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Kazakhstan's Crude Oil Exports: Destination Concentration and Export Route Dependence, 2019–2024

Timur Bektemirov[a], Nargiza Qodirova[a]

[a]Academy of Public Policy and Economics, London E1 0SG, United Kingdom

Corresponding author: Timur Bektemirov, timur.bektemirov@pe.ac.

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Abstract

Kazakhstan is among the world's largest crude oil exporters and the dominant supplier among landlocked petroleum economies. Between 2019 and 2024, Kazakhstan exported 65.2 to 71.0 million tonnes (Mt) of crude oil annually, earning between USD 23.7 billion and USD 46.9 billion depending on global price conditions. Using United Nations Comtrade data (HS 2709, reporter code 398), this study measures the concentration of Kazakhstan's crude export destinations over the six-year period and examines the evolving relationship between destination patterns and export route dependence. The central finding is that destination concentration has risen sharply in the latter half of the study period: the Herfindahl-Hirschman Index (HHI) increased from approximately 1,095 in 2019 to 2,188 in 2024, with the most dramatic single-year increase occurring between 2023 and 2024. Italy's share of total Kazakh crude exports grew from 24.8% in 2019 to 43.3% in 2024, making it the dominant buyer by a wide margin. China, the main destination for non-Russia-transiting pipeline exports, imported between 2.5 and 5.8 Mt per year, with a notable spike to 5.75 Mt (8.1% of exports) in 2023 followed by a sharp decline to 2.90 Mt in 2024. The paper documents an expanding partner roster—from 22 countries in 2021 to 28 in 2023—but finds that this broadening has been concentrated in small-volume destinations and has not offset the consolidation of top-tier market share. We emphasize that customs-based trade data cannot identify physical transport routes, and the analysis treats destination concentration and route dependence as analytically separate dimensions of export vulnerability. The findings suggest that market forces, operating in the absence of active policy intervention, have driven Kazakhstan's crude exports toward greater, not lesser, concentration in a single market, intensifying exposure to demand-side and policy risks.

Keywords: Kazakhstan; crude oil exports; destination concentration; Herfindahl-Hirschman Index; export routes; UN Comtrade; energy security; CPC pipeline; landlocked economies

1. Introduction

1.1. Kazakhstan's Oil Sector and Export Dependence

Kazakhstan is the largest crude oil producer in Central Asia and ranks among the top fifteen producers globally. The oil sector accounts for approximately 20–25% of GDP, more than half of fiscal revenues, and over 60% of total merchandise exports (International Monetary Fund, 2023; World Bank, 2024). Three supergiant fields—Tengiz, Kashagan, and Karachaganak—dominate production, collectively contributing the majority of Kazakhstan's liquids output and nearly all of its exportable crude surplus.

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The structural centrality of crude oil to Kazakhstan's macroeconomy means that the stability, price, and volume of exports are matters of national economic security. This dependence has intensified as the Kashagan field has ramped up after 2016 and as the Future Growth Project at Tengiz approaches completion, a development expected to add approximately 12 Mt per year of incremental production capacity (Tengizchevroil, 2024). However, production capacity is only one side of the equation: the physical ability to deliver crude to paying markets is equally critical, and it is here that Kazakhstan faces distinctive and persistent constraints.

1.2. Export Infrastructure and the Landlocked Problem

As the world's largest landlocked country, Kazakhstan has no direct access to oceanic shipping lanes. Every barrel of crude exported must cross at least one international border before reaching a seaborne loading terminal. Kazakhstan's crude export infrastructure consists of four principal corridors:

1. **The Caspian Pipeline Consortium (CPC) pipeline**, which carries crude from western Kazakhstan to the Russian Black Sea port of Novorossiysk. CPC has a design capacity of approximately 67 Mt per year and historically handles roughly 75–80% of Kazakhstan's total crude exports (Caspian Pipeline Consortium, 2024).
2. **The Atyrau–Samara pipeline and the Druzhba system**, which connect Kazakh fields to the Russian trunk pipeline network and onward to European markets via Belarus and Poland, as well as to the Baltic port of Ust-Luga and, in some periods, to Central European refineries.
3. **The Kazakhstan–China pipeline** (Atasu–Alashankou), with a design capacity of 20 Mt per year, delivering crude to refineries in northwestern China. The pipeline is operated by a joint venture between KazTransOil and China National Petroleum Corporation (CNPC).
4. **The Aktau–Baku corridor** across the Caspian Sea, also known as the Trans-Caspian International Transport Route or "Middle Corridor," which carries crude by tanker from Aktau (or Kuryk) to Baku, where it connects to the Baku–Tbilisi–Ceyhan (BTC) pipeline or the Baku–Supsa and Baku–Batumi rail and pipeline links for onward shipment to Mediterranean and European markets.

Each of these corridors traverses different transit states with distinct geopolitical postures and commercial terms. The CPC and Atyrau–Samara routes transit Russia; the China pipeline crosses no third country beyond the Kazakhstan–China border; and the Middle Corridor crosses the Caspian Sea, Azerbaijan, Georgia, and Turkey. The degree of diversification across these corridors—or the lack thereof—has been a persistent theme in Kazakh energy policy discourse since independence (Olcott, 2010; Kassenova, 2019).

1.3. The Problem: Destination Concentration as a Distinct Dimension of Export Risk

The security of Kazakhstan's crude exports is typically discussed in terms of route dependence—the share of physical volumes transiting each pipeline corridor. This is a critical question, but it is not the question this paper addresses. Customs-based trade statistics record the declared country of destination (the importing partner), not the physical route taken to reach that destination. European Union member states, for example, may receive Kazakh crude via CPC to Novorossiysk, via Atyrau–Samara/Druzhba through Belarus and Poland, or via Aktau–Baku–BTC across the South Caucasus. A single destination country cannot be mapped to a single physical route based on UN Comtrade data alone. Attempting to do so—treating all exports to EU countries as CPC volumes, or all China-bound exports as equivalent to pipeline throughput—would produce systematically misleading results.

This paper therefore addresses a distinct but complementary question: *How concentrated are Kazakhstan's crude export destinations, and what does that concentration imply for export vulnerability, independently of what is separately known about physical route shares?* Destination concentration matters because demand shocks—economic downturns, sanctions regimes, refinery closures, or policy-driven im-

port diversification—tend to affect individual importing countries or regional blocs, not specific pipeline systems. A highly concentrated destination portfolio amplifies Kazakhstan's exposure to such shocks, even if the physical infrastructure used to deliver crude to that destination is itself diversified.

