstan still performed in the upper tail of the peer group, but after 2014, it was overtaken by most of its peers.

Between 2017-2019, Kazakhstan grew at an average rate of 4.2%, higher than the world (3.36%) and most peers. This growth was concomitant with the recovery of oil prices, which rose from a low of $30.7/bbl in January 2016 to $81/bbl in October 2018.[11] Part of this recovery in prices were driven by the decision by OPEC and its non-OPEC partners to limit production. From November 2018-February 2020 the Brent Price of oil averaged $63.36/bbl. Under these more favorable circumstances, Kazakhstan returned to stronger growth. In 2017, compared to the previous year, real total general government expenditures grew by 16.3% and this contributed 3.5 percentage points to real GDP growth (3.9%). In 2018, government spending declined by 18.6%. However, the next year it grew by 12% and contributed 2.3 percentage points to overall GDP growth, which stood at 4.5% (Fig. 3.3).[12] The period from 2017-2019 might represent a new steady state, where oil prices were below the peaks of the commodity boom and yet meaningfully higher than the prices seen in 2015 and 2016. It is possible that this can be the new normal for oil prices that the world might return to after the high prices induced by the economic recovery from COVID-19 and geopolitical turmoil in 2022.

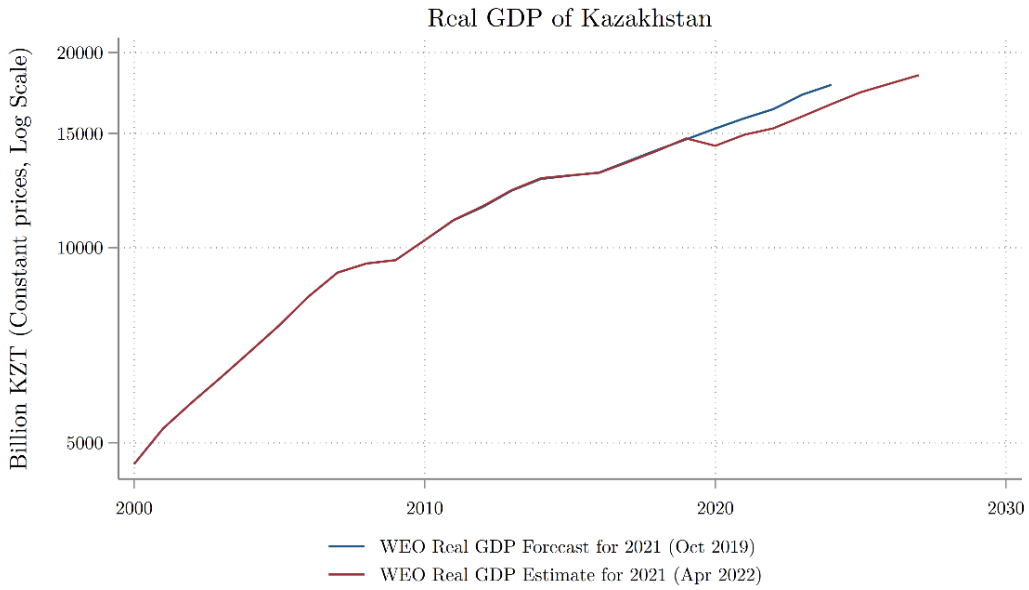
Figure 3.3



[9] International Monetary Fund, "World Economic Outlook Database, April 2022."
[10] International Monetary Fund, "World Economic Outlook Database, April 2022."
[11] US Energy Information Administration. "Europe Brent Spot Price FOB.".
[12] This figure is created with IMF World Economic Outlook data. Unlike Figure 3.2, which depicted the contributions to growth from government spending under "government consumption" and "investment" separately, this figure depicts total general government expenditures as a whole.

Kazakhstan's fiscal support during the pandemic and economic recovery is in line with the rest of the world and with peers. Fig. 3.4 compares IMF WEO's estimate for the real GDP of Kazakhstan between the October 2019 and April 2022 editions. [13] It suggests that Kazakhstan has recovered the level of pre-COVID-19 output and it is poised to return to the same speed of growth before COVID-19. However, real GDP is estimated to be 5.7% below where it would have been had the pre-COVID-19 growth trend continued. This is commonly observed across the globe: even when countries have recovered the level of GDP and reached pre-crisis rates of real GDP growth, a recession will have permanently put GDP on a lower path. Fig. 3.5 takes a comparative look to demonstrate this, comparing how each country's real GDP in 2021 compared to what was forecast in the IMF's World Economic Outlook published in October 2019. The horizontal axis depicts discretionary fiscal measures employed by each country (in the form of additional spending and revenues forgone) as measured by the IMF. This figure shows that Kazakhstan's fiscal support during COVID-19 and recovery does not stand out. These additional fiscal measures amounted to 5.5% of GDP and Kazakhstan's real GDP is 5.7% below the pre-COVID-19 trend. The average values for these measures are respectively 7.1% and -6.4%.[14] In that sense, Kazakhstan's fiscal stimulus was smaller than the average measure for the 63 countries in this database, while its recovery has been slightly above the world average.

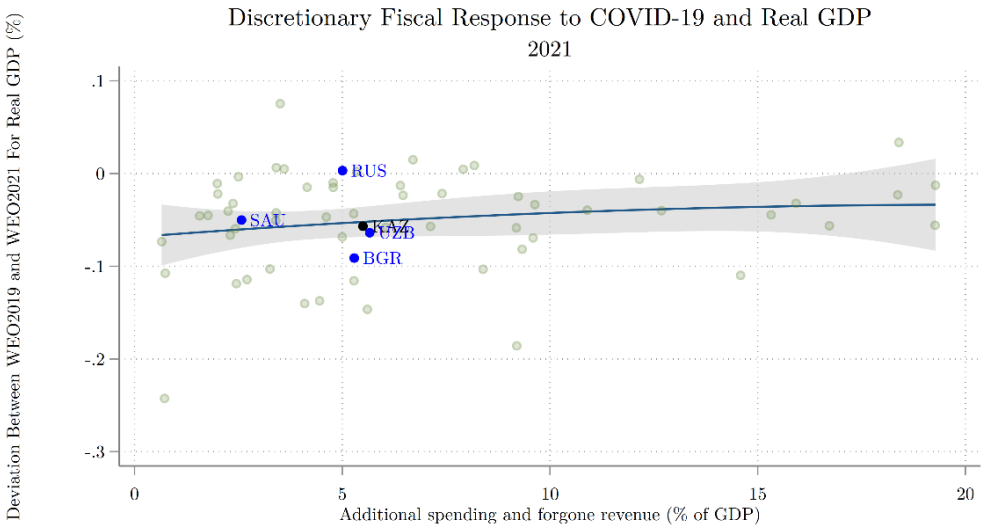
Figure 3.4



Source: IMF

[13] International Monetary Fund. "World Economic Outlook Database, April 2022;" International Monetary Fund. "World Economic Outlook Database, October 2019."
[14] IMF's COVID-19-related fiscal measures database only covers 64 countries, so the reported mean for the size of COVID-19-related additional spending and forgone revenues is for these 64 countries.

Figure 3.5



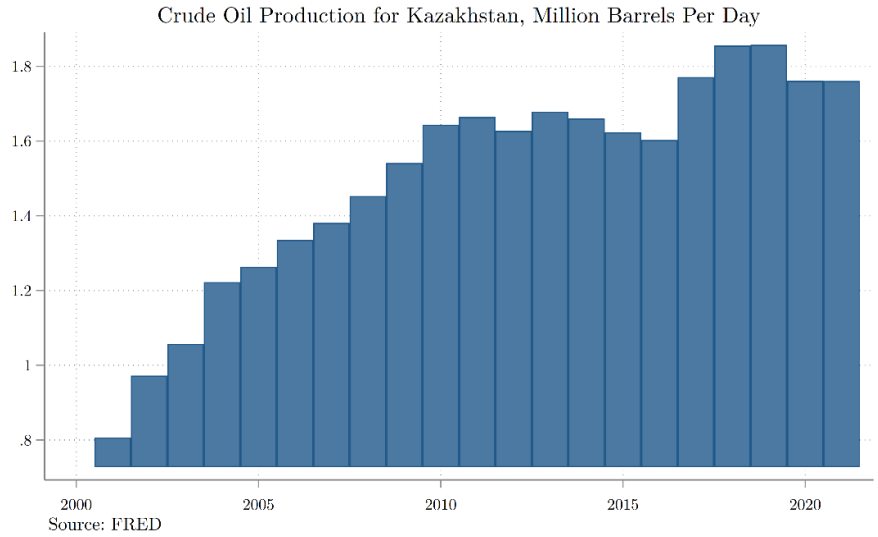
Source: IMF
Note: The figure compares IMF's estimate for Real GDP in 2021 between the October 2019 and April 2022 editions of World Economic Outlook (WEO).

Engines of Growth: Oil and Gas

Oil production volumes have grown rapidly in the 2000s and have been broadly stable since 2010. As a country of 18.5m inhabitants, Kazakhstan was the 12th largest oil producer and the 24th largest gas producer in the world in 2019.[15] While the early 2000s saw rapid increases in oil production, volume growth has been slower since 2005 and broadly stable since 2010 apart from a one-off production spike in 2017. Overall, production grew at the compound rate of 5.6% over 2000-2019, almost tripling over two decades (Fig. 3.6).[16] While the rapid expansion of production in the 2000s was mostly fueled by the development and exploration of the Tengiz and Karachaganak fields, the 2017 and subsequent increases were powered by the Kashagan field deployment, started in 2016. During its first phase of development, Kashagan added around 370,000 barrels per day to the total oil production in Kazakhstan.[17] As of January 2022, crude oil production stood at 1.6 million barrels per day.[18]

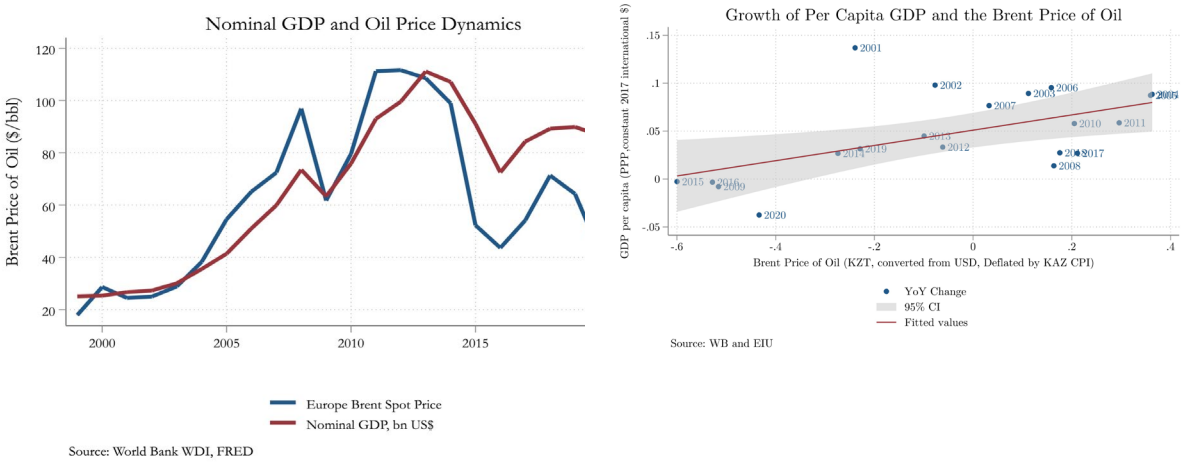
[15] U.S. Energy Information Administration, "Country Profile: Kazakhstan."
[16] FRED, "Kazakhstan – Economic Data Series."
[17] U.S. Energy Information Administration, "Background Reference: Kazakhstan."
[18] Joint Organizations Data Initiative. "Primary (All Data)."

Figure 3.6



From 2000 onwards, Kazakhstan's mid-term growth dynamics have been highly correlated with the boom-and-bust cycles of oil prices. Oil prices seem an important channel of transmission between global oil markets and the Kazakh economy, as is visible in the co-movement between GDP and oil prices (Fig. 3.7). The most rapid GDP growth period in the 2000s coincided with historical records in oil prices, with both indicators collapsing during the Global Financial Crisis. While nominal GDP and oil prices were already exhibiting parallel evolutions before the 2008 crisis, in a context of stagnant volumes, mid-term growth dynamics seem especially driven by oil prices after 2010. This relationship is particularly visible near the 2014 oil price shock, as oil prices acted as a leading indicator for nominal GDP dynamics, which fell with a lag. The link, in nominal terms, has weakened since the all-time low was reached for oil prices in 2016. However, the two series, when measured both in real and nominal terms and in levels and changes, continue to exhibit positive correlation, with oil prices still being a powerful predictor for the GDP dynamics.

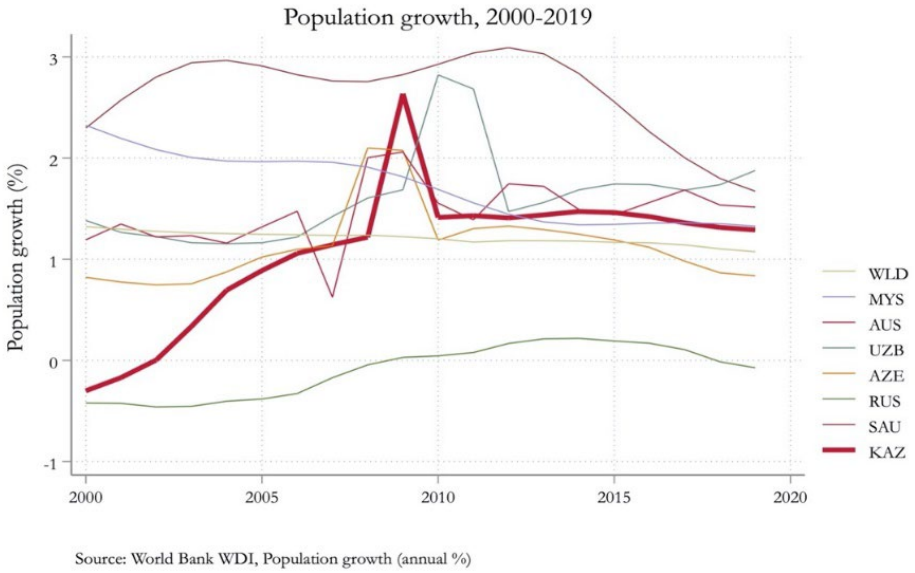
Figure 3.7



Engines of Growth: Population Growth

Headline GDP growth has been supported by moderate population growth over the last twenty years. In the early 2000s**,** Kazakhstan's population growth was low or even negative, in contrast with peers that grew 1.2% per year on average (Fig. 3.8). Population growth increased until 2009 and then stabilized from 2010 around 1.4% per year, putting Kazakhstan in the middle of the peer group distribution.

Figure 3.8



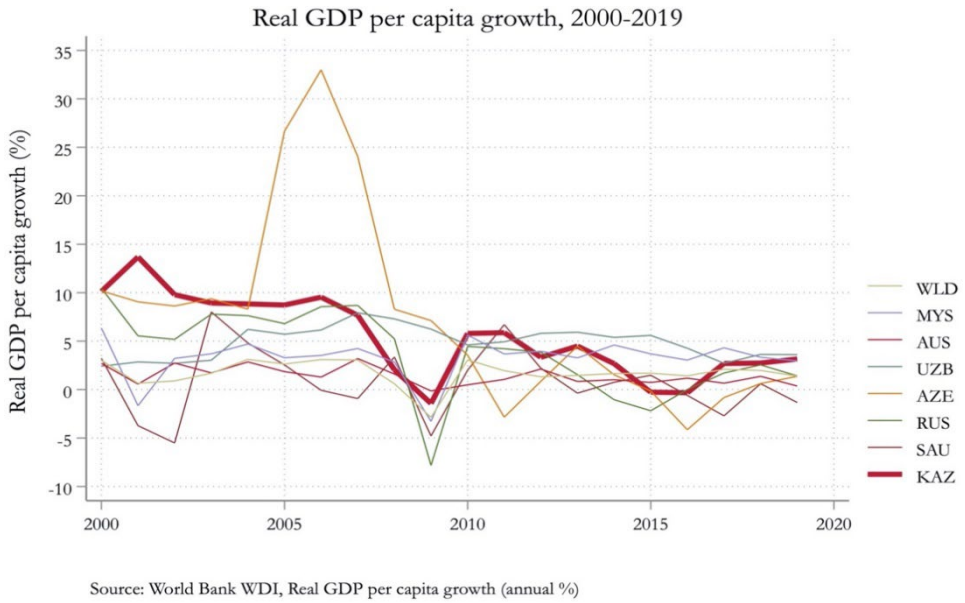
Source: World Bank WDI, Population growth (annual %)

The resulting GDP per capita growth shows strong dynamism, tripling between 2000-2019. Between 2000-2019, real per capita GDP grew at a compound rate of 5.4%, which is more than three times as high as the world average of 1.7%. The early 2000s experienced the strongest growth in per capita terms as well, as real per capita GDP grew 8.7% per year from 2000 to 2008. The 2008 Global Financial Crisis and subsequent collapse in oil prices led to a -0.8% per capita contraction in 2009, compared to the world average of -2.9%, but the economy quickly rebounded, and real per capita GDP grew at a compound rate of 4.9% over 2010-2013. Over the same period, the world grew at a compound rate of 1.9%.

Like headline growth, per capita growth has slowed down since 2014. Over 2014-2016, real GDP per capita growth averaged 0.7%, in large part due to the crash in global oil prices,[19] while the world grew at the average rate of 1.6%. Before 2014, Kazakhstan was one of the leaders in the GDP per capita growth in Europe & Central Asia (second only to Azerbaijan and Russia during between 2007-2009); however, after the slump it was on par with the region. Per capita growth rates recovered thereafter, reaching 2.9% between 2017-2019, below the early 2000s level and the pre-2014 trend.

[19] As the Brent price of oil went from $112/bbl in June 2014 to $31/bbl in January 2016, Kazakhstan suffered from a downturn as did other oil-exporting countries. US Energy Information Administration, "Europe Brent Spot Price FOB."

Figure 3.9



Source: World Bank WDI, Real GDP per capita growth (annual %)

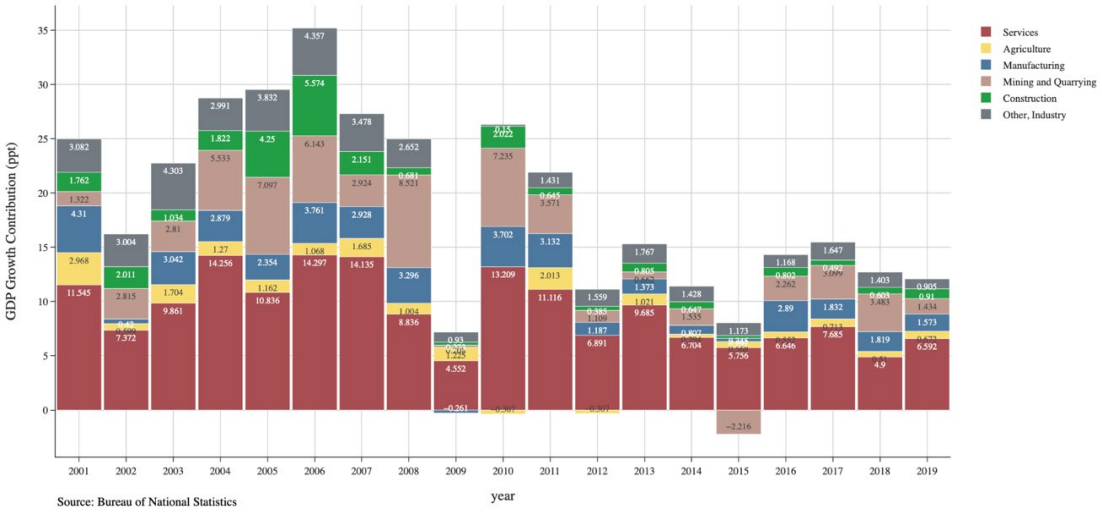
Engines of Growth: Non-Tradable Activities

Growth decomposition by industry highlights the importance of non-tradable sectors, including most services. Services comprised 51.1% of GDP in 2019 and grew by 11.9 ppt between 2000-2019, closely following oil price dynamics. Since services' contribution to the nominal GDP growth is tightly linked to the oil super-cycle (Fig. 3.10), it might indicate that value creation in the oil and gas sector generated demand for the non-tradable services and non-tradable sectors, such as wholesale and retail trade. Exports composition and net exports' contribution to real GDP growth show that the oil boom years were not marked by the development of non-oil exportable goods or services, as discussed in more detail below. Tradable services did not seem to grow on par with the services sector overall, since payments received for services rendered to overseas residents and companies as a share of GDP has been decreasing from around 6% to 3.15% during the 2000-2008 years, falling even further during the rebound of oil prices between 2010-2014.[20]

[20] The Economist Intelligence Unit.

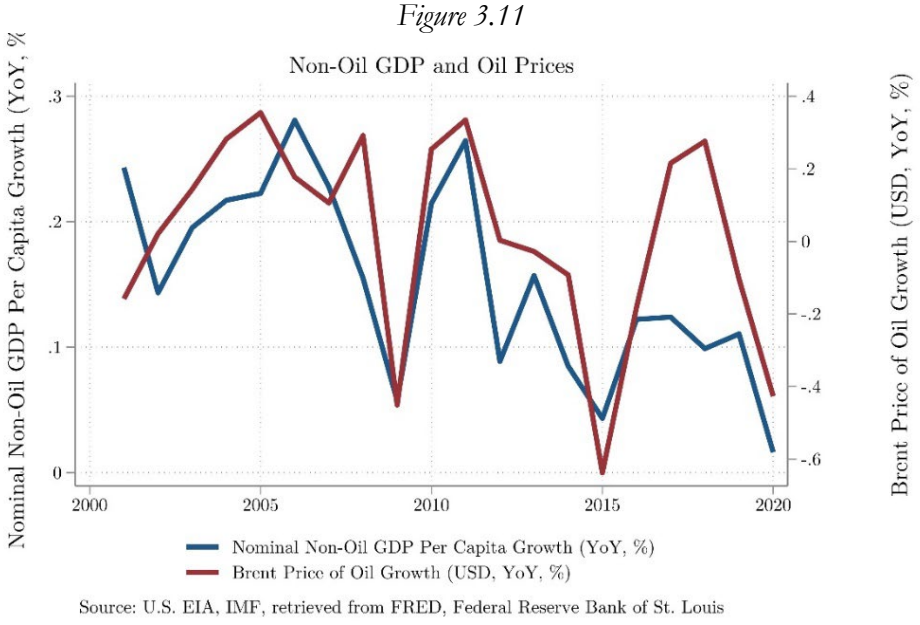
Figure 3.10

Nominal GDP Growth Composition by Industry, 2001-2019



The growth of non-tradable sectors is heavily correlated with the dynamics of oil as well. While tradables are driven by oil and at times constrained by the global price of oil, the non-tradable economy is mainly bound by domestic demand. When domestic demand is strong, the non-tradable portion of the economy grows. Domestic demand in Kazakhstan is, in turn, heavily dependent on oil income being spent by the government. When there is an oil boom (e.g., between 2000-2008 and between 2009-mid-2014), the government tends to spend it procyclically and the non-tradable portion of the economy (e.g., services) responds by expanding.

Figure 3.11



A sectoral breakdown confirms the co-movement of non-tradable sectors with the mining sector. Fig. 3.12 below shows demeaned correlation between the nominal gross value added (GVA)

by each sector. One would expect all sectors to have some general baseline correlation with each other due to economy-wide trends (e.g. population growth, overall growth trend and inflation). The chart calculates the average correlation between sectors between 2000-2020 and subtracts this from the raw correlation between sectors. The result is in line with the observation above: non-tradable sectors such as retail, construction, accommodation and food are more correlated with the mining sector than the average correlation between any two sectors. When the mining sector grows, domestic demand is strong, and this leads to an expansion of non-tradables.

Figure 3.12

Pearson Correlation: Year-On-Year Nominal GVA Growth by Sector, 2000-2020

	Accommodation and Food	Agriculture	Construction	Education	Electricity, Gas, Water Supply	Finance and Insurance	Manufacturing	Mining and Quarrying	Public Administration	Public Health	Real Estate	Wholesale Trade and Repair of Vehicles
Accommodation and Food		-0.245	0.079	-0.148	-0.050	-0.149	0.008	0.238	-0.014	-0.362	0.096	0.362
Agriculture	-0.245		-0.277	0.120	-0.062	-0.248	-0.075	-0.403	-0.159	0.193	0.319	-0.183
Construction	0.079	-0.277		0.041	-0.145	0.350	0.048	0.263	0.045	-0.141	0.047	0.102
Education	-0.148	0.120	0.041		0.118	-0.251	0.143	-0.087	0.457	0.568	-0.106	0.133
Electricity, Gas, Water Supply	-0.050	-0.062	-0.145	0.118		-0.223	0.244	-0.005	-0.205	0.065	-0.303	0.113
Finance and Insurance	-0.149	-0.248	0.350	-0.251	-0.223		-0.144	-0.156	-0.223	-0.224	0.090	-0.115
Manufacturing	0.008	-0.075	0.048	0.143	0.244	-0.144		0.288	-0.100	0.048	-0.203	0.343
Mining and Quarrying	0.238	-0.403	0.263	-0.087	-0.005	-0.156	0.288		0.056	-0.290	-0.088	0.360
Public Administration	-0.014	-0.159	0.045	0.457	-0.205	-0.223	-0.100	0.056		0.270	-0.202	0.268
Public Health	-0.362	0.193	-0.141	0.568	0.065	-0.224	0.048	-0.290	0.270		-0.178	-0.007
Real Estate	0.096	0.319	0.047	-0.106	-0.303	0.090	-0.203	-0.088	-0.202	-0.178		-0.102
Wholesale Trade and Repair ..	0.362	-0.183	0.102	0.133	0.113	-0.115	0.343	0.360	0.268	-0.007	-0.102	

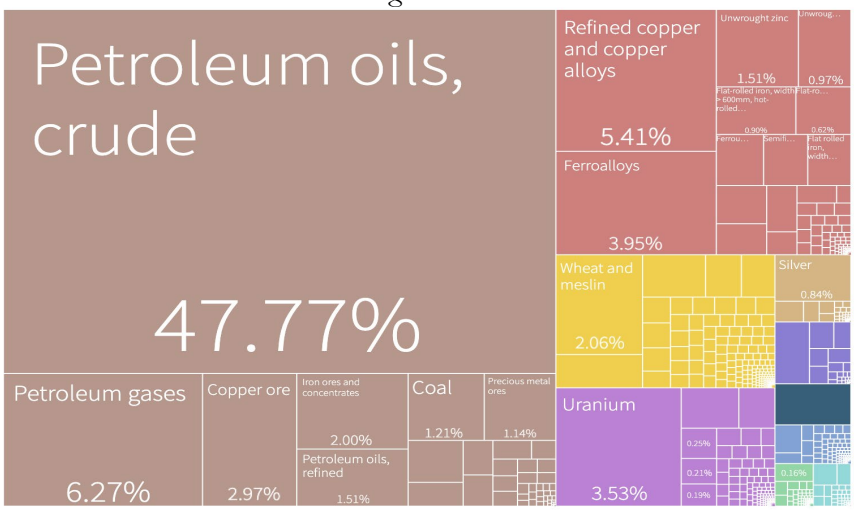
Note: Correlation coefficients are demeaned such that the coefficients displayed in the table are relative to the average correlation between sectors, which is 0.2753091.
Source: Kazakhstan Bureau of National Statistics.

This history of growth of the non-tradable sector suggests that there is not an obvious factor that constrains the growth of non-tradables other than domestic demand. It appears likely that a combination of factors will lead to high oil prices for some time, as the impacts of the pandemic subside, as geopolitical tensions increase risk and lead to supply disruptions, and as oil output remains bound by low investment in recent years. Under such circumstances, one might expect non-tradables to grow in tandem with the nation's oil income. The absence of such growth could signify two things: either the non-tradable sector faces a new constraint or the procyclical relationship between oil income, government spending and the non-tradable sector has weakened.

Diversification challenges

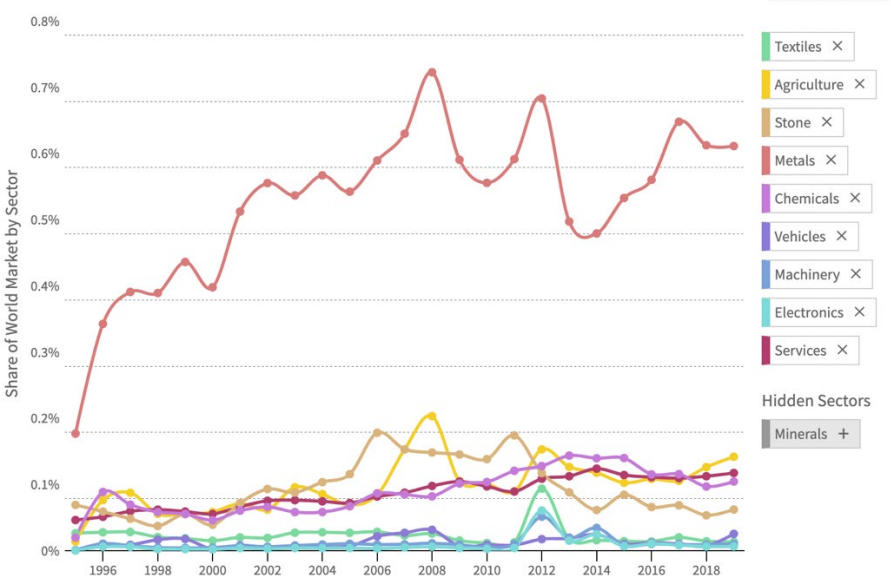
The high-growth years, driven by oil, were volatile and the nonmineral tradable sector remained too small to serve as complementary engines of growth. Nonmineral exports grew most rapidly in the early 2000s. At the outset of the 2000s, nonmineral products made up 47.98% of total goods exports. Between 2000-2014, nonmineral exports of goods expanded by approximately 20% each year and peaked at US$ 21.7 billion in 2012 before a period of stunted export growth. By 2019, gross nonmineral exports of goods stood at US$ 16.2 billion, representing 34.76% of Kazakhstan's total goods exports (Fig. 3.13).

Figure 3.13



Export growth in the nonmineral economy has been concentrated in a few products in the metal and chemical industry, and nonmineral exports are still a relatively small share of the total trade basket. While the country gained global market share in its trade of mineral exports, the share of its global exports of metals, chemicals, and vegetable products was less impressive. Since 2000, Kazakhstan has seen substantive growth in the global market share of its nonmineral products between 2000-2010, with their global market shares almost doubling. However, since the 2010s, these shares have remained low and volatile in their trajectories (Fig. 3.14). Kazakhstan's metal and chemical exports comprised 0.682% and 0.065% of trade in their respective global markets in 2019. Moreover, after the fall in commodity prices in the early 2010s, exports of mineral products also fell and lost global market share, never fully regaining the previous export growth momentum. This trend highlights potential challenges around sustaining long periods of rapid and sustainable growth with a concentrated export basket.

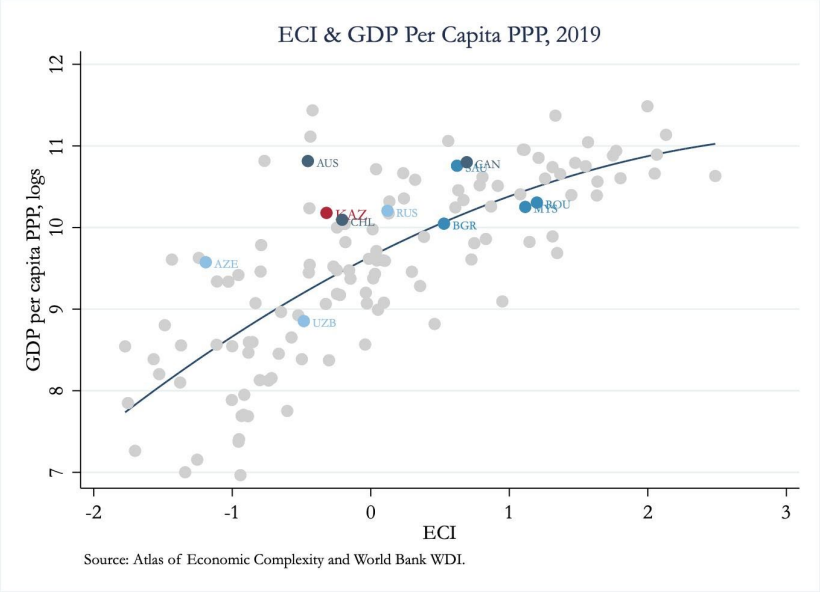
Figure 3.14



Source: Atlas of Economic Complexity

This dominance of mineral exports explains in part why Kazakhstan's ECI is amongst the lowest of its regional and international peers and has declined over time. Kazakhstan's ECI has deteriorated over time between 1996-2010, with a slight improvement and stabilization since then.[21] Its export basket comprises mostly mineral and primary products. This is consistent with the low diversity and high ubiquity of its existing export products. The products with the largest shares of growth tend to be of very low complexity. Kazakhstan's highest complexity exports tend to occupy very small shares of Kazakhstan's export basket and comprise small percentages of global trade. Fig. 3.13 and Fig. 3.15 illustrate how Kazakhstan's low ECI is explained in part by the concentration of commodities in its export basket.

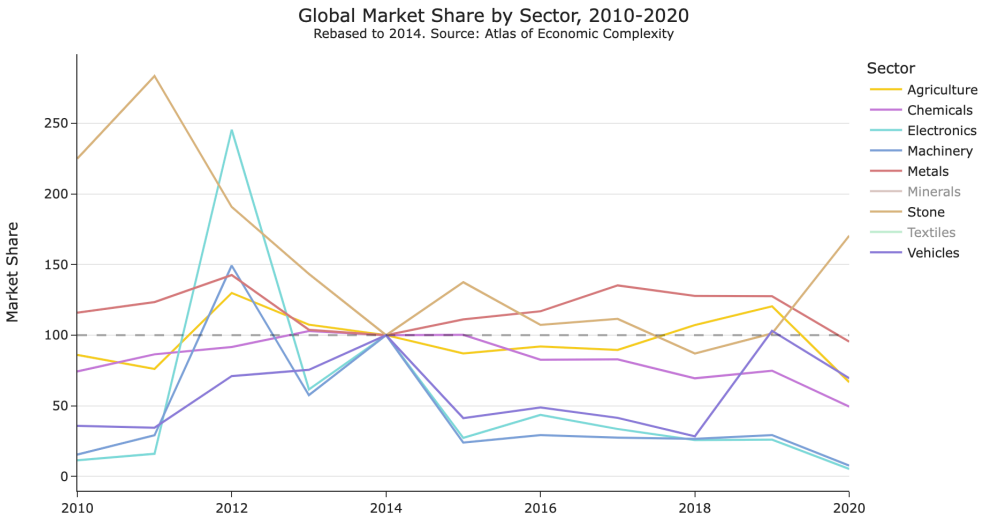
Figure 3.15



Improvements in macroeconomic policy after 2015 failed to stimulate significant new growth in non-oil tradables. There were major macroeconomic policy reforms that were enacted in the aftermath of the oil price shock of 2014. The most important of these was the switch to a floating exchange rate regime and the introduction of an inflation targeting regime as the policy anchor. In Fig. 3.16, global market share of Kazakhstan's exports is listed by sector. Even before the drop in market shares in 2020 induced by the pandemic, Kazakhstan's market share outside metals and agriculture – which are not themselves high complexity sectors – did not increase in a meaningful way.

[21] A country's ECI rank over time will be influenced by the evolution of their own export basket in addition to the changes in the export basket of other countries. Therefore, a change in a country's ECI reflects not only its own trajectory of exports but also that of other countries.

Figure 3.16



Source: Atlas of Economic Complexity

The future of oil and growth

There are still vast reserves of oil in Kazakhstan and investments in oil will continue to be important for the economy. As of 2018, Kazakhstan had proven crude oil reserves of 30 billion barrels, making it the largest proven oil reserves holder in the Caspian Sea region and second largest in Eurasia after Russia. In 2019, the three major oil fields – Tengiz, Kashagan, and Karachaganak – by different estimates accounted for up to 60% of the country's recoverable reserves. Assuming the current pace of extraction and sustained global demand, Kazakhstan endowment can sustain its oil production and exports at current levels for another 142 years. That estimate might increase further considering ongoing exploration of the Kashagan offshore field and a potential decrease in the breakeven oil prices or other technological advances. The historical trend of continuous production volume growth, coupled with several ongoing expansion projects, shows that Kazakhstan is still committed to its natural resources-based economic model. Kazakhstan is also investing in oil processing and refining activities and upgrades are already complete at its three biggest refineries in Pavlodar, Atyrau, and Shymkent.[22] Finally, the government is planning to further increase the attractiveness of the sector by encouraging investments through stimulating foreign inflows and simplifying the Tax Code.[23]

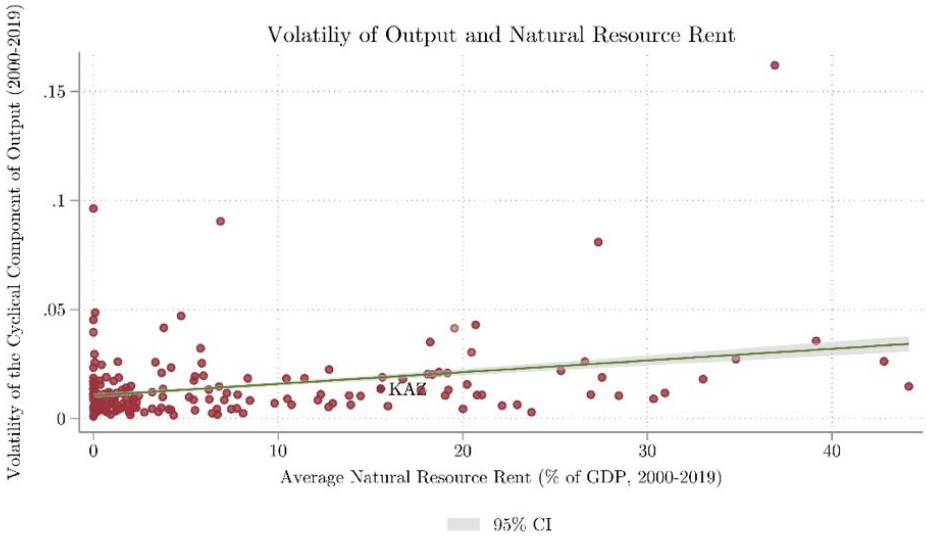
There is, however, increased uncertainty about future global demand and price dynamics. Global trends towards decarbonization, especially salient in developed economies, might shift the global oil demand curve and create a more adverse environment for the extractive sector. Compared to 2019 volumes, oil demand is projected to fall by 15% in the 2030s and by 27% in the 2040s on average across different scenarios, going to as low as -75% by 2050 in a Net Zero Scenario. Still, there is little consensus on the future of the oil market, as the range of oil price forecasts spans from a -61% drop to a 169% increase by 2050, compared with 2019. The wide range of these

[22] International Trade Administration, "Energy and Resource Guide: Oil and Gas – Kazakhstan."; International Comparative Legal Guides (ICLG), "Kazakhstan: Oil & Gas Laws and Regulations."
[23] U.S. Bureau of Economic and Business Affairs, "2018 Investment Climate Statements: Kazakhstan."

projections by itself makes dependence on oil riskier and highlights the renewed importance of diversification efforts.

Moreover, reliance on oil introduces volatility given movements in commodity prices. Fig. 3.17 plots the volatility of output (specifically measured as cyclical deviations from the long-run trend as determined by an HP-filter) against the contribution of natural resources to GDP. There is a meaningful correlation between the two – commodity prices are volatile, and if a larger share of the economy is directly dependent on selling commodities, then output will be volatile unless the country in question adopts measures to smooth natural resource income across generations. For such intergenerational smoothing, countries follow fiscal rules and aim to invest FX earning from natural resources abroad via sovereign wealth funds. Kazakhstan and other countries have sovereign wealth funds to that end; however, the data below shows that empirically some volatility is still passed on to the economy.[24]

Figure 3.17



Source: World Bank WDI.
Note: Each dot represents a country. Volatility is measured with standard deviation.

