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Industrial policy and diversification in the economic development of Kazakhstan

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Abstract

This paper explains the role of industrial policy and diversification in Kazakhstan. The oil and gas sector has led Kazakhstan's economic growth. Kazakhstan's economic growth rate has been mediocre compared with its neighbouring countries. The government pursued market-based reform, privatization, and diversification. Although it has emphasized developing agriculture and manufacturing, development in sectors other than oil and gas has not been apparent. The dominance of the extractive sector suggests the existence of the Dutch disease. After explaining industrial policy measures, this paper evaluates the role of government policy and provides policy implications for developing countries. Although the government has tried to diversify from a heavy reliance on the oil and gas sector to the agricultural and manufacturing sectors, the diversification strategy has been unsuccessful overall. Kazakhstan's government must pay more attention to improving human capital and raising R&D expenditure. Active government policy is needed to diversify FDI inflows by sector. The government must clarify the objective of SME promotion and fiscal incentives must be finely targeted, considering industrial policy objectives. Clusters must be closely related to the overall direction of the industrial policy. The government must establish other infrastructure that may attract foreign investors to value-added industries.

Keywords: Diversification, Economic development, Industrial policy, Kazakhstan, Natural resources.

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Contents

Contribution of this paper to the literature
This paper explains the role of industrial policy and diversification in Kazakhstan. Kazakhstan's economic growth rate has been mediocre. The government pursued market-based reform, privatization, and diversification, while the dominance of the extractive sector suggests the existence of Dutch disease. This paper provides policy implications for developing countries.

1. Introduction

Following independence from the Soviet Union, Kazakhstan's annual average real Gross Domestic Product(GDP) growth rate plummeted to -10.0% during 1993-1995. It has since recovered, recording a growth rate of 5.2% during 1996-2021. Economic growth has been primarily led by a boom in the oil and gas sector. GDP per capita increased from US$1,552 in 1992 to US$9,935 in 2021. Despite Kazakhstan's rich natural resources, its economic growth rate since independence has been mediocre compared with neighboring transitioning economies in Central Asia, such as Uzbekistan (Bae & Mah, 2019; UNCTAD, 2023a).

Despite gradual rises in the shares of other sectors, the oil and gas sector has led the economy, comprising close to two-thirds of exports as of the mid-2010s (OECD, 2016). Oil, gas, and related sectors generated 17% of the GDP in 2020 and about half of the government revenue (IEA, 2022). In the process of transition, the government pursued market-based reform, privatization, and diversification to decrease the heavy reliance on the oil and gas sector. In trying to diversify sectors, the government has emphasized the development of agriculture and manufacturing. Despite these diversification and industrialization efforts, development in sectors other than oil and gas has yet to be notable.

This paper explains the evolution and current status of Kazakhstan's economy and discusses the government's diversification and industrialization policies in its economic development process. It evaluates the role of government policy considering Kazakhstan's economic structure. The structure of this paper is as follows: Section 2 explains Kazakhstan's evolving industrial structure. Section 3 provides the direction of Kazakhstan's industrial policy since independence. Section 4 explains the government policy measures for diversification and industrialization. Conclusions and policy implications for developing countries dependent on natural resources are provided in Section 5.

2. The Industrial Structure of Kazakhstan

Kazakhstan is abundant in natural resources, particularly crude oil and natural gas, with the oil and gas sector acting as the primary economic driver. Despite the increased shares of non-oil sectors, the oil and gas sector still comprised about 30% of GDP and nearly two-thirds of exports as of the mid-2010s (OECD, 2016).

2.1. Dependence on the Extractive Sector

Kazakhstan possesses oil reserves of 30 billion barrels and gas reserves of 2.3 trillion cubic meters, encompassing 1.7% and 1.2% of the world's total reserves, respectively (BP, 2022). Despite the substantial contributions of the oil and gas sector, it employs only 1% of the country's workers (Anderson, Capannelli, Ginting, Rosbach, & Taniguchi, 2018; IEA, 2022; OECD, 1998). The proportion of value-added from the oil, gas, and mining sectors increased from 8% in 1998 to 20% in 2010 (OECD, 2016). As delineated in Table 1, crude oil production more than tripled, escalating from 1.1 million terajoules (TJs) in 1990 to 3.6 million TJs in 2020. Natural gas production quadrupled from .3 million TJs in 1990 to 1.2 million TJs in 2020. The oil and gas sector's share moderately decreased from 25.3% of GDP in 2010 to 18.6% in 2020 (Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics, 2023). The top five exports, predominately concentrated in the extractive sector, amounting to about 70% of total exports as of the mid-2010s (OECD, 2016).