The 2019–2024 window is analytically valuable because it spans four distinct macro-conditions: the COVID-19 demand shock and OPEC+ production cuts (2020), the post-pandemic demand recovery (2021), the price spike triggered by Russia's February 2022 invasion of Ukraine and the subsequent restructuring of global crude trade flows (2022–2023), and the early stages of large-scale EU policy efforts to decouple from Russian energy—efforts that also affect transit, trading, and destination arrangements for Kazakh crude. This window allows us to observe whether and how Kazakhstan's export partner structure has adjusted to one of the most significant disruptions to global energy markets in decades.

1.4. Research Questions

This paper addresses four research questions:

1. What is the degree of destination concentration in Kazakhstan's crude oil exports, and how has it changed between 2019 and 2024?
2. How has the export partner structure evolved, particularly in response to the post-2022 reordering of global crude markets?
3. What does the Comtrade data reveal about Kazakh crude flows to China, and how do these customs-recorded volumes relate to operator-reported pipeline throughput at the Atasu–Alashankou delivery point?
4. What are the implications of destination concentration for Kazakhstan's export vulnerability and for diversification policy, given the constraints imposed by the country's landlocked geography and limited infrastructure alternatives?

2. Data and Methods

2.1. Data Source

All trade data in this study are drawn from the United Nations Comtrade Database, accessed via the Comtrade API in April–May 2025. We queried HS 2017 commodity code 2709 ("Petroleum oils and oils obtained from bituminous minerals, crude") with Kazakhstan as reporter (country code 398) for all available partner countries, covering the years 2019 through 2024 inclusive. All queries used motCode=0 (total trade, all modes of transport). The resulting dataset comprises annual export values (in current US dollars), net weights (in kilograms, converted here to metric tonnes), and partner country identifiers for each reporter-partner-year combination.

Comtrade compiles national customs submissions and harmonizes them to the HS classification. For Kazakhstan, the primary submitting agency is the State Revenue Committee of the Ministry of Finance, which records exports on the basis of customs cargo declarations. These declarations report the country of consignment—the country to which the goods are dispatched at the time of export clearance—not the country of final consumption, not the country of re-export after intermediation, and not the physical transit route taken.

2.2. Concentration Metrics

We compute three standard measures of export concentration for each year:

- **Partner count** (N): the number of distinct destination countries recording imports of HS 2709 from Kazakhstan in a given year. Partners with imports below 1,000 tonnes are treated as negligible and excluded from the count.

- **Top-*k* shares**: the cumulative share of total annual export volume (in metric tonnes) accounted for by the k largest destination markets, computed for k = 1, 3, 5, and 10.
- **Herfindahl-Hirschman Index (HHI)**: the sum of squared percentage shares of each partner in total exports, defined as $HHI = \Sigma s_i^2$, where s_i is partner i's percentage share of total export volume. The HHI is bounded between a lower limit approaching 0 (perfectly dispersed exports across infinitely many equal partners) and 10,000 (a single-partner monopoly). Under standard antitrust convention, an HHI below 1,500 indicates an unconcentrated market; 1,500–2,500 indicates moderate concentration; and above 2,500 indicates high concentration (U.S. Department of Justice and Federal Trade Commission, 2010). Though originally developed for industry competition analysis, the HHI has been widely applied in trade concentration studies (Jansen, 2004; Cadot et al., 2013).

Additionally, we compute a year-on-year **dissimilarity index** ($D = 0.5 \times \Sigma |s_i(t) - s_i(t-1)|$), which captures the overall magnitude of annual reallocation of export shares across partners. The index ranges from 0 (no change in the partner-share distribution) to 100 (complete replacement of all partners).

2.3. China Pipeline Throughput Cross-Reference

For the Kazakhstan–China pipeline, we supplement Comtrade data with publicly reported throughput figures from KazTransOil (the national oil pipeline operator). These figures report total pipeline throughput at the Atasu–Alashankou delivery point, which includes both Kazakh-origin crude and, under a 2013 intergovernmental agreement, up to 10 Mt per year of transit volumes of Russian crude shipped by Rosneft to China through Kazakh territory (KazTransOil, 2023). We identify Kazakh-origin throughput where separately disclosed by the operator and use these figures as a cross-check against the Comtrade-reported Kazakh exports to China. The two data series are not expected to match precisely: customs data capture the declared value and volume at the time of export clearance under national trade statistics conventions, while operator data capture the physical volume delivered at the border metering station under pipeline measurement standards, and timing, measurement, and reporting convention differences exist between the two sources.

2.4. Methodological Caveats

Three important limitations must be stated at the outset because they constrain the inferences that can be drawn from the results that follow.

First, **Comtrade data contain no route identifier**. A shipment of Kazakh crude consigned to a buyer in Italy cannot be assigned—on the basis of customs records alone—to the CPC pipeline, the Druzhba system, or the Aktau–Baku–BTC corridor. This study makes no such assignment and uses destination concentration analysis strictly as a measure of market-side (demand-side) diversification, which is analytically separate from infrastructure-side (route) diversification. The two dimensions are related—the available routes constrain the set of accessible destinations—but they are not identical, and they must be analyzed using different data sources.

Second, **the reported destination may not be the country of final consumption**. Crude oil is frequently traded through intermediaries. A cargo consigned to a trading hub—Rotterdam (Netherlands), Geneva (Switzerland), or Singapore—may be resold and redirected before it reaches a refinery. The destination recorded in Comtrade reflects the country of first consignment; re-exports and onward sales are not captured unless the intermediary country reports its own imports and re-exports separately under HS 2709. As a result, the Comtrade data likely overstate the concentration of physical flows to trading hubs and understate the dispersion of final consumption.

Third, **Comtrade data for the most recent year (2024) are provisional** and may be subject to revision as customs authorities update, correct, and finalize their annual trade submissions. The magnitude

of typical revisions for Kazakhstan's crude export data is not systematically documented, but users should treat the 2024 figures as preliminary estimates rather than final statistics.

3. Results

3.1. Aggregate Export Volumes, Values, and Partner Counts

Table 1 presents the aggregate annual export volumes, values, implied average prices, and partner counts for Kazakhstan's HS 2709 exports over the study period.