The combination of facts above gives us the growth problem and the corresponding growth question, which will orient our diagnostics. The non-tradable economy in Kazakhstan is largely bound by domestic demand, which in turn is dependent on government spending on the back of oil revenues. Past growth in Kazakhstan has been highly reliant on oil, while the country's diversification efforts have stalled, because these efforts have not been able to address all the pillars of the growth syndrome that we identify in this document. The reliance on oil introduces volatility and the need for global decarbonization implies oil does not have promising long-run prospects. In the long-run Kazakhstan has to smooth its oil income across time, instead of spending it procyclically. This means that new non-oil tradable products must serve as the engine of growth in the future. In addition to growing the tradable sector, this will also help expand domestic demand in a sustainable way to support the growth of non-tradables. ***In light of this, how can Kazakhstan foster the growth of its non-oil tradables, which have failed to expand despite steps taken in that direction?***

[24] This may be because the fiscal framework is not sufficiently countercyclical to achieve intertemporal smoothing or an alternatively an argument could be made that the re-valuation of a country's natural endowment is causing such volatility even in the presence of a strong fiscal framework.

4. Overview of the Growth Syndrome

In this section, we suggest a preliminary growth syndrome, which attempts to serve as a narrative and explanatory synthesis of the main symptoms observed in the various branches of the growth diagnostic. The growth syndrome has two main objectives. First, it aims to recognize the complex interplay between the dynamics observed in individual diagnostic branches, which could be overlooked if only examining each policy area in isolation. In doing so, the growth syndrome illustrates how a general equilibrium that may be sub-optimal in terms of growth characteristics persists over time. Second, the growth syndrome strives to connect the observed symptoms to their underlying and sometimes unobservable causes. This is essential to provide a strong basis for a "treatment" of the syndrome, i.e., to inform the design of relevant and effective, country-specific policy initiatives that will address the adverse dynamics hampering sustained and inclusive growth.[25]

The growth syndrome that we outline below is one possible interpretation of the symptoms that were observed throughout the growth diagnostic. While the growth diagnostics methodology is a time-tested approach largely based on objective economic tests for constraints, there are inherent elements of subjectivity in attempting to formulate an overarching interpretation in the form of a growth syndrome. The quality of that interpretation is also bounded by the availability and accessibility of data, as well as by the existence of idiosyncratic phenomena for which there are limited widely recognized frameworks for analysis.

The growth syndrome that Kazakhstan's economy is facing today could be summarized as "stacked odds against diversification." We ultimately trace the difficulties observed in successfully growing Kazakhstan's non-oil economy back to three defining features of Kazakhstan's overall economy, society, and geography and discuss how these features interact with each other, the existing policy framework and exogenous dynamics. These defining features include:

- **The oil and gas endowment** – In attempting to diversify its economy beyond oil and gas, Kazakhstan has faced difficulties that are similar to well-documented challenges common to most countries that are endowed with oil and gas or other natural resources.[26]
- **The Soviet legacy** – Kazakhstan is a young country. As many countries that have gained their independence in the past few decades, many key features of its economic structure, infrastructure and institutions are still partly shaped by pre-independence arrangements.
- **Geographic constraints** – Kazakhstan's large territory, sparse population, and remote geographic location pose unique challenges in terms of logistics, infrastructure, spatial inclusion, access to inputs and markets, and the local provision of adequate public goods.

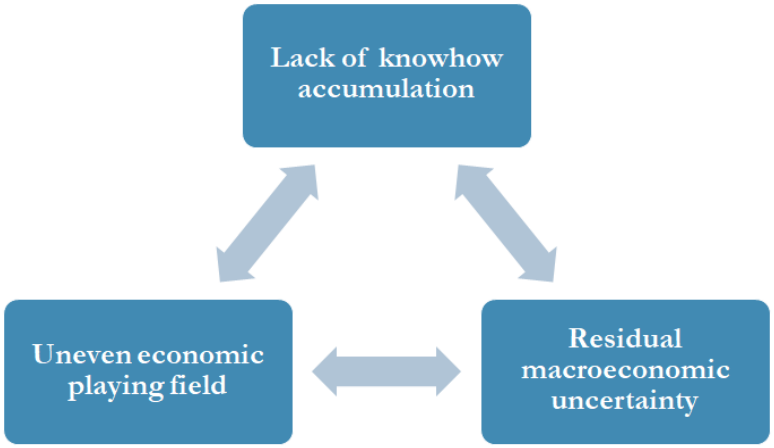
These three defining features, through their individual effects and their interactions, constrain the development of a successful non-oil economy. They constitute the root causes behind the following three main symptoms:

- **Macroeconomic instability**, manifesting in the form of a currency risk, persistent inflation, and ultimately contributing to a high unsubsidized cost of finance and a general lack of confidence in future macroeconomic dynamics;

[25] Inputs for the design of policy initiative geared at addressing the suggested syndrome will be further outlined in the forthcoming *Summary Report and Inputs for Policy*.
[26] While Kazakhstan's territory is rich in other mineral resources beyond hydrocarbons, we largely focus here on the singular effect of oil due to its weight in the export basket and historical role in driving growth dynamics.

- **An uneven economic playing field for private businesses**, resulting in diminished opportunities for enterprise creation as well as disincentives to scaling up and investing in improvements to productivity;
- **Difficulties in acquiring productive capabilities, agglomerating them locally, and accessing export markets.** This creates barriers to the development of complex economic activities, raising the bar for economic diversification efforts to prove successful.

Figure 4.1



The macroeconomic effects of oil: from classic Dutch disease to macroeconomic uncertainty

Kazakhstan's natural resources endowment, especially in oil and gas, presents a potential barrier to building an outward-looking, successful non-oil economy. Although there is no denying that the natural resource wealth that the country can rely upon has been instrumental in modernizing the country and improving the population's living standards,[27] it has also introduced several challenges.

Oil exports have had adverse macroeconomic effects on the growth of non-oil tradable activities ("Dutch disease"), which have only partly been addressed. The adverse effect that has already largely been addressed is the real over-appreciation of the local currency, which under the pre-2015 fixed exchange rate regime penalized the external competitiveness of non-oil tradable activities and encouraged imports. The currency over-appreciation ended in 2015 when the exchange rate regime was changed to a floating regime, leading to a sharp currency depreciation. In combination with an update to the fiscal rule funding the NFRK, this resulted in an exchange rate that is now seen as broadly in line with fundamentals.

The effect that has not yet been fully addressed is the fiscal deficit, partly driven by insufficient countercyclical government spending. **The combination of a free float currency and inflation targeting regime with incomplete fiscal reform has proven sub-optimal**, and the resulting equilibrium has seen an elevated currency risk premium and persistent inflation. This encouraged restrictive monetary policy and also resulted in high lending rates.[28] The government has responded

[27] The improvement in living standards is much less obvious since 2015, motivating the search for a new growth model.
[28] Effective lending rates faced by corporate and household borrowers are however significantly lower due to interest rate subsidies.

to tightness in financial markets with subsidies and to the economic pressures that the country has been facing since the 2014 oil price shock with an expansionary fiscal stance.

The political economy of oil, concentrated power and an uneven economic playing field

The natural resource endowment may have encouraged economic concentration. The geographic concentration of natural resources, the limited reliance of the extractive sector on the domestic workforce and their extraction in cooperation with large foreign companies made the mineral sector prone to control by centralized public institutions or well-connected private players (outside of oil and gas). This contributed to the emergence of powerful state-owned enterprises and a few large private, often politically connected, firms.

Kazakhstan's transition from Soviet Republic to independence may have compounded these concentration dynamics. Through its orderly and largely peaceful transition, Kazakhstan evaded the domestic conflicts that plagued some if its neighbors, providing the necessary stability for the development of some building blocks of a functioning market economy and cohesive society. This continuity of power may however have reinforced the dynamics that are often associated with concentration of power in countries with natural resource rent, further centralizing economic clout and economic opportunity.[29]

These two factors contributed to creating a restricted and uneven economic playing field. SOEs make up a major part of Kazakhstan's economy. On the supply side, SOEs' direct economic weight in terms of employment, value added, and exports constrains the space available for private enterprise. In terms of demand, SOEs also are major players through public and quasi-public procurement. The reach of para-public entities, possibly combined with the existence of small and powerful personal networks, is likely to have created an environment constraining the development of enterprise by private, unconnected actors. Risks to property rights, the outsized role played by SOEs and preferential access to public or quasi-public procurement are the main micro-risks identified during our research, but several other micro-risks are also present in the economy (e.g., policy uncertainty, corruption, bureaucracy and "elite capture"). While several reforms have targeted policy uncertainty and corruption, their impact has yet to encourage broader private sector participation in the economy.

Factors in the lack of knowhow accumulation

Kazakhstan's natural resource endowment, historical and geographic factors, and policy constraints contribute to difficulties in acquiring productive capabilities, agglomerating them locally, and accessing global markets. Because pre-independence economic and spatial development was driven by centralized planning, it is likely that the pre-1991 productive base provided a very difficult starting point for further development in a market economy context. Capabilities that used to be assembled as part of a larger economic unit were now separated. Accordingly, the legacy infrastructure was also designed to serve the needs of a Russia-centric, planned economy. In the years after independence, emigration flows may have resulted in the additional loss of skills and capabilities.

The dominance of the oil economy in a context of an over-appreciated real exchange rate also contributed to the loss of productive capabilities. Because of the pull of profitable extractive activities and the lack of external competitiveness of non-extractive activities at least up to 2015, it is

[29] Frankel, "The Natural Resource Curse: A Survey of Diagnoses and Some Prescriptions."

likely that further capabilities were lost during that period, aggravating the diversification problem despite policy efforts to counter this.

Kazakhstan's unique geographic features also contribute to difficulties in the development of complex or export-oriented economic activities, effectively raising the bar for successful economic diversification. The country's relative remoteness from large economic centers constitutes a drag on economic diversification efforts. While Kazakhstan is geographically positioned between three large blocks (Western Europe, China and Western Russia), it is distant from all. This creates difficulties and higher costs in acquiring the right inputs to production, including goods, services, but also in attracting FDI and skilled labor, i.e., new productive capabilities.

Current immigration policies also contribute to challenges sourcing new knowhow, by restricting the number and length of stay of high-skilled workers. In addition, the attractiveness of Kazakhstan among international high-skilled workers might be low, further reducing access to diversification-related knowhow. While the supply of skills to the existing economy seems sufficient in quantity, growing concerns on the quality and composition of those skills suggest future constraints in the efficient supply of these skills both to complement foreign talent in generating new economic activities and to meet the demand of a skills-biased economic growth.

The combination of these features creates a coordination problem in which solving one issue is disincentivized by the existence of the other two: the demand for more knowhow is constrained by macroeconomic uncertainty and the uneven playing field, which deters private actors from expanding into new non-oil tradable products. The uneven playing field goes unchallenged and markets remain uncompetitive in the absence of macroeconomic certainty and firms that can agglomerate knowhow and capabilities. Finally, macro-economic uncertainty is aggravated by the non-existence of a non-oil tradable growth engine, which in turn would require complex knowhow and a level playing field.

5. Detailed Analysis of Constraints

This section describes more deeply the dynamics underlying the three symptoms of Kazakhstan's growth challenge as presented in the previous section. Section 5.1 describes the macroeconomic and fiscal challenge in Kazakhstan; Section 5.2 focuses on the skills shortage underlying human capital constraints; Section 5.3 investigates constraints in infrastructure and land; Section 5.4 presents on government failures in the areas of rule of law, elite capture, and taxes.

5.1 Macroeconomic and Fiscal Framework

Kazakhstan's Macroeconomic and External Imbalances

External developments are key to Kazakhstan's macroeconomic framework. Classification of exchange rate regimes is a non-trivial matter. Not only do de jure classifications differ from the regime that is followed de facto, but different sources can differ in how they classify de facto exchange rate regimes. With this crucial caveat in mind, it is important to review the history of KZT. From April 1999- September 2007, Kazakhstan had a managed float and then from October 2007-July 2015 it had a number of different fixed exchange rate regimes. For our purposes we can consider the entire period from April 1999-July 2015 as the country having a fixed exchange rate and with true floating of the Tenge starting in August 2015. This is a fair assumption to make before the period of managed floating had a high level of central bank intervention. It was also during this time period that both the absolute value of the mean and the standard deviation of month-on-month devaluation in the managed float period is smaller than that of the de jure fixed exchange rate period.

The National Bank of the Republic of Kazakhstan faced pressures that emanated from the oil price shock in 2014. In response to increased oil production from unconventional oil production (e.g. US oil production), oil prices started to decline in the summer of 2014. The decline in oil prices initially led the Brent price of oil from $111.80/bbl in June 2014 to $77.4/bbl as of November 26, 2014, the day before OPEC's fateful meeting.[30] Before the meeting, OPEC's response was eagerly anticipated. Traditionally oil producers respond to falls in the Brent price like this with cuts to oil production; however, OPEC decided not to cut production. Their logic was simple: OPEC believed they could push unconventional oil producers out of the market because of high breakeven costs. This turned out to be a strategic mistake. As unconventional oil producers were able to cut costs, the Brent price of oil would eventually reach $30.70/bbl in January 2016. In this context, commodity exporters faced significant losses of foreign exchange inflows.

Facing pressures from the oil price and from Russia's decision, the central bank of Kazakhstan decided to float the Tenge in August 2015 and chose inflation targeting as its policy anchor. As different oil exporters around the globe were crafting different combinations of policy responses decisions around the globe, Kazakhstan faced an added pressure. In November 2014, the Russian central bank decided to abandon the trading corridor for the Ruble and let the currency float freely.[31] This decision left the National Bank of Kazakhstan in a difficult position: KZT was appreciating against the Russian Ruble, which constituted a problem for the external balance since Russia is one of Kazakhstan's largest trading partners. At the same time, the Tenge was facing pressures to devalue against the US dollar, which has implications for financial stability and is a key benchmark for Kazakhstan's trade with countries outside the post-Soviet bloc. Even though the exchange rate still faced interventions from the central bank, there was significant nominal and real

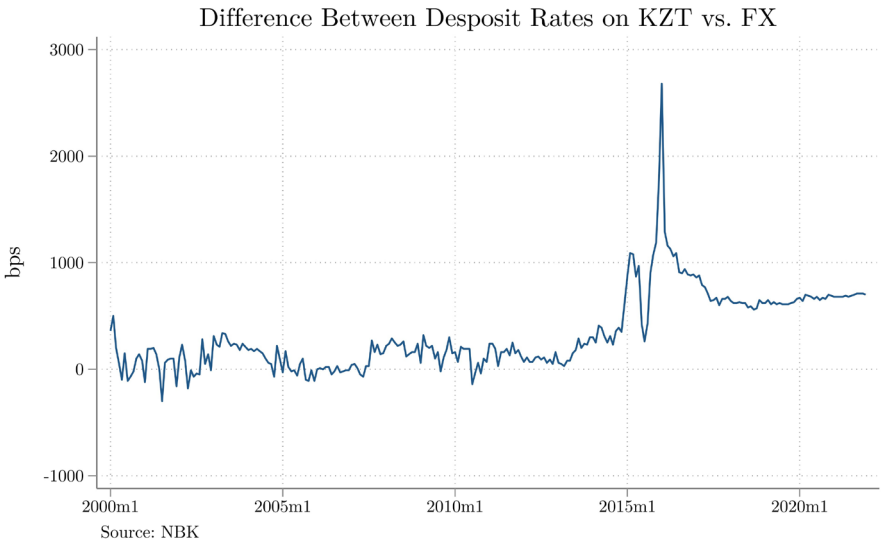
[30] US Energy Information Administration, "Europe Brent Spot Price FOB."
[31] Reuters, "Russian Central Bank Abandons Rouble Trading Band, Floats Rouble."

depreciation following this decision.[32] After the exchange rate was floated, inflation targeting became the main policy anchor.

The new regime has shown a number of advantages. Year-on-year inflation was brought down from 17.7% in July 2016 to 4.8% as of March 2019. As this decline inflation took place, inflation remained within the target band, which was gradually adjusted to 4-6% in 2019. When inflation inched up to 5.4% in the middle of 2019, the National Bank of Kazakhstan hiked the policy rate even as many countries were starting an easing cycle. This helped keep inflation within the target band until the onset of the COVID-19 pandemic. Results on the inflation have been less satisfactory since 2019. The new regime has also resulted in a relatively stable real effective exchange rate after the initial real depreciation following the decision to float the Tenge.

The post-2015 floating exchange rate regime with inflation targeting has also posed a number of problems. The fixed exchange rate regime for all its faults (i.e. overappreciation) provided a type of insurance to those holding the Tenge. Before July 2015 when the exchange rate was fixed, the difference between deposit rates on KZT deposits and foreign exchange deposits averaged 1.49% (Fig. 5.1.1). The difference between deposit rates on KZT and foreign exchange deposits increased to 7.59% in the period since. Given the decomposition of interest rate differentials, this can be attributed to the currency premium, which includes both expected depreciation, and the risk premium associated with the uncertainty of depreciation. In the period from January 2000-July 2015, average annualized nominal effective exchange rate (NEER) depreciation was 0.37%, which indicates significant stability. (Table 5.1.1) In the aftermath of the decision to float the tenge, since 2015 depreciation of NEER averaged 4.57%. This means that the deposit rate difference widened by 6.1 percentage points while depreciation only increased by 4.2 percentage points. The 1.9 percentage point difference between the two can be attributed to increased risk premium.

Figure 5.1.1. Difference between deposit rates on KZT vs. FX



[32] "Kazakhstan's Tenge Returns to Free Float."

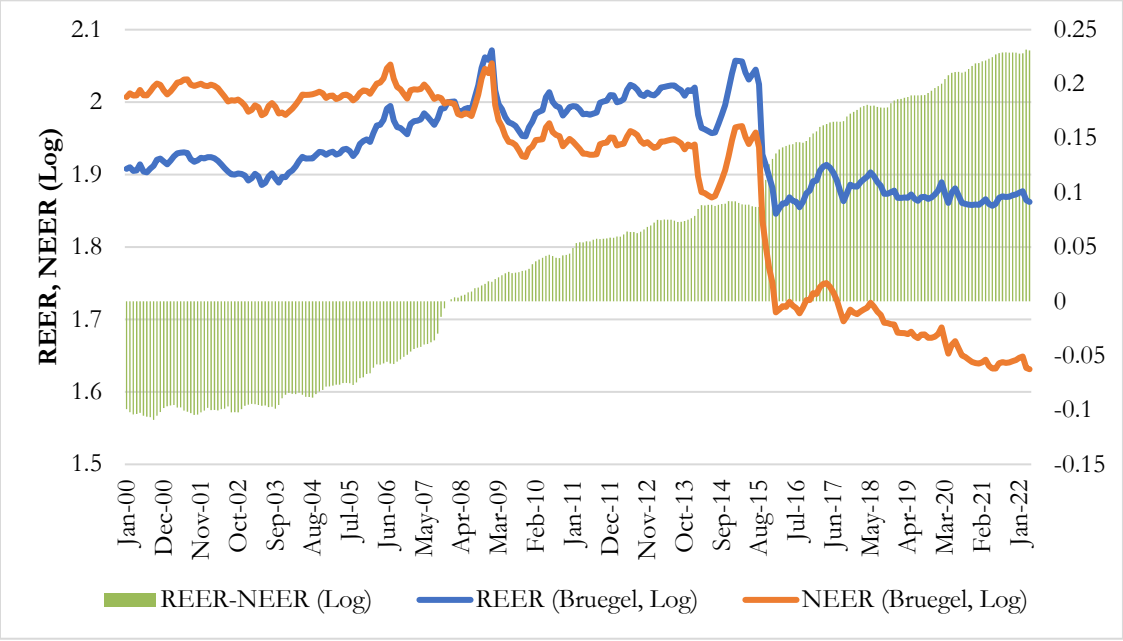
Table 5.1.1. Average differences between deposit rates on KZT vs. FX

	MoM REER Depreciation (Annualized)	MoM NEER Depreciation (Annualized)	Difference Between MoM REER and NEER Depreciation	Difference Between KZT and FX Deposit Rates
Average: January 2000-June 2015	0.85%	-0.37%	1.22%	1.49%
Average: July 2015-onwards	-2.54%	-4.57%	2.12%	7.59%

Source: Bruegel

What is also notable is the bias towards nominal depreciation which reflects asymmetry of exchange rate policy: even when the oil price increases, there are very few cases of nominal rate appreciation. As seen in Fig. 5.1.2, the nominal exchange rate mainly has episodes of nominal depreciation, while there are no noticeable episodes of appreciation. Given that the Brent price of oil fluctuates both upwards and downwards, and given that it heavily impacts Kazakhstan's balance of payments and thereby the exchange rate, one should see some episodes of appreciation. More specifically, when there are big episodes of oil price dropping (e.g. 2015 or 2020) USDKZT depreciates but when oil goes from $40 to $110 there is no nominal appreciation (e.g. in 2017-2019 or 2022). Secondly, the real effective exchange rate is remarkably stable post-2015, whereas before then it had an appreciating trend.

Figure 5.1.2. Nominal vs real exchange rate in Kazakhstan

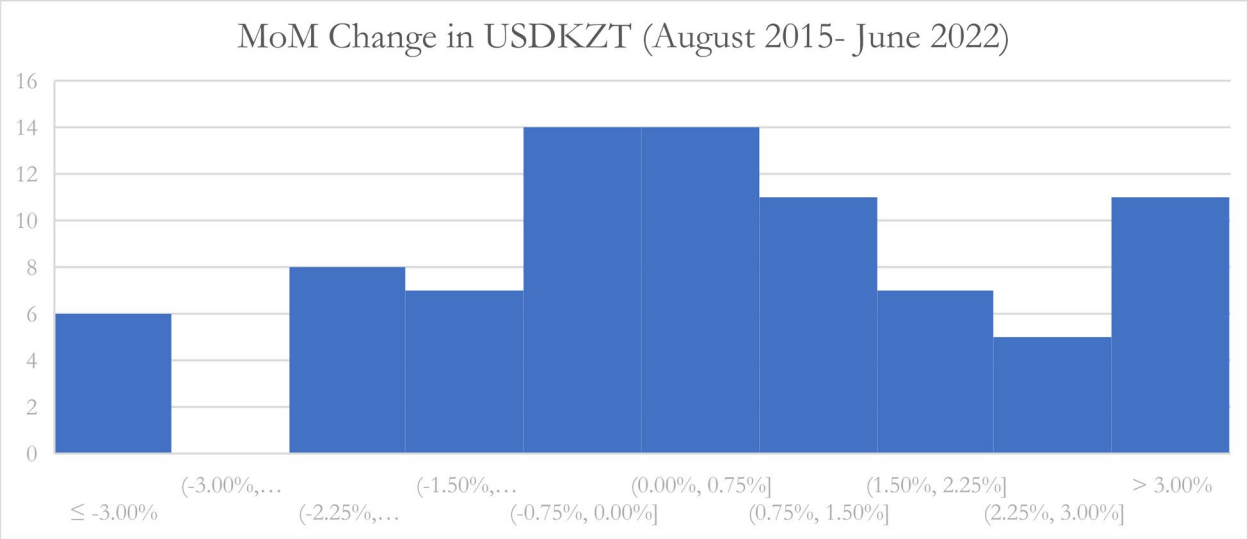


Source: Bruegel

The positive inflation targeting therefore leads to skewing the changes towards depreciation, which we can see even more clearly if we look at the distribution of month-on-month depreciation and the month-on-month change in the Brent Price of Oil. As Fig. 5.1.3(a) and 5.1.3(b) show,

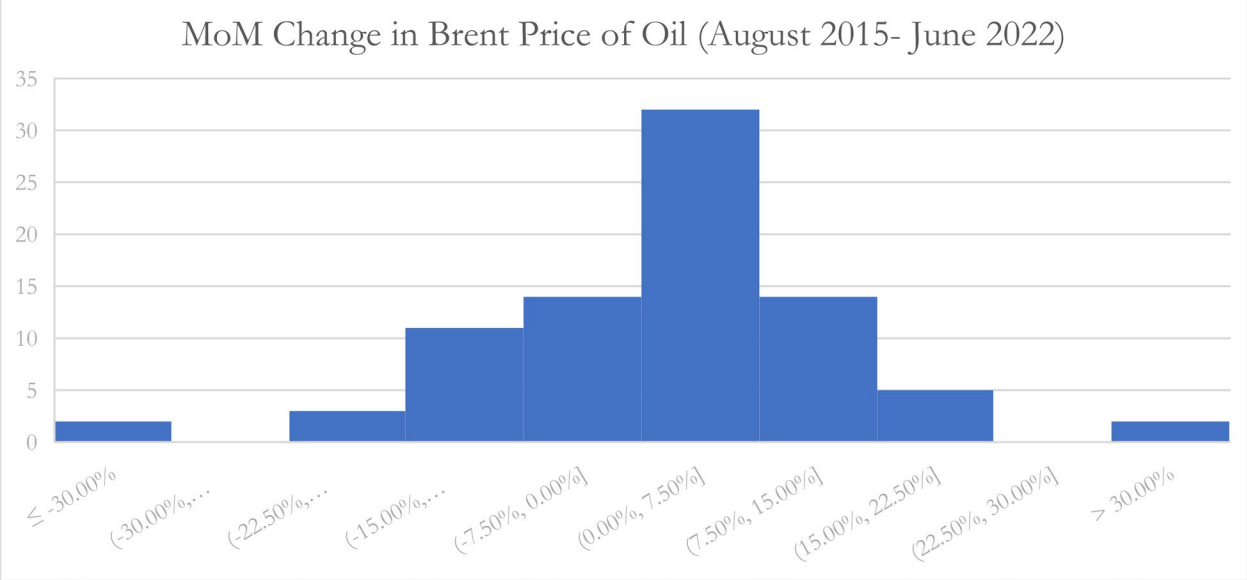
depreciation is not uniformly distributed. There are more instances of depreciation than appreciation and as Table 5.1.2 shows, even when one uses quarterly averages, which clears some of the noise, there is a positive bias towards depreciation.

Figure 5.1.3(a). MoM Change in USD/KZT



Source: The Economist Intelligence Unit

Figure 5.1.3(b). MoM Change in Brent Price of Oil



Source: The Economist Intelligence Unit

Table 5.1.2. YoY Change in Exchange Rate and Brent Price Oil Summary Statistics

	(2015Q3-2022Q1)				
	YoY Change in USDKZT	YoY Change in Brent Price of Oil	YoY Change in Real Budget Expenditures	Inflation	Policy Rate
Mean	0.15900771	0.103076	0.037163	0.081064	0.105841
Standard Deviation	0.25682833	0.445551	0.115354	0.033718	0.022153
Skew	2.0127901	0.804829	0.297777	1.679776	1.539642
Kurtosis	3.1606788	0.62359	0.951638	2.214287	1.431408

Source: The Economist Intelligence Unit

The Dual Anchor Problem as a Driver of the Risk Premium

One explanation for a widening of the risk premium by 1.9 percentage points after exchange rate was floated are the disparities between the ruble and the US dollar, two currencies that Kazakhstan's economy is tied to. Kazakhstan's economy has key ties to Russia, which go beyond shared fundamentals regarding oil. Russia had 13.3% share in Kazakhstan's import basket and 34.3% share in the country's export basket in 2020.[33] Beyond simple trade links and the law of one price, value chains and financial systems are closely linked as well. Goods made in Kazakhstan are likely to have Russian inputs or inputs that transit through Russia and many firms have ties (e.g. ownership) to Russia. For these kinds of reasons, fundamentally the shocks that the two economies face are often symmetrical (when Russian economy is doing well the Kazakh economy does well too). At the same time the US dollar has key importance for Kazakhstan because oil is priced and invoiced in USD and because there is an important history of deposit dollarization, which peaked at 79.6% in January 2016 and most recently stood at 36% as of December 2021.[34] There are competing optimal currency area (OCA) reasons for KZT to follow the ruble and the dollar; however the two currencies do not move together. The tension between these two dual anchors for KZT creates a structural problem that became more relevant once KZT started floating and is contributing to the widening of the currency premium.

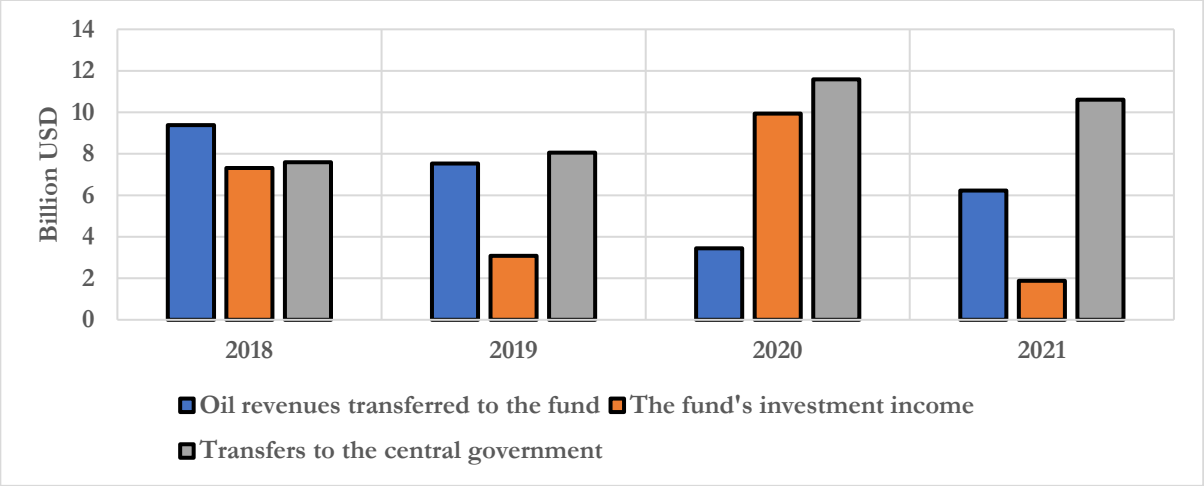
Lack of Fiscal Discipline as a Secondary Driver of the Risk Premium

While the NFRK seems to have played a countercyclical role during downturns and the fiscal framework has been an important step in the right direction, Kazakhstan's FX inflows from the oil sector are still volatile (Fig. 5.1.4). In an ideal world, while oil revenues fluctuate, the investment income can be expected to be relatively smooth. Part of the issue at hand is that the fund's

[33] The Growth Lab at Harvard University, "The Atlas of Economic Complexity."
[34] Asian Development Bank, "National Fund of the Republic of Kazakhstan."

investment income does not appear to be as stable as is optimal. We understand that more work on NFRK transfers is being conducted and that there is a new rule for NFRK transfers coming into effect in future fiscal years. This new rule can be an important step in the right direction as it would help smooth oil transfers by setting a formula that counterbalances the volatility of oil prices.

Figure 5.1.4. NFRK Transfers

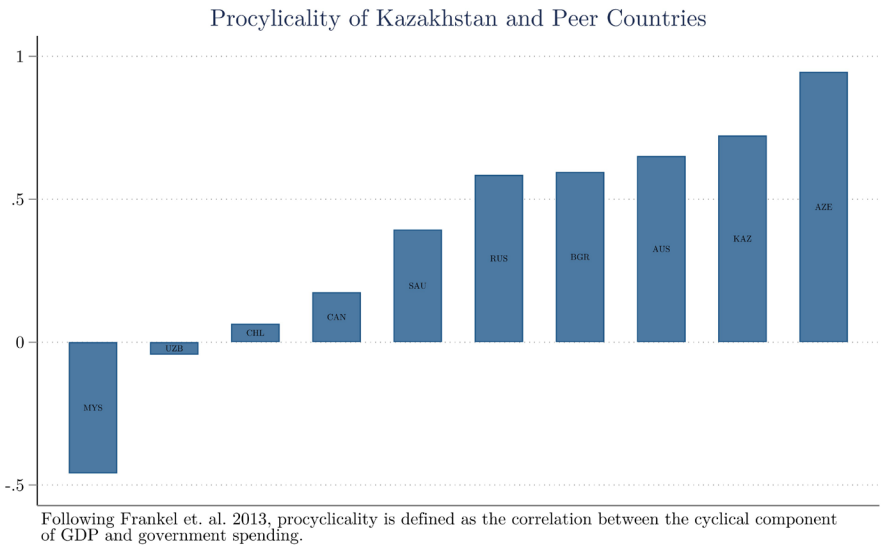


Source: IMF

The combination of procyclical fiscal policy with asymmetry of exchange rate policy helps explain some of the high inflation one observes via passthrough and the rise in the risk premium. Kazakhstan appears to have suffered from procyclical public spending despite the existence of a fiscal rule from 2010. We replicate below an analysis from a 2013 paper by Frankel, Végh and Vuletin, benchmarking the correlation between the cyclical component of government spending and the cyclical component of GDP.[35] Among 176 countries analyzed over 1991-2019, Kazakhstan ranks 27th in public spending procyclicality, exhibiting high correlation between higher than usual growth and increased spending. Among peer countries, Kazakhstan had the second most procyclical policy behind Azerbaijan (Fig. 5.1.5). The findings look similar if one restricts the period to 2000-2019.

[35] In both cases, the cyclical component was estimated through an HP filter, which suffers from a number of limitations but remains commonly used. Frankel, Vegh, and Vulletin, "On Graduation from Fiscal Procylicality."

Figure 5.1.5. Procyclicality of Kazakhstan and Peer Countries



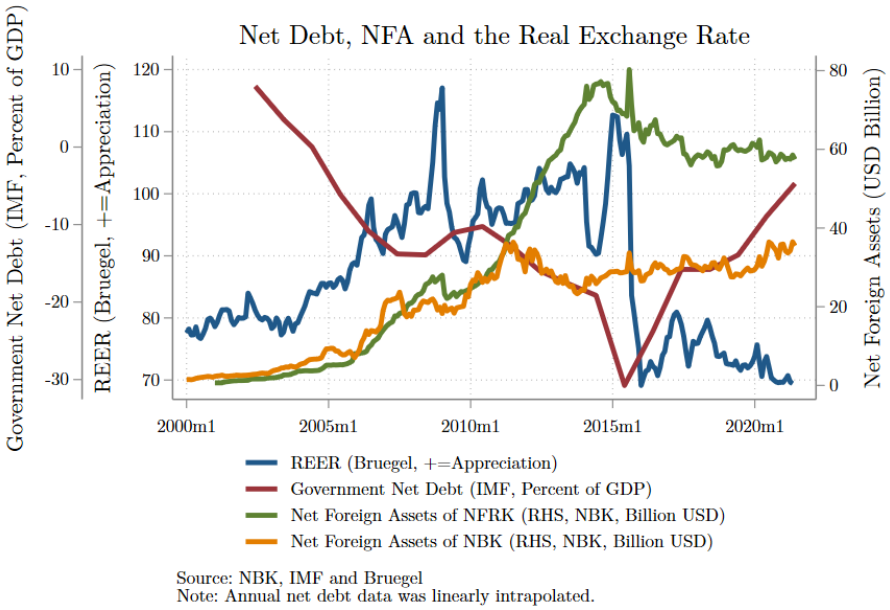
Source: IMF

Policy Uncertainty Related to Intertemporal Smoothing of Oil Income as a Tertiary Driver of the Risk Premium

As outlined above and in the Growth Diagnostic report, another reason behind the increase in the risk premium is from policy uncertainty related to intertemporal smoothing of oil income. In moments of economic downturns (e.g. due to drops in the price of oil), it is not obvious to residents and market participants whether and to what extent the government will respond with fiscal consolidation, increases in government debt, sales of foreign (NFRK) assets or (NBK's) foreign currency, or currency depreciation and/or the interest rate defense, whereby depreciation pressures are countered with an interest rate hike. Recent policy practice in Kazakhstan seems to rely on a combination of debt issuance, utilization of NFRK assets and some currency depreciation. In this context, the overall fiscal balance has been worsening and, because of these factors, the country's overall net debt position has been worsening too (Fig. 5.1.6).[36]

[36] National Bank of Kazakhstan, "Statistical Information (MPR, September 2021)."

Figure 5.1.6. Net Debt, NFA and the Real Exchange Rate



Source: NBK, IMF and Bruegel
Note: Annual net debt data was linearly intrapolated.

Post-2015, it appears that when Kazakhstan faces foreign exchange pressure because of oil they let some currency depreciation occur (along with employing the interest rate defense and asset utilization), but when the oil price goes up the country does not sufficiently save via NFRK or build NBK's reserves or let currency appreciation occur. Instead, aggregate demand expands (based on evidence of procyclicality) and uses up the increased FX income. This is contributing to the widening of the risk premium and needs to be countered with a policy response that helps divorce the fiscal balance and the non-oil economy from the oil sector.

5.2 Supply of Skills

This section focuses on the skills shortage underlying human capital constraints in Kazakhstan. In assessing human capital as a potential constraint, it is important to determine if the skills spectrum of the country or region is sufficient for new and existing firms to engage in productive activities. On the one hand, at an individual level, it is useful to define human capital as the acquisition of knowledge and skills through education, training, and experience that allow individuals to increase the marginal productivity of their efforts. On the other hand, at an aggregate level, countries with an adequate supply and quality of human capital possess the necessary stock and spectrum of skills, allowing them to effectively adopt new technologies in the production and rendering of new goods and services.

This section describes the quantity of skills in the economy as measured by educational attainment and the needs of the labor market. First, we discuss how the quantity of skills as measured by educational attainment does not appear to be a binding constraint: Kazakhstan records high educational attainment across all education levels and relative to benchmarks. However, there is evidence of poor quality of this education, which may be limiting the ability of the domestic labor supply to satisfy the needs of the market. We describe the skills-biased growth that characterizes the economy of Kazakhstan and how current avenues to obtain and promote the acquisition of skills – particularly of high-skilled labor – appears insufficient to meet the economy's demands for

diversification. We place a special emphasis on the value of foreign skills in injecting new knowhow into the economy and identify potential constraints to the acquisition of these foreign skills.

Quantity of Skills in Kazakhstan

In understanding how the production of skills within Kazakhstan impacts the country's ability to grow and whether it is a constraint, the first area that we explore is the quantity and quality of skills and whether they are adequate to meet the existing demand of current firms as well as firms that are looking to enter the economy.

Kazakhstan does not seem to be constrained by the lack of adequate skills or by the availability of educated workers being supplied to meet the existing demand from firms for skills. The first step is diagnosing whether the supply of skills, beginning with the quantity of skills, is a constraint. The quantity of skills can be proxied by looking at variables on demographic trends, employment trends, youth education and employment, and educational attainment. Educational attainment across all levels of schooling is very high for what is expected of Kazakhstan, given its income level. Our previous research concluded that the level of educational attainment does not appear to be a constraint.

Education attainment is high in Kazakhstan for its level of GDP. Compared with global averages, it has higher rates of attainment at all levels – primary, secondary, and post-secondary/tertiary – than would be expected. The level of educational attainment is an initial proxy to understanding the potential for accumulating the labor required for productive processes. Educational attainment in Kazakhstan has steadily increased in the past three decades, outperforming the levels of education attainment of most peers (Fig. 5.2.1). By 2018, approximately 97.4% of the population above 25 years old had completed upper secondary education and 79% had completed a tertiary degree or post-secondary vocational program. These high rates of educational attainment are also observed in other post-Soviet states (Uzbekistan, Azerbaijan, Russia). People in Kazakhstan have high rates of educational attainment up until their undergraduate education (Fig. 5.2.2). The near-universal enrollment in primary and secondary education may be partly attributed to the government's broad-based reforms since independence to provide sustained access to education.