Table 1. Oil and natural gas production in Kazakhstan (Unit: Million TJ).

	1990	2000	2010	2020
Crude oil	1.1	1.5	3.3	3.6
Natural gas	0.3	0.3	1.1	1.2

Source: BP (2022).

Kazakhstan had been deeply integrated into Russia's oil and gas supply network, with the majority of its crude oil being exported to Russia and other nations of the former Soviet Union through Russian pipelines. Within these pipelines, export margins were smaller than those of Western markets. The government's Medium-term Public Investment Program for the oil and gas sector prioritized the completion of the Caspian Petroleum Consortium (CPC) pipeline, a strategic initiative to enhance Kazakhstan's export capacities (OECD, 1998). As of the early 2020s, around 80% of Kazakh oil was exported predominantly to Russia via the CPC pipeline. However, in an effort to mitigate the risks in its over-reliance on Russian markets, Kazakhstan has embarked on a mission to diversify its export destinations. For example, it has tried to increase the export of oil and gas to China, although this remained trivial as of the early 2020s (IEA, 2022).

2.2. Agriculture and Manufacturing Sectors

In the late Soviet era, the government centrally controlled the production, distribution, and processing of food, boosting the agriculture sector through subsidies. Upon independence, the government tried to decrease dependence on food imports by increasing domestic food production (OECD, 2022). Kazakhstan has a vast agricultural land area of 222 million hectares, with the availability of agricultural land per rural resident exceeding that of any other country in the region (OECD, 2022; Petrick, Raitzer, & Burkitbayeva, 2018). Leveraging this comparative advantage, the government has attempted to develop the agricultural sector using various policy measures aimed at developing the agricultural sector. Donor agencies such as the Asian Development Bank (ADB), recognized the agricultural sector's potential in the 1990s, providing agribusiness loans. Furthermore, the sector has attracted foreign direct investment

(FDI), such as joint ventures for grain production with the US company Cargill. Another notable foreign investment was made by Philp Morris, investing US$300 million in cigarette manufacturing using local tobacco in the 1990s (OECD, 1998). An agglomeration of enterprises in the agricultural sector garnered considerable FDI in the early 2000s (Petrick et al., 2018).

Despite the government's efforts, improvement within the agricultural sector has been limited. As illustrated in Table 2, the share of the agriculture, forestry, and fishing sectors has been stagnant, steadfastly hovering between 4 and 6% of GDP throughout 2007 to 2021. The self-employment rate in agriculture is very high, at about 50%, indicating that many agricultural workers have low productivity, mainly producing for subsistence (OECD, 2016).

Table 2. Composition of GDP by sector (Unit: Percentage of GDP).

Year	Agriculture, forestry, and fishing	Industry	Construction	Services
2007	5.7	28.3	9.4	54.3
2010	4.5	32.9	7.7	51.7
2015	4.8	24.7	6.0	59.4
2020	6.1	27.1	6.1	56.0
2021	5.7	29.6	5.7	53.8

Source: Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics (2023).

Despite generous governmental support, livestock production is yet to recover to the pre-independence level. Priority sectors such as meat and milk production remain below pre-transition levels. The agricultural sector has been crowded out and made less competitive due to the burgeoning influence of the oil and gas sector. Despite Kazakhstan's rich resource endowments and governmental support, the agricultural sector persistently underperforms relative to its potential, and Kazakhstan remains a net food importer. The export performance of his sector has been uninspiring, with the agro-food sector accounting for merely 5% of total exports (Petrick et al., 2018). Additionally, the manufacturing sector hasn't been noteworthy. This sector's contribution to GDP has shown a constant downfall from 16% in 2000 to 12% in 2005, 11% in 2010, and 10% in 2015. Reflecting the government's effort to improve the manufacturing sector in the 2010s, the GDP share slightly increased to 14% in 2021. However, this figure remains significantly smaller than the average share of upper-middle-income countries, which equalled 22 and 23% during the 2010s (World Bank, 2022). Meanwhile, Kazakhstan's manufacturing sector showed a considerable increase in productivity and employment in the mid-2010s (OECD, 2016).

3. Industrial Policy and Structural Transformation

3.1. The Overall Direction of Industrial Policy

After independence, the government of Kazakhstan focused on nation-building and transitioned away from a centralized economic system. During the 1990s, it pursued privatization and offered large shares to foreign and private agents (OECD, 1998). However, despite its active efforts of privatization, the government sector remains very much present, with state-owned enterprises (SOEs) comprising 35 to 40% of the national economy by the mid to late 2010s (World Bank, 2018).