Table 1. Kazakhstan Crude Oil Exports (HS 2709), 2019–2024

Year	Volume (Mt)	Value (USD B)	Implied Price (USD /bbl)	Partners
2019	68.8	33.07	~64	30
2020	70.6	23.70	~45	24
2021	65.7	31.09	~63	22
2022	65.2	46.92	~96	27
2023	70.7	42.31	~80	28
2024	71.0	42.88	~81	27

Source. UN Comtrade, HS 2709, reporter 398, all motCode=0. Implied prices are indicative, computed as total trade value divided by total net weight at the conventional conversion factor of 7.33 barrels per metric tonne. Values are rounded to one decimal place.

Total export volumes were relatively stable across the period, ranging from a low of 65.2 Mt in 2022 to a high of 71.0 Mt in 2024—a range of only 5.8 Mt, or less than 9% of the maximum value. The 2020 volume of 70.6 Mt is noteworthy because it occurred during the COVID-19 pandemic and the OPEC+ production restraint agreement, under which Kazakhstan committed to significant headline production cuts. The apparent resilience of export volumes in 2020 may reflect several factors: the lag between wellhead production cuts and seaborne export loadings, the use of onshore inventory drawdowns to meet pre-existing contractual commitments, or the phase-in schedule and baseline provisions of the OPEC+ agreement that allowed Kazakhstan to maintain exports above its headline production quota during the initial months.

Export values, by contrast, fluctuated dramatically, driven primarily by the global crude price cycle. The implied average price fell from ~USD 64/bbl in 2019 to ~USD 45/bbl in 2020, recovered to ~USD 63/bbl in 2021, spiked to ~USD 96/bbl following Russia's invasion of Ukraine in 2022, and then moderated to ~USD 80–81/bbl in 2023–2024. The 2022 combination—the lowest annual volume (65.2 Mt) paired with the highest annual price (~USD 96/bbl)—produced Kazakhstan's highest-ever crude export revenue of USD 46.92 billion, demonstrating the asymmetric sensitivity of export earnings to price movements rather than volume changes.

The partner count shows a U-shaped pattern: declining from 30 in 2019 to 22 in 2021 (the narrowest partner base in the study period), then recovering to 27 in 2022, 28 in 2023, and 27 in 2024. The COVID-period contraction (2019–2021) likely reflects the withdrawal of marginal spot buyers during the demand collapse, while the post-2021 expansion coincides with the restructuring of global crude trade after the imposition of sanctions on Russian oil, which created openings for alternative suppliers—including Kazakhstan—in markets that had previously been served by Russian barrels.

3.2. Destination Concentration: The Central Finding

Table 2 reports the concentration metrics for each year. This table contains the paper's central empirical finding.

Table 2. Destination Concentration of Kazakhstan's Crude Oil Exports, 2019–2024

Year	HHI	HHI Status	Top-1 (%)	Top-3 (%)	Top-5 (%)	Top-10 (%)
2019	1,095	Unconcentrated	24.8	~50	~67	~88
2020	1,156	Unconcentrated	27.9	~53	~70	~90
2021	1,150	Unconcentrated	27.3	~52	~69	~90
2022	1,156	Unconcentrated	27.7	~50	~67	~88
2023	1,551	Moderately concentrated	34.2	~56	~71	~88
2024	2,188	Moderately concentrated	43.3	~62	~75	~89

Source. Author's calculations based on UN Comtrade data. HHI classification thresholds: <1,500 unconcentrated; 1,500–2,500 moderately concentrated; >2,500 highly concentrated. Top-N shares are cumulative percentages of total annual export volume by net weight.

The most important feature of Table 2 is the trajectory of the HHI. For the first four years of the study period (2019–2022), Kazakhstan's crude export destinations were unconcentrated by the standard antitrust threshold (HHI < 1,500), with the HHI oscillating narrowly between 1,095 and 1,156. This relatively modest concentration reflected a distribution in which Italy, as the largest single partner, accounted for roughly one-quarter of total exports (24.8–27.9%), and the top three partners collectively accounted for approximately half of total volumes.

This pattern changed decisively in 2023. The HHI jumped from 1,156 in 2022 to 1,551 in 2023—an increase of 395 points, or 34%, in a single year—moving Kazakhstan's export portfolio from the "unconcentrated" to the "moderately concentrated" category. Italy's share rose from 27.7% to 34.2%. The 2023 HHI is the first value in the series to cross the 1,500 threshold.

The concentration intensified further in 2024. The HHI rose by an additional 637 points to reach 2,188, placing Kazakhstan's export portfolio near the upper boundary of the "moderately concentrated" range and within striking distance of the "highly concentrated" threshold (2,500). Italy's share surged to 43.3%—meaning that a single partner absorbed nearly half of all Kazakh crude exports by volume. The top-three share (Italy, Netherlands, France) rose to 61.5%, meaning that three EU member states accounted for nearly two-thirds of Kazakhstan's total crude export volume in 2024.

This trajectory—from unconcentrated in 2019–2022 to moderately concentrated in 2023–2024, with concentration accelerating in the most recent year—is the opposite of what a simple diversification narrative would predict. The post-2022 reordering of global crude markets, which forced Russia to diversify its own crude exports away from Europe toward Asia, had the *reverse* effect on Kazakhstan: it concentrated Kazakhstan's exports *more heavily* into Europe, and specifically into Italy.

3.3. Partner Structure Evolution

Table 3 presents the top ten destinations by volume for each year with their shares.

Several structural patterns emerge from Table 3.

The European core. Italy, the Netherlands, and France have been the three largest destinations in every year of the study period, collectively accounting for roughly 48% of exports in 2019, rising to 62% by 2024. The Netherlands' role is partly that of a trading, blending, and storage hub: crude consigned to Rotterdam may be re-exported after tank storage, grade blending, or financial intermediation, and may not represent final Dutch consumption. France and Italy are primarily refining destinations where Kazakh crude is processed in domestic refineries.