Figure 5.2.1

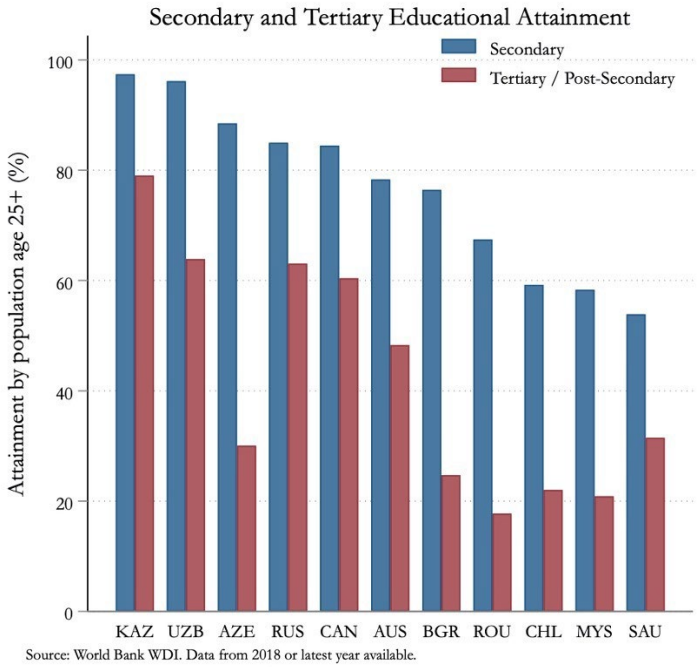
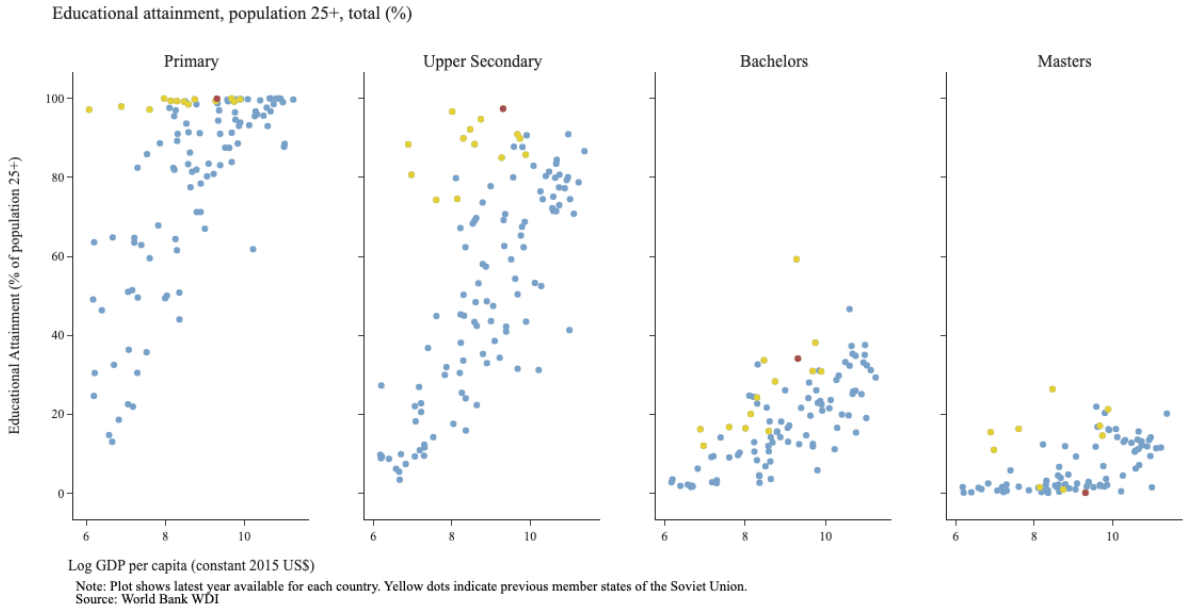


Figure 5.2.2

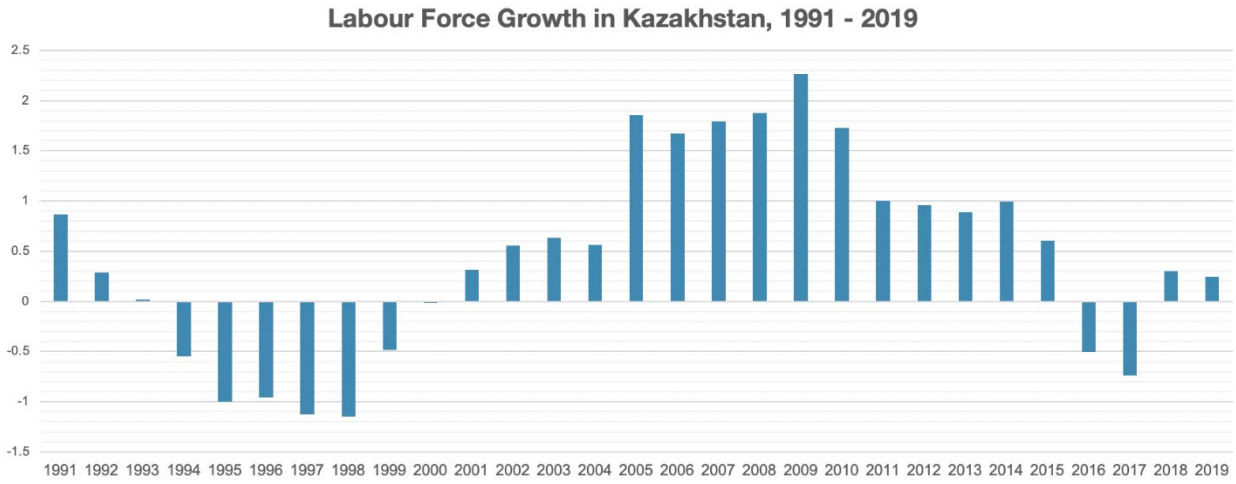


To date, Kazakhstan has seen success in educating its citizens. However, this may become challenging going forward because the country's demographic pressures will lead to a greater demand for schooling in the coming years. Demographic trends are important to contextualize a country's population engaged in the labor force. Kazakhstan's fertility rate has been increasing since the early 2000s; however, it has been increasing at approximately half the rate after 2009 than from 2000-2009. Between 2000-2009, the fertility rate rose from 1.8 to 2.55 births per woman, and between

2009-2019, it grew from 2.55 to 2.9 (Fig. 5.2.3 and 5.2.4).[37] Therefore, there will soon be a higher than usual ratio of those entering the working age population. A demographic dividend has noteworthy implications for understanding the human capital and skills acquisition of a country, because Kazakhstan can expect that this increase in young people will add pressure to schools. This could entail increased pressure on its physical educational infrastructure. Specifically, Kazakhstan's school-age population is predicted to grow 20% between 2015-2030 and labor force growth will also accelerate, peaking around 2030 when the generation from the fertility boom enters the labor market.[38]

Interviews with stakeholders have highlighted that there is a lack of the requisite amount of physical infrastructure for educational institutions in Kazakhstan, particularly primary schools, which leads to differential access in quality education across the country. During interviews, stakeholders stated that there is currently a deficit of school seats for around one million children, and pre-school educational capacity is particularly strained. Others cited the "tragedy of territory" in describing the challenge for those who live far from urban centers such as Nur-Sultan and Almaty and might not have access to the same quality of infrastructure. While educational attainment has been impressive to date, the future of educational attainment could be affected if additional investment in physical infrastructure to accommodate the increased demographic growth is not addressed.

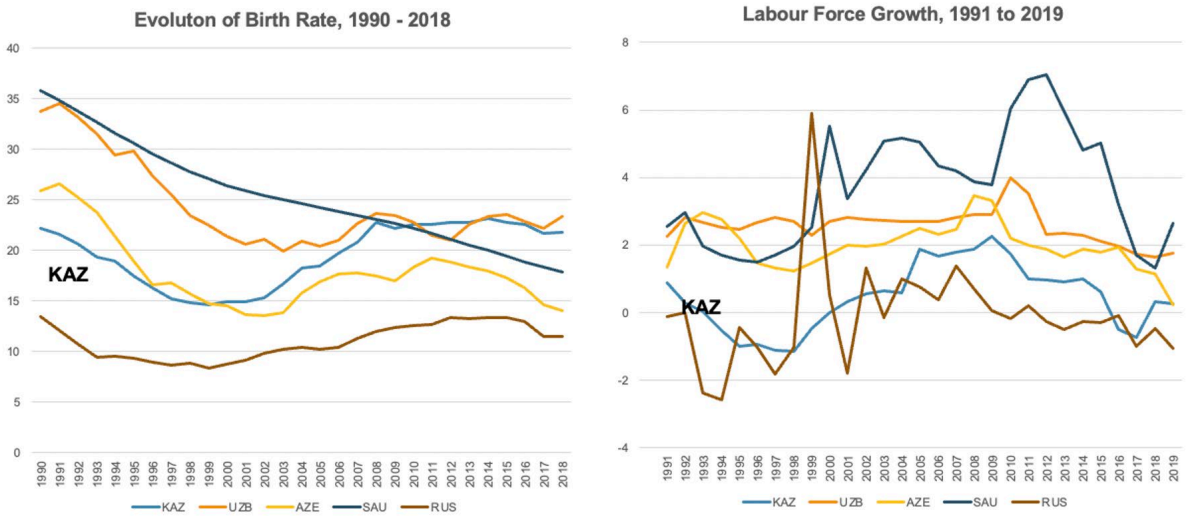
Figure 5.2.3



Source: ILOSTAT and WDI

[37] World Bank, "World Development Indicators."
[38] OECD, "OECD Skills Strategy Kazakhstan: Assessment and Recommendations."

Figure 5.2.4



Source: ILOSTAT and WDI

While schooling enrollment is high and has increased since 2015, these movements do not seem to be correlated to the changes in Kazakhstan's GDP per capita. An additional way to understand whether the quantity of skills is a cause for low investment in non-oil tradables is to see how an increase in educational attainment is related to economic growth in Kazakhstan. The GDP per capita has not moved in the same way that educational attainment has increased 2015 onwards. This indicates that the quantity of skills, as proxied by educational attainment, does not directly explain the lack of economic growth in Kazakhstan.

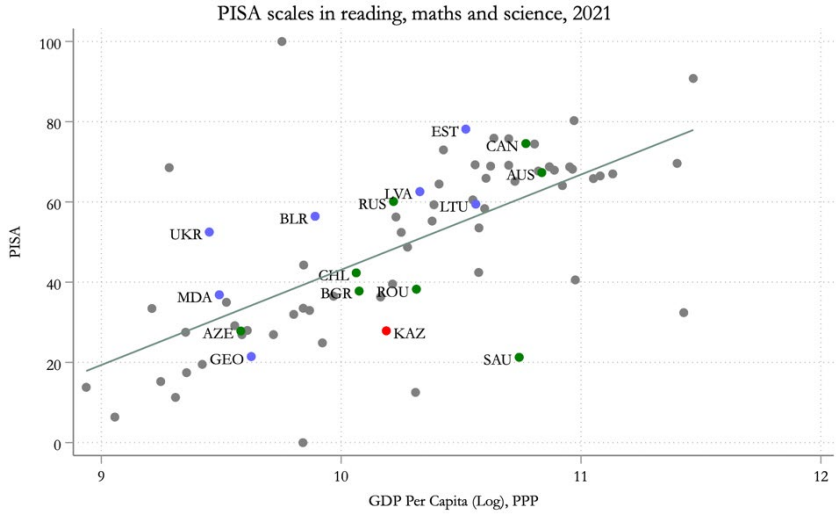
Quality of Skills in Kazakhstan

The previous analysis derived that the quantity of skills available in Kazakhstan may not be what is constraining the economic growth in the country. However, the *quality* of these skills can pose a challenge to growth of many non-oil industries that require specialized knowhow, even if the quantity seems sufficient.

Educational quality in Kazakhstan, measured through international PISA scores, is lower than peer countries and lower than what is expected for Kazakhstan at its level of income (Fig. 5.2.5). Across all levels of education, the quality of skills acquired through the educational system is a challenge. Post-independence Kazakhstan has witnessed a shift in its focus on education from public educational institutions to private educational institutions. This had led to the rise in the number of educational institutions that are not required to follow certain standards, which may result in the low quality of education observed in the aggregate (Fig. 5.2.6). Interviews with stakeholders revealed that curricular reform also be needed to improve the quality of teaching. COVID-19 has likely made this situation worse, with widespread school closures, a switch to online education, etc. Media reports cite additional deterioration in quality due to the COVID-19 pandemic.[39]

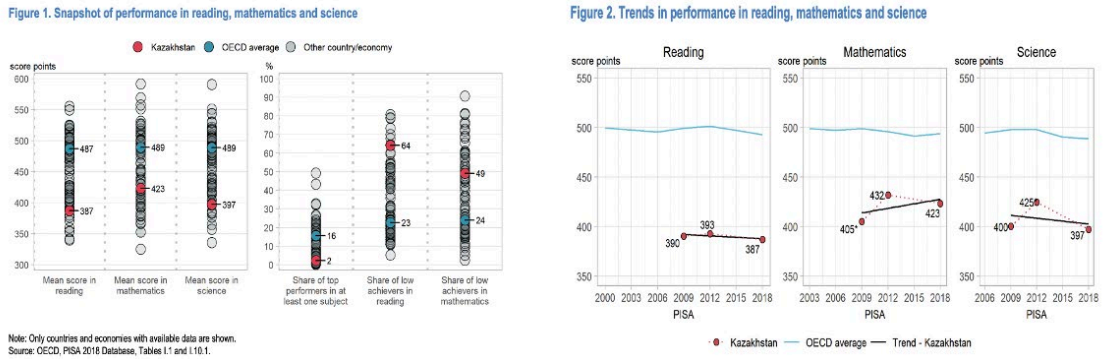
[39] Bayetova and Karsakbayeva, "COVID-19 Highlights Vulnerabilities in Higher Education"; Marteau, "Post-COVID Education in Kazakhstan: Heavy Losses and Deepening Inequality."

Figure 5.2.5



Source: Global Innovation Index Data, 2021. The data for each indicator is the score from the last year available.

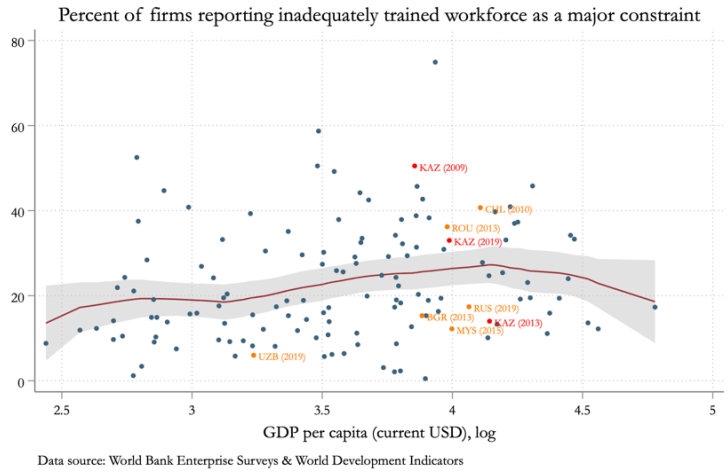
Figure 5.2.6



Source: OECD Report (2019) on PISA Scores using the PISA Database.

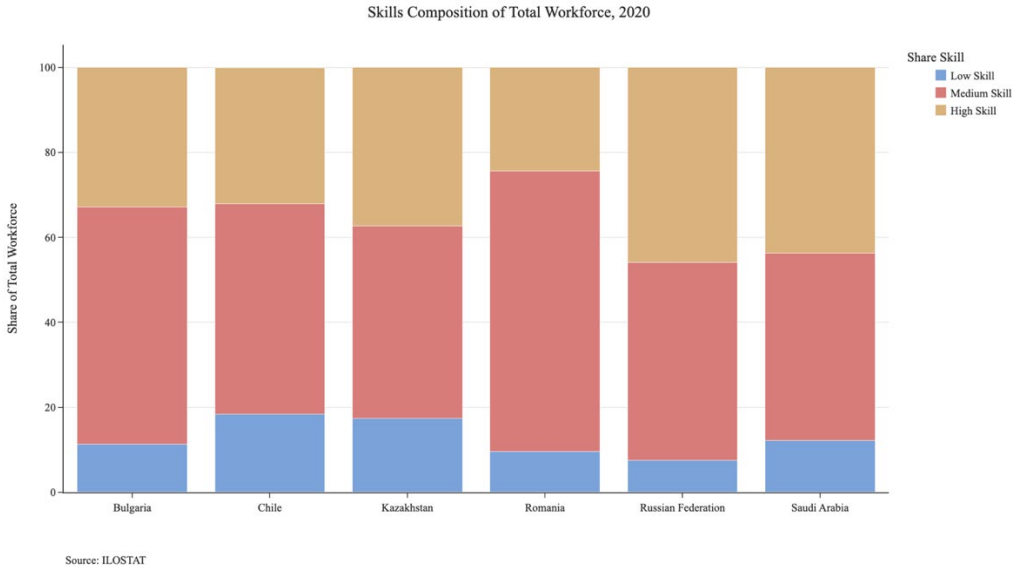
There is an increasing trend of firms reporting an inadequately trained workforce as a major constraint. Another signal of poor educational quality can be seen in the high number of firms reporting an inadequately educated workforce as their biggest obstacle (Fig. 5.2.7). Results from the World Bank Enterprise Surveys show that 25% of firms choose an inadequately educated workforce as their biggest obstacle to operating, and 32% of firms choose it as a major constraint. Anecdotal evidence from interviews highlighted the importance of vocational training centers in filling the skills gaps of the skilled workforce. Further interviews with policy stakeholders have highlighted the lack of on-the-job training and continuing professional education, which impedes the growth of private firms.

Figure 5.2.7



Kazakhstan has a high proportion of low skilled workers compared to peer countries. Out of all those who are employed, 17% are low skilled, 45% are medium skilled, and 37% are high skilled.[40] When compared to peer countries, this is the highest proportion of low skilled workers as a share of the employed population. In comparison, Malaysia stands at 12% and Russia at 8% (Fig. 5.2.8).

Figure 5.2.8

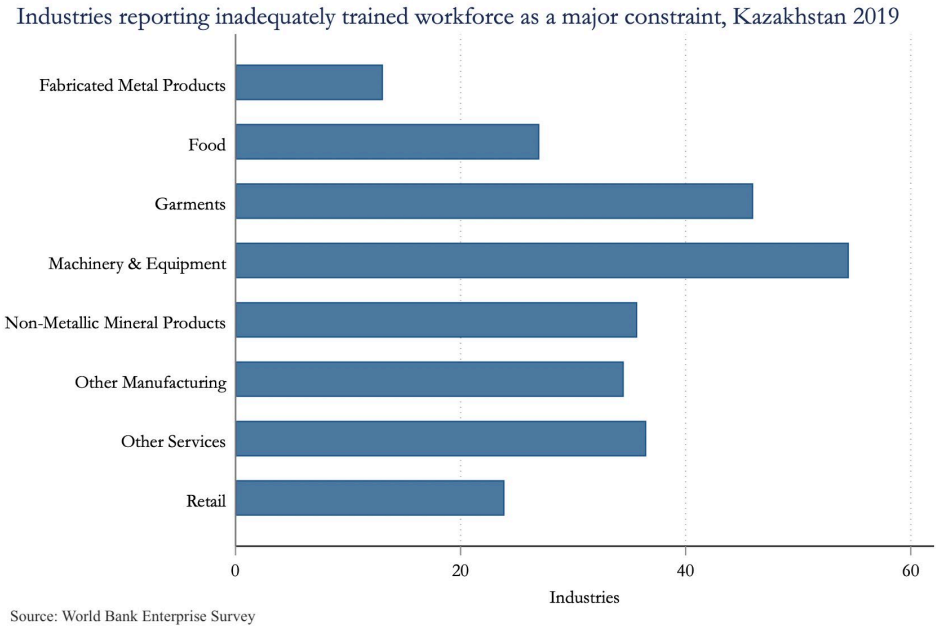


It is particularly challenging for firms engaged in technical specialties, which require highly skilled workers, to grow in Kazakhstan due to the low quality of skills available. According to the World Bank Enterprise Survey (2019), 55% of manufacturing industries specializing in machinery and equipment report that an inadequately trained workforce is a major constraint to their operations and growth (Fig. 5.2.9). This proportion is higher than other industries who report the same constraint of an inadequately trained workforce, such as fabricated metals (17%), food (27%), garments (46%), non-metallic mineral products (35.7%), other services (36.5%), and retail (23.9%). This suggests that

[40] Using ILO categories for low, medium, and high skill workers from https://www.ilo.org/ilostat-files/Documents/description_OCU_EN.pdf.

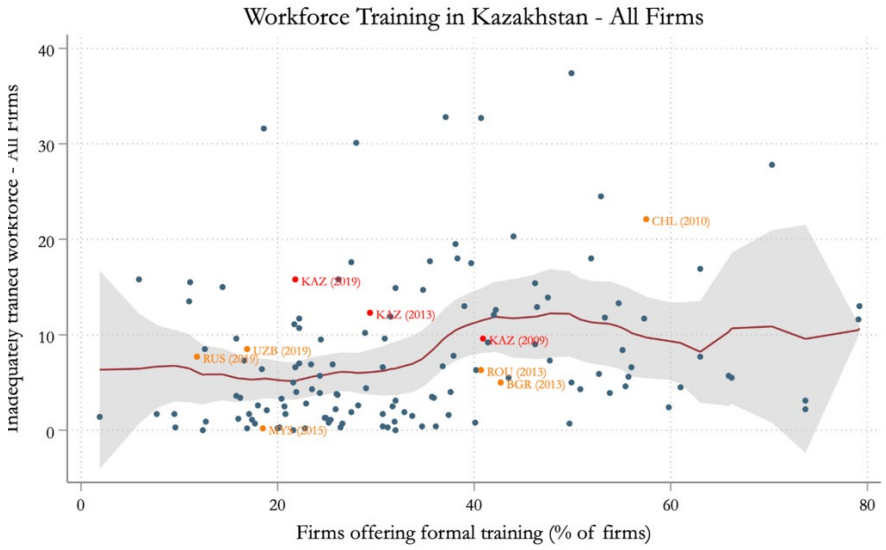
it is challenging for industries that rely on highly skilled and specialized technical labor to grow. This is corroborated by interviews that revealed that these technical industries face the largest skill constraints.

Figure 5.2.9



This is a paradox in terms of skills quality and on-the-job training. A smaller share of firms offers formal training and on-the job training between 2009-2019 but report a worsening of the quality of skills over time (Fig. 5.2.10). The figure below plots the "quantity" as firms offering formal training and the "price" as the number of firms that report an inadequately trained workforce as their biggest obstacle. While more firms complain about low quality of skills between 2009-2019, an increasing share of firms do not provide more training – the number of firms providing formal training fell from 42% to 23% in the same period. Part of the reason for this could be that firms lack an incentive to provide training given the very low quality of those entering the workforce. Another reason could also be due to data collection and measurement challenges: the definition of what constitutes formal training is not necessarily comparable across countries and the legal framework (tax breaks and other incentives) may play a big role in how many firms offer formal training.

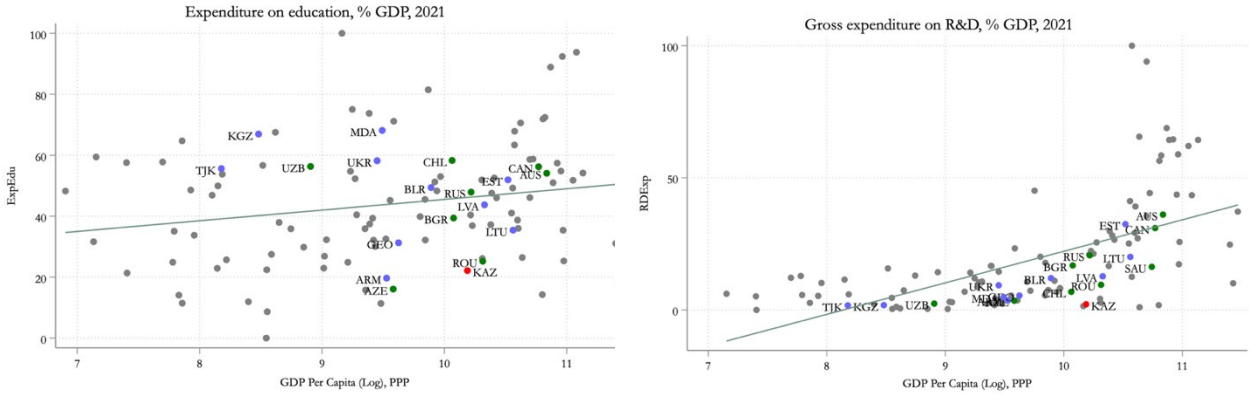
Figure 5.2.10



Source: Own calculations using World Bank Enterprise Survey Data

Public expenditure on education, as well as on research and development (R&D) is much lower than what is expected for Kazakhstan's level of income. In addition to low expenditure on education and R&D as compared to peer countries (Fig. 5.2.11), frequent cabinet reshuffling could have undermined the state's overall strategy, as new arrivals to the Ministry of Education have made several changes to ongoing reforms.[41] Along with this, the lack of resources, particularly at the local level, along with the continuing emphasis on centralization that has been a result of the post-Soviet legacy, may impede the capacity of any individual institution to implement change. Ultimately, these may point to potential areas for further analysis that can identify the reasons for low quality of skills.

Figure 5.2.11



Source: Global Innovation Index Data, 2021. The data for each indicator is the score from the last year available.

Source: Global Innovation Index Data, 2021. The data for each indicator is the score from the last year available.

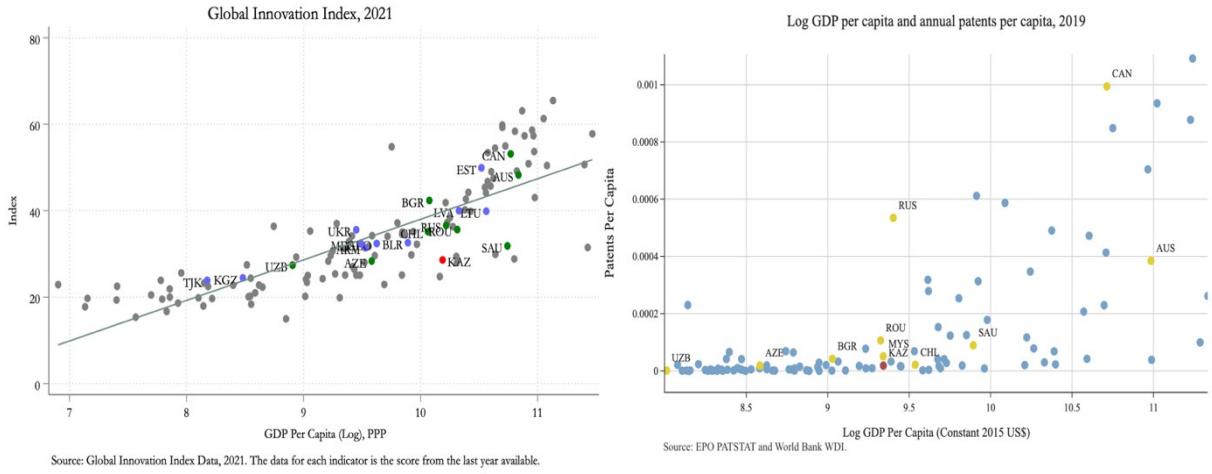
Qualitative evidence suggests that the poor quality of education could be related to the poor quality of teaching and misaligned incentives. While 33% of graduates from universities specialize in education and pedagogy, interviews with stakeholders revealed that colleges that focus on education

[41] "Kazakh President Reshuffles Top Officials."

and pedagogy degrees have outdated training materials and curricula. Students that choose education as a specialty are often those who do it as a fallback option because it is easier to write entrance exams for this instead of other technical specialties. Media reports have also stated that teachers in Kazakhstan are "underpaid, overburdened, and undervalued… [the] root of which lies in low salaries."[42]

The quality of low education can also be seen in how Kazakhstan fares in innovation and patents as compared to peer countries. We see that Kazakhstan's score on the global innovation index is much lower than what is expected for its level of income, and the patents that the country produces are almost negligible (Fig. 5.2.12). One of the main reasons for this is likely to be low quality of education.

Figure 5.2.12



The Skills Bias of Kazakhstan's Growth

The issue of lagging educational quality is a particular problem considering the skills-biased nature of Kazakhstan's economic growth. This means that Kazakhstan depends on an adequate supply of skills for growth and diversification, but the domestic labor supply may be limited in its ability to satisfy the needs of the market.

The economy experiences growth in sectors that depend on high-skilled workers. This "skills-biased growth" of the country can be observed in several ways. Kazakhstan's growth is characterized as skills-intensive because the growth of non-oil sectors has been associated with an increase in the share of skilled workers employed in that industry. As illustrated in Fig. 5.2.13, sectors like ICT, finance, water & sanitation, and transportation – which experienced the highest GDP growth between 2016 and 2019 – also witnessed high annual growth (~6% annually) in the share of professional specialists in their workforce. Employment growth has also been concentrated in sectors that increased the share of skilled workers in their labor force (Fig. 5.2.14), indicating that the increase in the share of skilled workers is not due to the shrinking of other categories of workers in the labor force, but is rather a sign that these sectors are adding more skilled workers to their labor force in absolute terms. Returns to education have also been adequate in Kazakhstan, signaling that there is

[42] Kopeyeva, "Kazakhstan's Teachers: Underpaid, Overburdened, and Undervalued."

demand for skills and educated workers. In 2016, an additional year of schooling was associated with a 10% and 8.5% increase in wages for women and men, respectively.

Figure 5.2.13. Sector growth vs growth in the sector share of specialist-professionals 2016-2019: The growth of the economy has been biased towards specialist professional occupations: Sectors that grew the most tend to have increased the share of specialists in their workforce

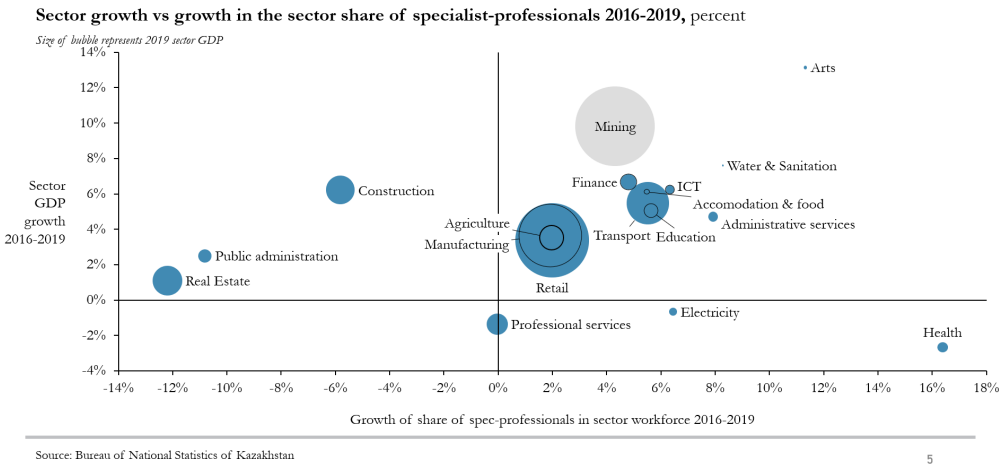
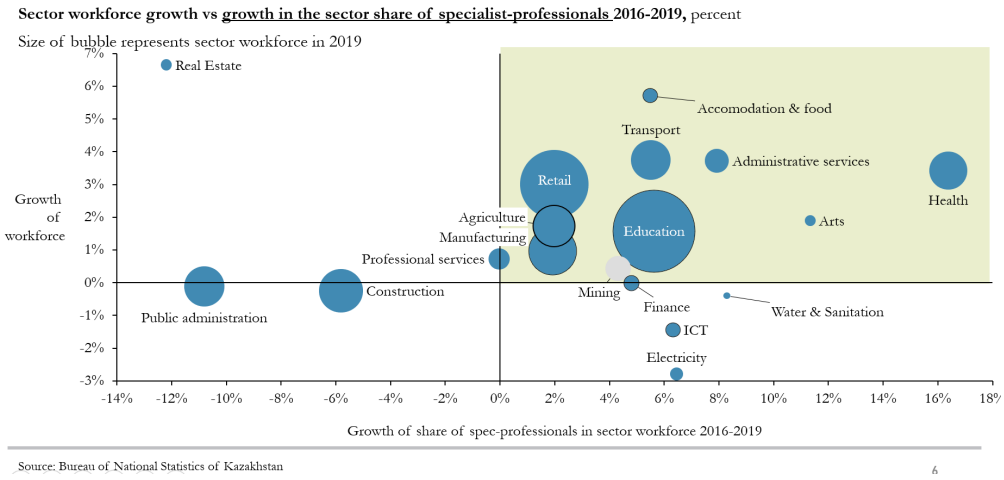


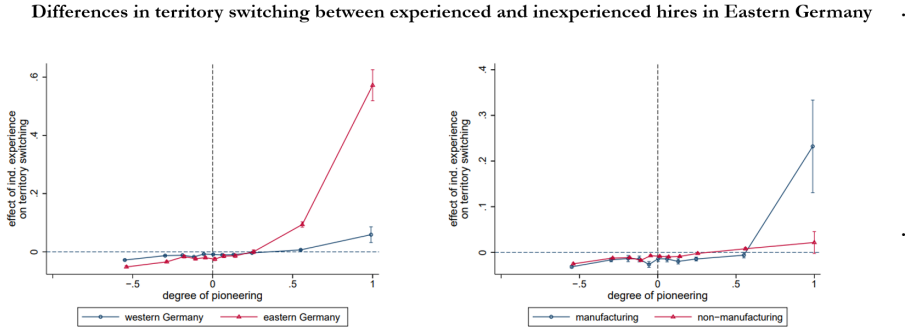
Figure 5.2.14. Sector workforce growth vs growth in the sector share of specialist-professionals 2016-2019: Employment growth is concentrated in these sectors that increasingly employ more skills (illustrated in the green area)



Foreign Skills

Attracting foreign skills is one way to address the constraints of the domestic labor supply to meet the needs for diversification, but Kazakhstan demonstrates difficulties attracting foreigners. Attracting entrepreneurs and foreign workers with specialized expertise – whether foreigners or members of the diaspora – has been at the heart of many successful diversification stories around the world: In East Germany, post-reunification industrial diversification relied on the migration of experienced workers from Western Germany, particularly in the manufacturing sector (Fig. 5.2.15).[43] During the Greek debt crisis, Albanian migrants returning home from Greece contributed to kickstarting a range of new ventures that did not exist before.[44] Similarly, the emergence of the IT industry in Taiwan, India, and Israel can be traced to members of the diaspora who directly contributed to establishing ventures in new industries back home.[45] Today, Silicon Valley in California, USA employs 70% of its software engineers from abroad; and less than 44% of its STEM workers are from the United States at all,[46] highlighting the predominant role of foreign migrants in its success.

Figure 5.2.15. Differences in territory switching between experienced and inexperienced hires in Eastern Germany



(a) Eastern versus western Germany

(b) Eastern Germany: manufacturing versus non-manufacturing industries

Source: Hausmann, Ricardo, and Frank Neffke. The Workforce of Pioneer Plants. 1603, Utrecht University, Department of Human Geography and Spatial Planning, Group Economic Geography, Feb. 2016.

In general, migrants are strongly associated with innovation and entrepreneurship, more so than native citizens. This could be explained by a combination of factors. In the US, immigrants with a 4-year college degree are twice as likely to have a patent than US-born college graduates[47]. First-generation immigrants created about 25% of new firms in the United States in 2007-2012, while only representing 14% of the US population.[48] Immigrants are responsible for 30% of aggregate US innovation since 1976, despite making up only 16% of inventors[49]. This higher association with entrepreneurship and innovation can potentially be explained by three factors. First, migrants as a group appear to be more inclined to take calculated risks, since, by definition they are individuals who

[43] Hausmann and Neffke, "The Workforce of Pioneer Plants."
[44] Hausmann and Nedelkoska, "Welcome Home in a Crisis."
[45] "The New Argonauts — AnnaLee Saxenian."
[46] Kerr et al., "Global Talent Flows."
[47] Hunt and Gauthier-Loiselle, "How Much Does Immigration Boost Innovation?"
[48] Pekkala Kerr and Kerr, "Immigrant Entrepreneurship in America."
[49] Bernstein et al., "The Contribution of High-Skilled Immigrants to Innovation in the United States."

have taken a significant risk in leaving their home country to seek better opportunities abroad, carrying out an act of an entrepreneurial endeavor.[50] Second, migrants are pushed towards avenues for self-employment due to relatively weak opportunities for regular employment and discrimination when compared to non-immigrants.[51] Third, migrants facilitate the transfer of knowledge across borders, from their home countries to their host countries. In particular, migrant inventors can heavily influence innovation dynamics, and consequently improve economic growth.[52]

In certain global examples, long training programs from abroad to transfer knowhow were the channel used to acquire the missing capabilities for new industries. In South Korea, the diversification of the then seafood-exporting Samsung conglomerate into electronics can be traced back to a partnership with two Japanese firms; 106 South Korean workers were trained during 6 months on TV-cathode-tube manufacturing.[53] In Bangladesh, the ignition of the textile industry can also be traced back to a training program for 126 Bangladeshi workers in Daewoo's factories in South Korea.[54] These examples are not widespread, but identifying similar opportunities can maximize the likelihood that they can act as an important lever to support diversification.

In Kazakhstan, high-skilled immigration can be a short-term stopgap to lagging domestic educational quality described earlier, but quality should be addressed intrinsically in the long term. A successful diversification strategy hinges not only on an inflow of high-skilled foreign workers, but also on the complementarity of the knowhow they bring and the domestic skills available in the economy. In the examples of successful diversification strategies provided above, the availability of local knowhow to complement the foreign skills was crucial; IT engineers in Taiwan, China, and India were important in the appearance of IT sectors in each country. More recently in Morocco, the appearance of an airspace manufacturing sector, which exports USD 2 billion and employs 20 thousand workers, was linked to a senior executive at Boeing who was of Moroccan origin[55]. This executive decided to outsource supply chain links to Morocco due to the cultural connection, but the domestic availability of airspace technicians in the country was instrumental in making that decision and in the subsequent development of the industry. Therefore, the growth of new sectors depends on the arrival of high-skilled knowhow in tandem with complementary local skills. In the case of Kazakhstan, the growing concerns with the quality of the workforce can be a barrier preventing diversification.

Addressing the quality problem in Kazakhstan requires building a finer understanding of its root causes. With the current data available and in the absence of microdata, it is not possible to identify the causes behind the low-quality signals we identified. A desirable labor market system is driven by employers and industry needs, it allows for short term matches of skills with long term changes in industry composition of skills, and is supported by high quality education in addition to continuing education programs. Analyzing which part of these components is the root cause and understanding the factor causing its malfunction is the first step to address the quality challenge. While solving the quality problem in Kazakhstan is a long-term effort, high-skilled migrants could serve as a short-term stopgap solution.

[50] Borjas, "The Economic Analysis of Immigration."
[51] Pekkala Kerr and Kerr, "Immigrant Entrepreneurship in America."
[52] Bahar and Rapoport, "Migration, Knowledge Diffusion and the Comparative Advantage of Nations."
[53] "The History of Samsung Electronics (1): Paving a New Path (1968~1970) – Samsung Global Newsroom."
[54] Mostafa and Klepper, "Industrial Development Through Tacit Knowledge Seeding."
[55] Nedelkoska, "Long Jumps: How Do They Come About?"