As a country highly dependent on natural resources, Kazakhstan faces risks associated with highly volatile resource prices (Anderson et al., 2018; World Bank, 2013). As a response, the government has strived to diversify its economy. The government has implemented multiple programs throughout the years to facilitate diversification and identify new avenues for growth (OECD, 2016). A pivotal moment in this strategic shift was marked by the introduction of 'Kazakhstan 2030' in 1997, the country's first long-term development strategy, which not only acknowledged its vulnerabilities but also mapped a way towards diversifying the economy away from its traditional reliance on the extractive sector to other value-added industries with potential (World Bank, 2013; Zhelev, 2019). Subsequently, a variety of plans and initiatives were implemented to promote the development of non-oil sectors and attract FDI (World Bank, 2018).

3.2. The Promotion of the Non-Extractive Sectors

In light of Kazakhstan's abundant land, the government has continued to iterate its ambition of becoming a major global supplier of agricultural products. This goal has been supported through several economic plans and programs that include land reforms, expanding access to credit, input and output subsidies, and lending at preferential interest rates (OECD, 2022; Petrick et al., 2018).

Beginning in 1992, the government of Kazakhstan actively pursued market-based reform. The agricultural sector was no exception, starting with the price liberalization of agricultural products (OECD, 2022). The land market liberalization progressed gradually from an initial state of complete state ownership at the beginning of independence. Although a new Land Code granted full private ownership of agricultural land in 2005, its effect was limited. Large agricultural enterprises were the main beneficiaries, and private ownership of agricultural land comprised a mere 1.4% by 2019 (Kvartiuk & Petrick, 2021; Ministry of Agriculture of Kazakhstan, 2020; Petrick et al., 2018). Furthermore, discriminatory agricultural and forestry land use regulations have deterred FDI in the agricultural sector (OECD, 2017a).

Government subsidies have been the cornerstone of agricultural business growth. Five organizations were established to provide direct financing to address the limited access to credit faced by agribusiness in the 2000s (OECD, 2013). Restructuring agricultural loans commenced in 2013, aimed at easing credit conditions for those in the agricultural sector by lowering interest rates and writing off penalties for overdue loans. The government identified priority sectors, such as livestock and meat, providing concessional lending to promote these sectors (OECD, 2015, 2022). Government spending on livestock subsidies and veterinary services amounted to one-third of all agricultural policy expenses as of the early 2010s (Petrick et al., 2018). Although production subsidies in the agricultural sector have decreased since the mid-2010s, the Producer Support Estimate (PSE) as a share of the Gross

Farm Receipt (GFR) peaked at 22.3% in 1998, then decreased to 10.2% from 2011-2015, and subsequently to 3.9% from 2016-2021 (OECD, 2023).

The food sector has sought substantial investment since the 1990s (OECD, 1998). The government has also established investment and trade liberalization initiatives. However, government policies have failed to yield the intended results; producer support lacked consistency and subsidies did not have a balanced effect as they were concentrated among large enterprises and agro-holdings (Anderson et al., 2018; Petrick et al., 2018).

Developing the manufacturing sector was a big part of Kazakhstan's diversification strategy. The government's intention to focus on this sector was explicitly mentioned in the State Programme for Accelerated Industrial and Innovative Development (SPAIID) for 2010-2014. The government highlighted seven sectors for the state plan, including transport equipment, chemicals, and pharmaceuticals. Nonetheless, the results of SPAIID 2010-2014 were overall unsatisfactory in reaching manufacturing output growth targets (Julian & Taniguchi, 2018). Despite these shortcomings, the policy successfully attracted FDI to the manufacturing sector, bringing in 2.9 times more FDI in the five years of implementing the plan than the five years preceding it (United Nations Conference on Trade and Development (UNCTAD), 2020). The State Programme for Industrial and Innovative Development (SPIID) for 2020-2025 was enacted to nurture a competitive manufacturing industry, setting the target of increasing the export volume of the manufacturing sector by 1.9 times that of the 2018 level (Baiterek, 2023).

3.3. Promotion of Small- and Medium-Sized Enterprises (SMEs)

A critical characteristic of Kazakhstan's economy is the substantial presence of SOEs. SOEs in operation are responsible for about 30-40% of GDP, and the presence of SOEs in the national economy is the highest among OECD countries (World Bank, 2018). The government has attempted to reduce this by banning new SOEs in the manufacturing sector and replacing them with SMEs (Julian & Taniguchi, 2018). However, the contribution of Kazakhstan's SMEs is relatively low. As of the mid to late 2010s, SMEs accounted for 20% of the GDP and 28% of employment, which is low compared to other countries heavily relying on natural resources like Saudi Arabia (World Bank, 2018). Most SMEs are in the wholesale and retail trade sector, which generally do not require advanced entrepreneurial skills (OECD, 2014a). Realizing that concentrating on SOEs with little support for SMEs hinders diversification, the government set 'Kazakhstan 2050 Plan' with the target of raising SME contribution to GDP to 50% (World Bank, 2018).