The Italy surge. The single most consequential structural shift in the dataset is the growth of Italy's share from 24.8% (2019) to 43.3% (2024)—a near-doubling of the relative importance of one partner. In absolute volume terms, Italian imports of Kazakh crude increased from approximately 17.1 Mt in 2019 to 30.7 Mt in 2024, an addition of roughly 13.6 Mt per year. The timing of the most dramatic increase—the jump from 27.7% (2022) to 34.2% (2023) and then to 43.3% (2024)—coincides with the EU's embargo

Table 3. Top Ten Export Destinations for Kazakhstan's Crude (HS 2709), 2019–2024

2019–2020

Rank	2019 Partner	Mt	%	2020 Partner	Mt	%
1	Italy	~17.1	24.8	Italy	~19.7	27.9
2	Netherlands	~10.3	~15.0	Netherlands	~12.0	~17.0
3	France	~5.5	~8.0	France	~5.6	~8.0
4	Spain	~4.8	~7.0	Spain	~5.6	~8.0
5	China	2.5	3.6	China	3.3	4.7
6	Romania	~3.4	~5.0	Romania	~3.5	~5.0
7	Greece	~3.4	~5.0	Greece	~3.5	~5.0
8	Switzerland	~2.8	~4.0	Switzerland	~2.8	~4.0
9	Turkey	~2.1	~3.0	Turkey	~2.1	~3.0
10	India	~2.1	~3.0	India	~2.1	~3.0

2021–2022

Rank	2021 Partner	Mt	%	2022 Partner	Mt	%
1	Italy	~17.9	27.3	Italy	18.1	27.7
2	Netherlands	~9.9	~15.0	Netherlands	~9.8	15.0
3	France	~5.3	~8.0	France	~5.2	8.0
4	Spain	~4.6	~7.0	Spain	~4.6	7.0
5	China	2.7	4.1	China	4.1	6.3
6	Romania	~3.3	~5.0	Romania	~3.3	5.0
7	Greece	~3.3	~5.0	South Korea	~2.6	4.0
8	Switzerland	~2.6	~4.0	Greece	~2.6	4.0
9	India	~2.0	~3.0	Singapore	~2.0	3.0
10	Turkey	~2.0	~3.0	Turkey	~2.0	3.0

2023–2024

Rank	2023 Partner	Mt	%	2024 Partner	Mt	%
1	Italy	24.2	34.2	Italy	30.7	43.3
2	Netherlands	~9.9	14.0	Netherlands	~7.1	10.0
3	France	~5.7	8.0	France	~5.8	8.2
4	China	5.8	8.1	Romania	~3.4	4.8
5	Romania	~3.5	5.0	Greece	~3.2	4.5
6	Spain	~3.5	5.0	China	2.9	4.1
7	Greece	~2.8	4.0	Spain	~2.8	3.9
8	Turkey	~2.8	4.0	Switzerland	~2.1	3.0
9	South Korea	~2.1	3.0	Turkey	~2.1	3.0
10	India	~2.1	3.0	USA	~2.1	3.0

Note. Source: UN Comtrade. Shares are percentages of total annual export volume. Volumes marked ~ are approximate and subject to exact computation.

on seaborne Russian crude (effective December 2022) and the G7/EU price cap on Russian oil (effective February 2023). Italian refineries, particularly the ISAB complex in Sicily, had historically processed large volumes of Russian Urals crude. The sanctions-induced removal of Russian barrels from the Italian market created a supply gap that was filled in substantial part by Kazakhstan's CPC Blend, a light, sweet crude well-suited to Mediterranean refinery configurations and logistically accessible from the CPC marine terminal at Novorossiysk.

The China fluctuation. China's recorded imports of Kazakh crude fluctuated widely: 2.46 Mt (3.6%, 2019), 3.33 Mt (4.7%, 2020), 2.71 Mt (4.1%, 2021), 4.13 Mt (6.3%, 2022), 5.75 Mt (8.1%, 2023), and 2.90

Mt (4.1%, 2024). The 2023 spike—to 5.75 Mt, nearly double the 2019 volume—is a significant anomaly that warrants close examination (see Section 3.5). The subsequent decline to 2.90 Mt in 2024 represents a year-on-year drop of nearly 50%, returning China's share to approximately its 2019 level. The volatility of this series contrasts sharply with the steady growth of Italy's imports over the same period.

Appearance of non-traditional partners after 2021. The partner roster after 2021 includes countries that did not appear among Kazakhstan's crude export destinations in 2019–2020: Singapore (which first appeared in the top ten in 2022), the United Kingdom, Bulgaria, Croatia, Brunei Darussalam, Azerbaijan, Egypt, Israel, Uruguay, the Bahamas, and Uzbekistan. Some of these represent genuine new end-markets; others reflect intermediary trading arrangements or statistical reporting artifacts. The presence of the Bahamas, which lacks domestic refining capacity, almost certainly represents an intermediary registration or shipping destination rather than a physical crude-consuming location.

3.4. Concentration Trajectory: The Sequence of Annual Changes

Table 4 presents the year-on-year dissimilarity index alongside changes in the HHI and partner count, allowing us to trace the sequence of structural adjustments.

Table 4. Year-on-Year Reallocation of Kazakhstan's Crude Export Partners, 2019–2024

Transition	HHI Change	Dissimilarity Index	Partner Count Change
2019 → 2020	+61	~0.06	–6
2020 → 2021	–6	~0.12	–2
2021 → 2022	+6	~0.15	+5
2022 → 2023	+395	~0.13	+1
2023 → 2024	+637	~0.10	–1

Source. Author's calculations. Dissimilarity index = $0.5 \times \Sigma|\text{share}_i(t) - \text{share}_i(t-1)|$, expressed as a proportion. HHI changes are in raw index points.

The timeline of concentration emerges clearly from Table 4. The period 2019–2022 was characterized by relative stability in the HHI (annual changes of –6 to +61 points, or less than 6% of the base value) despite significant year-on-year churn in the partner composition (dissimilarity indices of 0.06–0.15). In this early period, partner turnover—the entry and exit of marginal buyers—was occurring without fundamentally altering the concentration structure.

The structural break occurred in the 2022→2023 transition, with the HHI jumping by 395 points—more than six times the largest annual change in the preceding three years. The 2023→2024 transition was even more dramatic: an increase of 637 HHI points, driven overwhelmingly by Italy's acquisition of an additional 6.5 Mt of Kazakh crude (from 24.2 Mt to 30.7 Mt) in a single year.

Notably, the dissimilarity index declined from 0.15 (2021→2022) to 0.13 (2022→2023) to 0.10 (2023→2024), even as the HHI was accelerating upward. This decoupling—less overall partner churn, but more concentration—means that the concentration increase is not being driven by a generalized shakeup of trading relationships, but by the disproportionate growth of a single dominant partner (Italy) at the expense of dispersion across the portfolio.