Constraints to the acquisition of foreign skills

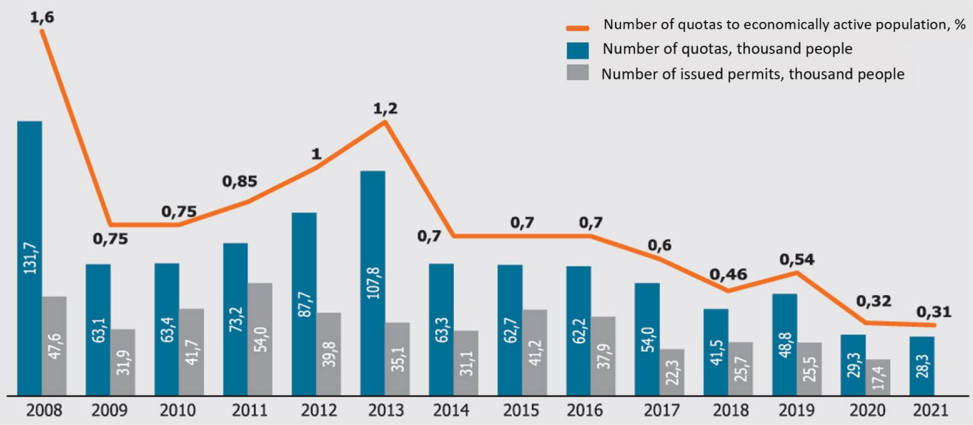
Restrictive immigration policies

Kazakhstan's immigration policy may pose a constraint to the attraction of high-skilled foreign workers. The country has several regulations that create differential constraints to migration: (i) Migrants from countries outside of the Eurasian Economic Union are subject to national migrant quotas that are capped at less than 0.31% of the active population in 2021 (Fig. 5.2.16); (ii) each company that hires foreign workers is also subject to company-quotas, and (iii) work permits cannot be renewed beyond three years in most cases; (iv) for certain categories (e.g., specialists), the duration of the stay is limited to 12 months, and the company must hire a Kazakhstani replacement for the foreign worker within 6 to 12 months of recruiting them, which creates disincentives for knowhow sharing. These constraints shift the focus of immigration from job creation to temporary and narrow skills replacement. In addition, it shrinks the pool of candidates for immigration to Kazakhstan to those willing to temporarily relocate to Kazakhstan without long term perspectives. Even when foreign migrants are eligible to permanent residency, some prefer not to pursue it because of the complicated administrative process it requires.[56] Since 2019, spurred by recent events in the oil sector, an equal pay mandate has been introduced across the board, requiring companies to pay foreigners and national workers a similar salary for similar jobs. While introducing an equal pay mandate can be relevant in extractive industries, it is harmful to extend it to other sectors, because it reduces employers' ability to competitively attract needed foreign skills. The general quota system was initially intended to attract foreign workers, but was gradually repurposed to reduce the inflow of immigrants during years of economic hardship (e.g., quota reductions of ~50% in 2009, 2014, and 2020). The latest immigration restrictions were proposed in response to conflicts that arose between national and foreign workers in oil and oil-related construction projects, but they are negatively impacting firms outside of these sectors.

From international experience, even a temporary restriction on immigration can have long lasting effects on innovation. In the 1920s, the United States implemented a series of immigration quotas intended to exclude low-skilled immigrants from Southern and Eastern Europe and Asia, which shrunk immigration from around 360,000 to 165,000. This restrictive policy was associated with a 60% drop in patent production of native-born scientists, and a 30% decline in US inventions persisting into the 1960s.[57]

[56] Interview with four Kazakhstani firms tourism, construction, professional services, and manufacturing.
[57] Moser and San, "Immigration, Science, and Invention. Lessons from the Quota Acts."

Figure 5.2.16. Quota of foreign workers to active population



In 2009 the quota was reduced by 2.1 times, in 2014 by 1.7 times, and in 2020 the number of quotas for foreigners wishing to work in Kazakhstan was reduced by almost half

Source: WDC

Low attractiveness among high-skilled workers

Barriers to immigration outside of institutional restrictions, such as economic attractiveness and cultural distance, might be further constraining the inflow of high-skilled workers in the country and reduce the attractiveness of Kazakhstan as an immigration destination. These barriers cover many factors such as economic attractiveness (e.g., appeal of living cost-adjusted wages), cultural distance, linguistic distance, connectedness to migrant's home countries, and quality of amenities.

Kazakhstan's economic attractiveness to foreign high-skilled workers is among the lowest in the world. Economic attractiveness reflects the change in wages migrants can achieve by relocating in a particular country. This includes both the living cost-adjusted wages, but also the potential to send remittances to one's relatives. Kazakhstan's attractiveness on this criterion is very low, as evidenced by Almaty's ranking on high-skilled professions' salary ranking. Using a combination of self-reported and publicly available data, Teleport[58] finds that the median self-reported annual salaries for a software engineer and C level executive in Almaty are $12,800 and $23,800 respectively, which ranks 245th and 242nd respectively out of 265 cities in their database. While the relatively low cost of living partially compensates for the low level of these wages (Almaty is among the 10% cheapest cities in Teleport database)[59], it remains very difficult to attract high-skilled workers to the country with such little prospective of wage increase.

Non-monetary dimensions may be contributing to low attractiveness as well, including low perceptions of safety, access to healthcare, high pollution, harsh climate,[60] as well as low linguistic and cultural similarity and global connectivity.[61] These rankings are established

[58] Teleport Cities, "Jobs and Salaries in Almaty, Kazakhstan."
[59] Teleport Cities, "Cost of Living in Almaty, Kazakhstan."
[60] Numbeo, "Quality of Life Index"
[61] IATA, "Air Connectivity Index 2019"; See also Bahar, "The Hardships of Long Distance Relationships." and Coscia, Neffke, and Hausmann, "Knowledge Diffusion in the Network of International Business Travel."

through a combination of public statistics and expatriate self-reporting and are likely to be consulted by prospective migrants before confirming a migration destination. Cultural and institutional similarities between countries have been proven to enhance trade, because those similarities reduce transaction costs. Similarly, cultural proximity can encourage migration to a destination because the learning curve to adjust to the social and cultural norms of the host country is less steep, bringing faster integration with the host society and supporting long-term residence in it. These non-institutional barriers play a significant role in preventing high skilled foreigners from relocating in Kazakhstan.

These barriers that are outside of institutional restrictions explain the low numbers of immigration to Kazakhstan. Annual immigration quotas on foreign workers – despite being set very low – are regularly not met, and companies that are exempt from such quotas have a very low share of foreign workers (e.g., 800 visas delivered to 1,4000 companies that are affiliated with AIFC). Though these data points are not conclusive, because they could be due to many factors, it is important to further identify the channels that limit the attractiveness of Kazakhstan to high-skilled foreigners.

Though the quantity of educational attainment isn't a binding constraint for Kazakhstan, there are signals that the quality of education may be insufficient to meet the demands of the market. Especially considering the skills-biased sectoral growth of Kazakhstan's economy, this lack of quality may hinder further growth unless the necessary skills can be obtained through other channels, such as through high-skilled migrants. However, there are policy barriers and low attractiveness factors that appear to make it difficult to attract such talent. This dynamic ultimately poses a constraint on the ability of Kazakhstan to accumulate necessary knowhow for expansion of the non-oil economy.

5.3 Infrastructure and Land

This section provides a high-level analysis of infrastructure, examining if different types of infrastructure are likely to represent a constraint to Kazakhstan's economic growth and successful diversification. We carry out a high-level review of roads, railways, air transportation including passenger and cargo, fixed and mobile internet, as well as logistics.

We found some challenges with infrastructure, which may be of importance in Kazakhstan due to the country's geographic specificities. Kazakhstan's large territory, sparse population, demanding climate as well as certain legacy factors represent a challenge to the construction, maintenance and expansion of an infrastructure supporting Kazakhstan's long-term development ambitions. In the face of such challenges, we find economically relevant challenges that are being addressed in the road infrastructure, as well as possible constraints in passenger air transportation. We do not conclude on air cargo and logistical services, which exhibit both underdevelopment and low demand signals. ICT access in rural areas may be more a social and equity issue than of immediate relevance to the economy outside of focused agriculture applications.[62]

Roads

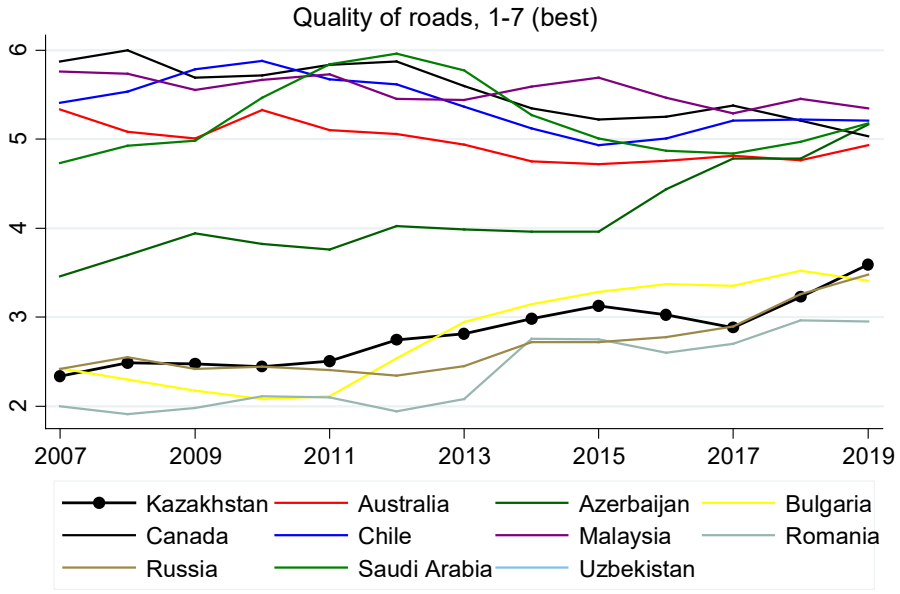
Kazakhstan's road infrastructure is most crucial for the transportation of people and goods within regions and cities. Within regions, over 96% of cargo transportation occurs on roads. Conversely, between the different regions of Kazakhstan, rail is the preferred mode of transportation,

[62] We narrowly approach infrastructure in its role in the production of goods and services. The undeniable social and well-being value of certain infrastructure developments is not considered here.

while only 3% of cargo transportation is made by road. For international freight transport, only 2% of the cargo is transported by road (ITF). Thus, the coverage and quality of Kazakhstan's road network may have a limited impact on transportation of goods and people out of the country but a large impact on daily intra-regional and urban movements.

Kazakhstan can rely on a relatively extensive road network, but quality has been an issue. The total road network of Kazakhstan is 95,409 km, out of which 81,814 km is paved. The percentage of paved roads in Kazakhstan is among the highest among similar countries. However, the quality of roads is a challenge. Benchmarking with respect to other countries, the overall quality of roads in Kazakhstan is comparable to Bulgaria and significantly lower than some of its peers, although there has been some improvement in recent years (Fig. 5.3.1).[63]

Figure 5.3.1

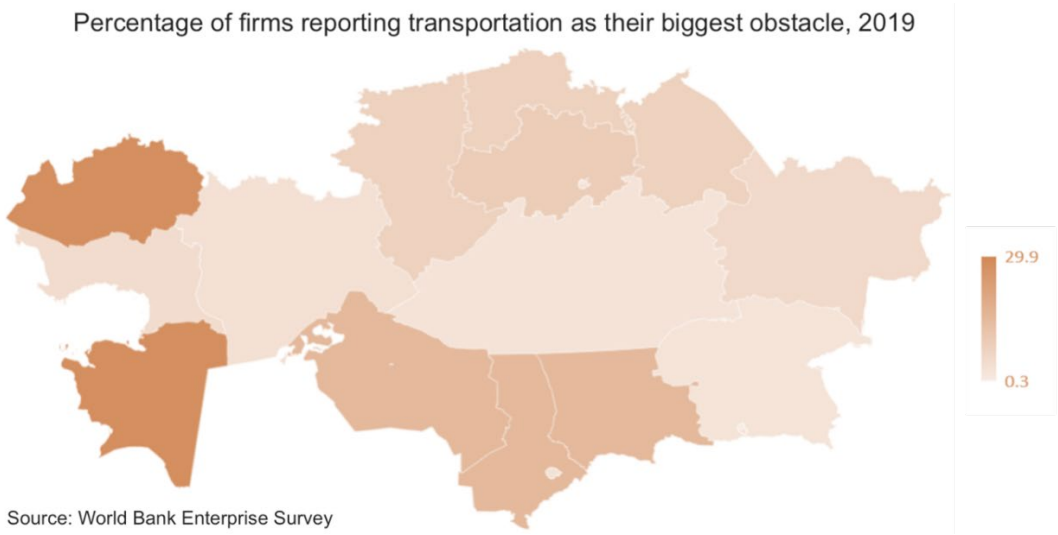


Source: World Economic Forum

The quality of roads in varies across regions, reflecting the historical priority given to large metro areas and extractive activities. In general, the quality of road is higher for roads connecting major cities (such as the Almaty – Nur-Sultan highway), connecting extractive industries such as oil fields and mines, and on international transshipment routes connected to China and Russia. The geographic differences in the quality of roads are visible in the responses of Kazakhstani firms in the World Bank Enterprise Survey. The regions with worse reported road quality in southern and western Kazakhstan were also the places where respondents were more likely to mention transportation as their biggest obstacle for business, possibly pointing to a constraint (Fig. 5.3.2).

[63] The World Economic Forum develops a measure of the perceived quality of roads and other infrastructure by surveying over 14,000 business leaders from 144 countries.

Figure 5.3.2



We find mixed economic signals regarding the existence of a binding constraint related to road transportation. We do not find high prices that would typically be associated with a binding constraint. At USD 0.45 per TEU-km, average reported freight rates in Kazakhstan were comparable to or lower than peer countries (0.40 in Russia, between 0.9 and 1.50 in Australia).[64] However, we do find the political prominence that is often associated with the existence of a binding constraint. Kazakhstan has undertaken significant investments to improve its road infrastructure through the *Nurly Zhol* ("Bright Path") program, announced by the president in 2014.[65] The primary aim of the program is to transform Kazakhstan into a transport and logistics hub by modernizing roads, railways, and ports among other projects. The project also doubles as a countercyclical fiscal stimulus. Its mandate was expanded over time and the program's current phase aims to improve the quality of 95% of roads in Kazakhstan by 2025.[66]

Some analyses carried out to evaluate Nurly Zhol do show results that would be consistent with the existence of a constraint. A report published by the IMF[67] found increases in profits and revenue for firms that had access to *Nurly Zhol* road projects. These firms displayed a 5% increase in profits and a 3.7% increase in revenue but showed no impact on employment. Overall, we interpret the somewhat conflicting signals observed on road infrastructure as the likely existence of a constraint that is however already being addressed.

Railways

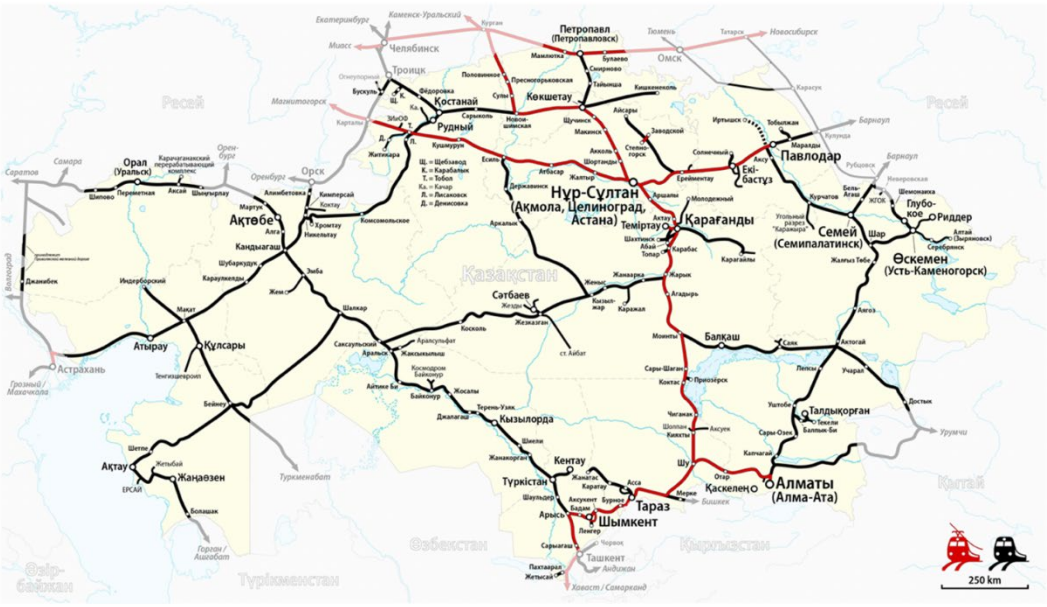
Kazakhstan has an extensive railway network spanning over 16,000 km, of which 4,000km of is electrified, mostly along the busiest routes (Fig. 5.3.3). Kazakhstan has railway connections to other

[64] A TEU or Twenty-foot Equivalent Unit is a unit of measurement used to determine cargo capacity for container ships and terminals. It is derived from the dimensions of a 20ft standardized shipping container.
[65] "Nyrly Zhol – The Path to the Future / Strategies and Programs / Activity / Financial Monitoring Agency of the Republic of Kazakhstan."
[66] OCTOBER 2021, "Nurly Zhol Infrastructure Project Pledges 95 Percent of Local Roads to Be Improved By 2025."
[67] Dept, "Republic of Kazakhstan."

countries in Central Asia, Russia and China. Because the railway system is a legacy of the Soviet Union and thus relies on a broad gauge like other former Soviet Republics, traffic to and from China necessitates transshipment at the border. Rail is the preferred mode of transportation for long distance movement of passengers and cargo and overall railways account for over 60% of goods transportation.

Figure 5.3.3

Kazakhstan's Railway Network

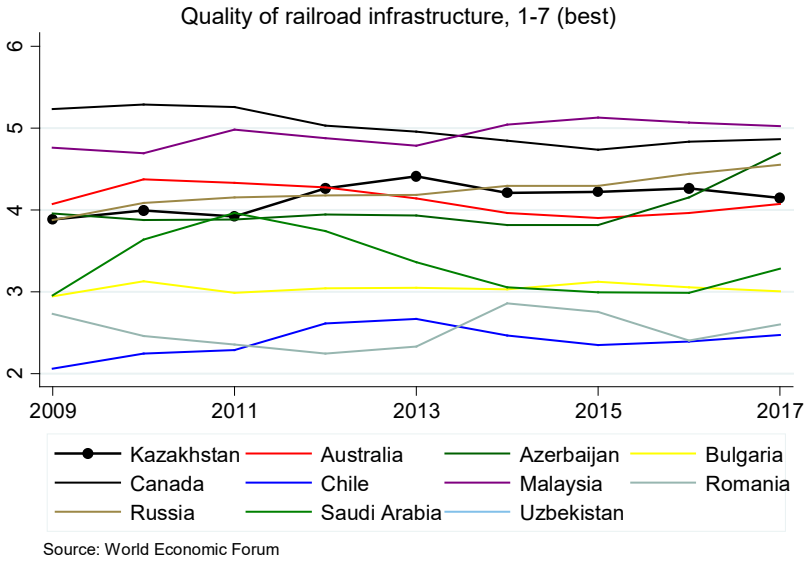


Source: Kazakhstan Temir Zholy

The quality of railway infrastructure in Kazakhstan is overall adequate, but some challenges remain on speed and its potential for transporting perishable goods. According to the WEF[68] WCI index (based on a survey of executives), the quality of Kazakhstan's railways is better than in peers such as Australia or Chile. However, average speed on Kazakhstan's railway system was 44 kmph, compared for instance to 75 kmph in Russia (Fig. 5.3.4).[69] This is partly due to 70% of Kazakhstan's total rail lines being single lines, forcing trains to stop to allow crossing traffic. Speed is however unlikely to present a strong constraint to non-perishable cargo. Regarding perishable goods, other key challenges include a poor tracking system, mechanical problems with refrigerated units, and the limited number of intermodal freight transferring stations. Overall, we find the railway infrastructure to be perfectible but unlikely to present a binding constraint outside of specialized activities necessitating a reliable cold chain for instance.

[68] "Global Competitiveness Report 2020."
[69] Molokovitch et al., *Logistics and Transport Competitiveness in Kazakhstan.*

Figure 5.3.4



Source: World Economic Forum

Air transportation – Passengers

Given the size of the territory, Kazakhstan's remoteness from large population centers and the dispersed population distribution on the territory, air transport plays an important role in passenger travel. Kazakhstan has 23 airports, out of which 17 service international flights. These airports servicing major domestic population centers of the country. Airports in Almaty, Nur-Sultan and Aktau are the busiest in Kazakhstan. A number of domestic and international carriers operate flights to and from Kazakhstan.

Passenger air traffic is growing but remains low by international standards. The modal share of passenger air transport is about 5%, at 14,384 out of 272,832 million passenger-km in 2017).[70] There has been an impressive growth of passenger air transport in the last decade, with the number of passengers flying increasing about 700% between 2010 and 2020. Despite that increase, the number of passengers using air transport in Kazakhstan remains much lower than in OECD peers. This might be driven by the relatively high rates of short haul flights. We observe that the cost of short-haul air-tickets is higher than peers (about 50% more than in Russia), whereas the fare of long-haul flights are comparable or cheaper than peers (about 40% cheaper than Russia). Based on a search of travel booking website, it was found that the average flight ticket between Nur-Sultan and Almaty between three and four times more expensive than train tickets.

The two main airports face a capacity constraint. Analyzing passenger volumes and terminal capacity at different airports in Kazakhstan, there seems to be a need to build new terminals to deal with the past and future increase in passenger volumes. The Almaty airport already handles approximately twice as many passengers (6.5 million) than its designed capacity (3 million).[71] Given the current trends in passenger volumes, the Nur-Sultan airport may also necessitate expansion of its terminals before the end of the decade. Overall, we find air transportation capacity to be a likely short-

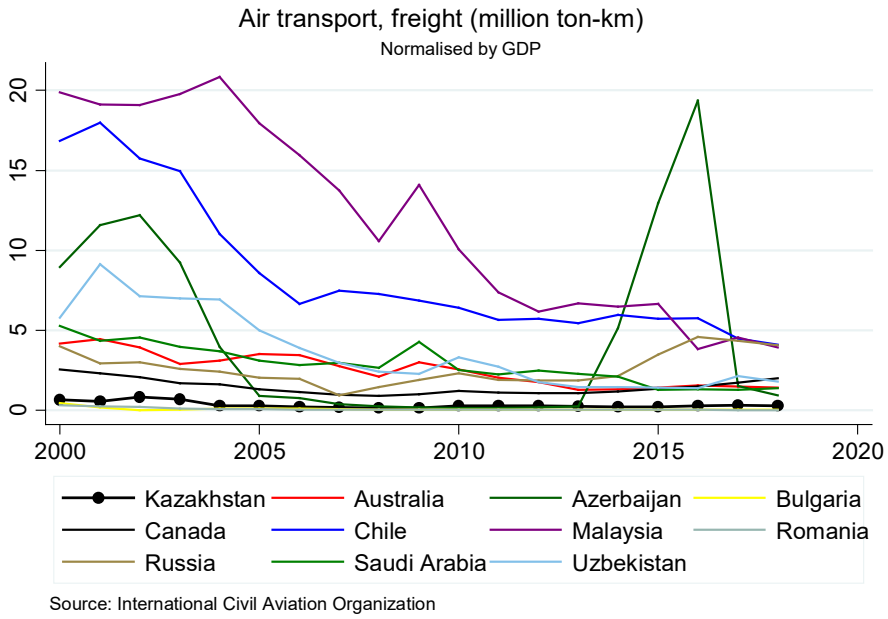
[70] Molokovitch et al.
[71] "Spotlight on Almaty Airport – Airport World."

term constraint to economic growth, especially in the development of complex activities and the attraction of FDI.

Air transport – Cargo

The modal share of air freight in cargo transportation is very low in Kazakhstan, with less than 0.01% of total cargo turnover.[72] Compared with peers, Kazakhstan's air freight cargo volumes also appear low, and are for instance lower than in Uzbekistan (see Fig. 5.3.5 for a measure normalized by GDP). In stark contrast with the observed growth in passenger air transport, air freight volumes have remained overall constant over the last decade. The quality and efficiency of airport infrastructure also seems poor in Kazakhstan, ranking lowest among peers in 2017 (Fig. 5.3.6).

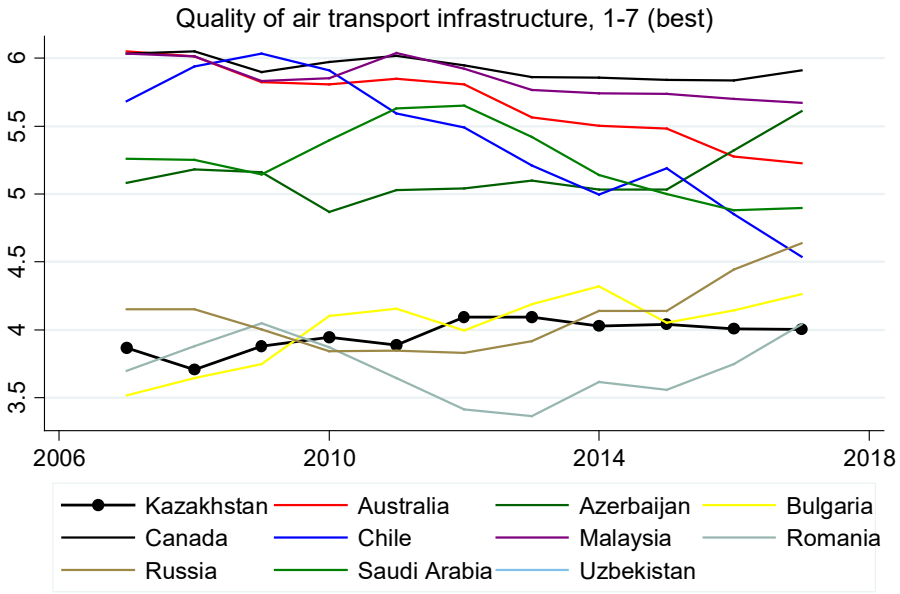
Figure 5.3.5



Source: International Civil Aviation Organization

[72] Molokovitch et al., *Logistics and Transport Competitiveness in Kazakhstan.*

Figure 5.3.6



Source: World Economic Forum

It is however difficult to clearly attribute the low development of air freight to supply or demand factors. We observe a scarcity of cargo handling facilities at airports, low levels of forwarding services for air transport, a small cargo fleet, and low usage of regular flights for transportation of freight. Due to the relative underdevelopment of air freight, price signals are difficult to collect. Based on a preliminary search for freight rates, we observe that air freight rates in Kazakhstan seem 2-3 times higher than in Chile, the country that had the highest share of air-freight volumes adjusted for GDP.[73] These high prices could be consistent with the existence of a constraint but are not sufficient to conclude.

Overall, it is unlikely that the underdevelopment of air freight is a binding constraint for existing activities, but it could be for at least some potential development pathways. Kazakhstan's geographical location makes air freight transportation the only option to access the world's economic centers. As such it may be a constraint to the development of certain industries, especially tech enabled industries that frequently require prototypes and samples from firms based in other countries.

ICT

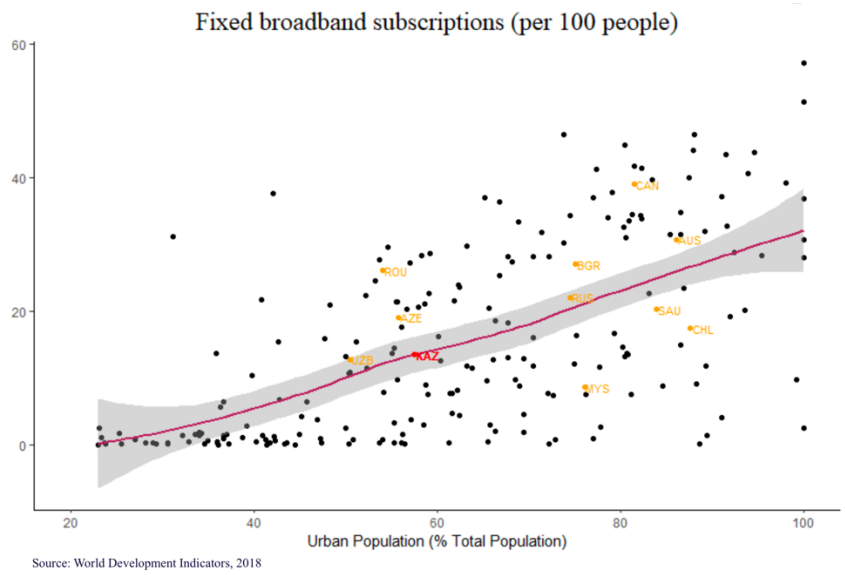
In urban areas, Kazakhstani businesses and citizens seem to enjoy affordable access to internet services, mainly through wireless connections. Kazakhstan has among the cheapest internet prices in the world. About 85% of the people have access to internet and is comparable to Kazakhstan's OECD peers.[74] Kazakhstanis primarily rely on mobile networks for internet

[73] "Parcel Monkey | The Package Shipping Comparison Site."
[74] World Bank, "World Development Indicators."

connectivity, and Kazakhstan displays 150 mobile subscription per 100 people, among the highest in the world.[75]

Despite rates that appear low, fixed broadband lags behind, possibly reflecting low urbanization. An international benchmark reveals that fixed broadband subscription are significantly lower than its OECD peers and low for Kazakhstan's level of income.[76] The fixed broadband subscriptions per 100 people also seem to have stagnated over the last 5 years at around 15 subscriptions per 100 people. This may however mainly relate to comparatively low levels of urbanization, as controlling for urbanization rates, Kazakhstan's broadband adoption conforms to international trends (Fig. 5.3.7). The average internet bandwidth per user, an indicator of speed, is comparable to Kazakhstan's OECD peers and is in line with international trends of bandwidth with income levels (Fig. 5.3.8). In a comprehensive index of telecommunications quality and penetration by the International Telecommunication Union (considering indicators such as internet users, telephone lines, and mobile phones per 1,000 people), Kazakhstan places among OECD peers (Fig. 5.3.9).

Figure 5.3.7



Source: World Development Indicators, 2018

[75] World Bank.
[76] World Bank.

Figure 5.3.8

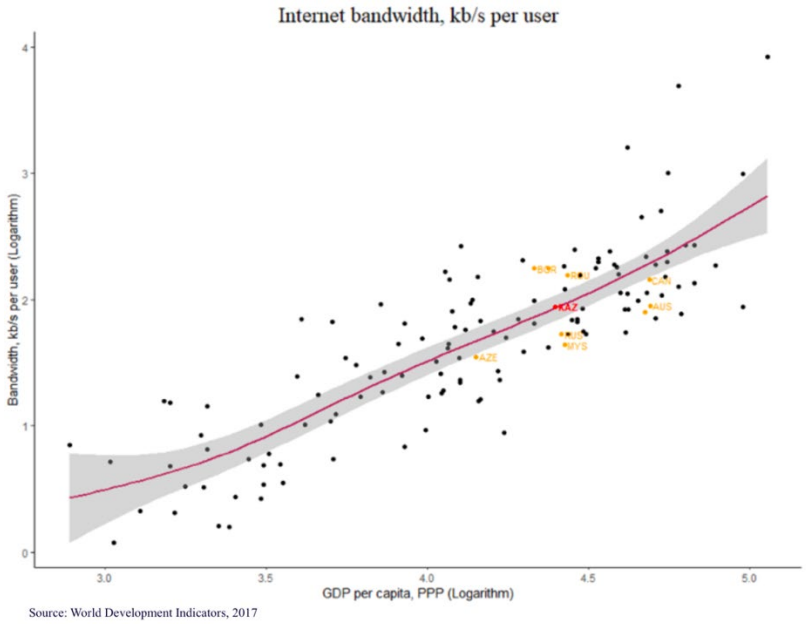
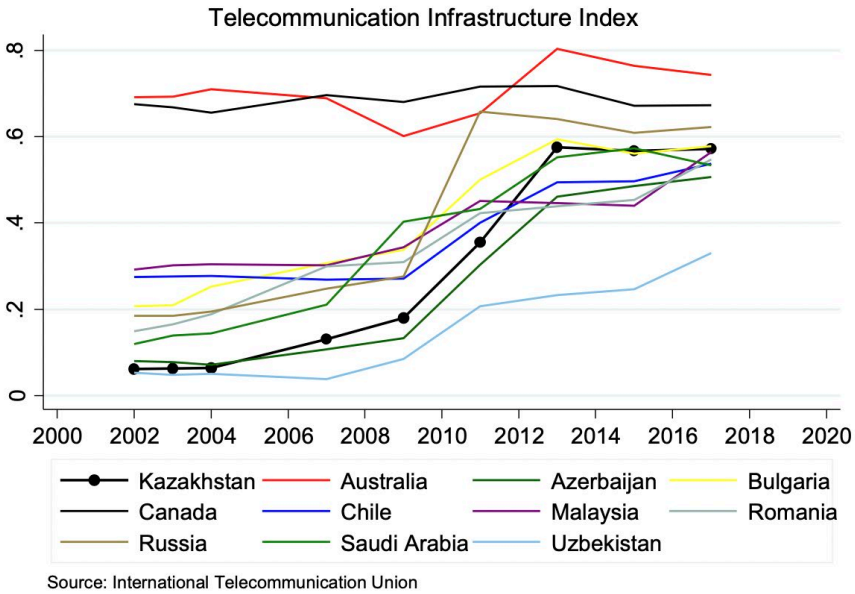


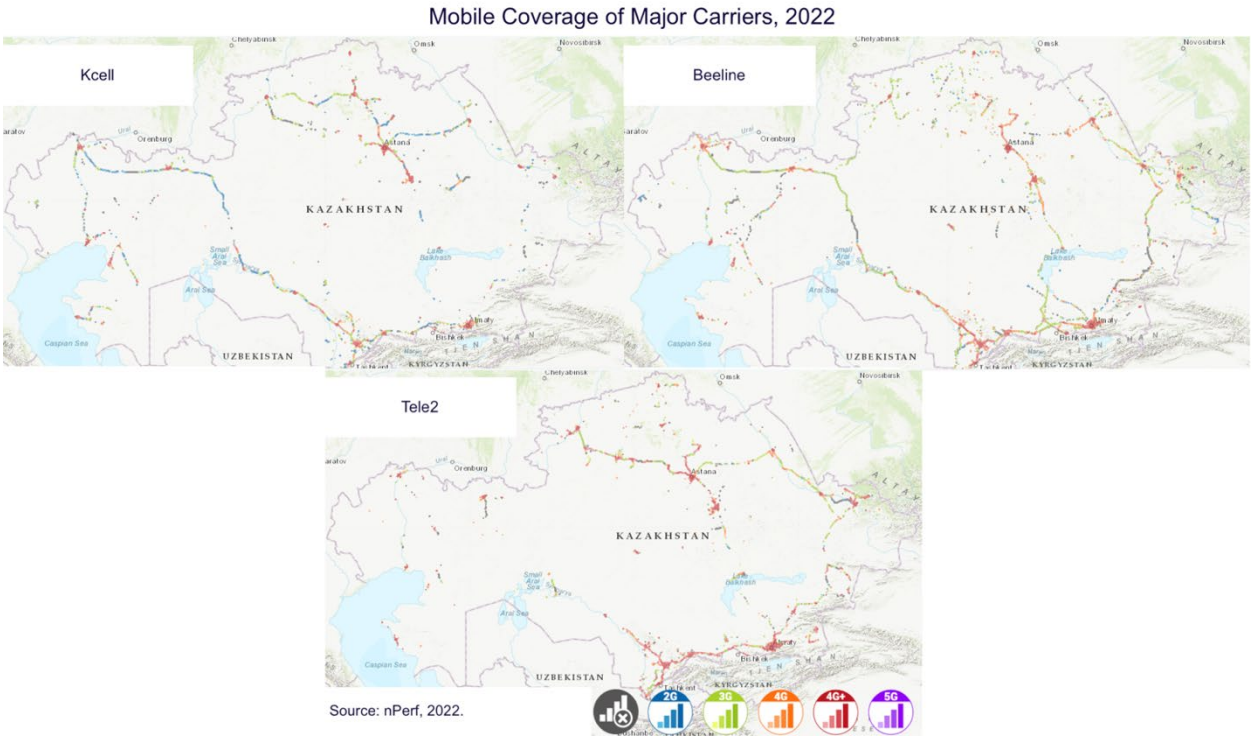
Figure 5.3.9



However, access to high-speed internet in rural areas is limited. Given the sparsely populated nature of the country, good network coverage is primarily confined to the urban areas and the industrial corridors (Fig. 5.3.10). Carriers often do not provide fast wireless data service to rural areas.[77] Overall, ICT infrastructure does not appear to be a major constraint outside of rural areas.

[77] nPerf, "NPerf Kcell Network Coverage."

Figure 5.3.10

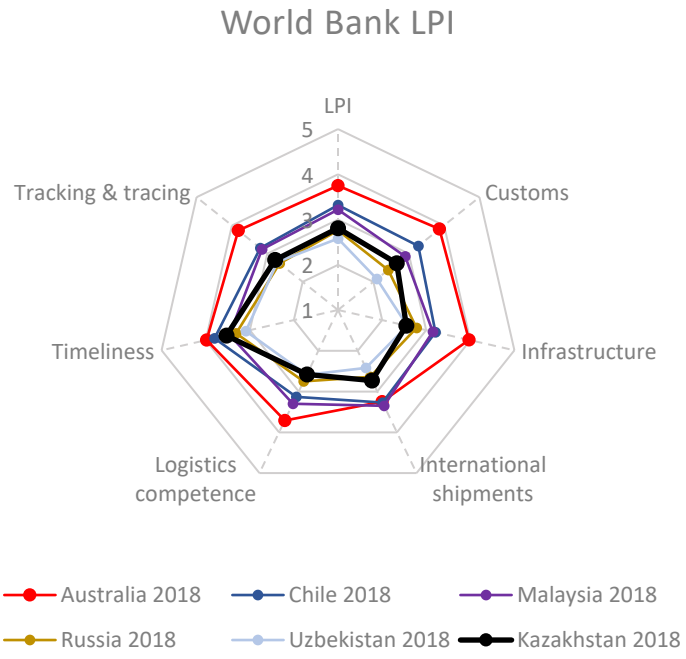


Logistics

Kazakhstan exhibits low performance in logistics. Kazakhstan significantly underperforms relative to OECD peers on the World Bank's Logistics Performance Index, especially on infrastructure quality and the quality of logistical services (Fig. 5.3.11).[78] Using alternative metrics, we also find that Kazakhstan significantly underperforms given its income level. Warehousing is often cited as a problem by local businesses, with only 15% of businesses rating it as good quality. This may partly reflect low investment, as investment in logistics (including transportation infrastructure) with private participation was 0.05% of GDP in 2017 compared to 0.5% for Malaysia.

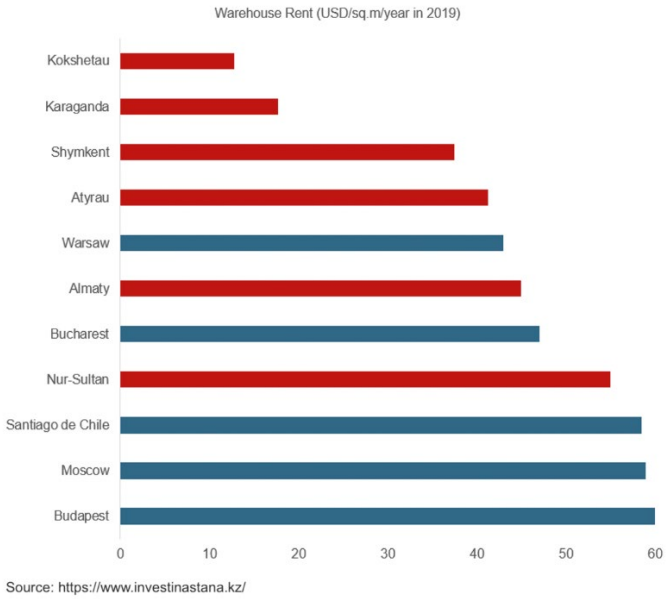
[78] The Logistics Performance Index is computed by the World Bank based on a worldwide survey of logistics operators (global freight forwarders and express carriers).

Figure 5.3.11



Despite low comparative performance, price signals do not point to a binding constraint. Benchmarking prices across major cities in Kazakhstan as well as peer countries, we for instance observe lower warehousing rates than in peer cities (Fig. 5.3.12). This may hint at the underdevelopment of logistics services being at least partly related to low demand for such services due to the low development of manufacturing activities, or other unknown factors. We conclude that logistics are likely not a binding constraint for today's economy but may be constraining the development of future manufacturing activities in particular.