Samruk-Kazyna, an SOE, created the Damu Entrepreneurship Development Fund in 1997 to finance the development of SMEs (OECD, 2014a). The fund is designed to support SMEs by providing credit, interest rate rebates, and training. It provides direct loans to SMEs to address the limited access to credit, which was identified as a main constraint for SME development (ADB, 2020). The Damu Fund has also financed the Business Road Map 2020, launched in 2010, which aims to encourage SME growth, especially in relatively poor regions (OECD, 2020b). Additionally, in 2002, a collaborative initiative between the United Nations Development Programme and Tengizchvroil successfully implemented a business incubator program providing interest-free loans to SMEs in the oilfield services market (Atakhanova, 2018). Meanwhile, commercial banks have shown marked reluctance to lend to SMEs due to weak growth and a high risk of insolvency (World Bank, 2021). Also, due to relatively low productivity, small sizes, and high engagement in subsistence entrepreneurship, SMEs in Kazakhstan have not been so successful in contributing to the development of the national economy (OECD, 2017c).

3.4. Promotion of Science, Technology, and Innovation (STI)

At the dawn of independence, Kazakhstan inherited a well-developed science and education system. As research had been almost exclusively done by public authorities, the substantial decrease in funding during the 1990s led to a sharp decline in Kazakhstan's research capacity and education levels. Unlike the science and education system, Kazakhstan had inherited a poor information and communication technology (ICT) infrastructure from the Soviet Union. Recognizing the difficulties arising from this poor ICT infrastructure, the government prioritized improvements, resulting in rapid enhancements (OECD, 2017c).

The national STI policy aims to improve integration with global value chains and enterprises to increase the production of high-value-added products and to establish favorable conditions for R&D and entrepreneurship (Shevchenko, 2020). Throughout the years, plans like SPAIID 2010-2014 and SPIID 2015-2019 assisted in the diversification of the economy through high-value-added goods and entrepreneurial support (Julian & Taniguchi, 2018; OECD, 2017c). An appropriate STI policy can contribute to the development and production of such high-value-added goods. The state plans emphasize infrastructure development, entrepreneurship, and R&D (Shevchenko, 2020).

Efforts to bolster innovation have yielded some success. For example, innovation-based companies increased nearly fourfold from 2008 to 2012, and the percentage of companies involved in innovation exceeded the government goal of 6.8%, reaching 7.2% in 2012. Technology parks such as the National Industrial Petrochemical Park in Atyrau City and the Information Technology Park in Alatau were built to provide an environment for innovative businesses and accelerate the commercialization of scientific research (OECD, 2017b). Meanwhile, Kazakhstan's R&D expenditure as a percentage of GDP is steadily declining. Table 3 illustrates that, as of 2020, Kazakhstan spent a mere 0.13% of its GDP on Research and Development(R&D), much lower than the world average of 2.63%. Even compared to the other countries in Central Asia, Kazakhstan's R&D expenditure is deficient.

Table 3. R&D expenditure of Kazakhstan, the world, Europe, and Central Asia (Unit: Percentage of GDP).

	1997	2000	2010	2020
Kazakhstan world	0.29	0.18	0.15	0.13
Europe and Central Asia 2	1.96	2.05	2.01	2.63
(Excluding high-income countries)	0.85	0.72	0.90	0.9

Source: NESCO Institute for Statistics (UIS) (2022).

Skills needed for innovative activities are notably deficient in Kazakhstan, urging prompt governmental action to elevate the low educational levels (OECD, 2017b). Kazakhstan's innovation capability ranks low at 95 out of 141 countries (World Economic Forum, 2019). The share of innovative products in the GDP equalled 1.6%in 2005, with only a slight increase to 1.7% in 2021 (Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics, 2023). This implies that Kazakhstan's advancements in the innovation sector significantly underscored that of its overall economic growth since the early 2000s.

3.5. Education

The State Programme of Education Development covering 2011-2025 aims to improve education to support the innovative development of the economy. The government has also implemented the State Programme for the Development of Vocational and Professional Education in Kazakhstan and the Know About Business initiative to manage technical education better and promote entrepreneurship education (European Commission (EC) and Organization for Economic Co-Operation and Development (OECD), 2023; OECD, 2014c).