3.5. Kazakhstan–China Pipeline: A Disconnect Between Capacity and Utilization

The Kazakhstan–China crude pipeline (Atasu–Alashankou) occupies a distinctive position in Kazakh energy policy discussions because it is the only export pipeline that does not transit Russian territory. Its 20 Mt/year design capacity represents, in principle, a substantial diversification option. However, actual utilization of this capacity by Kazakh-origin crude has been persistently—and strikingly—low.

Table 5 compares the Comtrade-reported Kazakh crude exports to China with KazTransOil's publicly reported throughput at the Atasu–Alashankou delivery point.

Table 5. Kazakh Crude Exports to China: Comtrade vs. Operator Throughput, 2019–2024 (Mt)

Year	Comtrade (KZ→CN)	Comtrade Share (%)	KazTransOil Reported Throughput (total)	Of Which Kazakh-Origin (est.)
2019	2.46	3.6	~10.0	~2.5
2020	3.33	4.7	~10.5	~3.3
2021	2.71	4.1	~10.2	~2.7
2022	4.13	6.3	~10.8	~4.1
2023	5.75	8.1	~12.0	~5.8
2024	2.90	4.1	~11.0	~2.9

Sources. Comtrade data (columns 1–2); KazTransOil annual reports, investor presentations, and pipeline throughput disclosures (columns 3–4). Total throughput includes transit volumes of Russian crude shipped under the 2013 Rosneft–KazTransOil–CNPC agreement. Kazakh-origin throughput is approximated from operator disclosures of the Russian transit share. All operator figures are approximate and require verification against exact disclosures.

The large and persistent gap between total pipeline throughput (~10–12 Mt/year) and Kazakh-origin exports to China (~2.5–5.8 Mt/year) reflects the pipeline's role as a transit corridor for Russian crude. Under a 2013 intergovernmental agreement, Rosneft has the contractual right to ship up to 10 Mt per year of Russian crude through Kazakhstan to China (KazTransOil, 2023). These Russian transit volumes are recorded in the operator throughput data but do not appear in Kazakhstan's customs export statistics, as the crude is of Russian, not Kazakh, origin.

Two features of the Kazakh-origin series demand attention. First, Kazakh exports to China have historically been very low relative to the pipeline's technical capacity: 2.5–4.1 Mt (2019–2022) represents only 13–21% of the 20 Mt nameplate capacity. Even the 2023 peak of 5.75 Mt utilized only 29% of capacity. This persistent underutilization reflects a combination of factors: commercial terms that make Kazakh pipeline crude less attractive to Chinese buyers than competing seaborne or ESPO-pipeline alternatives; refinery configuration mismatches between Kazakh light-sweet grades and Chinese refineries optimized for Middle Eastern medium-sour crudes; and contractual rigidities in the long-term supply agreements governing the pipeline (Kassenova, 2019).

Second, the 2023 spike to 5.75 Mt (8.1% of total Kazakh exports) merits close examination as the only data point approaching even one-third of the pipeline's design capacity. The 2023 increase coincided with two developments: (a) the widening and then tightening of the Urals crude discount after the EU embargo and G7 price cap took effect, which may have temporarily altered the relative competitiveness of pipeline-delivered Kazakh crude versus seaborne Russian crude for Chinese independent refiners; and (b) Kazakhstan's temporary easing of certain export restrictions. This interpretation is consistent with the equally sharp reversion to 2.90 Mt in 2024, which suggests that the conditions enabling the 2023 spike were temporary and did not represent a structural shift in the China pipeline's commercial viability. At 4.1% of total exports in 2024, China's share returned to approximately its 2019 level, underscoring that the pipeline has not become a reliable, growing outlet for Kazakh crude despite the geopolitical premium that a non-Russia-dependent route should, in theory, command.

The volatility of the China series—a doubling from 2021 to 2023, then a near-halving from 2023 to 2024—contrasts with the steady, monotonic growth of Italy's share over the same period. Kazakhstan's crude export portfolio has become simultaneously more concentrated (dominated by Italy) and more volatile in its only non-Russia-transit pipeline destination (China), a combination that amplifies rather than mitigates overall export vulnerability.

3.6. The 2024 Partner Roster

For reference, the 27 destination countries recorded as importing HS 2709 crude from Kazakhstan in 2024, in descending order of volume, are: Italy, Netherlands, France, Romania, Greece, China, Spain,

Switzerland, Turkey, United States, South Korea, Singapore, Germany, India, Bulgaria, Croatia, United Kingdom, Brunei Darussalam, Azerbaijan, Egypt, Israel, Uruguay, Bahamas, Poland, Uzbekistan, Russia, and Malta.

The presence of Russia as a destination for Kazakh crude—counterintuitive given Russia's status as one of the world's largest crude exporters—is explained by small reverse flows of specific Kazakh grades required by refineries in Russian regions adjacent to the border (Orenburg, Omsk), where pipeline geography makes Kazakh supply more economical than domestic Russian alternatives, or where operational considerations along the interconnected Soviet-era pipeline network produce shipments that are recorded as cross-border trade. Uzbekistan's presence likely reflects refined-product swap arrangements, crude-for-product exchanges, or small-scale rail shipments rather than a sustained crude trading relationship. The Bahamas, as noted above, almost certainly represents a financial, shipping-registration, or intermediary trading destination rather than a physical crude-receiving location.

4. Discussion

4.1. Rising Concentration and Export Vulnerability

The central empirical finding of this study is that Kazakhstan's crude export destinations have become substantially more concentrated over the study period, with the pace of concentration accelerating in the final two years. An HHI of 2,188 and a single-partner share of 43.3% in 2024 place Kazakhstan among the more concentrated major crude exporters—a position that carries distinct economic and strategic risks.

This concentration creates vulnerability through at least three channels:

Price and volume risk. When nearly half of all exports are absorbed by a single buyer, any disruption specific to that buyer—a major refinery turnaround, an economic recession, a policy-driven reduction in crude import volumes, or a shift in refinery crude procurement strategy—requires Kazakhstan to redirect a very large volume of crude on short notice. The discount potentially required to place 30 Mt of displaced crude with alternative buyers could be substantial, with direct consequences for fiscal revenue and the current account.

Policy and regulatory risk. Italy's status as an EU member state means that Italian crude import demand is subject to the EU's evolving energy and climate policy framework. The EU's commitment to reducing fossil fuel consumption under the European Green Deal, the prospective expansion of carbon border adjustment mechanisms, the tightening of methane intensity standards for imported hydrocarbons, and the broader regulatory trajectory toward decarbonization all create medium-term uncertainty for Kazakhstan's dominant market. Unlike short-term price risk—which can be hedged, at least partially—policy-driven demand destruction is structural and may be permanent.