Figure 5.3.12



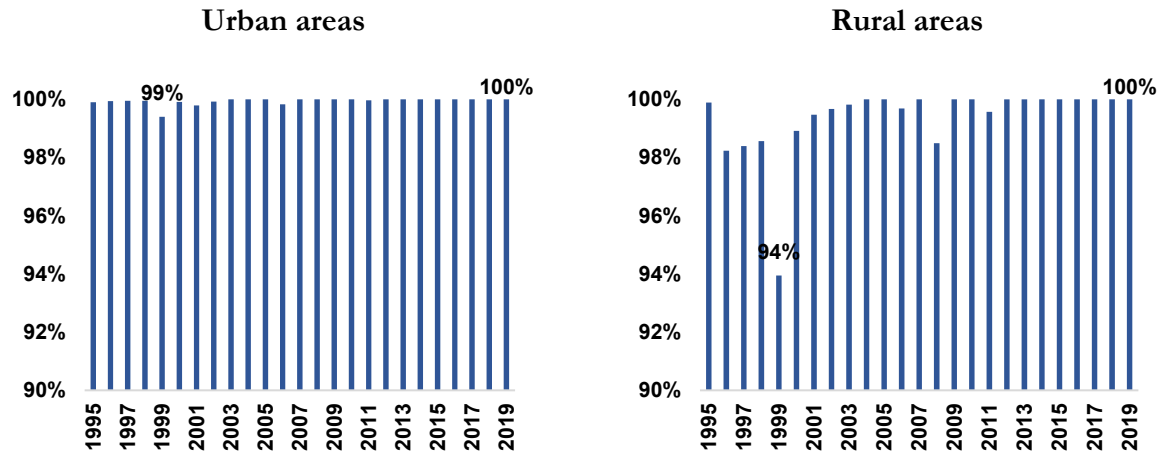
Electricity

Much of Kazakhstan's current grid infrastructure was inherited from the Soviet Union. By 1996, the Kazakh government began reforming the energy sector based on the British and Norwegian electricity market models. The government dissolved the existing vertically integrated state monopoly, splitting it into separate electricity management and business management companies. Since then, more than 85% of the electricity sector has been privatized.[79] However, it is worth noting that key companies in generation and transmission are owned by Samruk-Kazyna, the state's holding company for state-owned enterprises (SOEs).

This section delves deeper into the current sector characteristics and dynamics to assess whether electricity could be posing a constraint to the country's growth. We find that access to electricity is nearly at 100 percent, despite the geographic challenges of connecting such a vast territory and dispersed population with heavy infrastructure. The Soviet legacy created and expanded access, but challenges now remain to upgrade transmission and cater to the needs of potential new entrants in the economy in a context of very low tariffs. Investment in infrastructure may be a constraint to improving the system overall, but we conclude that electricity access is not a binding constraint for Kazakhstan's current economy.

Most people in Kazakhstan have access to electricity, across both rural and urban areas (Fig. 5.3.13). The Unified Power System (UPS) of Kazakhstan and its National Power Grid (NPG), which connect most of the inhabited areas of the country, are part of the Central Asian Power System (CAPS), designed in the 1960s as a southern extension of the Russian electricity system. The western part of the Kazakh grid is connected through the Russian Federation in the north. At the southern and eastern fringes, the connections with neighbors are patchy (lacking direct electric connections at a voltage of 500 kW with the UPS) and only serve local trade with Kyrgyzstan.

Figure 5.3.13. Access to electricity (% of urban and rural population, respectively)



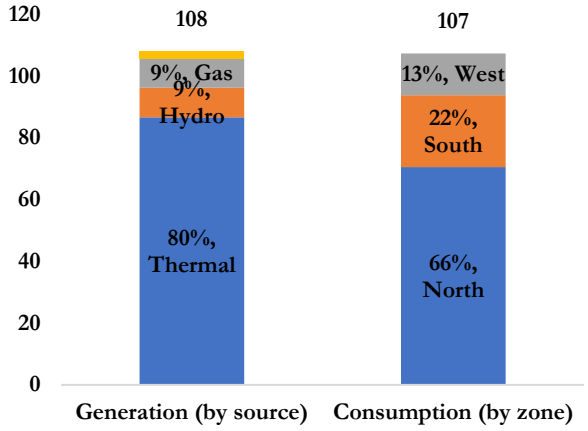
Source: WDI

Electricity consumption has steadily increased since 1999 (Fig. 5.3.15), most of which is generated and supplied through domestic sources. Electricity generation and consumption are

[79] Vechkinzova et al., "The Dilemma of Long-Term Development of the Electric Power Industry in Kazakhstan."

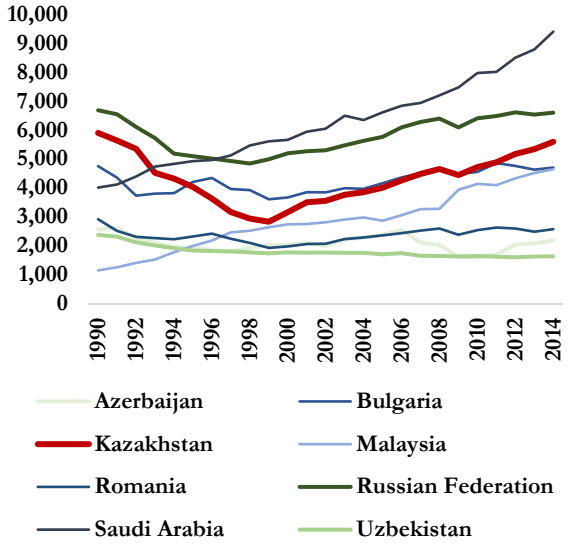
currently internally balanced at around 108 billion kWh, according to the Kazakhstan Grid Operating Company (KEGOC). The Ministry of Energy of Kazakhstan estimates average annual growth rates of electricity production of 3% and electricity consumption of 1.9% between 2020–2025 (Energies, 2021).[80] Most of the consumption (66%) and generation (80% of which is thermal) are concentrated in the northern part of the country (Fig. 5.3.14). Most of the electricity is generated from coal (70%) – three of the largest Kazakh coal mines are in Pavlodar (Bogatyr Komir, Vostochny, Severny). Kazakhstan is the main electricity producer in Central Asia, trading only with Russia in the north and Kyrgyzstan in the South.

Figure 5.3.14 Electricity generation and consumption (Billion kWh, %, 2020)



Source: KEGOC

Figure 5.3.15: Consumption per capita (kWh)



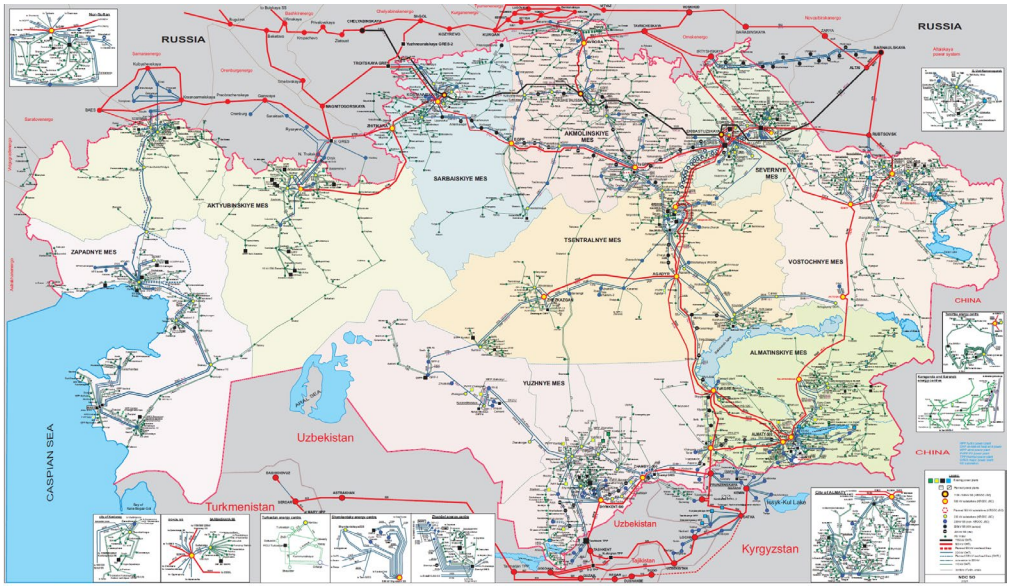
Source: WBG. Note: Regional peers in green, global peers in blue.

Generation and distribution are competitive markets with private and public participation, whereas transmission is a monopoly serviced by KEGOC, a state company that also acts as system operator. Based on KEGOC, electricity in Kazakhstan is generated by 190 power plants of various forms of ownership, most of which are private. KEGOC owns substations of 220 kV and above, switchgears, interregional and interstate transmission lines, covering 31,000 km of power lines and 74 substations. Regional power networks provide electrical connections within regions and power transmission to retail consumers. These regional networks belong to and are operated by 18 Regional Electric Network Companies (REC). Moreover, there are about 150 small transmission companies that control electrical networks at the regional level with a voltage of 0.4 – 220 kV, covering an estimated of 500,000 km of power lines and over 5,000 substations.

[80] Vechkinzova et al.

According to recent sources, distribution and transmission losses together range between 15 to 20 percent. This "shadow price" (the internalized loss) has doubled relative to 2014, when losses were estimated to be 8.4 percent in Kazakhstan (Fig. 5.3.17). Most peer countries at the time lost less than 10 percent of output in distribution and transmission (Fig. 5.3.18), so the current 15 – 20 percent range is above the historical and comparative normal. While this is not necessarily an outlier (countries like Togo and Libya lose 71% and 70% of their output, respectively), it is still a concern.

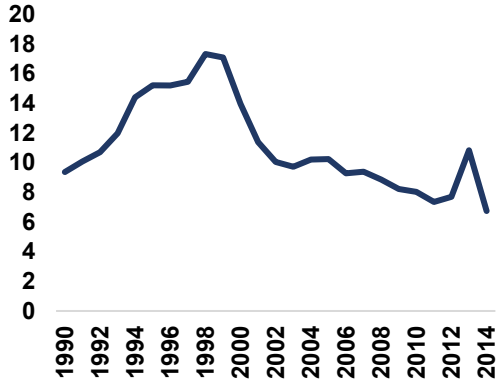
Figure 5.3.16. Overview of Kazakhstan's Energy Grid



Source: KEGOC

Figure 5.3.17 Transmission and distribution losses in Kazakhstan

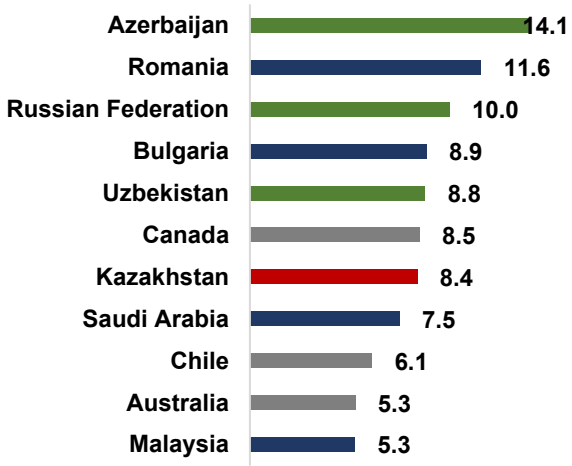
(% of output)



Source: WDI

Figure 5.3.18 Transmission and distribution losses: benchmarking

(% of output, 2014)



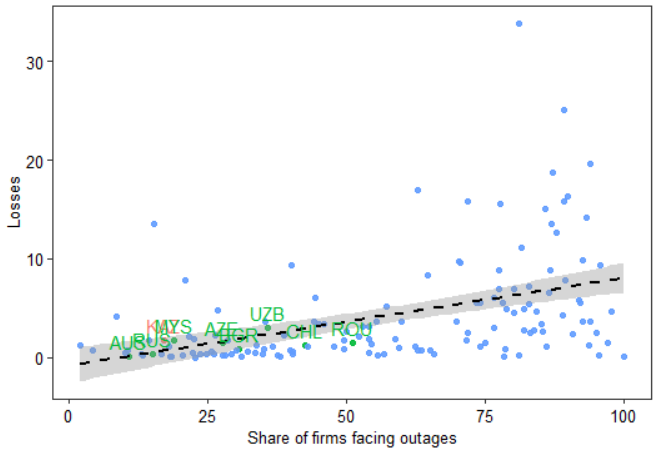
Note: Green bars represent regional peers, blue bars represent global peers, and grey bars represent aspirational peers.

The increase in this shadow price is a plausible warning sign of low investment in grid maintenance. Maintaining a grid is particularly challenging in a country with extensive power transmission lines (500 – 1,500 km) and continental climate. Kazakhstan has the added challenge of having inherited old infrastructure and historically low tariffs that were sustained over decades, which have only partially been able to cover direct costs and inflation. Moreover, large swaths of the population in the north depend on electricity from the girds connected to Russia, which may pose a vulnerability in the event of exogeneous disruptions to supply or distribution. According to the International Trade Administration (ITA), approximately 65% of equipment currently in use at power generating facilities has been in use for more than 20 years, and about 31% for more than 30 years. KEGOC has plans to implement 15 projects valued at US$ 3 billion to modernize or construct new power transmission lines and substations in the country by 2025. Moreover, the government's investment plans for the power sector are projected to grow to US$ 63 billion until 2027 (ITA, 2019).[81] This includes US$ 37 billion in power generation, US$ 9 billion in power distribution networks, and US$ 17 billion in regional power distribution organizations. The following power plants are expected to be renovated by 2024: Balkhash Coal-Fired Power Plant (Ulken), Ekibastuz GRES-2 Unit 3 Power Plant (Pavlodar), Karabatan Combined Cycle Power Plant (Atyrau), Almaty TETS 2.

Although distribution and transmission losses might be hurting power plants' and KEGOC's and other system operators' financial conditions, firms do not seem to be systemically affected. From an international perspective, the share of Kazakh firms facing electricity outages and the share of losses derived from those outages seems to be low relative to peers (Fig. 5.3.19). Moreover, in countries where electricity supply is sporadic, firms tend to bypass the constraint by buying their own generator. This is more an exception than a rule in Kazakhstan: the share of firms who own a generator is low relative to peers (Fig. 5.3.20) – signaling that firms are not struggling to overcome or bypass an electricity-related constraint. However, there are important regional differences: while over 30% of firms in Akmola and Atyrau report facing electrical outages, fewer than 10% face this issue in the other regions (except for Aktobe) (Fig. 5.3.21). From a national point of view, accessing reliable electricity does not seem to bind existing players' ability to operate; however, from a subnational perspective, there are challenges in certain regions in accessing electricity that can be focused on.

[81] US Department of Commerce, "Kazakhstan - Country Commercial Guide: Power Generation."

Figure 5.3.19. Transmission and distribution losses in Kazakhstan (% of output)



Source: Enterprise Survey (2019)

Figure 5.3.20. Firm-level energy generation: International benchmark

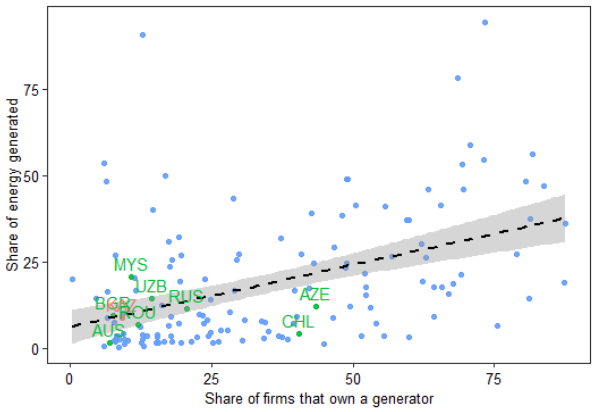
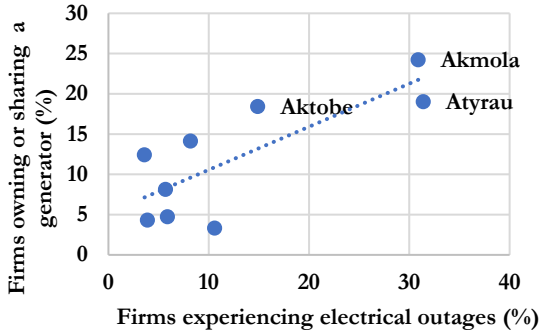


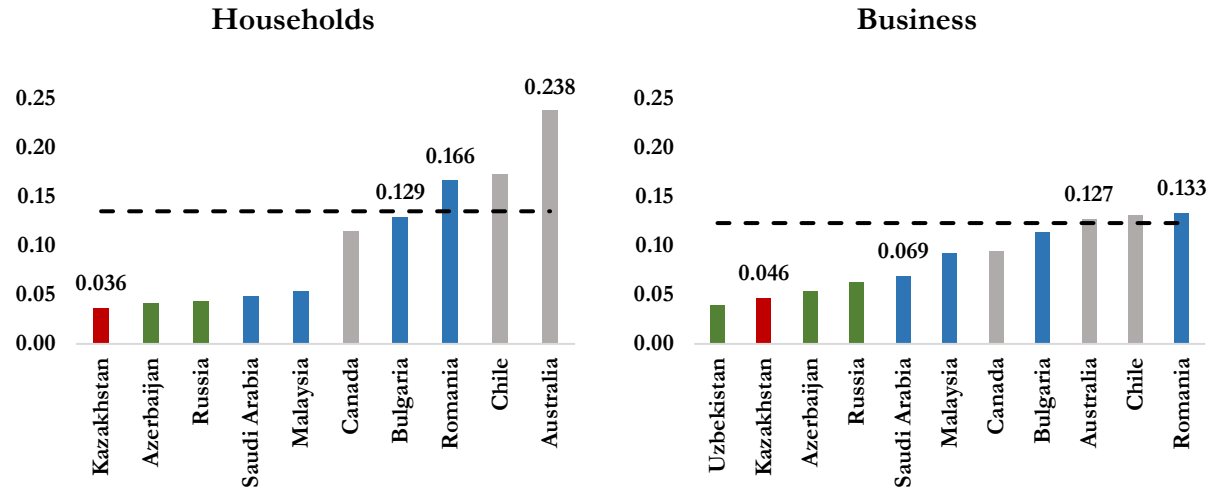
Figure 5.3.21. Firm-level outages and generator ownership by Kazakh region



Source: Enterprise Survey (2019)

From a price point of view, tariffs in Kazakhstan are among the lowest relative to peers (Fig. 5.3.22). Both household and business tariffs are well below the average value in peer countries. A concern regarding such low tariff levels is that price changes have historically accounted for inflation, but not for investment and maintenance needs. The "100 concrete steps for implementation of 5 institutional reforms," unveiled by Former president Nazarbayev in 2015, included three reforms for the electricity sector, one of which was the introduction of a new tariff policy in the power sector aimed at stimulating investments in the industry. The proposal involved splitting the existing power tariff into two parts: an electric power tariff – a variable component to assure a return of generation costs; and a capacity tariff – a permanent component to assure a return of investments.

Figure 5.3.22. Electricity prices, June 2021
(kWh, U.S. Dollar)



Source: WDI

The country is making efforts to transition to green energy, but progress has been slow and the process to get there is uncertain. Government-set targets involve supplying 30% and 50% of electricity by "alternative energy sources" by 2030 and 2050, accordingly. The first law to support the transition was Law No165-IV, adopted in 2009 and amended multiple times in subsequent years. A 2014 amendment introduced feed-in tariff (FIT) program, tax relief, grants and outlined rules of land allocation for renewable energy sources (RES)-utilities. By the FIT program, renewable energy power plants are eligible for guaranteed power prices for a 15-year period.

Overall, our analysis did not find significant evidence pointing to electricity as a binding constraint to economic growth in Kazakhstan. The regions with the lowest electricity connectivity and higher transmission losses produce metals and minerals, which are among the products that are the most electricity-intensive in terms of inputs. If electricity was a constraint, firms that produce metals and minerals would be rare; however, this industry is able to thrive despite challenging access to electricity (likely aided by the low cost of electricity).

Moving forward, investing in maintaining the grid and transitioning to more sustainable sources of power will continue to be a challenge worth pursuing. There is a tension between keeping prices low and investing in improving the grid infrastructure, and hence electricity reliability, in the future. Regulatory reforms seem to have been moving in the right direction, by including an investment component in the tariff. However, assuring proper implementation will be essential. It is important to note that regulatory conditions and state participation in the sector risk crowding out private investment. This is particularly relevant for efforts towards transitioning to greener sources of electricity. Green energy will continue to be a significant opportunity as technological improvements continue to drive technology prices down, potentially becoming a new source of low electricity prices in areas where the geography favors green energy production and the grid is most deficient, as in the south of Kazakhstan.

Box: Access to Water in Kazakhstan

Access to reliable water supply is important for citizens, but also for urban and economic development. Access to safe drinking water is crucial for the health of the population and in some cases also conditions the development of cities and broader population patterns. Water availability is also a condition for the development of agricultural activities as well as certain industrial activities. This may prove especially important in the case of Kazakhstan, whose territory entails large arid regions. Moreover, water access in Kazakhstan in certain regions is heavily dependent on rivers that flow across its borders with other nations; for example, the Syr Darya river that flows in Kazakhstan, Uzbekistan, and Kyrgyzstan. This has geopolitical implications on the availability of water for agricultural activities in those regions of Kazakhstan.

Access to water for households

Access to water is nearly universal in urban areas and good in rural areas. Over 95% of Kazakhstan's urban population has access to piped water, whereas a number of rural households use private boreholes for their water needs.[82]

This is the result of significant progress, especially in rural areas.[83] The increase has been substantial in rural areas, where access to basic drinking water increased from 81% to 90% between 2008 and 2017. [84] The proportion of the population using safely managed drinking water services in Kazakhstan increase from 72% to 90% in the same period. [85]

Despite these gains, the quality of water supply to certain rural households remains a challenge, as over 50% of the population in rural areas report treating piped water before consumption. The main causes of poor rural water quality include inadequate maintenance of water infrastructure and poor condition of sewage infrastructure. Urban water infrastructure is also outdated and requires further maintenance and upgrades.

Access to water for firms

Firms in general do not seem to suffer from issues with water supply, as only 2.9% of firms reported that they faced water insufficiencies.[86] While these results were consistent across sectors, there was geographic variability in answers. 19% of the firms from Nur-Sultan that were interviewed reported facing insufficiencies, which is a surprising result that may be a statistical anomaly. Apart from Nur-Sultan, the western regions of West Kazakhstan, Atyrau and Mangystau also report a higher proportion of firms reporting difficulties with water. The challenges in accessing water may be geographically related to those regions that are river- and rain- dependent and whose industries are sensitive to changes in water supply, such as agriculture. On the whole, we do not find firms reporting water as their main or major constraint, though we do acknowledge the importance of it as an input for production.

[82] Tussupova, Hjorth, and Berndtsson, "Access to Drinking Water and Sanitation in Rural Kazakhstan."
[83] World Bank, "World Development Indicators."
[84] Basic drinking water services is defined as drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip. Improved water sources include piped water, boreholes or tube wells, protected dug wells, protected springs, and packaged or delivered water.
[85] The percentage of people using drinking water from an improved source that is accessible on premises, available when needed and free from fecal and priority chemical contamination. Improved water sources include piped water, boreholes or tube wells, protected dug wells, protected springs, and packaged or delivered water.
[86] World Bank, "Enterprise Surveys: Kazakhstan 2019 Country Profile."

Land

Land and land-related reforms have been a topic of policy debate and high public involvement in Kazakhstan for the past three decades, spanning from the first land decree of independent Kazakhstan published in 1995 to the recent protests and land ban developments of the last 5 years, related to agricultural land ownership and foreign land use and ownership. The issues connected to land include the design of the transition from the Soviet legacy of landed relationships, ownership and categorization of the land, land accumulation by the elites and foreign companies, and finally, land usage.

Land in Kazakhstan is a crucial element of the economy. Transitioning away from Soviet-era land relationships to more commercial land units as well as a more diversified land usage system have changed how land is used, and land has accumulated to various entities, including the elite and foreign companies. On top of issues connected directly to land utilization, several institutional challenges affecting efficient land allocation such as corruption, appropriation, and illegal repurposing arose in the process of establishing land relationships in Kazakhstan.[87]

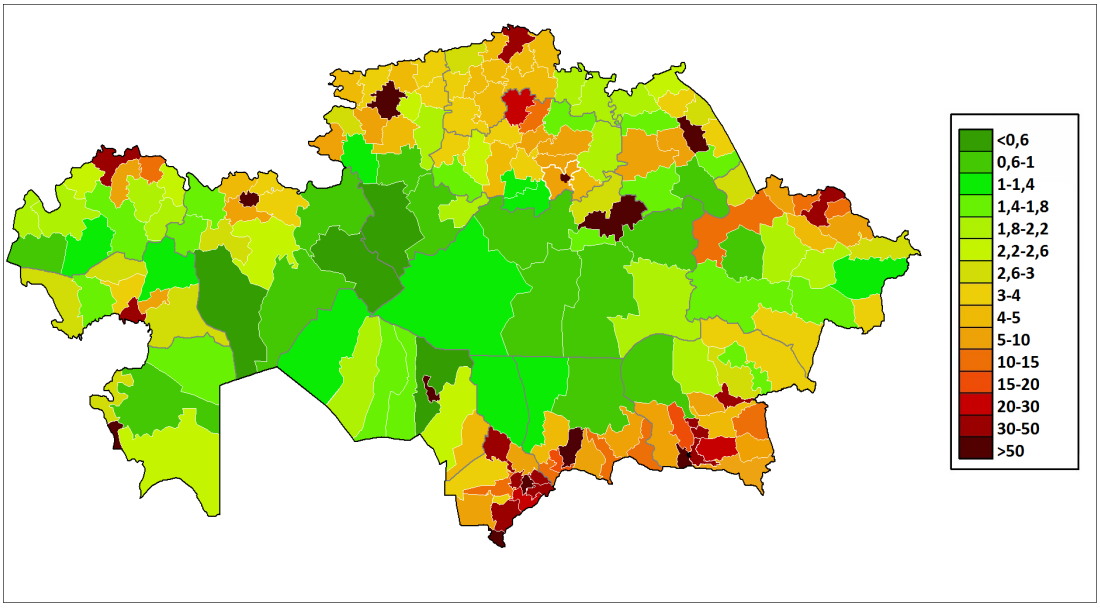
As land is a critical economic input into the production function of the economy, it is important to assess whether access to land could be a binding constraint to development and economic outcomes in the country. To that end, this report evaluates the availability of land resources in Kazakhstan, the market for allocating land, and the efficiency of such allocation in terms of economic output. Accessing land is an urgent challenge to inclusion, but as far as the economy's current productive capabilities are evaluated, it is not the first-order binding constraint that prevents growth across various sectors of the economy. It is not an active constraint as it is not currently constraining the engines of growth, but it could become a tighter constraint on the journey to unlocking future growth and new industries. A proactive and forward-looking policy approach would prioritize a system that both respects local population relationships with the land and historical peculiarities, and simultaneously leads to more productive land use.

Availability of Land

At first glance, it would not seem that Kazakhstan has scarce access to land. It is ranked the 11th least densely populated country in the world.[88] Its current population density is just above 7 people per square kilometer in 2021,[89] from 6 people per square kilometer in 1991 when the country got its independence (its lowest was 5.5 in 2002).[90] These estimates put Kazakhstan close to Russia (9/km²), Gabon (9/km²), and CAF (8/km²). Moreover, the country's 19.17 million inhabitants are not distributed evenly across its geography, with the cities and urban areas around them claiming almost 60% of the population[91] and having a density of more than 50 people per square kilometer (Fig. 5.3.23).

[87] Ageleuov, "The Significance Of The Land Issue Has Not Yet Been Realized By The Authorities Of Kazakhstan."
[88] World Bank, "World Development Indicators."
[89] Population estimates are taken from the most recent Population Census held in October 2021 and are 19.17 million people over 2.724.900 km² of land. Shayakhmetova, "Kazakhstan Population Reaches 19.17 Million in 2021."
[90] World Bank, "World Development Indicators."
[91] "The Population of Kazakhstan Has Come Close to 19 Million [Translated from Russian]."

Figure 5.3.23. Estimated spatial population distribution in Kazakhstan in 2016 based on the 2009 Population Census data



Despite unequal concentrations of groups of people across the land, density is low even in the most populated areas of the country, especially compared with the densely populated neighbors in the Central Asian region – Uzbekistan (76/km²), Kyrgyzstan (33/km²), and Tajikistan (68/km²). Thus, there is land available in Kazakhstan. This begets the question of accessing and allocating land among the population and different productive purposes.

Box: The Constitutional History of Land Ownership and Access in Kazakhstan

As a part of the transition from the planned economy and the Soviet-style regulations, the Constitution of 1995 granted the right of private land ownership, stating that "Land in the Republic of Kazakhstan is state-owned. Land plots may also be privately owned on the grounds, conditions and within the limits established by this Code."[92] Moreover, the Constitution claimed the legislation must "recognize and protect state and private ownership of land." In one of the presidential decrees of 1995, it was stated that "Foreign citizens and legal entities, as well as stateless persons, enjoy the rights and bear obligations in land legal relations on an equal basis with citizens and legal entities of the Republic of Kazakhstan," making land available for foreign ownership and thus spurring investment inflows to the country.[93] Private ownership of agricultural land was established in the Land Code of 2003, which, among other allowances, introduced the formal division of land by purpose, outlined the principles of land legislation, and reiterated land ownership rights. According to the new rules, foreign nationals were allowed to privately own land only for construction and

[92] An excerpt from Government of the Republic of Kazakhstan, "Constitution of the Republic of Kazakhstan, Article 6."
[93] Ageleuov, "The Significance Of The Land Issue Has Not Yet Been Realized By The Authorities Of Kazakhstan."

manufacturing purposes, while agricultural lands were only available for ownership or long-term rent (up to 49 years) by Kazakh nationals.[94] At the same time, foreign states and international organizations were allowed to buy state-owned land freely and foreigners continued to have access to the non-agricultural land; however, it is hard to assess if the land was in high demand by any of these entities as the cadaster of landowners is not publicly available in Kazakhstan.

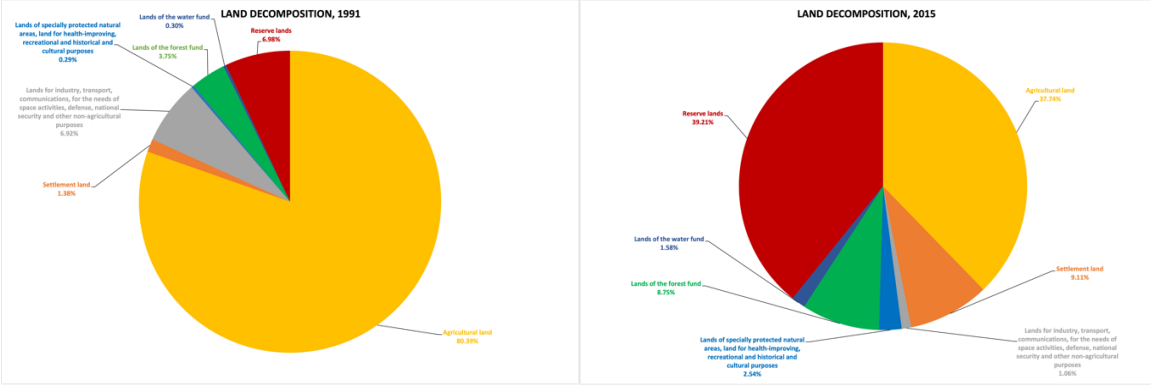
On March 31, 2016, then-Minister of Economy Erbolat Dossayev announced the implementation of the bill, "On the implementation of changes and additions to the Land Code of the Republic of Kazakhstan (that was signed into law in November 2015 and set to go into effect on July 1, 2016), which stated that entities with (at most) 50% foreign ownership started to be eligible to lease agricultural land for 25 years, a 15-year extension from the current at that time code, which, since 2011, had allowed for a 10-year lease for foreigners.[95] Later in 2016, after social unrest took place, a moratorium was introduced on the operation of certain articles of the Land Code, that lasted until Dec 31, 2021.[96] During this period, foreigners, foreign legal entities and stateless people were deprived of the right to temporary use the agricultural land (on the terms of a lease). Besides, any type of private ownership of state-owned agricultural land plots to individuals and legal entities was temporarily suspended. On May 13, 2021, the moratorium turned into a law, which prohibits "the possession by foreigners, stateless persons, foreign legal entities, legal entities of the Republic of Kazakhstan with foreign participation, international organizations, scientific centres with international participation, as well as temporary use of agricultural land plots". At the same time, on June 30, 2021, the Law of the Republic of Kazakhstan "On Amendments and Additions to Certain Legislative Acts of the Republic of Kazakhstan on Land Relations Issues" was ratified.[97] It includes the extension of the moratorium on the provision of private ownership of agricultural land, effective from December 30, 2021, to December 31, 2026, along with some additional restrictive measures, granting the government more control over the agricultural lands.[98]

The composition of land in the country changes dramatically after Independence. In 1991, right after the creation of independent Kazakhstan, agricultural lands comprised 80% of the land fund (which stands at 272.5 million hectares), followed by reserve lands99 (7%), lands for industry and transportation (6.9%), and settlements land (1.38%). Between 1995 and 2000, the reserve land category grew more than 4-fold from 28 to 119 million hectares, while agricultural land went from 195 million hectares in 1995 to 91 in 2000, making land composition in 2015 look the following way: with the same land fund, reserve lands stood at almost 40%, followed by the agricultural lands (38%), settlements land (9%), and the land of the forest fund (9%) (Fig. 5.3.24). Even though in recent years, the reserve lands started to be gradually repurposed into other categories, dropping 5 million hectares over 2015-2019, feeding, in part, into the agricultural lands, it is still far from reaching the previous scale.[100]

[94] Government of the Republic of Kazakhstan, "Land Code of 2003, Article 4."
[95] Sholk, "Kazakhstan's Land Reforms."
[96] Указ Президента Республики Казахстан от 6 мая 2016 года № 248 "О введении моратория на применение отдельных норм земельного законодательства"
[97] Коммитет по управлению земельными ресурсами Министерства сельского хозяйства Республики Казахстан, "Становление и развитие земельного законодательства Независимого Казахстана"
[98] Putz, "Kazakhstan Bans Sale of Agricultural Lands to Foreigners"
[99] Reserve land is the land not provided for ownership or land use and held under the jurisdiction of regional executive bodies (governmental land). It can be used for the needs of defense, construction and operation of water facilities, the extraction of solid minerals.
[100] Министерство сельского хозяйства Республики, "Сводный Аналитический Отчет о Состоянии и Использовании Земель Республики Казахстан за 2019 Год"

Given that agriculture plays a major role in the economy of Kazakhstan, it is important to understand the root causes of such dynamics of the land fund. Several reasons are identified to be causing the sudden drop in agricultural land during the 90s and the beginning of 2000, the first being the administrative urge to repurpose the economically unviable or simply unused agricultural land during the initial stages of land reform. Second, the lack of irrigation systems led to decreased availability of irrigated lands, thus, making some of the previously used agricultural land nonarable. From 1991 to 2018, the area of irrigated land decreased by 176.4 thousand hectares or by 7.5%, since after the collapse of the Soviet Union, many inter-farm, on-farm irrigation and drainage systems were left without organized maintenance, coupled with a newly imposed fee for water use.[101] Lastly, some experts claim that the introduction of wide-scale repurposing of the land into the reserve land category can be seen as a part of a very profitable corruption scheme. In particular, lands are first classified as unused, then transferred to the reserve, and later repurposed to a different categorical affiliation, without much consideration about their most productive economic use.[102]

Figure 5.3.24. Kazakhstan's land fund decomposition in 1991 and 2015 based on the legal monitoring land legislation of the Republic of Kazakhstan[103]



In recent years, public outcry and social unrest over policy uncertainty regarding land ownership has become increasingly relevant. As agricultural land decreased almost two-fold over 30 years,[104] the 2016 amendments of the Land Code[105] that were aimed at granting foreigners increased access to agricultural land,[106] along with restricting some land rights of locals' (as the inability to rent land and a shift from long-term leases to auction-like purchases) caused significant social unrest in the country. With more than 40% of the population living in the rural areas and around 18% employed in the agricultural sector,[107] the proposed bill affected a big part of Kazakhstan's population who were directly dependent on the agricultural land. Even though expanding foreign participation and

[101] Tleshpaeva D. et al. "Efficiency of Agricultural Land Use in Kazakhstan"
[102] Aisin, "Analytical Report on the Results of the Legal Monitoring of the Land Legislation of the Republic of Kazakhstan [Translated from Russian]."
[103] Aisin.
[104] In 2021, the agricultural land stood at 108.6 million hectares, compared to 195 million hectares in 1991.
[105] The changes were signed into law in November 2015 and set to go into effect on July 1, 2016.
[106] An excerpt from the bill "On the implementation of changes and additions to the Land Code of the Republic of Kazakhstan": entities with (at most) 50% foreign ownership *were eligible to lease agricultural land for 25 years, a 15-year extension from the current code that since 2011 has allowed for a 10-year lease.*
[107] Sholk, "Kazakhstan's Land Reforms."

introducing land auctions might have helped the stagnating economy to attract funds for the agricultural sector development and increase the transparency of the land operations, social unrest sparked around the issue and was mostly attributed to a nationalistic sentiment against Chinese expansion in Kazakhstan. However, the protests were also fueled by the declining real incomes caused by the end of the oil super-cycle, little trust in the government, and fear of further expropriation and corruption that might come with the new legislation.[108]

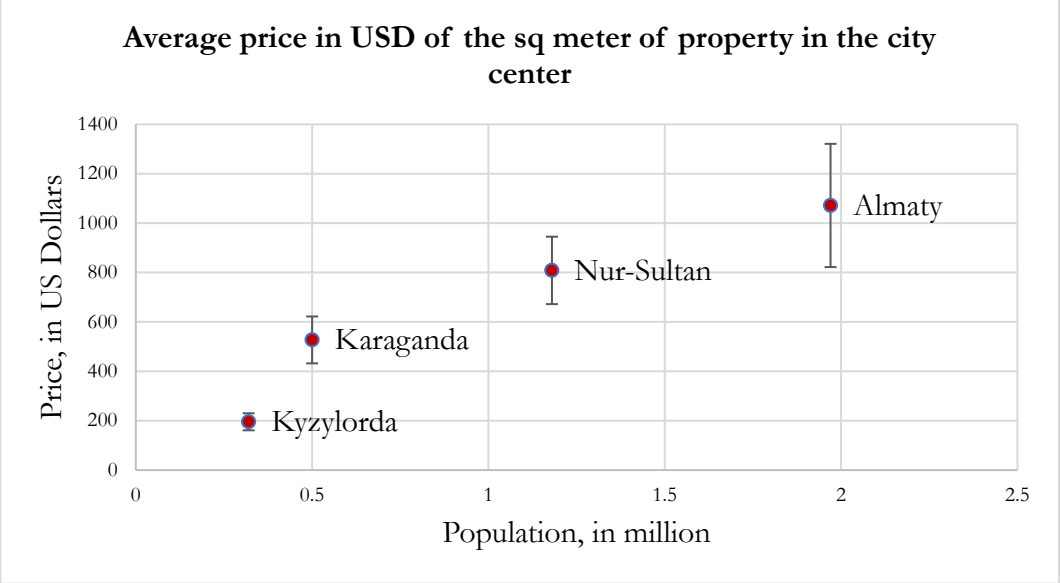
Further changes to the Land Code to allocate agricultural land for productive use did not result in expected improvements. While the allocation of agricultural land was decreasing, there was still nothing to suggest land scarcity or the unavailability of land for productive purposes. Instead, the 2016 amendments to the "Land Code" outlined plans to auction 17,000 square kilometers of farming land and to extend the length of leases for foreigners – these were aimed at increasing the productive use of the agricultural land. While the motivation was to spark the creation of the land market and reinvent land as a tradable commodity, the introduction of private property rights for land did not create much needed dynamism and entrepreneurial profit-oriented relations.[109] Land ended up being mostly owned by latifundios, who did not invest a lot in the development of the land and remained as nominal landowner.[110]

Despite efforts, land was still concentrated in the hands of a few, and prices were unable to signal market dynamics effectively. The land market was created as a result of liberal reforms of the 1990s-2000s, and land prices started take over as the force of the market equilibrium. However, as land remained highly concentrated,[111] the market was not perfectly competitive, especially for agricultural lands.[112] There is a price floor for each type of land based on cadastral (estimated) value set by the government, but it is not commonly used since it is lower than the secondary market price.[113]

Land and real estate prices vary significantly across Kazakhstan, with urban and more densely populated places exhibiting higher rates and prices. For example, in Almaty (population of 1.97 million), the average price for a square meter in the city center stood between US$ 822-US$ 1,321. In Nur-Sultan (population of 1.18 million), prices stand between US$672 - US$ 945; in Karaganda (population of 500,000) between US$ 432-US$ 622; in the smaller city of Kyzylorda (population of 320,000), US$ 161-US$ 230 (Fig. 5.3.25).[114] Market conditions and prices are heavily correlated with the city's size, connectedness, attractiveness, and average income. While the size of a city's population and its average income are normally correlated, there are some exceptions in the oil-rich regions like Atyrau, where real estate and land prices are comparable with cities whose population is almost three times bigger.