Table 4 shows that the number of students studying in technical and vocational post-secondary education organizations more than tripled during 2000 – 2010 but has since declined. This trend suggests that the manufacturing sector did not generate jobs appropriate for semi-skilled workers in the 2000s. Discouraged by the lack of demand for such semi-skilled or skilled workers, young students may have switched to general education, thereby indicating that the human capital potential is still underdeveloped and underutilized (World Bank, 2022). For example, elementary school student performance in reading, mathematics, and science falls below the OECD average (OECD, 2017c). On the bright side, the gross enrolment rate in higher education, including doctoral students, rose from 37.8% in 2000 to 64.2% in 2020, a rate that is exceptionally high compared to Kazakhstan's per capita GDP. The number of doctoral students began to rise in the second half of the 2000s and tripled between 2015 and 2020.

Table 4. Education statistics.

	2000	2005	2010	2015	2020
The number of students studying	168.189	397.631	604.244	498.965	477.539
In the organization of technical and vocational, post-secondary education (Persons)	37.8	57.2	49.5	48.4	64.2
In higher education (Percent) number of doctoral students (Persons)	245	303	960	2.219	6.914

Source: Agency for Strategic Planning and Reforms of the Republic of Kazakhstan Bureau of National Statistics (2023).

3.6. Attracting FDI

FDI inflows have been of great importance to Kazakhstan's economy. In the early years of independence, the government quickly began to welcome FDI (Asian Development Bank, 2018). Kazakhstan was seen as very attractive to foreign investors right after independence, as it had underexploited energy and mineral resources coupled with quickly progressing privatization. The government mainly focused on privatizing the power, energy, and telecommunication sectors, which are of great interest to foreign investors. The oil and gas sector was the primary attractor of FDI, representing 46% of FDI inflow during 1993-1997. This inflow doubled from US$.6 billion in 1994 to US$1.2 billion in 1997 (National Bank of Kazakhstan, 2023; OECD, 1998). Since the early 1990s, Kazakhstan has received more than half of the FDI into Central Asia, with only a few exceptional years, as shown in Table 5. In 2021, Kazakhstan attracted US$3.2 billion in FDI. Oil and gas have been the main drivers of FDI inflows.

The Kazakhstani government's future plan hinges on securing increased and further diversified foreign investment across various sectors. Despite aspirations, Kazakhstan's non-energy sectors have only managed to attract limited investment. Three main challenges hinder the flow of FDI into Kazakhstan: frequent changes in legislation, the lack of enforcement of arbitration decisions, and the regulatory framework (Vanderhill, Joireman, & Tulepbayeva, 2019).

Table 5. FDI inflows of the world, Central Asia, and Kazakhstan (Unit: US$ billion).

Year	World	Central Asia	Kazakhstan
1995	345.1	1.3	1.0
2000	1,356.7	1.5	1.3
2005	953.2	2.6	2.0
2010	1,391.1	2.6	1.6
2015	2,063.6	9.9	4.1
2020	963.1	6.3	3.7
2021	1,582.3	7.0	3.2

Source: UNCTAD (2022).

As of the mid-2010s, geological exploration and prospecting activities accounted for 53% of inward FDI stock. The share of cross-border mergers & acquisitions(M&A) in the oil and gas sector has been on the decline from 74% in 1996-2001 to 50% in 2008-2015, although it is still crucial in attracting FDI (OECD, 2017a). As FDI inflows were mainly concentrated in the oil and gas sector, the government aimed to attract investment in non-energy sectors, although this was minor compared to the energy sector. Table 6 shows that, in 2022, gross FDI into the manufacturing sector amounted to US$4.9 billion, whereas the mining and quarrying sector was responsible for US$10.1 billion. According to Table 6 despite governmental efforts, the FDI share directed to quarrying and mining (mostly oil and gas) rose from about a quarter of the total FDI during 2005-2015 to almost half in the early 2020s.

Table 6. FDI inflows by sector (Unit: US$ million).

Sector	Year				
	2005	2010	2015	2020	2022
Agriculture, forestry, and fishing	1	6	72	14	24
Mining and quarrying	1.930	5.982	3.455	8.204	10.084
Manufacturing	347	2.244	2.589	3.170	4.911
Wholesale and retail trade etc.	387	1.522	1.550	2.629	3.776
Information and communication	30	357	41	212	269
Financial and insurance activities	110	608	470	1.030	871
Others	5.111	11.527	7.191	1.907	2.130
Total	7.916	22.246	15.368	17.166	22.065

Source: National Bank of Kazakhstan (2023).