Correlation risk. The top three destinations (Italy, Netherlands, and France) are all EU member states subject to broadly synchronized economic cycles and energy policy direction. A European recession or an acceleration of EU decarbonization policy would affect demand across all three markets simultaneously. A more geographically diversified portfolio—in which demand shocks in one region are offset by demand growth in another—would reduce this correlation exposure.

It is important to contextualize the absolute level of concentration. An HHI of 2,188 is below the "highly concentrated" threshold of 2,500 and does not approach the extreme concentration observed in, for example, some African crude exporters that ship virtually all production to a single refining system in Asia. However, the *trajectory*—an increase of nearly 1,100 HHI points in three years—is concerning, particularly because it has occurred during a period when diversification was widely recognized as a policy priority and when the post-2022 restructuring of global crude trade was expected, by some observers, to create diversification opportunities.

4.2. The Italy Concentration and the Russia–Ukraine Channel

The deepening of the Italian relationship is the single most consequential structural shift in Kazakhstan's export posture, and it cannot be understood in isolation from the Russia–Ukraine conflict and the Western sanctions regime.

Italy's crude import profile before 2022 was heavily dependent on Russian Urals. The ISAB refinery in Sicily, one of Europe's largest, was controlled by Lukoil until its sale to a Cypriot private equity vehicle in early 2023 under pressure from Italian authorities. The EU embargo on seaborne Russian crude, which took full effect in December 2022, forced a rapid and comprehensive restructuring of Italian crude supply chains. Refineries that had been optimized for Urals—a medium-sour grade with a consistent assay—had to find replacement crudes that matched their processing configurations.

Kazakhstan's CPC Blend was an obvious candidate. CPC Blend is a light, sweet crude (typically ~45° API, <0.6% sulfur) produced from the Tengiz, Kashagan, and Karachaganak fields and exported via the CPC pipeline to a dedicated marine terminal near Novorossiysk. From there, it is loaded onto Aframax and Suezmax tankers for Mediterranean delivery. Italian ports—particularly Augusta (Sicily) and Trieste (Adriatic)—are well-positioned to receive CPC Blend cargoes, and their refining configurations can accommodate the grade, either neat or blended.

From Kazakhstan's perspective, the deepening of Italian reliance has both positive and negative dimensions. On the positive side, Italy is a stable, creditworthy, technically sophisticated buyer with refineries that value CPC Blend's quality characteristics. The Italian market has absorbed displaced Kazakh volumes that might otherwise have been difficult to place in a disrupted market. On the negative side, the concentration of 43.3% of exports in a single EU member state represents a level of exposure that would be considered imprudent in virtually any other commodity-exporting context. The fact that the Italy-bound crude must transit Russia—via the CPC pipeline to Novorossiysk—adds an additional layer of geopolitical exposure that destination data alone cannot capture but that any comprehensive risk assessment must acknowledge.

4.3. China: A Diversification Promise Not (Yet) Realized

The Kazakhstan–China pipeline has featured prominently in diversification discussions for over a decade, and it is the only major export pipeline that does not enter Russian territory. Its 20 Mt/year design capacity should, in principle, provide a substantial alternative outlet. Why, then, have Kazakh-origin exports through this pipeline remained so persistently low?

Three structural constraints appear to be binding:

Commercial competitiveness. Chinese crude buyers—both the national oil companies (Sinopec, PetroChina) and the independent "teapot" refiners—have access to a globally diversified supply base. Seaborne crude from the Middle East, West Africa, the Americas, and (since 2022) heavily discounted Russian Urals and ESPO grades competes with pipeline-delivered Kazakh crude at the refinery gate. When the Russia–Ukraine price dislocation widened the Urals discount to Brent, Russian crude became even more attractive to Chinese buyers, potentially *crowding out* Kazakh pipeline volumes rather than complementing them.

Refinery configuration. Many Chinese refineries, particularly the newer coastal complexes, have been designed around medium-sour Middle Eastern crudes (Arab Light, Arab Medium, Basrah). CPC Blend and other Kazakh grades are light and sweet, which means they may require blending with heavier, higher-sulfur crudes—or investment in refinery reconfiguration—to achieve optimal processing economics. This quality mismatch adds a logistical and cost layer that reduces the netback value of Kazakh crude to Chinese offtakers.

Contractual structure. The crude supply agreements between Kazakh producers (primarily KazMunayGas) and Chinese offtakers are governed by long-term contracts with formula-based pricing linked to dated Brent or similar benchmarks. These contracts have historically been characterized by volume inflexibility and pricing terms that Chinese buyers, accustomed to the flexibility of spot and short-term procurement, may find constraining. The 2023 spike to 5.75 Mt and the subsequent 2024 decline to 2.90 Mt suggest that the marginal volumes were spot or short-term arrangements rather than structural additions to the contracted base.

The pipeline also carries up to 10 Mt/year of Russian transit crude, which competes for physical capacity and operational priority. The interplay between Kazakh-origin and Russian transit nominations adds a further layer of commercial and operational complexity.

The policy implication is that the China pipeline, while theoretically valuable as a strategic diversification option, has not functioned as a reliable diversification valve under current commercial and contractual conditions. Unlocking its potential would require active policy intervention—renegotiation of supply contracts, infrastructure investment in refinery-compatible blending facilities, or the development of a more competitive pricing framework—rather than passive reliance on market forces.

4.4. The Middle Corridor: A Nascent Alternative at Sub-Commercial Scale

The Aktau–Baku corridor across the Caspian Sea has attracted significant policy attention since 2022 as a potential route for circumventing Russian territory entirely. In principle, crude loaded at Aktau (or Kuryk) and shipped across the Caspian to Baku can enter the BTC pipeline system and reach the Turkish Mediterranean port of Ceyhan without ever entering Russian jurisdiction.

In practice, however, the corridor's contribution to Kazakhstan's crude exports has been negligible in volume terms. Reported shipments via Aktau–Baku have been in the range of 1–2 Mt per year (KazMunayGas, 2024), representing 1.5–3% of total Kazakh crude exports—too small to be reliably isolated in the Comtrade partner data, and too small to affect the concentration metrics computed in this study.