[108] "Kazakhstan's Land Reform Protests Explained."
[109] Suleimenov, "Can Land Be Sold to Foreigners?"
[110] Kumenov, "Kazakhstan: Land Ban Pleases Activists but Leaves Farming with Fewer Options."
[111] Kvartiuk and Petrick, "Liberal Land Reform in Kazakhstan? The Effect on Land Rental and Credit Markets."
[112] Serikov, "Земельная Монополия с Некошеным Аффилированным Лицом."
[113] Kultemirov, "Кадастровая Оценка Земель Населенных Пунктов в Республике Казахстан."
[114] Price estimates from Feb. 2022 from https://www.numbeo.com, "Cost of Living Estimates - Data."

Figure 5.3.25: Average prices for real estate in Kazakhstan's cities in 2022



The government changed the rules of land allocation to prevent foreign ownership, but this was uncorrelated with any changes in investment and economic activity. A moratorium on the operation of certain articles of the Land Code was signed in 2016, which lasted until December 31, 2021. With this, foreigners' use of agricultural land was prohibited, and new private ownership of state-owned agricultural land plots was suspended. While one of the main motivations was a nationalistic sentiment of "protecting the land," there was little economic change. There were no signs of increased participation in the agricultural sector by locals, and the effort to increase the productive use of the natural agricultural endowment – estimated to be more than 1 million square kilometers of non-irrigated idle land[115]– did not grow. While the moratorium was in place, there were several additional measures introduced that sealed the state involvement in the land market: agricultural plots near urban settlements were classified as "state needs" lands, making it easier for the government to appropriate them; the legislation on underutilized lands detection and acquisition was introduced, making monitoring of efficient use stricter and the expropriation procedures faster.[116] In 2021, the moratorium turned into a law, suspending foreign use of agricultural land till 2027 and introducing other restrictive measures that grant the government further control over the agricultural lands.[117]

Land in Kazakhstan is concentrated in ownership, and the land market did not develop dynamism from the liberal land reforms of the 2000s. Even though it remains a challenge to accurately identify the nature of ownership of the land in Kazakhstan, according to local journalists, only 1.5 million hectares of land are held in private ownership (0.6 % of the total land fund, or 1.6%

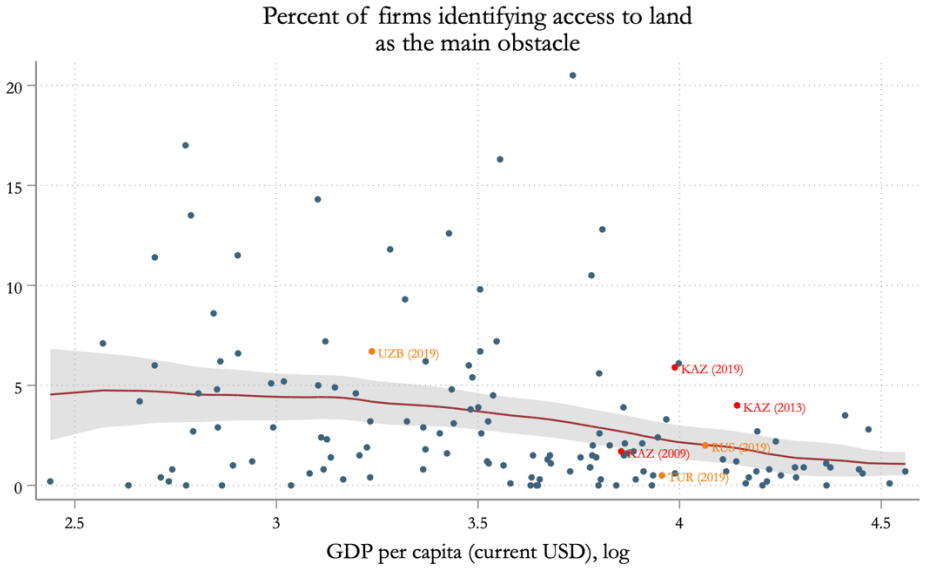
[115] "Земельный Кодекс. Вопрос – Ответ: Кто? Сколько?"
[116] Chekh, "Сговор Или Необходимость: На Сельхозпродукты Хотят Установить Предельные Цены."
[117] Committee on Land Administration, Ministry of Agriculture of the Republic of Kazakhstan, "Становление и Развитие Земельного Законодательства Независимого Казахстана."

of the fit for use), while 92 million hectares are used on a short- and medium-term temporary lease contracts basis, which is a third of the total land fund.[118] Using data from two independent surveys from the years before and after private land ownership was introduced, Kvartiuk and Petrick (2021) find that the reform "did not affect the land sales market but reorganized the land-rental market in a top-down fashion with the state remaining the principal landlord" and "did not facilitate efficient land allocation."[119] If not owned by the government, the land is claimed to be concentrated in the hands of political nomenclature ("akims"), oligarchs, and people close to those in power.[120] This element of elite capture of public resources is explored further in Section 5.4.

Access to Land is a constraint, but not immediate or first-order

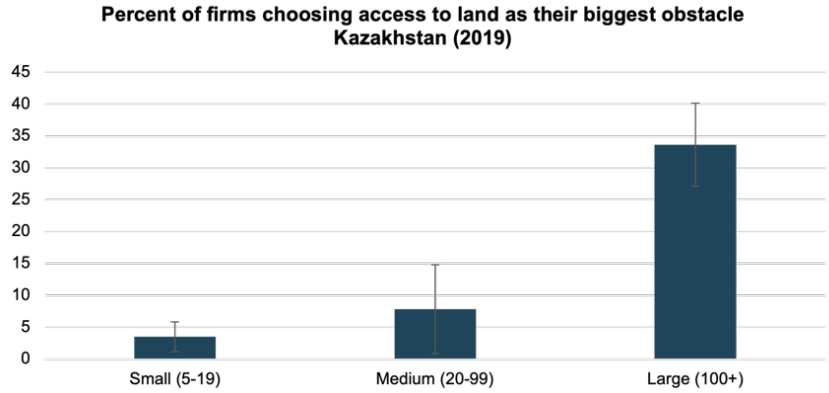
Land is a crucial input to the production process, and access to land is often cited as an obstacle by firms. Enterprise Survey data from 2009, 2013, and 2019 show a continuing increase in the share of firms that identify access to land as their main constraint, from below 3% to 4% to almost 6% respectively, showing a two-fold increase over ten years (Fig. 5.3.26). In 2019, this share was higher than regional and international peers such as Turkey and Russia and slightly lower than Uzbekistan. In the same year, however, companies in Kazakhstan expressed that access to land is not as concerning an issue as inadequately educated workforce, tax rates, or practices of the competitors in the informal sector. Still, land predominantly affected the operations of large enterprises (with more than 100 employees), and the companies in the services, retail, and non-metallic mineral products sectors (Fig. 5.3.27).

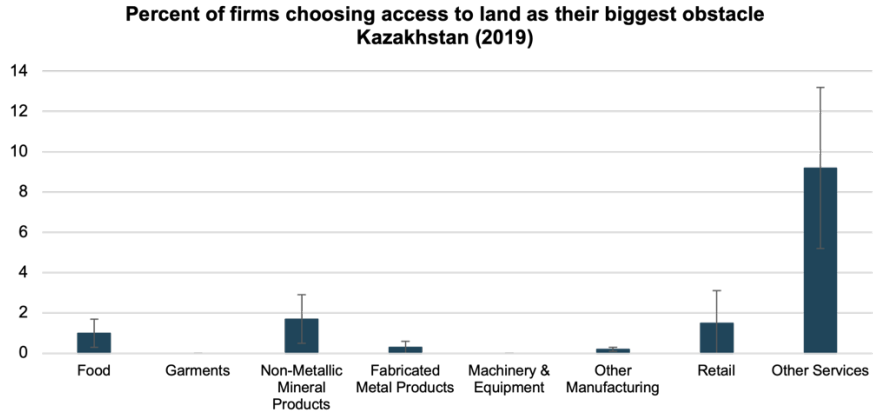
Figure 5.3.26. Enterprise survey results for the number of companies identifying land as their major obstacle



[118] "All Land in Kazakhstan Belongs to Someone, but Sometimes It Is Difficult to Identify the Owner."
[119] Kvartiuk and Petrick, "Liberal Land Reform in Kazakhstan? The Effect on Land Rental and Credit Markets."
[120] Ageleuov, "The Significance Of The Land Issue Has Not Yet Been Realized By The Authorities Of Kazakhstan."

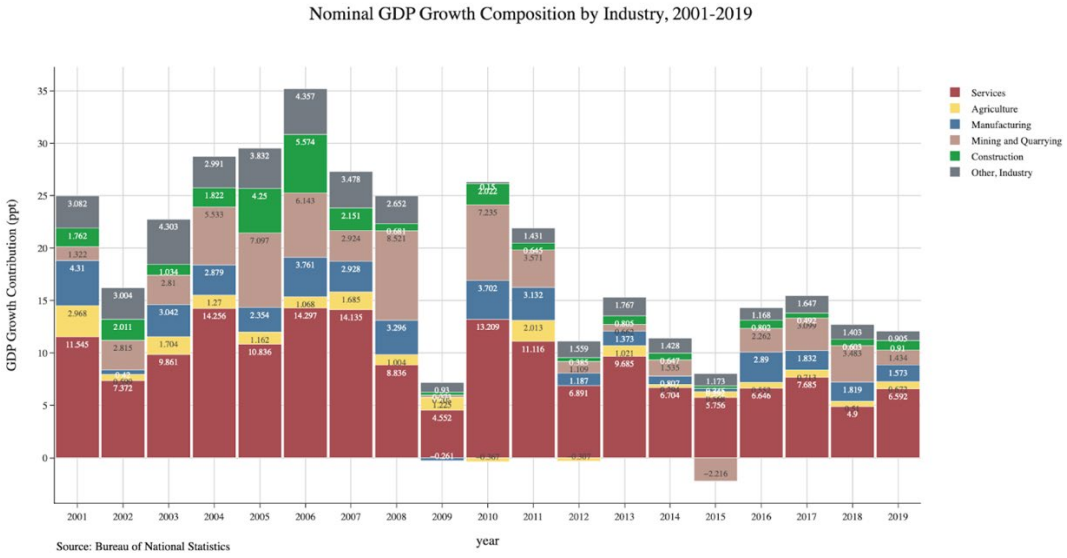
Figure 5.3.27. Enterprise survey results for the properties of the companies identifying land as their major obstacle





Accessing land does not seem to lead to additional economic output or higher productivity, across non-tradable and non-oil tradable sectors. The services sector does not seem to be constrained by land. Looking at the decomposition of GDP by industry, the services sector represents one of the main engines for growth. Easier access to land did not produce additional economic benefits. While the share of firms in the services sector (retail and other services combined) reporting land as a constraint decreased from around 12% to just over 10% from 2013 to 2019, services contribution to the nominal GDP growth dropped from almost 10% to 6.5% (Fig. 5.3.28). At the same time, agricultural productivity is often associated with the availability of land. From high-level analysis of the nominal GDP growth decomposition, it appears that from 2016, the agricultural sector hasn't experienced a single year with in which its contribution to growth exceeded 1% (while prior to the moratorium, the contribution was as high as 3% in 2001 and 2% in 2011). It is important to note here that land as a constraint can be analyzed mainly for those existing firms in the country and not those who have not appeared. Assessing the latter might reveal more depth to the importance of land to be economically viable.

Figure 5.3.28. Services sector contribution to the nominal GDP growth



Geographically, the trend appears to be driven by companies in two regions: Aktobe Region and Kyzylorda Region, where more than 15% and more than 20% of firms respectively reported land being a major obstacle in 2019 (Fig. 5.3.29). Benchmarking these two regions against the rest of the country, there is no obvious reason for this observation: both regions do not seem to have either a disproportionately high population density or land scarcity. Even though both regions have oil fields, they are not considered to be at the heart of the mining industry the way that neighboring Atyrau is, which has the biggest oil fields (Fig. 5.3.30). However, analyzing the properties of the firms in the two regions and their sectors can shed more light on the roots of the problem. The biggest industries in Aktobe Region are retail trade, construction, and educational services, while in Kyzylorda Region it is health care and social assistance, educational services, and construction.[121]

Figure 5.3.29. Enterprise survey results for the geographical distribution of the companies identifying land as their major obstacle

[121] Dun & Bradstreet, own calculations

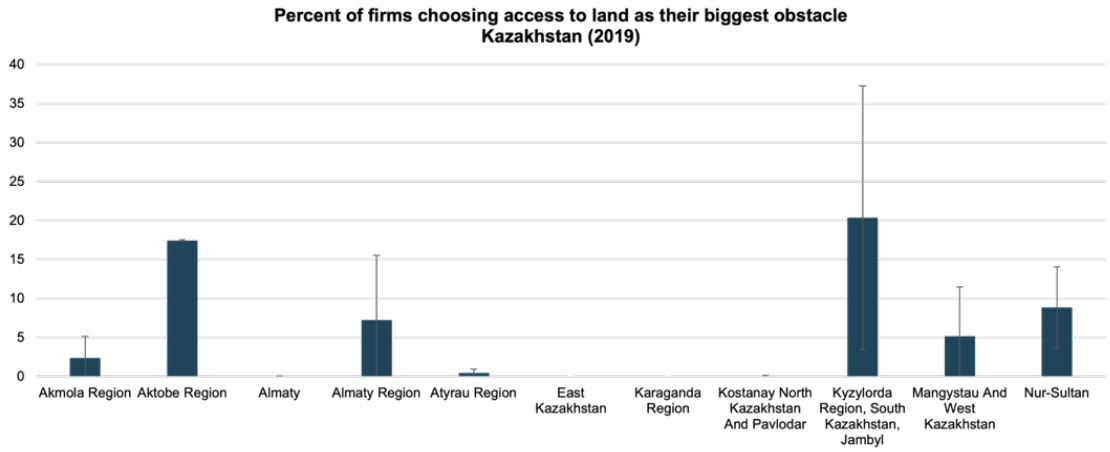
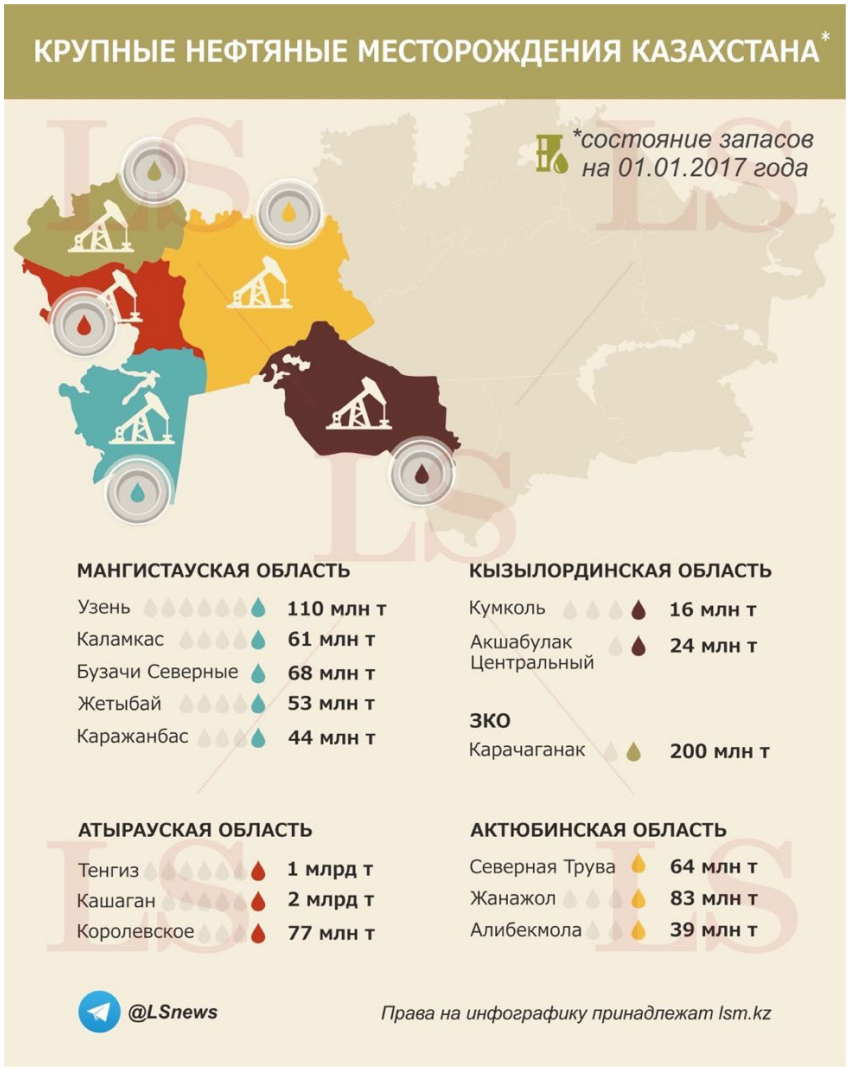


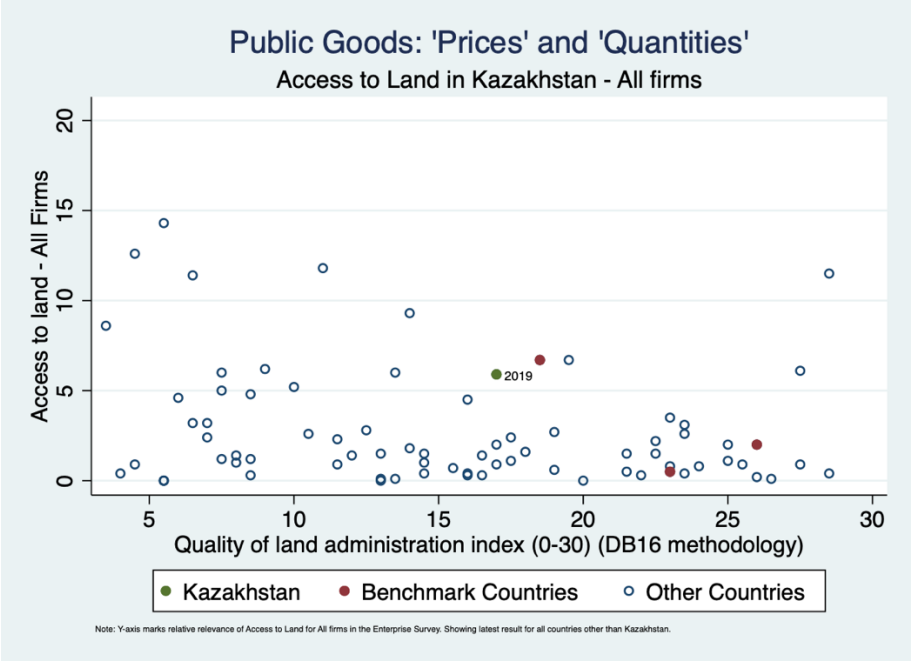
Figure 5.3.30. Largest oil fields and their proven oil reserves in 2017[122]



[122] Yesenalina, "The Largest Oil Fields in Kazakhstan - Infographics."

The World Bank 2019 doing business indicators places Kazakhstan modestly on the quality of land administration index, giving it 17 out of 30 possible points. Considering the score, Kazakhstan stands as an outlier in terms of the unexpectedly high number of firms reporting access to land as a constraint (Fig. 5.3.31). Breaking down this index for Kazakhstan shows specific areas for improvement across several components, particularly: transparency of information and geographic coverage. These conclusions corroborate the claims that legal administration and land-related regulations are complex and challenging and that there may be no centralized authority that can facilitate land ownership, usage, and positioning.

Figure 5.3.31. Doing Business Indicators for the quality of land administration in Kazakhstan, 2019



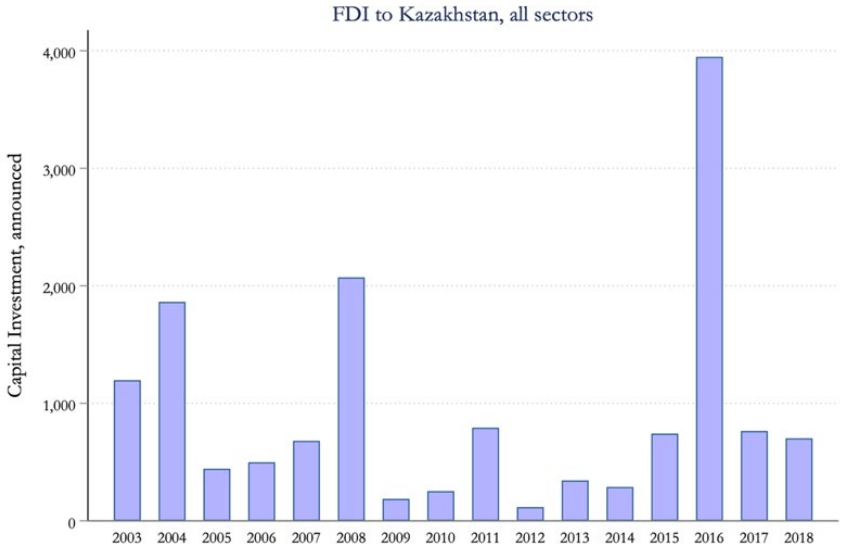
While land availability is not a constraint and land access may be a challenge for specific firms, policy uncertainty around land issues may be constraining foreign investment. In terms of policy uncertainty surrounding land issues, the "Land Ban," which grew out of the 2016 moratorium, might be seen as potentially concerning for foreign investors and might affect their willingness to invest in Kazakhstan's economy. Unsurprisingly for an oil-rich economy, net FDI inflows as a share of GDP follows commodity prices and normally flows into the non-tradable sectors that benefit from the appreciated currency, especially construction and services. At the same time, non-oil tradables, which can provide countercyclical support for the economy, are undiversified. The agricultural sector in Kazakhstan is an exemplary case: "although the country has the fifth-largest area of arable land in the world, agro-processing is currently underexploited."123 Even though before the "Land Ban" the share of capital investment in agriculture increased almost 4-fold over 2004-2014,[124]

[123] World Bank, "Creating Markets in Kazakhstan: Country Private Sector Diagnostic."
[124] From around US$ 291 million in 2004 to around US$ 1 billion ten years later

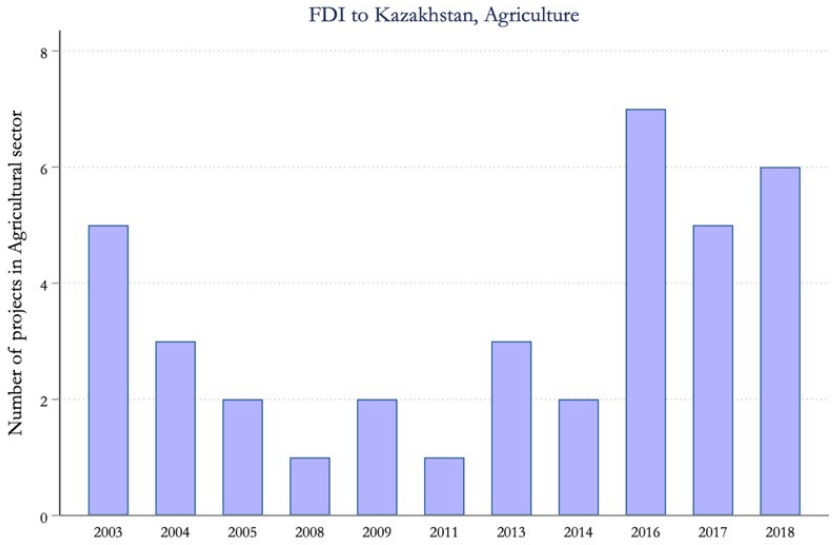
as a consequence of the latest political and policy developments, foreign investors are likely to be hesitant about investing in the country further.

Overall, however, neither the agricultural sector nor the economy in aggregate struggled to attract FDI in the years of policy uncertainty around land. Using data on FDI inflows to Kazakhstan, we analyze if investments to the country during the years of the moratorium were deflated. This is not the case. On the contrary, 2016 recorded high FDI inflows while 2017 and 2018 were still in line with previous years (Fig. 5.3.32). This could be due to the dominance of oil related FDI in extractives and non-tradables, but it is still revealing that a complete reversal of land ownership for foreigners did little to change incoming investments. This suggests that while policy uncertainty is undesirable, it does not represent a binding constraint to attracting investment and promoting growth in Kazakhstan. One potential explanation for such dynamics might lie in the peculiar properties of FDI reporting and the rapid pace of the legal changes happening around 2016. At the same time, the fact that there are non-zero FDI inflows into agriculture might suggest that there are ways for foreign firms to bypass the land constraint: interviews with farmers and landowners in Kazakhstan revealed that along with weak enforcement of the ban, there are ways to overcome it such as subletting land from the locals or just continuing operations the way they were before the ban.[125]

Figure 5.3.32. FDI inflows into Kazakhstan's economy, from fDi Markets



[125] Kumenov, "Kazakhstan: Land Ban Pleases Activists but Leaves Farming with Fewer Options."


FDI to Kazakhstan, Agriculture
Number of projects in Agricultural sector
0
2
4
6
8
2003
2004
2005
2008
2009
2011
2013
2014
2016
2017
2018

5.4 Government Failures

This section of the analysis covers government failures as a binding constraint. The focus of this section is to understand whether potentially viable investments are not being carried out because government policies diminish the potential appropriability of these investments and social returns. This area of the analysis touches upon several micro risks such as political risk and policy uncertainty, corruption, effectiveness of public administration and bureaucratic procedures, "elite capture," and tax rates and administration. We also discuss the degree to which weak rule of law institutions are a constraint to investments and growth.

Institutions are the rules of the game in a society, or more formally, the humanly devised constraints that shape human interaction.[126] By rule of law institutions, we are referring to the broad set of rules and norms that provide – or fail to provide – adequate stability and predictability for private sector investment, especially in terms of securing the factors of production, structuring business relationships, resolving disputes, and restricting arbitrary official action. The section is aimed at analyzing whether any of these risks serve as a binding constraint to growth and prevent the social returns to investment from being realized in Kazakhstan, thus diverting efficient investing in the local economy.

Research into this topic suggests that rule of law institutions do not pose a binding constraint to private sector investment or growth; however, there is evidence that it carries a significant shadow price for the economy that may still be limiting the growth and expansion of the private sector. The government of Kazakhstan has made considerable progress on several fronts to increase transparency, lower policy risk, and decentralize the legacy of Soviet-era bureaucracy. Nonetheless, there appear to be weaknesses that persist in the perception and specific incidence of corruption, regulatory procedures that hinder the access to funds, political risks and policy uncertainty that affect the levels of trust, confidence, and willingness to invest, and poor public perception of the judicial system for arbitration. Additionally, the issue of "elite capture," which encompasses several micro risks and is related to information asymmetry, inefficient regulation and misallocation of resources and public funds, lack of market-based competition, and inequality, has recently come under the public spotlight as an issue that affects both businesses and state officials.[127]

These weaknesses may reflect symptoms rather than causes of the more fundamental constraint of low knowhow, since rule of law institutions may have co-evolved with existing firms and industries in the country and may not fully capture constraints faced by the incumbent or new entrants in the economy. Moreover, rule of law institutions interact with other constraints that pertain to low social returns – such as bad infrastructure or low human capital – or market failures like low agglomerations of knowhow. This section focuses on the enforcement of contracts and regulations through analyses that focus on the degree to which policy risk, bureaucracy and corruption, judicial system, and "elite capture" constrain growth.

[126] North, "Institutions."
[127] "«Прослойка» Обогатившихся При Назарбаеве, «враг» Страны и Порция Обещаний."

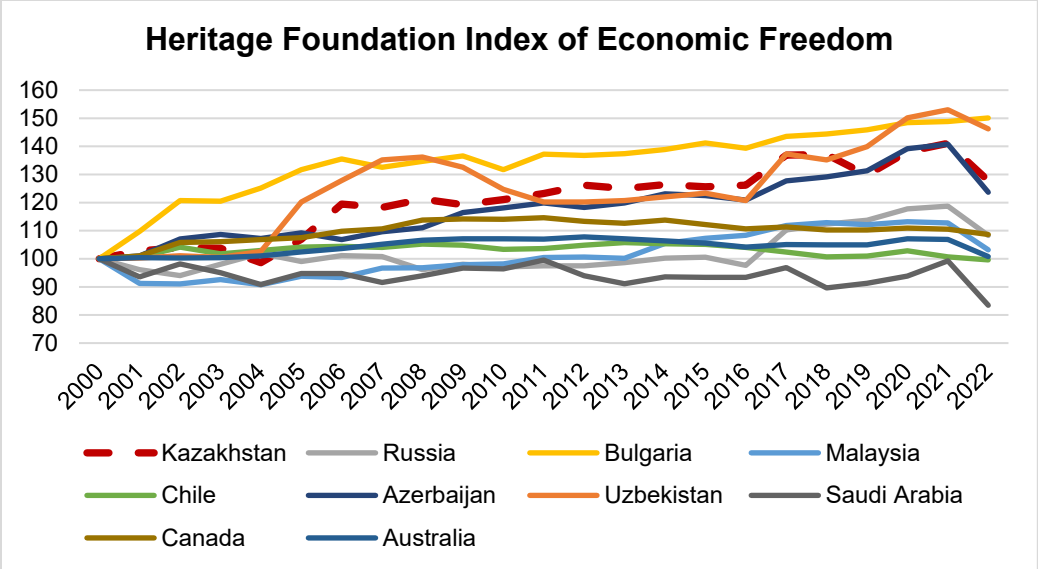
Rule of Law Institutions and Elite Capture

Political Risk and Policy Uncertainty

Policy uncertainty has several dimensions. First, it can refer to uncertainty over the broad market orientation of policies and the potential of private agents to appropriate the economic returns derived from their investments. Second, it can refer to uncertainty surrounding the practical implementation of policy and differences that might exist between the normative law and what positively occurs in practice. Third, it can refer to the difficulty of keeping track of the various draft versions of important policies that have circulated in recent years.

In this section, we will focus on the first type of uncertainty – uncertainty over market policies and the potential to appropriate economic returns. Despite perceptions of policy uncertainty surrounding appropriability and wide public coverage of the issues in the local press of late, Kazakhstan has built a record of being a more attractive investment destination with a low tax burden and relatively protected business and labor freedom. Even though the institutional conditions are still not on par with world standards and investment freedom scored below the world average,[128] 2016 received an unprecedented surge in announced FDI coming to the country, despite a plunge in oil prices. Indices aimed at approximating market friendliness, like the Heritage Foundation's Index of Economic Freedom, ranked Kazakhstan in the middle of the peer group, showing a great deal of progress made from the 2000s (Fig. 5.4.1). For many of the components of the composite index, Kazakhstan has improved its standing significantly over the past years. Since 2009, the business freedom component improved markedly, moving from the *mostly unfree* category to *mostly free*, surpassing the world average. Since 2015, Kazakhstan witnessed an unprecedented increase in the property rights component of the index, reaching the *moderately free* bin in 2020.

Figure 5.4.1



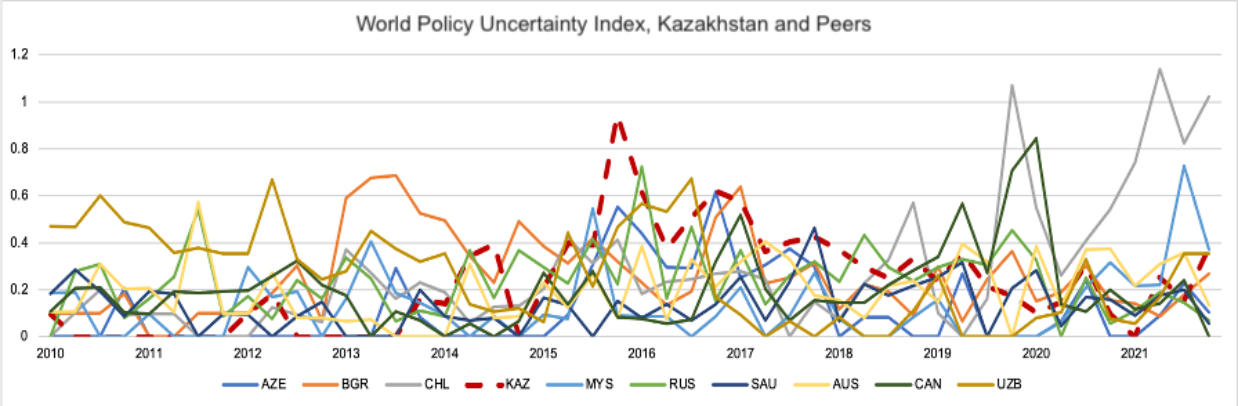
Research on the negative relationship between growth and investment with policy uncertainty has been documented for decades. It dates back to Bernanke,[129] who argued that uncertainty incentivizes firms to postpone investment and hiring decisions when projects are costly to unwind

[128] "Index of Economic Freedom - Data."
[129] Bernanke, "Irreversibility, Uncertainty, and Cyclical Investment."

and hiring and firing is costly. The literature on policy uncertainty (for instance, Friedman,[130] Rodrik,[131] Higgs,[132] and Hassett and Metcalf[133]) documents the negative economic effects of fiscal and monetary policy uncertainty as well as uncertainty over future regulation. Nevertheless, the empirical research on the impacts of policy uncertainty is relatively new, consisting mostly of text-search algorithms that identify instances of words that are related to policy uncertainty. It is not immediately obvious to what extent and in what manner policy uncertainty may affect growth and investment in Kazakhstan. Anecdotal evidence suggests that policy uncertainty in the form of miscoordination of fiscal and monetary authorities, together with somewhat politicized economic reforms course may postpone and divert some potential investment into the economy, both through the unwillingness of the private sector to participate and the lack of facilitation and financing from the banking sector.

Kazakhstan does not perform differently than its peers in the intensity of policy uncertainty. Ahir, Bloom and Furceri (2018) constructed a "World Uncertainty Index" (WUI) using a text-search algorithm to count instances of the words "uncertain", "uncertainty" and "uncertainties" in the Economist Intelligence Unit's quarterly country reports.[134] The index covers 143 countries from the 1950s onwards. As Fig. 5.4.2 shows, the index peaks for Kazakhstan in 4Q 2015 and then in 4Q 2016, which coincided with the end of the commodity supercycle, the change in the government's macroeconomic policy stance, and some of the reforms aimed at limiting foreign ownership of Kazakhstan's land. What the data shows is that Kazakhstan is not particularly different from most of its peers in terms of this kind of uncertainty and is not an outlier, besides the two quarters outlined above and the adjustment after them.

Figure 5.4.2[135]

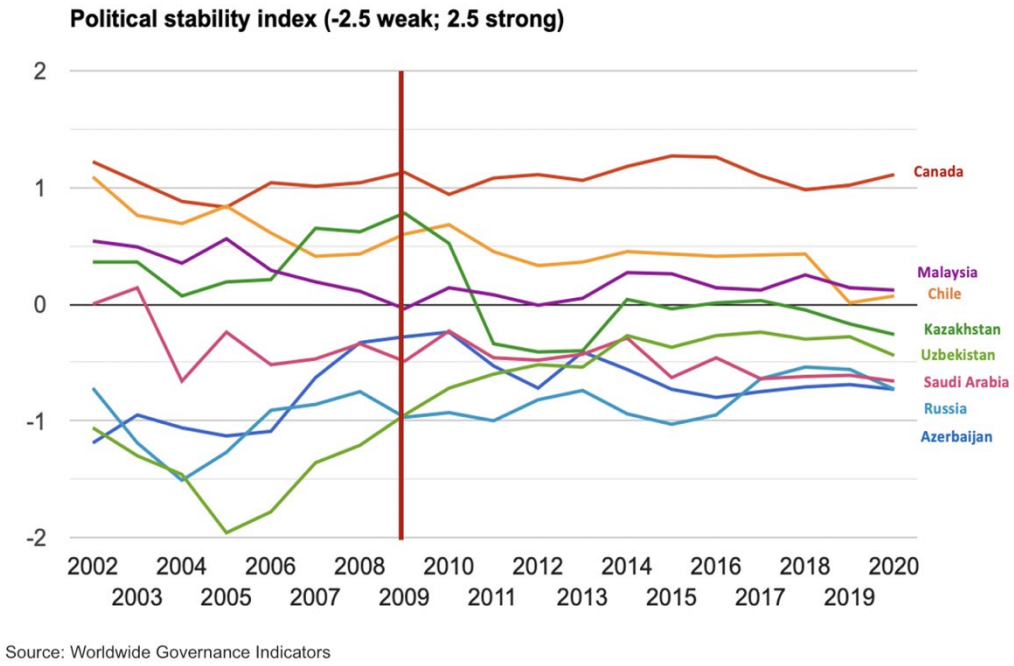


By the same indices, Kazakhstan did not exhibit unusually high economic policy uncertainty before the recent events of January 2022. This is consistent with the relative stability of Kazakhstan's political system. According to the World Bank's political stability index, as of 2020, Kazakhstan was more stable than its regional peers such as Russia, Uzbekistan and Azerbaijan, and Saudi Arabia, putting it in the middle of the peer group, behind Chile, Malaysia, and Canada (Fig. 5.4.3). The power transition from the first president Nazarbayev to his successor Tokayev in 2019 did not seem to affect the perception of uncertainty in the country, as the WUI was stable and even falling

[130] Friedman, "The Role of Monetary Policy."
[131] Rodrik, "Policy Uncertainty and Private Investment in Developing Countries."
[132] Higgs, "Regime Uncertainty: Why the Great Depression Lasted So Long and Why Prosperity Resumed after the War."
[133] Hassett and Metcalf, "Investment with Uncertain Tax Policy: Does Random Tax Policy Discourage Investment."
[134] Ahir, Bloom, and Furceri, "60 Years of Uncertainty: The IMF's World Uncertainty Index."
[135] Ahir, Bloom, and Furceri.

around that time. It did, however, have a minor effect on the political stability indicator, which was on a downward trend from 2017. However, anecdotal discussions have pointed to the opposite sentiment, wherein stakeholders expressed that uncertainty has become the norm and an internalized cost of doing business.

Figure 5.4.3



Source: Worldwide Governance Indicators

In terms of the public's perception of fairness and stability in the system, there has been a rising number of documented protests in Central Asian countries since 2018, with the rise in the number of protests being the highest in Kazakhstan. This number went from 50 protests in 2018 to more than 500 in the first six months of 2021.[136] The protests are reportedly mainly concerned with frustrations over livelihoods. According to the *2020 Country Reports on Human Rights Practices in Kazakhstan* by the US State Department,[137] there exists significant human rights violations. Additionally, protests became more politicized: while in 2019 there were 58 incidents of protest caused by political issues (around 24%), in 2021 the number grew to 147 (around 28%).[138] The social unrest and related events of the first month of 2022 might have affected the perceived level of political stability even further and pointed to some of the additional angles and deeper issues affecting the socioeconomic risk in the country.