3.7. Trade Promotion

Kazakhstan has a relatively liberal trade policy compared to the rest of Central Asia (Petrick et al., 2018). With the country's accession to the World Trade Organisation (WTO) in 2015 and an FTA signed between the Eurasian Economic Union (EAEU) and Serbia, the government expected an increase in agricultural exports (OECD, 2022; Pomfret, 2016). Under the Business Road Map 2020, the Ministry of Industry and New Technologies reimbursed 50% of firms' eligible export promotion expenses to promote exports. This reimbursement is restricted to indirect measures of export promotion, such as marketing research, advertising costs, training, participating in foreign exhibitions, and registering products and trademarks abroad (World Trade Organisation (WTO), 2013). Such indirect measures of export promotion are allowed within WTO regulations. KazakhExport provides export insurance services to exporters, also allowed within the current WTO system (International Credit Insurance and Surety Association, 2023).

4. Measures of Industrial Policy: Regulations and Incentives

4.1. Regulations

Kazakhstan prudently managed its extractive sectors through waves of nationalization and privatization of corporations. In 1992, the government established a state-holding company, Kazastanmunaigas, to better manage energy enterprises (Orazgaliyev, 2019). The government took measures to restructure the sector in the 1990s, which included privatization, the liberalization of crude oil prices, and corporatization under the sector's holding groups (OECD, 1998). In 2002, this entity was transformed into KazMunaiGaz, a fully integrated national oil company, to strengthen its intervention and nurture the strategically important energy sector. To optimize the management of SOEs, the government transferred its share of KazMunaiGaz and shares in other sectors and formed Samruk-Kazyna, a joint stock company (Orazgaliyev, 2019).

Furthermore, the government created regulatory policies that bound foreign oil companies to form strategic partnerships, enhancing local oversight and integration (Orazgaliyev, 2019). Throughout the twenty-first century, the government undertook revisions to energy sector legislation. This included amendments to the tax code aimed at rebalancing oil wealth benefits and further strengthening its grip on the sector (International Monetary Fund (IMF), 2011). This state-driven development of the oil and gas sector has led to the dominance of the public sector (United Nations Conference on Trade and Development (UNCTAD), 2020).

4.2. Fiscal Incentives

Kazakhstan's first Tax Code was adopted in 1995, and the 2008 Tax Code was characterized by significant changes (OECD, 2017a). Kazakhstan's Tax Code has been maintained to diversify away from the extractive sector and to attract FDI. It involves many exemptions, especially in value-added tax (VAT) and corporate income tax. The government identified priority investment projects, including metallurgy, chemical, petrochemical, mechanical engineering, food, and construction material production. These priority investment projects are subject to targeted incentives such as tax incentives, tax holidays for ten years, and land and property tax exemptions for eight to ten years. A special tax regime for the agricultural sector provides producers of agricultural products with a 70% reduction in income tax, VAT, social tax, property tax, and vehicle tax (OECD, 2017a). To promote the automotive industry, the government has implemented preferential import duties (i.e., reducing import tariffs to 0 to 5%) concerning the components used in automobile assembly (World Trade Organisation (WTO), 2013).

While the government expected increased tax revenue from its oil and gas sector with the 2009 amendment that abolished many of the sector's tax privileges, it had minimal effect, thus failing to improve tax revenue from this sector (OECD, 2014b). In 2017, the government made further changes to its fiscal policy, introducing more favorable treatment of exploration expenses (International Monetary Fund, 2018).

Managing the assets from oil revenue has become critical for Kazakhstan's development (International Monetary Fund, 2017; OECD, 2016). The National Fund of the Republic of Kazakhstan (NFRK) was established in 2000 to soften the impact of oil price volatility and distribute oil rents across generations (Anderson et al., 2018; OECD, 2016). The NFRK makes transfers to the government budget, which have been used to support the banking sector's recovery, provide credit lending for SMEs, and support state programs (OECD, 2016) such as Nurly Zhol, launched in 2014 (ADB, 2021). The program helped build infrastructure, provided subsidized credit to SMEs, and offset budget cuts made in 2015 (Madani & Sarsenov, 2015).

4.3. Financial Incentives

The Kazakhstan government provides financial incentives to support certain non-primary priority sectors. During the 2010s, as part of the Business Road Map 2020, the Ministry of Economy and Budget Planning partially guaranteed bank loans. Under this program, the government provided subsidies for enterprises implementing investment projects in the government-approved priority sectors, including agriculture, mining, light industry, furniture production, construction materials, metallurgy, machinery building, transport, warehousing, and tourism

services. Guarantee exposure was capped at 50% of the loan amount, with a maximum loan amount of 4.5 billion tenges (about US$30 million) for each borrower (World Trade Organisation (WTO), 2013). As there is a certain limit to the guarantee amount, this program promotes both non-primary sectors and SMEs.