Expanding the corridor to commercially meaningful scale—say, 10–20 Mt per year—faces multiple physical, commercial, and political constraints: limited Caspian tanker availability; port loading infrastructure constraints at Aktau; capacity competition on the BTC pipeline (which also carries Azerbaijani, Turkmen, and potentially Russian crude); the need for multi-year transit agreements with Azerbaijan, Georgia, and Turkey; and the higher delivered cost of Caspian-sea-plus-pipeline transport compared to the all-pipeline CPC route. While these investments are under discussion with EU and international financial institution support, they are multi-year undertakings with uncertain commercial returns. For the period covered by this study (through 2024), the Middle Corridor has not materially contributed to destination or route diversification.

4.5. Kazakhstan and Russia: Opposite Concentration Trajectories

The restructuring of Kazakhstan's crude export destinations after 2022 stands in instructive contrast to Russia's experience over the same period. Russia, facing comprehensive sanctions on its crude and products exports (EU and G7 embargoes, the price cap mechanism, shipping service bans, and insurance restrictions), was forced to redirect large volumes—on the order of 60–80 Mt per year—from European markets to Asian markets, primarily China and India (International Energy Agency, 2024). Russia's export partner structure became significantly *more* diversified (geographically), as volumes that had historically been concentrated in European refineries were redirected to a wider set of buyers.

Kazakhstan, by contrast, experienced the opposite trajectory: its exports became *more* concentrated in a single European market (Italy), not less. China-bound volumes declined in 2024, and the overall HHI rose substantially.

This contrast is analytically revealing because it isolates the role of sanctions and infrastructure in shaping export concentration outcomes. Russia *diversified* its destinations under sanctions pressure because it had (a) spare pipeline capacity to China (ESPO and the Kazakhstan-transit route), (b) a deep-water port infrastructure that could reach Asian and other non-European markets via long-haul tankers, and (c) a domestic tanker fleet and alternative insurance arrangements that enabled continued maritime trade despite Western shipping restrictions. Kazakhstan lacks all three of these enablers: its only non-Russia pipeline (to China) is underutilized and commercially constrained; it has no deep-water port of its own; and its seaborne exports must transit Russian territory via CPC to reach the Black Sea.

The contrast underscores that destination concentration is not merely a function of market demand but is heavily mediated by infrastructure access—and that for a landlocked exporter like Kazakhstan, the infrastructure constraints represent binding limits on diversification potential.

5. Limitations

This study has several limitations that should be considered when interpreting the results and their policy implications.

Route attribution. The most important limitation—emphasized throughout—is that Comtrade data record the declared country of destination, not the physical route taken. The paper makes no attempt to infer route shares from destination countries, and the concentration metrics reported here describe market-side diversification, not infrastructure-side diversification. A comprehensive assessment of Kazakhstan's export vulnerability would require combining destination data (from Comtrade) with route throughput data (from pipeline operators)—a task beyond the scope of this paper, but one that is analytically essential for policymakers.

Temporal granularity. Annual trade data necessarily mask intra-year fluctuations in volumes and partner composition. Seasonal effects (summer maintenance shutdowns, winter weather-related port closures at Novorossiysk, quarterly contract cycles) may produce temporary concentration or deconcentration episodes that are not visible in annual aggregates. Monthly or quarterly data, where available, would provide a more granular picture.

Data revision risk. As noted in Section 2.4, Comtrade data for 2024 are provisional and subject to revision. The confidence with which we report the 2024 concentration metrics should be tempered by awareness that final figures may differ. The 2023 data are also subject to revision, though typically smaller in magnitude.

Value–volume divergence. This paper analyzes volume-based concentration. Value-based concentration may follow a different trajectory because the unit value of crude varies by destination—reflecting grade differences, freight cost differentials, and contract-specific pricing terms. A volume-neutral shift from a lower-value to a higher-value destination would increase value-based concentration more than volume-based concentration. A full welfare analysis would require grade-specific price data, which are not available from Comtrade at the partner level.

Intermediary trading and re-exports. Crude consigned to trading hubs (the Netherlands, Switzerland, Singapore, the Bahamas) may be re-exported to third countries without leaving a trace in Kazakhstan's export statistics. The "true" geographical distribution of crude end-consumption may therefore be more dispersed than the Comtrade partner data suggest. However, measuring this dispersion is impossible without access to proprietary trading data or comprehensive re-export statistics from intermediary countries—data that are not publicly available at the level of detail required.

China pipeline data precision. The comparison of Comtrade data with operator throughput data in Table 5 is approximate. Kazakh-origin throughput at Atasu–Alashankou is not always separately disclosed by KazTransOil, and the split between Kazakh-origin and Russian transit volumes must in some years be

estimated from aggregate disclosures. The two series also differ in measurement conventions, timing, and reporting standards. Users should treat the operator figures in Table 5 as indicative rather than precise.

6. Conclusion

This study has documented the evolution of Kazakhstan's crude oil export destinations between 2019 and 2024 using UN Comtrade data, and has separately cross-referenced China-destined customs volumes against operator-reported pipeline throughput. Four principal findings emerge.

First, destination concentration is rising, and rising rapidly. Between 2019 and 2024, the HHI of Kazakhstan's crude export destinations more than doubled—from 1,095 (unconcentrated) to 2,188 (moderately concentrated, approaching the high-concentration threshold). The pace of concentration accelerated in 2023–2024, with the two largest single-year HHI increases in the study period. This trajectory is the opposite of what a simple diversification narrative would predict and is inconsistent with the hypothesis that market forces would, over time and particularly after a major supply-chain disruption, produce a more balanced export portfolio.

Second, concentration is driven by a single partner. Italy's share of Kazakhstan's crude exports grew from 24.8% (2019) to 43.3% (2024)—a near-doubling—making it by far the dominant destination. The Italy surge accounts for substantially all of the increase in the top-1, top-3, and HHI metrics between 2019 and 2024. Italian refineries substituted Kazakh CPC Blend for embargoed Russian Urals crude, and the volume of that substitution was large enough to reshape Kazakhstan's entire export partner structure.

Third, the China pipeline has not become a reliable diversification outlet. Kazakh-origin crude exports to China have been volatile (2.46–5.75 Mt) and have averaged only 3.5 Mt/year—about 18% of the pipeline's 20 Mt design capacity. The 2023 spike to 5.75 Mt was sharply reversed in 2024 (2.90 Mt), confirming that the pipeline's current commercial and contractual framework does not support sustained, growing Kazakh-origin flows. China's share of total Kazakh exports (4.1% in 2024) is one-tenth of Italy's share.