Effectiveness of public administration

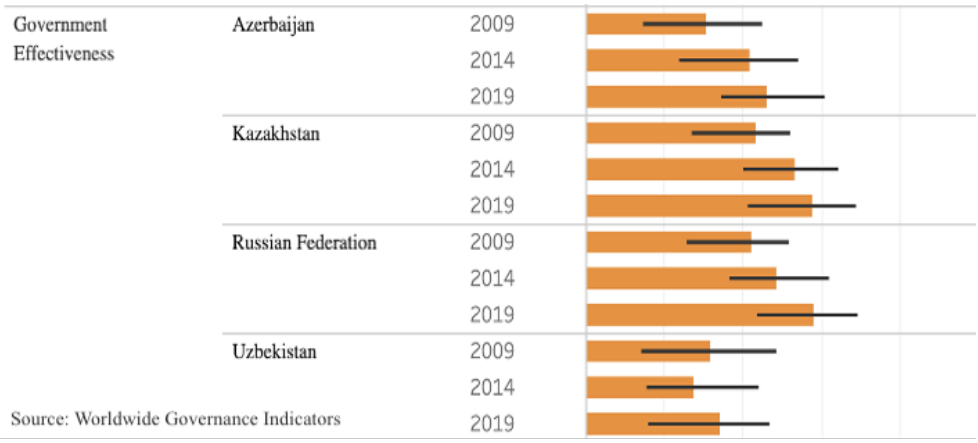
Kazakhstan has made progress in mitigating the perception of policy risk, but the nature of a strongly centralized government[139] may still lead to coordination failures between the national and regional levels and a lack of accountability. Many rule-based governments function by following regulations and norms that provide a predictable and durable legislative process, which tends to outlive changes in the ruling party. The decisions of public-sector officials and public institutions

[136] Oxus Society for Central Asian Affairs, "Central Asia Protest Tracker."
[137] US Department of State, "2020 Country Reports on Human Rights Practices: Kazakhstan."
[138] Madyarov, "Charting Kazakhs' Discontent: The Unrest In Numbers."
[139] OECD, "Reforming Kazakhstan: Progress, Challenges and Opportunities."

in rule-based governments are also constrained by stable and transparent rules and norms rather than by direct approvals and orders by their superiors or line ministries. Kazakhstan has made a lot of progress since the 1990s towards more devolution, power-sharing, more autonomy in decision-making, and less discretion, but it has yet to fully make progress in deconcentrating its governance structure and institutions.

Kazakhstan has improved over time with respect to government effectiveness, but it still lags behind some of its international peers. It performs strongly with respect to its neighbors, but it still has a long way to go to attain a globally comparable rank with its non-regional peer countries. From the World Governance Indicators, government effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies (Fig. 5.4.4). Anecdotal evidence suggests that decentralized entities are still subject to the decision-making authority at the national level and the government enjoys relative discretion to determine whether to enforce the law or not. However, the evidence collected during the interviews with both high-level officials and people from the private sector and academia suggests that after the events of January 2022 there was a pronounced effort to strengthen the efficiency of the state on multiple levels while restoring confidence and trust.

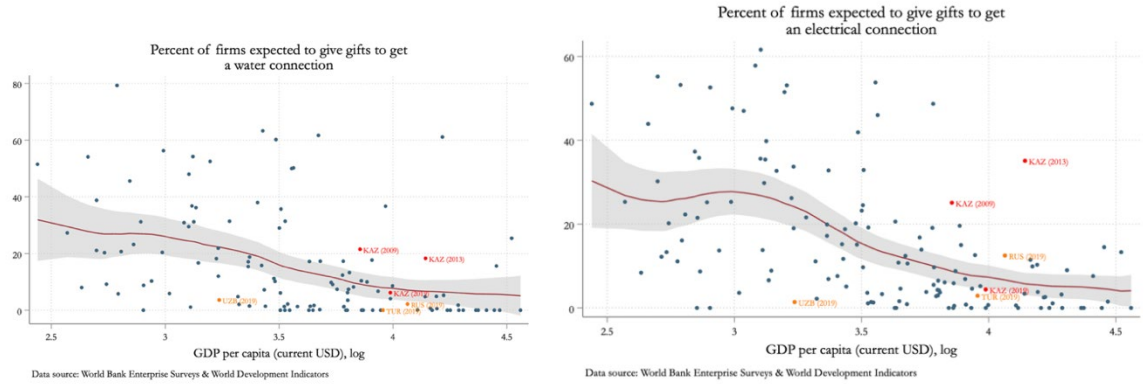
Figure 5.4.4



Interviews indicated that companies face difficulties dealing with getting public services in Kazakhstan before, which included licensing,[140] registering companies,[141] and applying for public utilities,[142] but it has also improved significantly in the recent years. In 2013, more than 25% of companies expected to have to give gifts to obtain a water connection, while more than a third expected to give gifts when getting an electrical connection (Fig. 5.4.5). In 2019, both metrics showed that access to public utilities and the provision of public services became far less of an issue for the existing companies.

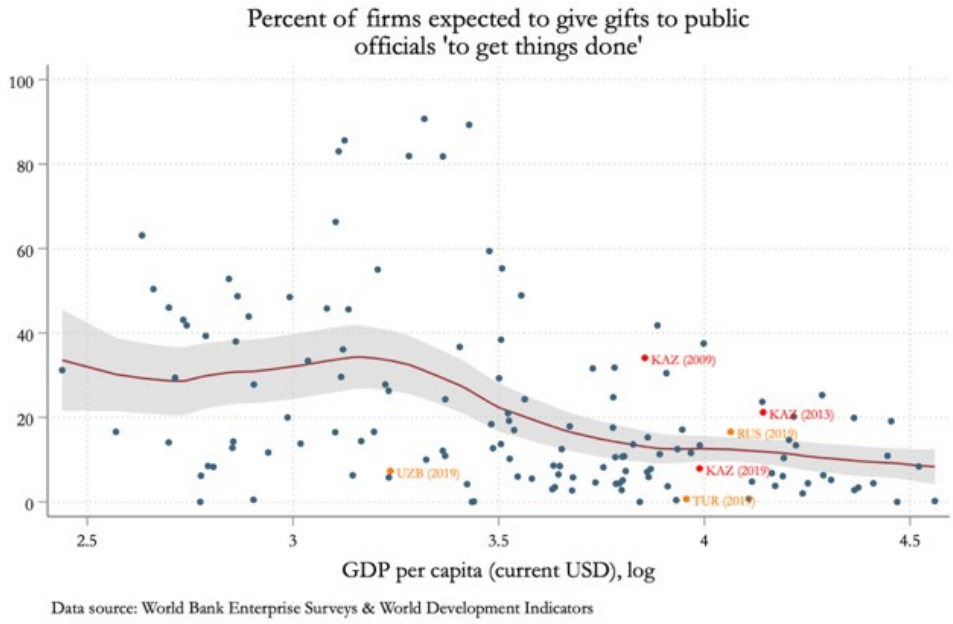
[140] US Department of State, "2015 Investment Climate Statements: Kazakhstan."
[141] Bertelsmann Foundation, "Transformation Index - Kazakhstan."
[142] World Economic Forum, "The Global Competitiveness Report 2015-2016 - Data."

Figure 5.4.5



In addition to the significant progress on overall government efficiency, businesses have seen increased access to public services via more transparent and open relations with public officials in Kazakhstan. During the previous decade, firms reported low efficiency of public officials, proxied by the fact that it was not possible to go through the bureaucratic procedures and red tape without additional encouragement in the form of gifts to the officials (as more than 40% of the firms reported being expected to give gifts to public officials to "get things done"). By 2019, Kazakhstan was performing better than predicted by its income level, marking a significant improvement over 10 years (Fig. 5.4.6).

Figure 5.4.6



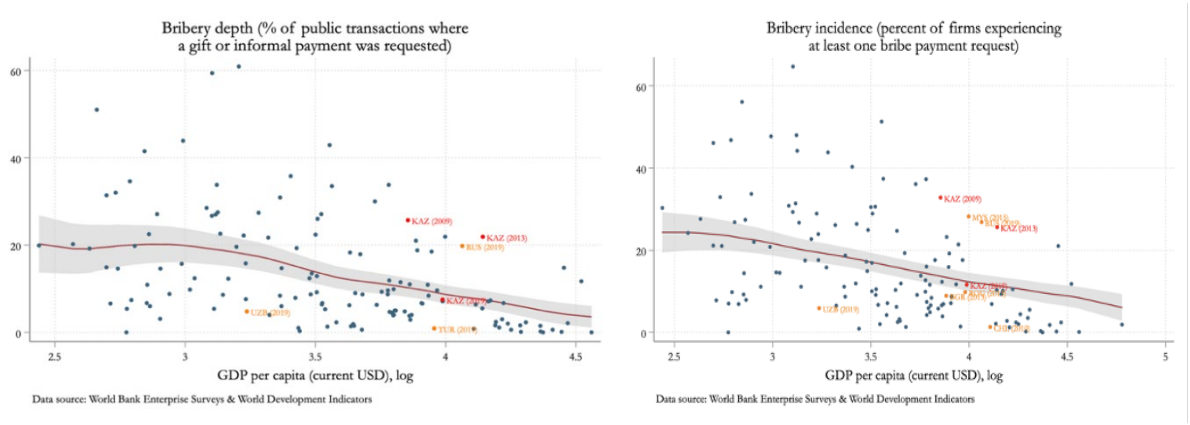
Bureaucratic Procedures

Corruption is an obstacle for development as it creates an environment where human capital is deployed inefficiently, and the misappropriation of returns becomes an issue. The primary social losses of corruption come from bolstering inefficient firms and the allocation of talent, technology, and capital away from their most socially productive uses. While there are conventional

explanations for corruption as a necessary tool to overcome rigidity or frictions in bureaucratic processes, especially for firms that do not face competition,[143] for a developing country like Kazakhstan, it can create both positive and negative externalities. Y. Kalyuzhnova, and M. Belitski[144] argue that "in Kazakhstan, corruption has both 'greasing and sanding the wheels of business effects,' facilitating employment growth whilst hampering productivity."

Corruption has been a constraint for growth in the past; however, it does not seem to be the case as of recently. Historically, many firms have *perceived* corruption to be their main or major problem, which led to Kazakhstan being a persistent outlier compared with the world average. Enterprise Survey results from 2009 and 2013 show that bribery in Kazakhstan was the highest among its peers and high for its level of income (Fig. 5.4.7). This was true for both bribery incidence (the percentage of firms experiencing at least one bribe payment request) and bribery depth (the percentage of public transactions where a gift or informal payment was requested).

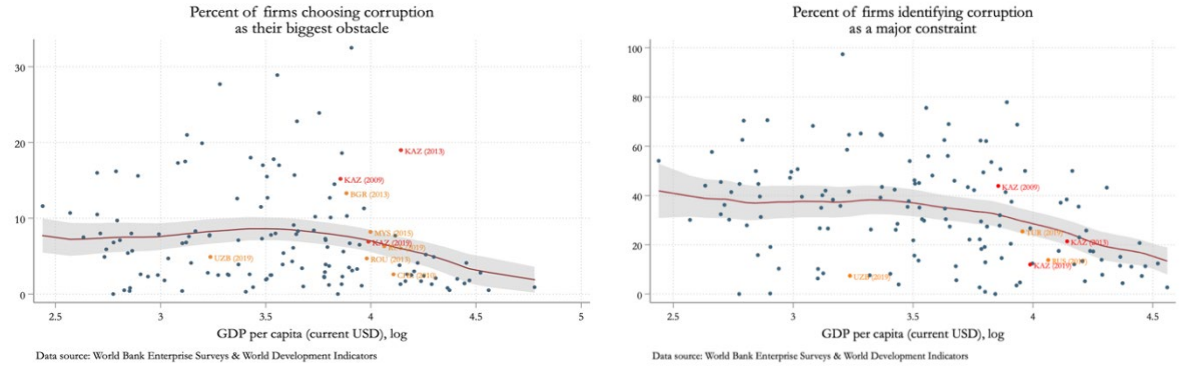
Figure 5.4.7



The incidence of firms reporting corruption as their main constraint reduced significantly in the last decade. While more than 40% of firms reported corruption as their top constraint in 2009, the situation had improved significantly in the next ten years (Fig. 5.4.8). By 2019, Kazakhstan not only outperformed its regional peers but scored better in tackling corruption than predicted by its income level. Today, corruption is often over- or under- perceived based on current media events.[145] For instance, 2017 and 2018 were years when corruption was seen to have been "cracked down upon" and were "eventful for anti-corruption perception."[146]

[143] Athanasouli, Goujard, and Sklias, "Corruption and Firm Performance: Evidence from Greek Firms"; Sahakyan and Stiegert, "Corruption and Firm Performance."
[144] Kalyuzhnova and Belitski, "The Impact of Corruption and Local Content Policy in on Firm Performance: Evidence from Kazakhstan."
[145] Melgar, Rossi, and Smith, "The Perception of Corruption."
[146] Several high-profile incidents in media reports may have contributed to these perceptions. The former National Economy Minister (dismissed in December 2016) Kuandyk Bishimbayev was arrested and sentenced in March

Figure 5.4.8



Results of the Enterprise Survey should be treated with caution as they are subject to the survivorship bias, and thus only represent the situation for the firms that are already on the market. Additionally, even though corruption became less cited, it might be that it had evolved and been internalized over the recent years.

International sources of data present a mixed picture. In 2021, Transparency International Corruption Perception Index[147] put Kazakhstan in the bottom part of the distribution with a score of 37 out of 100. Even though Kazakhstan performed better than its regional peers, it was behind Saudi Arabia, Bulgaria, and Romania.[148] There is also no major progress made in tackling corruption according to the 2020 Freedom House Democracy scores; looking at public perceptions of corruption, the business interests of top policymakers, laws on financial disclosure and conflict of interest, and the efficacy of anti-corruption initiatives, they concluded that Kazakhstan scored 1.25 out of 7 with no improvements from 2019, worse than Kyrgyzstan (1.5 out of 7), Belarus (2 out of 7), and Bulgaria (3.75 out of 7).

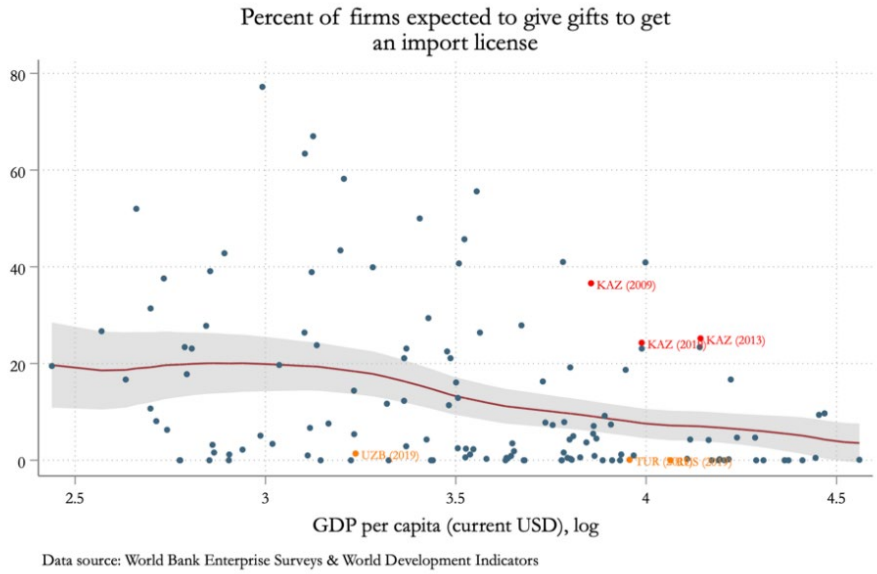
In 2015-16, major legislative changes were introduced for corruption management, which took the form of the Anti-Corruption Agency. It was set up within the state body responsible for the civil service and was designed as a single body responsible for coming up with and executing anti-corruption policies in the country. The status and jurisdiction of the agency were expanded when Tokayev came to power and 2019-20 saw a series of measures, including "making the heads of state bodies responsible for the corrupt actions of their subordinates, tighter restrictions on the employment of relatives and receiving gifts."[149] The Anti-Corruption Agency had proven effective in dealing with corruption by public officials by monitoring and contrasting the income and expenses of civil servants and switching to preventive rather than ex-post anti-corruption measures. Petty corruption, too, was abated, including "everyday abuse of entrusted power by low- and mid-level public officials in their interactions with ordinary citizens".[150] Nonetheless, the perception of corruption is subjective, and according to EBRD, Kazakhstan is considered to have high corruption penetration and risks.

Corruption may be more of a localized and heterogenous challenge rather than a widespread and ubiquitous one. In Kazakhstan, corruption may be prevalent more so in some sectors than others; for example, in obtaining import licenses. Even though the percent of firms identifying

[147] CPI ranges between 0 (highly corrupt) and 100 (very clean).
[148] Transparency International, "Corruption Perceptions Index."
[149] EBRD, "Kazakhstan Country Strategy 2022-2027."
[150] Chêne, "Successful Approaches to Tackle Petty Corruption."

customs and trade regulations as a major constraint is quite low and below the level predicted by Kazakhstan's income level, a high share of firms report obtaining import licenses to be a procedure that involves instances of corruption (Fig. 5.4.9) – more than a quarter of firms report that they are expected to facilitate the process with gifts. According to the 2018 Transparency International, smuggling across border crossings happens on the Sino-Kazakh border and within the contraband ring in Kyrgyzstan involving imports from China.[151] From comparing Chinese and Kazakh customs data, the discrepancy in recorded trade is significant; in 2020, it stood at $5.7 billion.

Figure 5.4.9



Thus, the acute shortcomings in this area seem to be significant challenges for some players. For example, foreign investors who might consider Kazakhstan as a new location for operations may be discouraged. In this way, the rule of law issue in Kazakhstan might sustain a bad equilibrium, wherein firms that are less sensitive to the risks can survive, but where new investment is limited. Indeed, foreign investors complain about inconsistent standards and corruption. According to the 2020 Country Reports on Human Rights Practices: Kazakhstan by the US State Department,[152] the international perception of Kazakhstan consists of the following characteristics: "corruption is widespread in the executive branch, law enforcement agencies, local government administrations, the education system, and the judiciary."

Judicial System

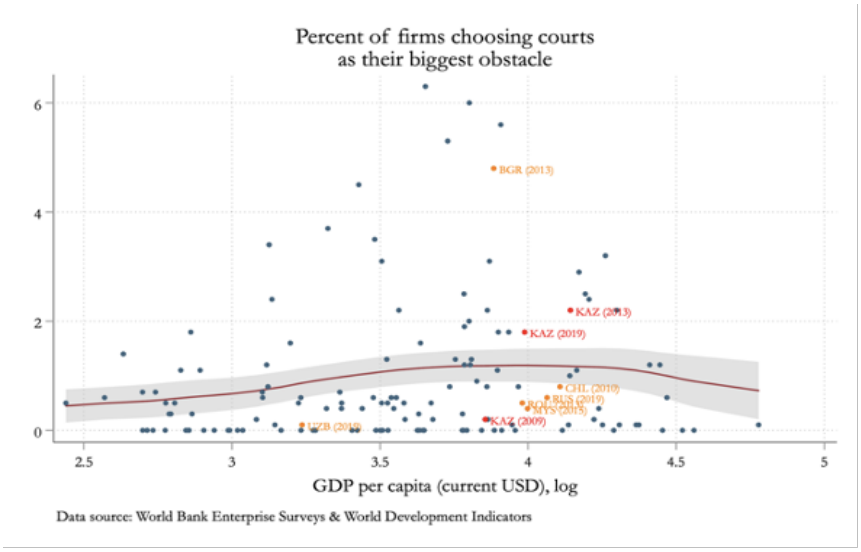
Historically, survey results from 2013 suggest that 66% of the population consider the judiciary to be corrupt.[153] The central government enacted progressive laws in the previous decade, but it is difficult to ensure that local authorities are not interpreting rules arbitrarily.[154] Even though judges are independent in theory, several media and external reports discuss cases in which judges are highly influenced and are tied to the executive branch.[155] Some reports go as far as to say that to become a

[151] Lillis, "Kazakhstan Promises to Smash Smuggling Rings on Chinese Border."
[152] US Department of State, "2020 Country Reports on Human Rights Practices: Kazakhstan."
[153] Transparency International, "Global Corruption Barometer."
[154] U.S. Bureau of Economic and Business Affairs, "2021 Investment Climate Statements: Kazakhstan."
[155] The Economist, "London's Business Courts Face Growing Competition."

judge entails paying bribes and knowing high-level officials.[156] Problems may arise in the enforcement of judgments, thereby providing the opportunity to influence judicial outcomes.

A higher-than-expected share of firms report courts and arbitration as their biggest obstacle, even though the number of firms saying that the court system is a major constraint decreased significantly from 2009 to 2019, from more than 20% to around 5% (Fig. 5.4.10). Anecdotal evidence suggests that though there have been attempts to address these cases over time, these changes have not yet materialized into increased investor confidence, and firms have needed to find ways to bypass the system and internalize the costs.

Figure 5.4.10



In parallel, the component in Heritage Foundation's Index of Economic Freedom responsible for capturing judicial effectiveness shows that there was some progress made in Kazakhstan,[157] from 2015 when the score put the country in the *mostly unfree* bin, to 2021 when it moved to a *moderately free* category. Some of the reforms included random allocation of cases between investigating teams and direct appointments of judges by the president. The improvement regressed in 2022 when the index plunged to its historical low, being lower than *repressed*. The Doing Business Quality of Judicial Process index in 2019 was surprisingly very high, putting Kazakhstan higher than its peers and the world average in enforcing contracts. However, due to the data irregularities and internal accountability issues connected to the Doing Business report and World Bank Group as a whole, and its subsequent suspension, these statistics might not portray the reality of the studied in the report countries unbiasedly.[158] Ultimately, what might be affecting Kazakhstan in this area is less the level of these measures and more the volatility of perceptions based on current events.

[156] Examples abound through the past two decades of inter-elite struggles for resources through political corruption and misuse of the judicial system. In January 2021, Kazakhstan's Ministry of Justice reported that in 2020, Kazakhstan was involved in 25 arbitration proceedings, 15 of which took place within the framework of international arbitration courts.
[157] The judicial effectiveness is derived by averaging scores for the following factors, weighted equally: Judicial independence, Quality of the judicial process, and Favouritism in decisions of government officials.
[158] World Bank to Discontinue Doing Business Report,
https://www.worldbank.org/en/news/statement/2021/09/16/world-bank-group-to-discontinue-doing-business-report

Elite Capture

In Kazakhstan, the concept of "elite capture" gets a lot of attention. It spans a wide set of issues that are under the umbrella of this term. First, it is state-wide corruption that penetrates almost all sectors of the economy and serves the interests of the powerful elite. Public resources may be benefitting a small group of connected individuals to the detriment of the larger population's welfare, which is conceptually distinct from outright corruption. It may take the form of the misallocation of public funds; however, it is mostly related to the concepts of information asymmetry, inequality, inefficient regulation, and misallocation of resources. Second, it is a lack of market competitiveness that ranges from restricted access to entry due to corruption, favoritism, to untransparent, non-inclusive governance that limits businesses from growing beyond certain level. Third, it is the misallocation of public funds and embezzlement via public procurement and operations of SOEs and various natural monopolies.

"Elite capture" has the potential to happen in rentier states, which are generally defined as ones that are "dominated by rents coming from abroad and where the government is the main recipient of these rents" (Beblawi & Luciani 1987). In such an environment, only a small fraction of the population receives access to managing rents, while the rest depend on redistributive policy measures to receive benefits. The implications of such societal organization include the lack of accountability from public authorities (as they do not need to rely on taxes from the public to finance their expenditure), a lack of the "middle class" in the economy, and "problems of patronage and corruption, as well as bribery and nepotism."[159]

Corruption in Kazakhstan has existed for quite some time; as a result of the legacy of these practices, there emerged a class of a few connected 'elites' at the top of the socio-economic structure who have disproportionately benefitted. Thus, it is hard to interpret recent numbers on the incidence of corruption from the Enterprise Survey. Fewer firms report this challenge over time, which can be due to various reasons – it might have indeed become less prevalent, firms may have internalized the cost, the indicator might not be capturing the exact spirit of corruption practices that are relevant in Kazakhstan, or firms may be bypassing the challenge in other ways.

Corruption that manifests as information asymmetry is harder to measure than conventional forms of corruption, because it might be indirect, hidden, or subtle. In a world of this form of corruption, if a company does not know "the right person" or "the right place" to access the inputs needed for production or to coordinate production, they are unlikely to succeed. However, having the right connection may not necessarily be sufficient either and it may not imply any physical tokens such as gifts or bribes. Therefore, international benchmark data might not always be informative, especially if the problems in Kazakhstan are "rooted in historical and systemic factors, which have incentivized elite behavior and relationships that hinder the full transition to an efficient and dynamic market economy."[160]

Elite capture has not been systematically understood and measured in the empirical literature due to the varying degrees of complexity it aims to understand. This is especially so in places that lack publicly available granular data on establishment ownership data. It is easier to study the phenomenon in a particular sector of the economy and link it to a particular set of transactions. Therefore, elite

[159] Franke, Gawrich, and Alakbarov, "Kazakhstan and Azerbaijan as Post-Soviet Rentier States: Resource Incomes and Autocracy as a Double 'Curse' in Post-Soviet Regimes."
[160] Bohr et al., "Kazakhstan: Tested by Transition."

capture is often studied extensively in connection with decentralization and community-based development programs, elite capture in foreign aid, etc.

Historical and systemic factors include the legacy of the Soviet Union, generally typified by a disconnect between the public and the political elites, nepotism, and restricted access. Numerous studies find that Soviet-era political elites were successful in maintaining power during the economic transformation that followed Kazakhstan's independence.[161] They did so through intentional recruitment policies to perpetuate the status quo. In 2001, "86% of the elite in Kazakhstan had held Communist Party cards at some time in their lives," and there is little evidence of significant changes in the composition of the elite by the end of the timeframe of data in mid-2002.[162]

In particular, the circle around Nazarbayev and his family only came to light in 2022, when it became the focus of social unrest. It was the first time when the former president's time in office was condemned by a high-office public official, current president Tokayev, who stated, that "former rule created a layer of wealthy people, even by international standards."[163] The first president was also criticized by opposition leaders and the general public for concentrating power, providing patronage to specific financial-industrial groups, and facilitating preferential access to allies. International data leaks, like the Panama or Pandora papers, illustrate how entrenched this elite circle is: "government officials and their families were users of offshore havens, where they have registered possessions and interests in offshore companies."[164]

Box: Kazakhstan's Wealthiest Business Figures

Each year, Forbes compiles a list of the top 50 richest business figures in Kazakhstan.[165] In 2021, there were 42 men, 1 woman, and 7 families recorded with a combined wealth of $37.65 billion.[166] The publication underscores how wealth concentration – and particularly among those close to political decisionmakers – may contribute to the uneven economic playing field in Kazakhstan.

Publicly available data reveals that 22 of the 50 figures had a confirmed affiliation with the former president Nazarbayev through family or friend ties, joint business ventures with relatives, or have him as a trustee himself. The combined wealth of these 22 figures is approximately $25 billion, or two thirds of the combined wealth of all 50 figures. Three close relatives of the first president included in the list have a combined wealth of $6 billion, or 15.9% of the total.

The business figures on the list are major shareholders of companies in all sectors of the economy, including resource extraction, construction, banking, and transport. Their average share in primary enterprises was 78%, and in secondary enterprises was 79%. Most on the list have strong diversification of their assets in other sectors of the economy. It is noteworthy that all major entertainment centers, business centers, markets and malls, large hotels and restaurants also belong to top 50 figures. The list omits a few figures who are extremely wealthy in Kazakhstan, who hold significant shares in various businesses.

Interviews with businesses substantiated the claim that since large companies are concentrated in the hands of the elite, it is often difficult for other players to enter and compete fairly. Analyzing

[161] Murphy, "Illusory Transition? Elite Reconstitution in Kazakhstan, 1989-2002."
[162] Cummings, "The Political Elite in Kazakhstan since Independence (1991-1998): Origins, Structure and Policies."
[163] AFP French Press, "Kazakhstan's Tokayev Issues Rare Public Criticism of Nazarbayev."
[164] Bohr et al., "Kazakhstan: Tested by Transition."
[165] Forbes Magazine KZ, "50 Richest Businessmen of Kazakhstan - 2021 [Translated from Russian]."
[166] The wealth assessment of each business figure relies only on public sources and financial/ownership information provided by the figures and are not confirmed as official estimates.

the Forbes Top 50 richest companies list reveals that 36 (72%) of these companies belong to figures who are also on the Top 50 richest business figures list. Additionally, 25 of these companies have confirmed affiliations with the former president's family. Companies from this list also have access to substantial state benefits and material support.

It is important to note that this list reflects the wealth concentration and relationships within the economy in the beginning of 2021 when the Forbes list and this report was written; the economic climate in Kazakhstan has and continues to evolve since then.

Table 5.4.1

	Number of companies	Share (Out of top 50 richest companies)	Total Income, bln KZT
Companies with one or more major shareholders who are in Fobes Top 50 bussinesmen list	36	72%	7073,47
Companies with one or more major shareholders who have connection with Nazarbayev	25	50%	5099,83
Companies without shareholders in Fobes Top 50 bussinesmen list and connection with Nazarbayev	12	24%	674,31

Source: Forbes Kazakhstan Top 50 Businessmen, 2021

Limited access to the market, stemming from corruption, government failures, elite capture, etc. may lead to a socially suboptimal level of market competition, a misallocation of skills and resources, and a lack of dynamism in the economy. Existing players as well as newcomers are expected to abide by "the implicit but well-understood norms of business competition and political participation."[167] Not only do elites benefit from the lack of competition in the markets, but they also possess the resources to expropriate a share of the firm or seize the business as a whole. Small and medium enterprises lag in productivity, lack growth potential and innovativeness, and produce mostly non-tradable goods, as they cannot compete with bigger, more connected firms, and in many instances, do not want to grow beyond a certain level not to attract "unwanted attention" from the local elites, businesses, and government.

According to OECD, SOEs in Kazakhstan accounted for a gross value added of 7.85% of GDP in 2014[168] and the participation of the state in the economy exceeded 16%.[169] A 2017 report noted

[167] Franke, Gawrich, and Alakbarov, "Kazakhstan and Azerbaijan as Post-Soviet Rentier States: Resource Incomes and Autocracy as a Double 'Curse' in Post-Soviet Regimes."
[168] OECD, "Competition Law and Policy in Kazakhstan."
[169] zakon.kz, "The Share of State Participation in the Economy of Kazakhstan in 2019 Decreased to 16% [Translated from Russian]."

that Kazakhstan had 6,948 SOEs, including 679 joint-stock companies (JSCs) and limited liability partnerships (LLPs) that engaged in economic activity. The remainder of the companies were classified as state enterprises under the right of economic management (1,258 entities) or operational management (5,011 entities). Three JSCs account for most SOEs in the economy – Samruk-Kazyna, Baiterek and KazAgro. According to EBRD, Kazakhstan is considered a moderately competitive environment (scoring 5.32 out of 10), in which the "significant presence of SOEs and quasi-monopolies across the economy, along with large companies owned by politically-exposed people constrains private sector development, particularly in the mid-size segment."[170]

While some SOEs serve as natural monopolies, almost all natural monopolies in Kazakhstan are state-owned. This includes sectors ranging from oil and petroleum products to transmission of electricity and water to railroad transportation and telecommunication. While 'The Law of Competition' excludes natural monopolies from the competition regulation and "exempts abusive conduct of natural monopolies from the scope of its regulation," their goods and output are widespread and are further used as inputs for production. Monopolistic tariffs affect a significant share of the economy.[171] Some sectors are affected by anti-competitive behavior more than others: 81% of the violations are in the fuel and energy sector, followed by finance and transportation.[172]

However, when looking at commonly used market concentration metrics[173], it becomes challenging to identify restriction competitiveness. Kazakhstan is comparable to its peers in terms of how concentrated its markets are and sits at the lower part of the distribution, displaying an improvement from the 1990s. When zoomed in on, specific obstacles towards increased competition include pricing distortions (which sometimes hinder the development of innovation and competition) and selective patronage (in the form of single operators, private monopolies, or special rights ventures).[174] At the national level, policy objectives included removing barriers to entry for the agro-industrial complex, wider access to communications and railroads markets, and reducing the government's participation in the economy, which is "projected to decrease to 14% by 2025 because of the privatization effort".[175]

An economy affected by "elite capture" can have persistence in the misallocation of public funds and misuse of public procurement. In Kazakhstan, public procurement activities accounted for around 13% of GDP in 2017;[176] however it represented 43% of all government expenditures, which is above the OECD average.[177] Since the procurement system in Kazakhstan is highly decentralized and is regulated differently for government agencies, quasi-public sector, and private companies, it may create legal inconsistencies and therefore a lack of transparency.

The lack of competitiveness manifested in favoring domestic suppliers over foreign companies and a predominance of single-source methods for awarding contracts, both in the public procurement system and the procurement of state-owned enterprises. Through the single-source scheme in 2016, Samruk-Kazyna had the lowest share of direct awards (still winning 86.5% of

[170] EBRD, "Kazakhstan Country Strategy 2022-2027."
[171] Akhmetov, "Коррупция и Монополизация Рынков Казахстана – Близнецы-Братья."
[172] OECD, "Annual Report on Competition Policy Developments in Kazakhstan."
[173] HH Market Concentration Index: One these indices is the Herfindahl–Hirschman Index, a commonly accepted measure of market concentration. The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers.
[174] Ishekenova, "Критический Уровень Монополизации: Как Казахстан Будет с Этим Бороться."
[175] Office of the Prime Minister of the Republic of Kazakhstan, "By the End of 2025, the Share of State Participation in the Economy Will Be Reduced to 14% of GDP - E. Zhamaubaev."
[176] US Department of Commerce, "Kazakhstan - Country Commercial Guide: Selling to the Public Sector."
[177] OECD, "Public Procurement in Kazakhstan: Reforming for Efficiency."

the total procurement volume), with Baiterek at just under 88%, and KazAgro procuring over 98%.[178] Favoring the use of direct awards as the preferred method of contracting indicates an ecosystem that stunts competitive bidding and tendering.

Ultimately, Kazakhstan is in a time of transition; while the legacy of elite capture and corruption may be persistent in various sectors of the economy now, it need not always be the case. The lack of a level playing field may constrain existing firms from growing out of fears of being expropriated, and it may pose a barrier to entry for new players who might not see a clear path to appropriating the returns to investing. The country is currently pursuing a wide set of reforms aimed at tackling some of these issues – public procurement reforms, expanding investment in infrastructure, privatization measures, and more. The year 2022 may have marked a turning point in the urgency of implementing and following through on many of these reforms, so reformulating these analyses at a future date may reveal progress in easing some of these constraints.

Tax Administration

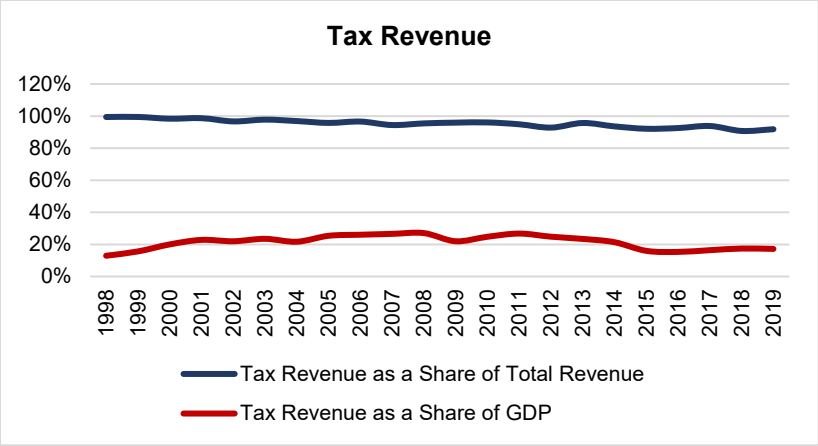
Taxes are a direct burden on a company's profits, but all countries impose various tax schemes on businesses. Hence, taxes can be a constraint to business in specific circumstances: (i) if tax rates are excessive, and in particular, if they are high relative to the region, hurting a country's competitiveness, (ii) if they are imposed on new or young businesses, discouraging start-ups and preventing the expansion of young firms, and (ii) if tax policy changes too often such that it seriously affects businesses' plans and forecasts.

Tax Structure

Like other countries with large informal and export-oriented economies, most of Kazakhstan's tax income comes from indirect taxation, taxes levied on consumption (54.5%), and less from direct taxation of income and profits (45.5%). Over the past 15 years, Kazakhstan's tax revenues have averaged 21.3% of GDP and made up most of the total public revenues (95% on average, with little volatility) (Fig. 5.4.11). In 2019, the tax-to-GDP ratio in Kazakhstan stood at 17.2%, lower than the OECD average and Asia-Pacific averages (33.8% and 21% respectively) but comparable to the average of the Commonwealth of Independent States (CIS).[179] To meet its ambitious expenditure goals and guarantee the slowdown of the public debt build-up, Kazakhstan has recently set a goal of achieving a 25% tax-to-GDP ratio by 2025,[180] moving away from the extractive sector taxes towards increasing the contribution of the "underperforming taxes," such as PIT, SSCs, property and carbon taxes.

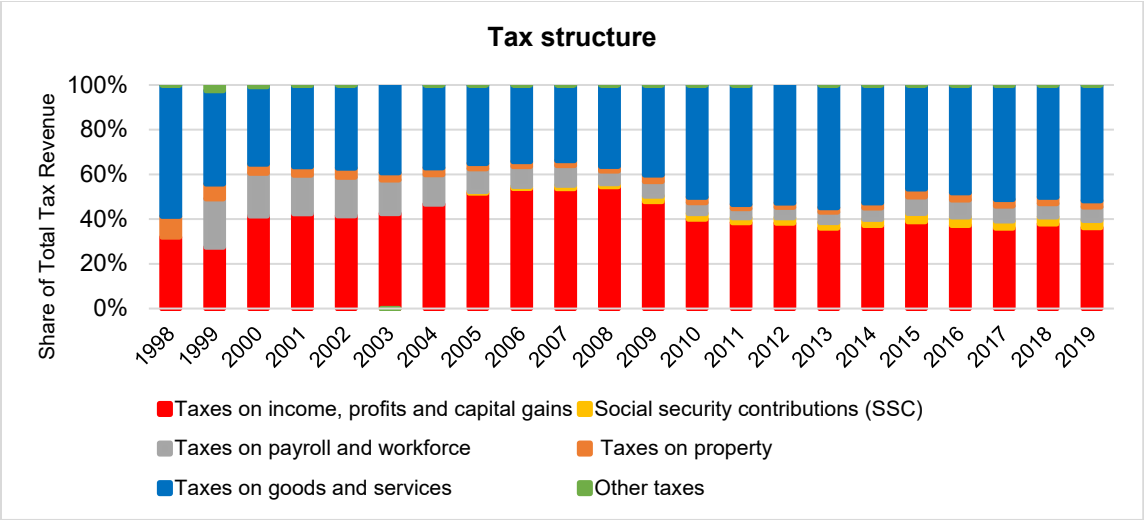
Figure 5.4.11[181]

[178] Data provided by respective companies and summarized by OECD.
[179] OECD, "Kazakhstan 2020: Tax Revenue Analysis."
[180] IMF, "Staff Report for the 2019 Article IV Consultation."
[181] OECD, "Details of Tax Revenues - Data."