Kazakhstan still face challenges regarding low inclusivity in its loan programs. Only 1.5% of the population has experience in borrowing to start, operate, or expand a farm or business. Such statistics suggest possible credit access barriers for microentrepreneurs or SMEs. Kazakhstan's subsidy system of providing credit and inputs mainly applies to SOEs and deters SME development (World Bank, 2018).

4.4. Investment Regulations and Incentives

Kazakhstan's investment policy objective has been directed towards creating favorable conditions for investors investing in new technology, expanding and renovating existing production facilities, training, and protecting the environment. National legislation facilitates channelling investments into various priority sectors (World Trade Organisation (WTO), 2013). Kazakhstan enacted the Foreign Investment Law in 1994, which provided several guarantees to foreign investors, including safeguards against expropriation and framework for international business dispute settlement. It also allowed foreign involvement in privatization, joint ventures, management, and concessions (OECD, 1998). The Law on Investments was introduced in 2003, with additional amendments made in 2014, offering guarantees for investors' income and legal protection and customs duty exemption for up to five years when importing manufacturing equipment. Moreover, an investment subsidy of up to 30% of actual expenses is provided for investors realizing a priority investment project (UNCTAD, 2023b).

Kazakhstan has made significant improvements in its investment environment, as made evident in its ranking in the World Bank's ease of doing business ranking, moving from 68th in 2010 to 25th in 2020 (World Bank, 2010, 2020). Although Kazakhstan has maintained a relatively open statutory regime for foreign investors, its FDI regulatory restrictiveness score is still above the average OECD levels, specifically due to certain service sectors that set limits for foreign investors and discriminatory regulations in agricultural and forestry land usage (OECD, 2017a).

Kazakhstan's stringent foreign labor policy has also been an obstacle for foreign investors. To hire foreign workers, employers must acquire work permits. Difficulties in hiring foreign workers have been one of the top complaints from foreign investors. To address this problem, the government has given some work permit exemptions to individuals with priority sector investment contracts and exempted employers in Special Economic Zones (SEZs) from regulations on hiring foreign workers (OECD, 2017a). The government also imposes local content requirements, especially in the oil and gas sector, to induce investors to use Kazakhstan's resources (OECD, 2017a).

4.5. Developing Clusters and SEZs

Since 2010, with the introduction of Strategy 2020, Kazakhstan has pursued a diversification policy and established regional growth centers. Kazakhstan's clusters were established in 2014 (OECD, 2017b, 2020b). These clusters comprise six narrowly specialized territorial and three national clusters. They include a flour cluster, tourist cluster, construction cluster, furniture cluster, milk processing cluster, and pharmaceutical cluster. Kazakhstan's cluster policy emphasizes human resource development and strives to attract FDI. It emphasizes active cooperation with international partners to help realize Kazakhstan's production potential and transition from industrial clusters to innovation clusters (Chkoniya & Meshkov, 2019). While some clusters reflect the government's industrial policy, i.e., the promotion of agriculture and manufacturing, regional growth was still concentrated in oil-rich regions as of 2020. Kazakhstan's regional development policies have faced challenges, particularly due to its top-down approach, leaving little room for stakeholder participation (OECD, 2020b). The World Economic Forum (2019) ranked Kazakhstan 122nd out of 141 countries with respect to the state of cluster development, indicating that Kazakhstan's cluster development policy has not been successful.

SEZs began to be established in 1996 to attract investment (OECD, 1998). The government uses SEZs as a favored means of promoting investment and diversification (Agaidarov & Rahardja, 2012). Table 7 shows 13 SEZs existing as of early 2023, indicating the government's intention of promoting certain sectors. For example, most SEZs target attracting investment in chemistry and petrochemistry, metallurgy, IT, and R&D. That is, considering the industries targeted by SEZs, the government appears to emphasize the development of more value-added industries such as heavy and chemical industries and technology-intensive sectors. SEZs attract investment and promote exports by exempting investors from three codes: tax, labor, and customs, aimed to ease exceptions business conduct within the zones (Asian Development Bank, 2018). SEZs enjoy many tax privileges, including preferential treatment such as 100% exemption on corporate income, land, and property tax not exceeding ten years (OECD, 2020a; World Trade Organisation (WTO), 2013).