Taxes on goods and services (driven by VAT, excises, customs duties) and income taxes (comprised of CIT and PIT) have served as a major source of income for the government, averaging approximately 86% of the total taxes collected. From 2000 to 2008, income taxes rose from 41% to almost 55% of the total, exhibiting a downward trend since. The opposite was true for indirect taxes, which averaged 39% of the tax revenue between 2000-2008 and increased to an average of 53% in the years after (Fig. 5.4.12). Compared to other countries, Kazakhstan's PIT as a share of taxes collected is low, while CIT and taxes on goods and services are disproportionally high,[182] which makes the tax mix less diversified than in other resource-rich countries and thus more susceptible to commodity price variation, as more than 30% of CIT is paid by oil companies.

Figure 5.4.12[183]



Tax rates do not seem particularly high, and they are not high in a regional comparison. Historically, Kazakhstan had several iterations of the PIT structure: before 2007, it was progressive between 5% and 20%, while the reforms of 2007-08 introduced a universal flat 10% rate with minor exceptions, which did not significantly affect tax collection. To make it more progressive again, a new

[182] OECD, "Revenue Statistics in Asia and the Pacific - Kazakhstan."
[183] OECD, "Details of Tax Revenues - Data."

two-tier scale was introduced in 2019, decreasing the PIT for low-income taxpayers to 1%.[184] Comparing it to its peers, PIT is fixed at the flat rate of 13% in Russia, 12% in Uzbekistan, 10% in Bulgaria and Romania, and similarly progressive with 0% and 14% in Azerbaijan.[185]

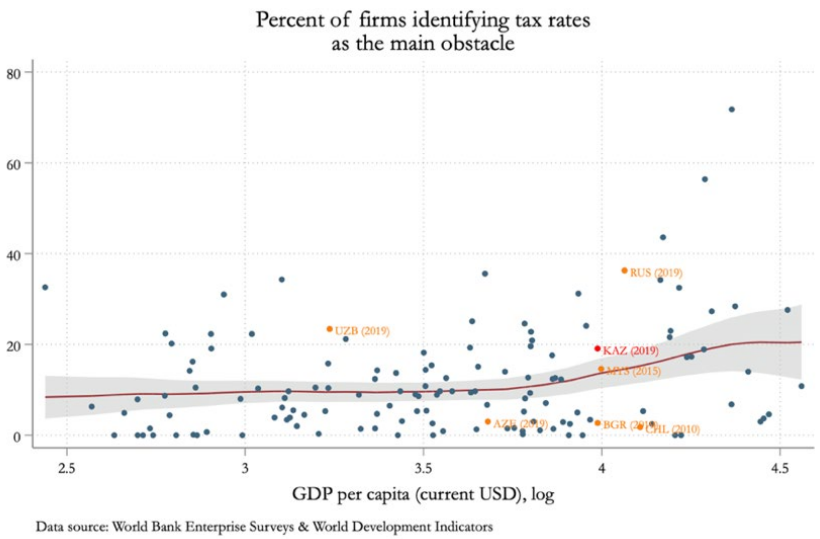
While VAT revenues are comparable to the OECD average, the VAT rates are relatively low in Kazakhstan. The standard rate of 12% can be benchmarked against the CIS average of 17%, with the regional peers like Russia and Azerbaijan imposing a rate of 20% and the OECD average of 19%. While there is scope to increase the efficiency and broaden the tax base, the biggest contributors of VAT are currently a few sectors that are responsible for over 50% of all VAT – retail and wholesale, and construction. As for the rest, OECD finds that "excise taxes are low compared to OECD countries," "property and land taxes play a minor role," "dividends and capital gains are mostly exempt from tax in Kazakhstan" and carbon and other taxes are practically non-existent.[186]

Kazakhstan's corporate income tax is high compared to peers. CIT is payable by all legal entities and branches of foreign legal entities, and this amounts to 20% of the taxpayer's aggregate annual income less allowable deductions. There are some exemptions to ease the CIT burden. First, small companies can apply for special tax regimes with lower corporate taxes,[187] while qualified agricultural producers enjoy a reduced CIT rate of 6%.[188] Second, there are incentive schemes aimed at increasing business activity, including full exemption from CIT for entities operating in SEZs, investment and foreign tax credits that allow deducting part of CIT-taxable income, and the creation of the institutions like AIFC which provide special legal regimes for its participants.[189] However, CIT in Kazakhstan is still higher than in peers: the standard CIT rate stands at 10% for Bulgaria, 10-15% for Uzbekistan, 16% for Romania, and 20% for Russia and Azerbaijan.[190]

Companies in Kazakhstan report high tax rates to be an increasingly binding constraint for their operations. According to the World Bank Enterprise Survey, the share of firms identifying tax rates as the main obstacle rose sharply between 2013-2019, from 10% to 20% (Fig. 5.4.13). Moreover, this share in 2019 was worse than most of the peers. In contrast, evidence collected from interviews suggests that public officials see tax policies as too soft and plan to revisit many of the tax incentives schemes to keep only the ones that bring productive enhancements and are aimed at benefitting the firms that can "pay back."

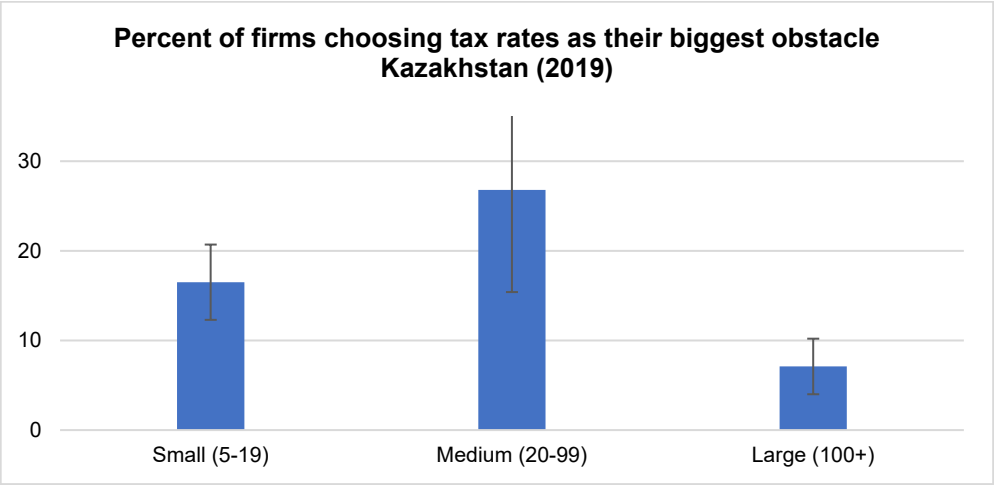
[184] International Monetary Fund, "Improving Progressivity and Efficiency: A Review of the Personal Income Tax and Other Taxes on Labor in Kazakhstan."
[185] PwC, "PwC Worldwide Tax Summaries: Azerbaijan."
[186] "Kazakhstan 2020: Improve the Design and Functioning of the VAT."
[187] KPMG, "Doing Business in Kazakhstan: Tax and Legal Highlights."
[188] PwC, "PwC Worldwide Tax Summaries: Kazakhstan."
[189] PwC.
[190] PwC, "PwC Worldwide Tax Summaries: Bulgaria."

Figure 5.4.13

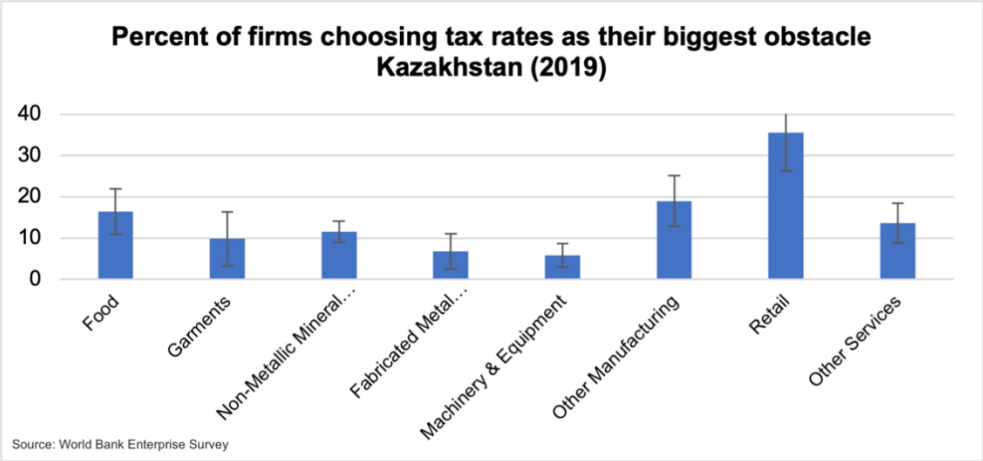


Breaking down the problem, there is heterogeneity in the sizes and sectors that report taxes as a constraint. Small and medium firms are more affected by the tax rates than large firms, while firms in the retail, other manufacturing and food sectors are disproportionally overrepresented when asked if taxes serve as an obstacle to their operations (Fig. 5.4.14). Such dynamics in terms of size can be partly explained by the structure of tax incentives. Incentives are largely targeted towards SMEs (those that employ 50 people or less).[191] In general, the extractives industry and big companies are responsible for most of the CIT collected, and they are less sensitive to high tax rates.[192] A sectoral decomposition corroborates this, as low-margin activities, such as the retail and food sectors, report the highest shares of firms affected by tax rates.

Figure 5.4.14



[191] Zubku, "What Are the Criteria for Classifying an LLP as a Small and Medium-Sized Business?"
[192] "Kazakhstan 2020: Executive Summary."



Tax Administration and Compliance

The evidence on tax administration as a constraint for businesses is mixed. Tax administration is not perceived as a major problem in Kazakhstan, according to the Enterprise Survey results (Fig. 5.4.15), as only around 2% of firms stated that tax administration was their biggest obstacle to growth. At the same time, according to the World Bank Doing Business, Kazakhstan ranks 64 across 190 countries in the Paying Taxes indicator and in the middle among our benchmark peers (Fig. 5.4.16). Kazakhstan s cores below 50 in the post-filing index and performs worse than most of its peers, besides Uzbekistan and Saudi Arabia. It also ranks poorly in the number of yearly tax payments and the time spent by businesses in filing and paying taxes (with 10 payments and more than 180 hours spent per year), outperformed by every regional peer. While there is space for improvement in tax administration matters, especially in terms of diminishing the bureaucratic load and increasing the efficiency of the system, especially for the SMEs, it does not appear to be a binding constraint for business growth in the country.

Figure 5.4.15

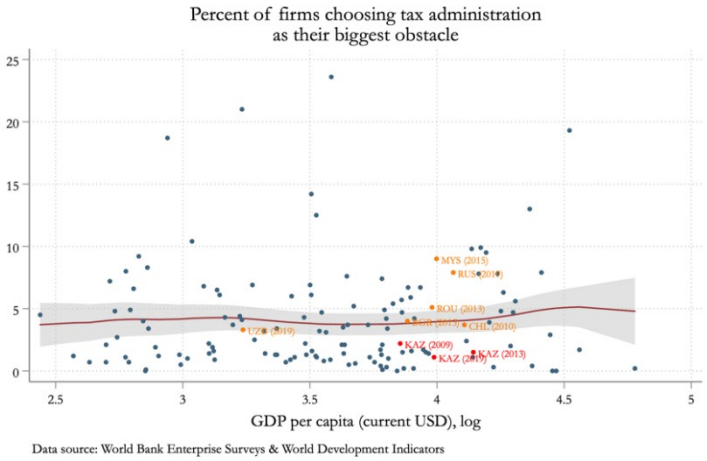
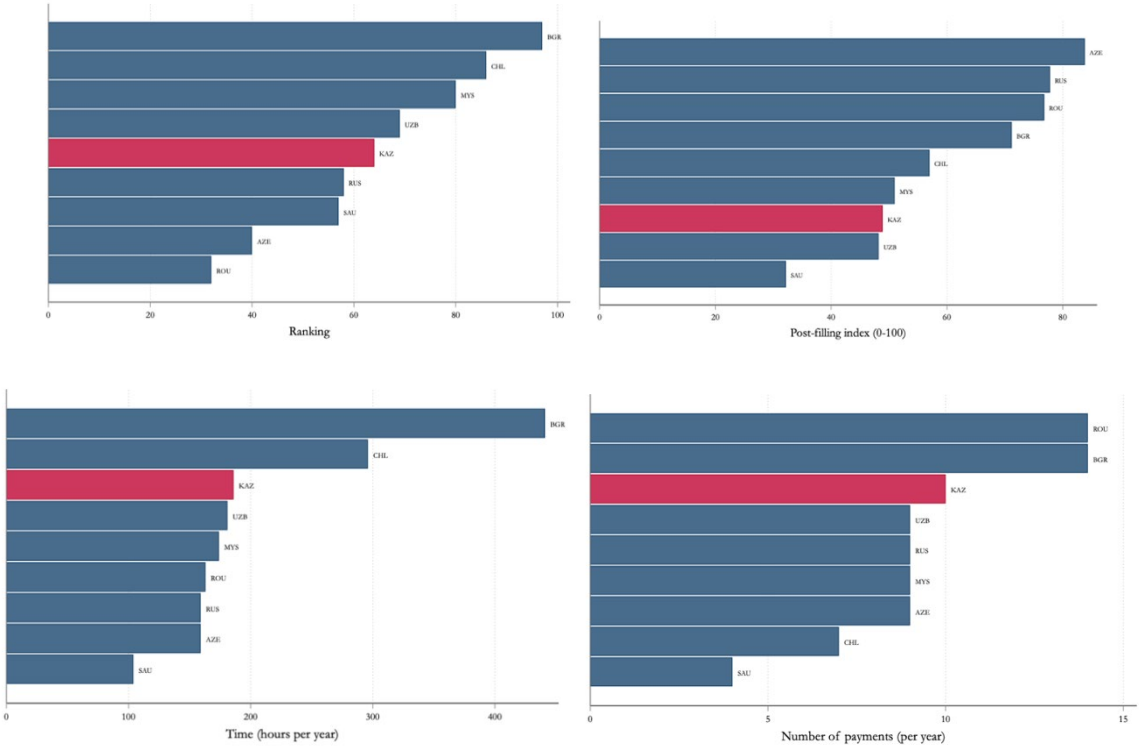


Figure 5.4.16[193]

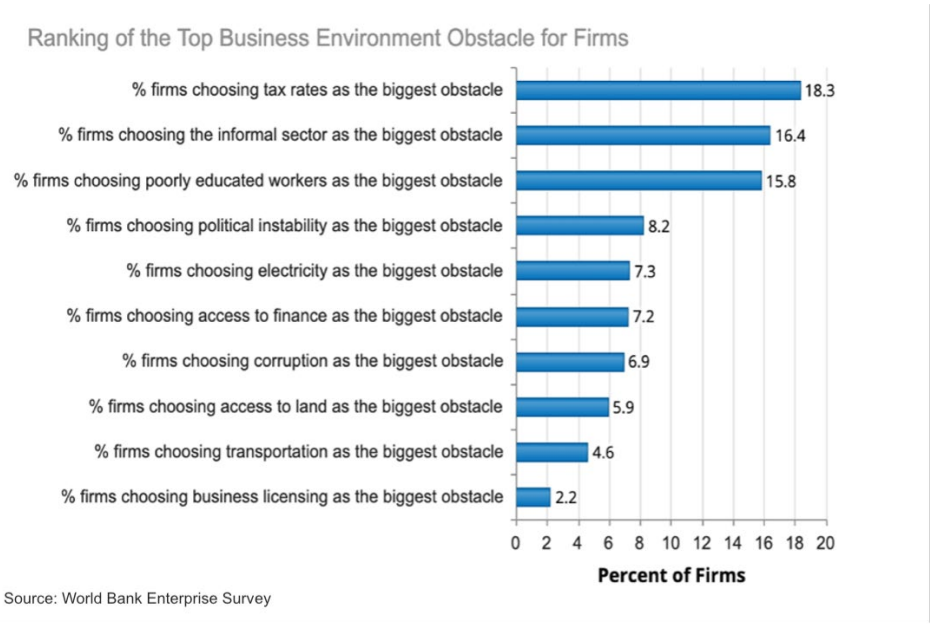


Informality

If the tax administration imposes and enforces tax law on some businesses but is unable to do so for others, it distorts the playing field. This fosters reactions such as resorting to bribes and corruption in order to reduce a firm's own tax burden. Taxation is replaced by rent-seeking and rent-sharing between businesses and the tax administration, but the rules (if any) are unclear, and businesses do not know how their burden compares with that of their competitors. Nor do they know what kind of treatment to expect in future. Tax rates rank high on the list of obstacles to doing business in Kazakhstan, and this is followed by informality (Fig. 5.4.17). The most prominent way in which the tax administration affects businesses is by allowing informal businesses to compete with formal ones, creating unfair tax advantages for some.

[193] World Bank, "Doing Business 2020: Paying Taxes - Data."

Figure 5.4.17



Informal firms were cited as a prevalent constraint for formal firms. In 2019, around 50% of firms were competing against informal or unregistered firms (Fig. 5.4.18). Other estimates of the size of the informal economy vary between 35%-40% of GDP in 2018 and are based on different dynamic and multiple-causes models built for Kazakhstan (Fig. 5.4.19). According to different metrics, Kazakhstan was ranked as relatively informal in its business practices compared to peers, always scoring in the top-3 countries with the highest levels of informality.

Figure 5.4.18

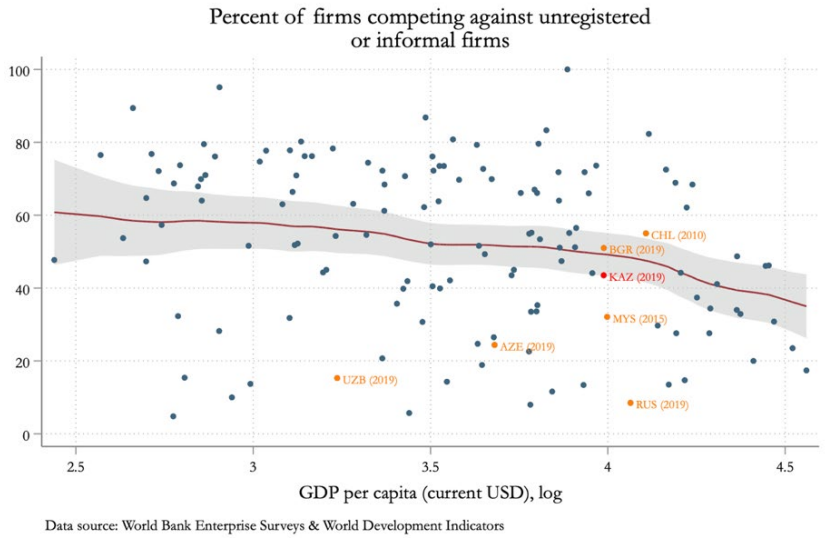
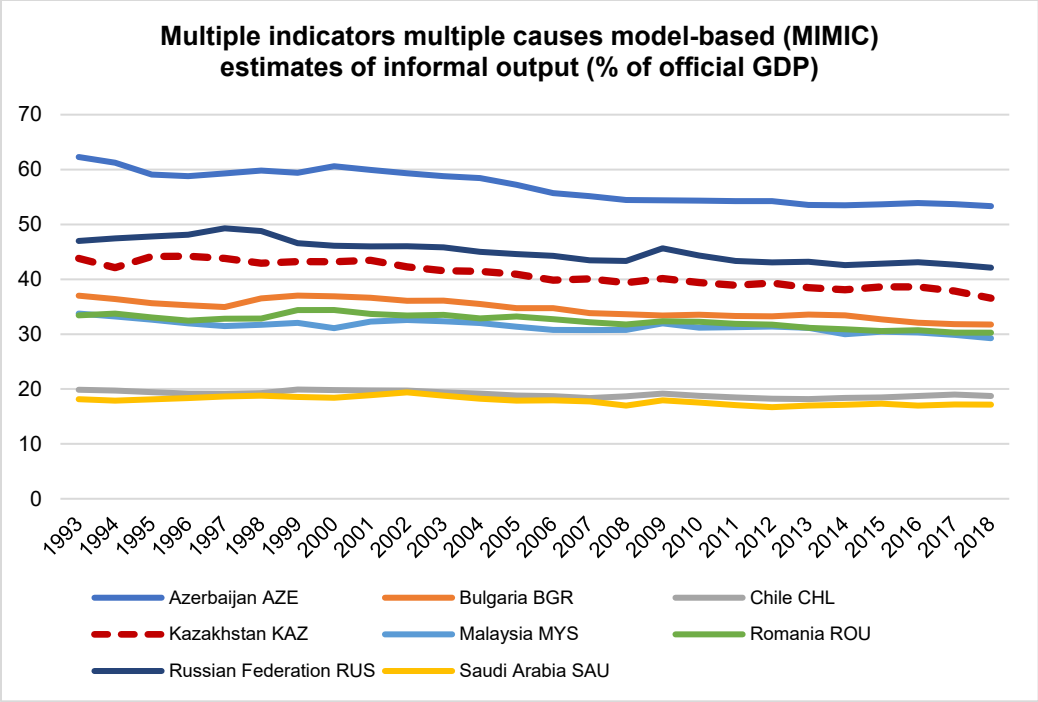


Figure 5.4.19[194]

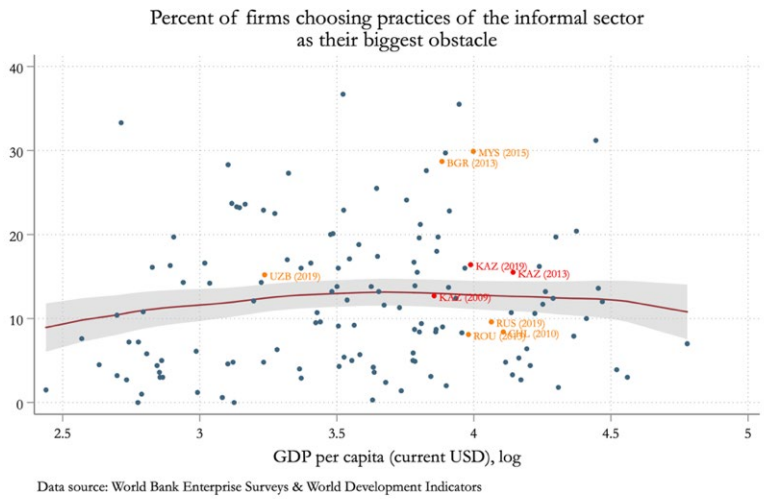


Informality is a problem if it binds the development of the formal sector. While having a big informal sector is not detrimental to the economy per se, and in countries with high levels of unemployment and poverty, the creation of an informal sector is even necessary to an extent, it is important to assess how it affects the formal sector and if the practices of the informal sector bind the development of other firms. Formal businesses are normally the ones that are more willing to adopt innovations, provide better social protection for their employees, are more competitive and prone to export. Thus, industrial development policies and different economic incentives schemes should be aimed towards incentivizing them.

Comparing Kazakhstan and Chile, the point above becomes more evident. While more than 50% of firms in Chile face informal competition, only around 8% of the firms report it being a constraint for their operations. However, in Kazakhstan, where the share of firms dealing with unregistered competitors is lower (around 44%), more than 15% of the firms report such competition as a binding obstacle (Fig. 5.4.20). This might point to the fact that the market failure that allows easy entry for unregistered participants is not counterbalanced by the state's policies to target and encourage formal entrepreneurship.

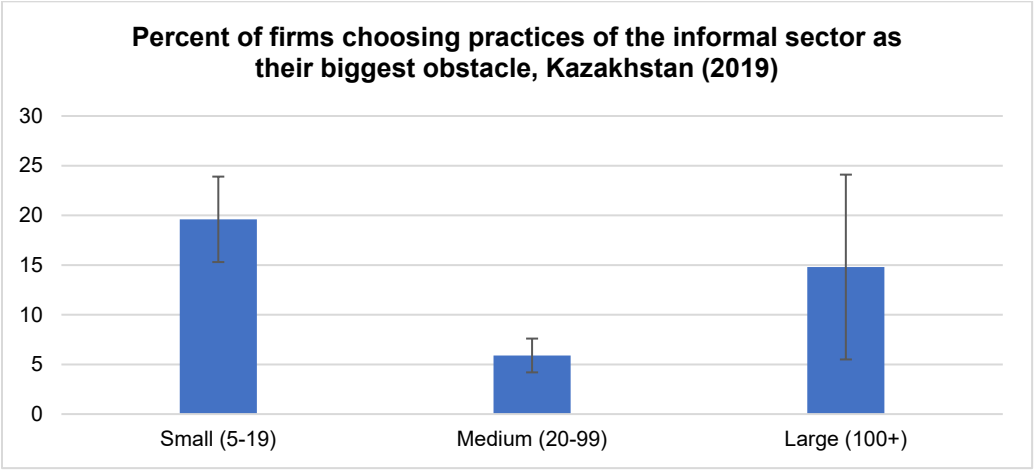
[194] Elgin et al., "Understanding Informality."

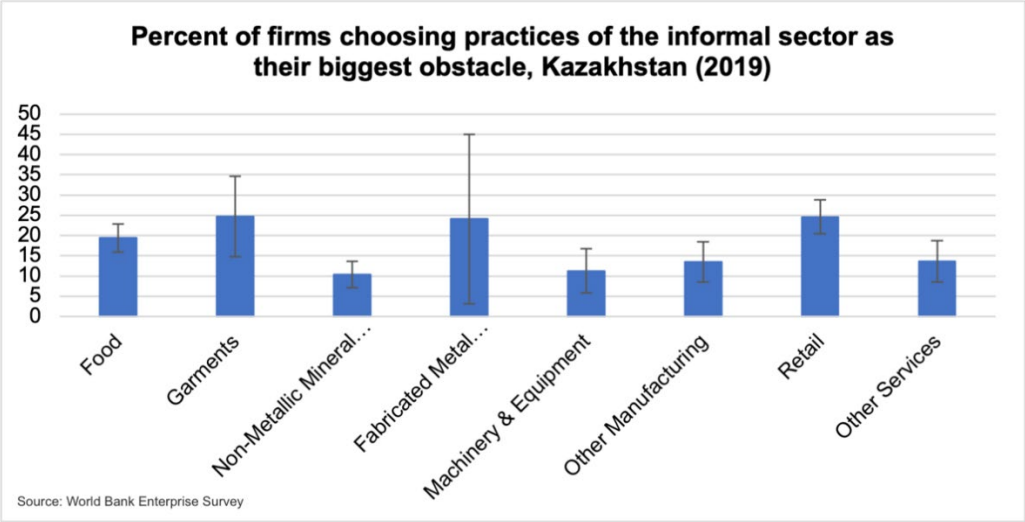
Figure 5.4.20



Small firms are the most affected by the practices of the informal sector. Small firms cite the practices of the informal sector as their main obstacle to their work most often (19% among small businesses of 1-19 employees). This may be due to the sectors in which small firms dominate. It is difficult to imagine informal competition crowding out large firms in the manufacturing or machinery sectors, rather than in the services like retail, garments, or good (Fig. 5.4.21). When considering sectors most affected by both informality and taxes, there is an overlap for the retail and food industries. This supports the hypothesis that the constraint cited of tax rates stems from competition from informal firms in these sectors – this competition increases the relative (or effective) tax rate. Therefore, informality may be an internalized tax that small firms struggle with, rather than the design of the tax system itself or the nominal tax rates in the economy.

Figure 5.4.21





6. Initial Policy Guidelines

This section overviews policy guidelines aiming to address the most pressing issues identified in this growth diagnostic. The guidelines represent a first attempt to structure thinking about policy initiatives that is to be discussed and improved on the basis of interactions with local stakeholders. Current events and short-term economic challenges may be particularly important factors to consider when developing further, complementing, or restructuring these first policy directions. Moreover, policy guidelines should be thought of as a set of measures that have interaction effects, meaning that pursuing them should not come at the cost of one or more other policy measures towards the same goal. These policy guidelines are meant to be complementary to each other and are not siloed in their motivation or potential impacts. In order to address the challenges as articulated in the growth syndrome, we suggest three policy directions:

- **Sound and predictable macroeconomic policy** – This relates to improving macroeconomic management to increase stability and predictability, reduce overall risk and better ensure that the success of the oil economy does not come to the detriment of other economic activities;
- **Levelling the playing field** – This policy direction includes reflecting on the role of SOEs, broader reforms to promote enterprise and market development, as well as an effort to make the job market more inclusive;
- **A strategic approach to building capabilities** – This policy direction aims to formulate consistent industrial, skills, and infrastructure policies in order to enable the leap in capabilities that successful diversification will require.

Enhancing Kazakhstan's macroeconomic and fiscal framework

Despite significant progress, Kazakhstan displays macroeconomic imbalances that hamper the country's growth and its economic diversification. Residual macroeconomic instability is for instance observable through the asymmetry of the exchange rate dynamics, the existence of a currency risk premium and persistent inflation. This in turn may be attributed to three factors: a dual anchor problem, to the dollar through oil revenues and financial markets, but also to the ruble for trade reasons; imperfect fiscal discipline and residual procyclicality of government spending; policy uncertainty in the face of external shocks.

Kazakhstan can address its macroeconomic imbalances by simplifying its fiscal framework, stabilizing NFRK transfers, and exploring complementary approaches to enhancing fiscal discipline and cushion economic shocks. Simplifying the fiscal framework entails defining a smaller number of fiscal targets, ideally as a share of non-oil GDP. The country can also better stabilize NFRK transfers by implementing a new rule for these transfers. Finally, complementary approaches to enhancing fiscal discipline include increased transparency of asset management practices and exploring alternative monetary and exchange rate arrangements that could help narrow the risk premium.

Revamping access to finance support in Kazakhstan

Barring extractive activities, the quantity of credit flowing into Kazakhstan's economy seems insufficient to ensure higher growth and powerful diversification. In 2020, domestic credit to the private sector stood at 25.6% of GDP, significantly lagging peers. Beyond levels, the rate of growth of domestic credit has also been worrying, with domestic credit growth turning negative and then stalling after the oil price shock of 2014.

While part of the issue relates to other constraints dampening credit demand by local firms, two factors seem to be constraining the supply of credit. First, interest rates are high, resulting both from high inflation and high real interest rates over and above inflation. Second, lenders demand large amounts of collateral to be pledged to secure financing.

Recognizing this policy challenge, the government has implemented a number of support policies. However, current support policies mostly rely on costly interest rate subsidies. These support mechanisms have been taken up by private borrowers but have not been sufficient to engineer significant credit growth. This may suggest potential to devise alternative policies that could prove more effective as well as more cost-efficient.

Kazakhstan could increasingly rely on portfolio credit guarantee schemes. Guarantees would be more cost-efficient that interest rates subsidies, enabling wider support for the same cost. They would also more directly tackle issues related to collateral requirements. However, we also note that their success partly hinges on complementary macroeconomic reforms that are necessary to help guarantees achieve similar effectiveness as interest rates subsidies.

Attracting high-skill talent to Kazakhstan

Kazakhstan needs to attract high-skilled workers from abroad to fuel its diversification aspirations and meet the needs of its skills-biased growth. Productive diversification inherently presents a chicken-and-egg dilemma because prospective industries cannot appear in the absence of the skills and know-how needed for their establishment, and in turn, these cannot be acquired by the domestic labor force because industries in which they could acquire them do not exist yet. To overcome this dilemma, Kazakhstan can secure the provision of missing skills and knowhow through foreign immigration and foreign direct investment. In addition, growth in Kazakhstan is biased in favor of sectors that demand high-skilled workers, and specialized skills, and these sectors appear increasingly constrained in their growth by the inadequate supply of skills. Foreign workers can help as a short-term stopgap to the growing skills inadequacy issue while more perennial solutions are implemented. The provision of foreign skills also benefits firms that cannot attract foreign knowhow directly through the positive spillovers that these skills have on the whole value chain they contribute to.

Such potentially beneficial immigration is being hampered by the increasingly restrictive immigration policy in Kazakhstan, and the low attractiveness of the local ecosystem to high-skilled workers. Migrants in Kazakhstan need to overcome formal and informal barriers, including immigration quotas,

salary, and duration of stay caps, lack of cultural and language proximity, low economic attractiveness, and low connectedness to the migrant's home country.

Adopting migration attraction policies that favor high-skilled worker – a group that includes entrepreneurs and inventors-, such as special visa categories, and complementing them with paths to residency or citizenship and visas for dependents can eliminate some of the barriers to attracting and retaining foreign skills needed by the country. The current geopolitical context may present an opportunity, as current tensions have displaced many high-skilled workers from Ukraine and Russia who are in search of a stable environment. These are less likely to be impacted by informal barriers to relocate in Kazakhstan, given cultural and linguistic similarities. The country could provide a refuge to such individuals while benefiting from their knowhow.

Redefining the role of State-owned enterprises

State-owned enterprises (SOEs) through their size, resources, and economic sophistication, are prime actors to facilitate productive jumps to new economic activities and thus help Kazakhstan climb the knowhow ladder. However, SOEs can also be a drag on the economy in many ways: through low economic efficiency risks, producing costly inputs for the rest of the productive economy, through uncompetitive procurement practices, misallocation of talent and human capital, and fiscal risks associated with SOE debt.

In Kazakhstan, beyond extractive activities, SOEs are well-represented in sectors such as education, health, but also in key services sectors like ICT, electricity, water supply and sanitation. They are not prevalent in sectors often targeted for diversification such as manufacturing or agriculture. Their economic performance has been low compared to the private sector. When comparable private companies exist, they typically tend to outperform SOEs.

Part of past policy efforts were aimed at downsizing the SOE sector, including through a moratorium on their creation and several waves of privatization. Such efforts have not been as effective as intended because of flaws in design and implementation but possibly also because the initiatives lacked a clear framework and SOEs classification. There were also attempts to integrate SOEs into the development and industrial policy agenda. However, they overall failed to make SOEs the agents of change they could be, possibly again because of a lack of clearly articulated rationale for public ownership and development goals.

In the case of Kazakhstan, there are several potential rationales for the public ownership of SOEs, which include the existence of natural monopolies, strategic sectors, where SOEs carry societal obligations, the existence of imperfect contracts and coordination failures, regional development objectives, technological and industrial development targets, and strategic safeguarding of the economy against external and domestic shocks.

Harnessing the potential of SOEs to positively contribute to diversification requires a differentiated and flexible approach, given the high level of heterogeneity among the country's SOEs, while preserving the overarching goal of promoting the development of new productive capabilities and crowding-in private sector economic activity. This starts with clearly defining the role of each SOE, consistent with the rationales for public ownership, categorizing them along structural dimensions, and eventually creating policies, targeted at each group of SOEs, which will allow to effectively manage them and fulfill SOEs' potential of being successful agents of change for Kazakhstan's economy.

Appendix

This part of the appendix discusses the details of the data that we had access to while working on the section on human capital. We also use this appendix to explain what the challenges to data availability have been while working on the microdata from the Bureau of National Statistics. The following are the set of datasets that we used:

- World Development Indicators
- ILOSTAT database
- Global Innovation Index
- World Bank Enterprise Survey
- UN-DESA Migration Data
- Bureau of National Statistics, Kazakhstan
    - Data available publicly on the Taldau platform
    - Household survey on employment of the population: T-001 microdata
    - Household survey on quarterly household income and cost accounting: D-004 to D-008 microdata

We used publicly available aggregated data available on WDI, ILO, Taldau, etc. to do descriptive analysis to understand more about skills availability and supply, as well as skills mismatch and allocation. While a lot of descriptive trends are possible to outline with this type of data, microdata is required to be able to conduct individual-level analysis that is not reported only at the aggregated level.

Here are a few examples of data challenges that arose with using the microdata: inconsistency of variables collected across different years of the survey, no explanation provided for some variables and survey codes, missing data, descriptive output from microdata that did not match aggregate numbers from publicly available data on Taldau, and missing label categories in multiple-choice questions across different years. While having access to the data itself is useful, it is technically challenging to produce meaningful analytical output with lack of clean and rigorous data.

Figure A.1. Micro-data does not have the same shares of population per region when compared to data on Taldau which could indicate uneven sampling

Regions	Share of total population			Different in percentage points			Relative size of share		
Name	Taldau	Micro data Form T-001	Micro data Form D-00N	T-001 - Taldau	D-00N - Taldau	D-00N - T001	T-001 as a share of Taldau	D-00N as a share of Taldau	D-00N as a share of T-001
Almaty city	11.12%	5.22%	6.30%	-5.89	-4.81	1.08	0.5x	0.6x	1.2x
Almaty	10.62%	10.34%	5.87%	-0.28	-4.76	-4.48	1.0x	0.6x	0.6x
Turkestan	9.47%	6.90%	6.10%	-2.57	-3.37	-0.8	0.7x	0.6x	0.9x
VKO	7.95%	8.57%	6.79%	0.62	-1.16	-1.78	1.1x	0.9x	0.8x
Karagandy	7.90%	8.78%	7.40%	0.88	-0.51	-1.39	1.1x	0.9x	0.8x
Nur-sultan city	6.01%	2.36%	4.49%	-3.65	-1.52	2.13	0.4x	0.7x	1.9x
Zhambyl	5.65%	5.31%	5.33%	-0.34	-0.32	0.03	0.9x	0.9x	1.0x
Kostanay	5.23%	9.32%	6.25%	4.09	1.03	-3.07	1.8x	1.2x	0.7x
Shymkent city	5.19%	2.25%	4.30%	-2.95	-0.9	2.05	0.4x	0.8x	1.9x
Aktobe	4.71%	5.74%	7.03%	1.03	2.32	1.29	1.2x	1.5x	1.2x
Pavlodar	4.37%	6.54%	6.68%	2.17	2.31	0.14	1.5x	1.5x	1.0x
Akmola	4.22%	7.39%	6.49%	3.16	2.27	-0.89	1.7x	1.5x	0.9x
Kyzylorda	4.02%	4.10%	6.34%	0.08	2.31	2.23	1.0x	1.6x	1.5x
ZKO	3.64%	5.93%	5.75%	2.28	2.1	-0.18	1.6x	1.6x	1.0x
Mangystau	3.40%	2.90%	4.67%	-0.5	1.27	1.77	0.9x	1.4x	1.6x
SKO	3.27%	5.22%	5.21%	1.94	1.94	0	1.6x	1.6x	1.0x
Atyrau	3.22%	3.14%	5.01%	-0.09	1.79	1.88	1.0x	1.6x	1.6x

Source: Bureau of National Statistics, T-001 Employment of the Population Sample Survey, D-00N Quarterly Household Income and Cost Accounting Journal

Figure A.2. Micro-data also does not have proportionate representations of employment shares by industry, which is another instance of uneven sampling

Industries	Employment share by industry		Difference in percentage points between T-001 micro data and Taldau	Relative size of employment share of T-001 compared to Taldau
Names	Taldau	T-001		
Wholesale and retail trade; repair of motor vehicles and motorcycles	16.28%	12.34%	-3.93	0.76x
Agriculture, forestry and fishing	13.46%	23.48%	10.02	1.74x
Education	12.71%	14.07%	1.37	1.11x
Construction	7.22%	5.40%	-1.83	0.75x
Transportation and storage	7.07%	6.49%	-0.58	0.92x
Manufacturing	6.66%	5.18%	-1.48	0.78x
Human health and social work activities	5.87%	5.47%	-0.39	0.93x
Public administration and defence; compulsory social security	5.60%	6.40%	0.8	1.14x
Other service activities	3.52%	2.95%	-0.57	0.84x
Administrative and support service activities	3.27%	2.08%	-1.19	0.64x
Mining and quarrying	3.17%	4.41%	1.24	1.39x
Proffesional, scientific and technical activities	2.92%	1.99%	-0.92	0.68x
Accommodation and food service activities	2.22%	1.89%	-0.33	0.85x
Financial and insurance activities	2.16%	1.33%	-0.83	0.62x
Information and communication	1.83%	1.19%	-0.64	0.65x
Real estate activities	1.81%	0.92%	-0.9	0.51x
Electricity, gas, steam and air conditioning supply	1.71%	1.79%	0.08	1.05x
Arts, entertainment and recreation	1.59%	1.62%	0.04	1.02x
Water supply; sewerage, waste management and remediation activities	0.93%	0.98%	0.05	1.05x

Source: Bureau of National Statistics, T-001 Employment of the Population Sample Survey, D-00N Quarterly Household Income and Cost Accounting Journal

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