Table 7. SEZs in Kazakhstan.

SEZs	Sectoral orientation
Asthana-Technopolis	Mixed
Asthana-New city	Mixed
NIPT	Chemistry and petrochemistry
Seaport Aktau	Logistics and oil equipment
Ontustik	Textile and petrochemistry
Chemical Park Taraz	Chemistry
Qyzyliar	Mixed
Pavlodar	Chemistry, petrochemistry, and metallurgy
Saryarka	Metallurgy and heavy engineering
PIT	ICT and R&D
Khorgos-East gate	Mixed
ICBC "Khorogos"	Mixed

Source: Kazakh Invest (2023).

5. Conclusions and Policy Implications

Kazakhstan's economy is highly dependent on the extractive sector. The economy's growth can be attributed to the oil and gas sector, attracting a substantial amount of FDI and providing Kazakhstan with the funds to develop the economy. The government realized the risks of its over-dependence on the extractive sector in the 1990s and has since strived to diversify its economy. This paper explains the industrial policy pursued by Kazakhstan's government and evaluates its long-term performance in the economic development process. It also derives policy implications for Kazakhstan's future economic development and for developing countries whose economies rely heavily on natural resources.

The government established the National Fund to manage the revenue from oil and gas. This fund has contributed to the risk management arising from the volatility of oil and gas export prices. Establishing and appropriately managing such a National Fund would benefit the economy, which relies heavily on producing and exporting natural resources such as oil and gas. Although the government has tried to diversify from a heavy reliance on the oil and gas sector to the agricultural and manufacturing sectors using various policy measures, the diversification strategy has been unsuccessful overall. This indicates that the oil and gas sector has directed the limited available human resources away from the non-extractive sector.

Despite the importance of R&D and innovation in economic development based on more value-added industries, the share of R&D expenditure in Kazakhstan's GDP has declined, unlike in most other countries. The innovative capability of Kazakhstan appears not to have improved significantly since the 2000s. Therefore, Kazakhstan's government must pay more attention to improving human capital and nurturing innovative capabilities through raising R&D expenditure.

Kazakhstan has successfully attracted FDI since independence, although FDI inflows have been heavily concentrated in the oil and gas sector. Despite the government's effort to attract FDI into non-energy sectors, the oil and gas sector still absorbed nearly half of the total FDI in the early 2020s. This is due to the high regulatory measures persisting in some sectors, deterring investment. Active government policy is needed to diversify FDI inflows by sector to prepare for the future when oil and gas are depleted.

The government has tried to promote SMEs through financial incentives, although SMEs' performance is still unsatisfactory. The government of Kazakhstan must clarify the objective of SME promotion and design appropriate tax and financial incentives. Similarly, developing countries wishing to promote SMEs should also clarify objectives explicitly. For example, they should designate objectives such as income distribution, innovation, employment generation, etc., and design financial and fiscal incentives together with strengthening the infrastructure to achieve these objectives.

Various industrial policy measures exist in Kazakhstan. For example, tax incentives are provided for firms located in SEZs and investors in priority sectors. The government provides funds to support infrastructure and leading sectors; however, those financing opportunities do not appear to be appropriately provided to SMEs. Therefore, such fiscal incentives must be finely targeted, considering industrial policy objectives.

The government established clusters to support regional development. However, performance has been largely concentrated in oil-related regions, indicating that the cluster policy has been unsuccessful. To support the effectiveness of the cluster development policy, clusters must be closely related to the overall direction of the industrial policy. The government established SEZs to attract FDI and promote exports. By sector, SEZs appear to be focused on value-added industries. Although the sectoral target appears plausible, the effectiveness of SEZs on FDI attraction and diversification has been questionable (OECD, 2017a). The dominance of the mining sector increased in the early 2020s. Besides SEZs, the government must establish other infrastructure that may attract foreign investors to value-added, technology-intensive industries.

Education is critical in economic development by supplying human resources with advanced technologies to industries. Kazakhstan has implemented several ambitious programs to increase education levels. Kazakhstan's gross enrolment ratio in higher education and the number of doctoral students jumped over the past few decades, which may indicate a bright future for the development of value-added industries needing well-educated human resources. Meanwhile, the educational environment has much room for improvement, such as increased pay for teachers and better quality of education (OECD, 2013). R&D expenditure and improving tertiary science and engineering education are important for economic development. Kazakhstan shows unsatisfactory performance in science and mathematics, which may deter the development of the high-value-added manufacturing sector. For Kazakhstan to enter the next stage of economic development, focusing on innovation, improving education, and increasing R&D expenditures is critical.

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