Fourth, partner-count expansion has not offset top-tier concentration. The number of destination partners expanded from 22 (2021) to 28 (2023), and new partners appeared in the trade data—Singapore, the United Kingdom, Uruguay, the Bahamas, Egypt, Israel, and others—reflecting the post-2022 reconfiguration of global crude supply chains. However, these new partners collectively account for a small share of total volume, and their emergence has been compatible with—and has not prevented—the simultaneous consolidation of top-tier market share around Italy.

The policy implications of these findings are sobering. Kazakhstan's post-2022 experience demonstrates that market forces, operating in the absence of active policy intervention, can drive export concentration *up* rather than down—even in a period when diversification was a widely acknowledged strategic priority. The gravitational pull of established commercial relationships, refinery crude slates, logistics networks, and the sheer scale of the Italian refining system drew Kazakh crude into an ever-narrower channel.

If Kazakhstan is to reduce its destination concentration—and thereby its exposure to demand, policy, and price risks in its now-dominant Italian and European markets—active, sustained policy effort will be required. Measures worth considering include:

- **Renegotiating the commercial framework** governing the Kazakhstan–China pipeline to improve the netback competitiveness of Kazakh crude at the Alashankou delivery point and to provide Chinese offtakers with greater volume and pricing flexibility.
- **Accelerating investment in the Aktau–Baku corridor** to create a credible, commercially viable, Russia-bypass export route at a scale that can materially affect the concentration profile—recognizing that this is a multi-year infrastructure undertaking with significant cost and coordination requirements.

- **Developing proactive marketing and trading capabilities** to identify and serve a wider set of crude buyers in Asia, the Middle East, and the Americas, rather than relying on established European relationships to absorb incremental export volumes.
- **Improving the transparency and granularity** of Kazakhstan's own trade and transport data so that policymakers, analysts, and market participants can monitor destination concentration and route utilization in near-real time and adjust policy in response to emerging trends.

These are not marginal adjustments. They are large, multi-year undertakings with uncertain commercial returns in an industry where refinery-crude matching, long-term supply contracts, sunk infrastructure investments, and logistics path-dependence create powerful inertial forces. The alternative—continuing to rely on a single partner for nearly one-half of crude export volumes while routing approximately three-quarters of physical exports through a geopolitically exposed transit state—represents a structural vulnerability that Kazakhstan, as a landlocked economy with limited infrastructure alternatives, can ill afford to carry indefinitely.

A. Full Partner Lists by Year

The tables below list all partner countries recorded as importing HS 2709 crude oil from Kazakhstan in each year, ordered by descending import volume. Partners with total annual imports below 1,000 tonnes are excluded.

A.1. A.1 2019 (30 partners)

Italy, Netherlands, France, South Korea, Switzerland, Spain, Romania, Turkey, Greece, China, United States, Malaysia, Israel, Japan, Lithuania, Bulgaria, Portugal, Singapore, Finland, Sweden, Croatia, Brunei, United Kingdom, Uzbekistan, Jordan, Russia, Denmark, Germany, Latvia, Canada.

A.2. A.2 2020 (24 partners)

Italy, Netherlands, India, France, Switzerland, Greece, Romania, Spain, China, South Korea, Brunei, Israel, Lithuania, Croatia, Turkey, Poland, United States, Finland, Bulgaria, Singapore, Sweden, Belgium, Russia, Georgia.

A.3. A.3 2021 (22 partners)

Italy, Netherlands, France, Turkey, Spain, South Korea, Romania, India, China, Greece, Singapore, Switzerland, Brunei, Croatia, United States, Bulgaria, Malta, Poland, Israel, Finland, Germany, Russia.

A.4. A.4 2022 (27 partners)

Italy, South Korea, Netherlands, China, Turkey, France, Romania, Singapore, Spain, India, Greece, Switzerland, Israel, United Kingdom, United States, Brunei, Croatia, Poland, Lithuania, Malta, United Arab Emirates, Panama, Japan, Bulgaria, Uzbekistan, Finland, Russia.

A.5. A.5 2023 (28 partners)

Italy, Netherlands, China, South Korea, Romania, France, Greece, Turkey, Singapore, Spain, Switzerland, United States, Brunei, Germany, Croatia, Israel, India, United Kingdom, Sweden, Azerbaijan, United Arab Emirates, Panama, Poland, Thailand, Uzbekistan, Malaysia, Russia, Bulgaria.

A.6. A.6 2024 (27 partners)

Italy, Netherlands, France, Romania, Greece, China, Spain, Switzerland, Turkey, United States, South Korea, Singapore, Germany, India, Bulgaria, Croatia, United Kingdom, Brunei, Azerbaijan, Egypt, Israel, Uruguay, Bahamas, Poland, Uzbekistan, Russia, Malta.

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Data source for all appendices: UN Comtrade, HS 2709, reporter code 398, all motCode=0, accessed May 2025. Partners listed in descending order of annual import volume by net weight (kg). Partner lists represent the declared country of consignment as recorded in Kazakh customs submissions and may not reflect the country of final consumption.

Statements

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References

Cadot, O., Carrère, C., & Strauss-Kahn, V. (2013). Trade diversification, income, and growth: What do we know? Journal of Economic Surveys, 27(4), 790–812. https://doi.org/10.1111/j.1467-6419.2011.00719.x.

Caspian Pipeline Consortium. (2024). Annual throughput and operational report, 2023. CPC-R. https://www.cpc.ru.

International Energy Agency. (2024). Oil market report: February 2024. IEA. https://www.iea.org/reports/oil-market-report-february-2024.

International Monetary Fund. (2023). Republic of Kazakhstan: 2023 Article IV consultation (IMF Country Report No. 23/401). International Monetary Fund. https://www.imf.org.

Jansen, M. (2004). Income volatility in small and developing economies: Export concentration matters (WTO Discussion Paper No. 3). World Trade Organization.

Kassenova, N. (2019). Kazakhstan's oil and gas sector: Managing risks and opportunities. Carnegie Endowment for International Peace. https://carnegieendowment.org.

KazMunayGas. (2024). Annual report 2023. KMG. https://www.kmg.kz.

KazTransOil. (2023). Annual report 2022. KazTransOil JSC. https://www.kaztransoil.kz.

Olcott, M. B. (2010). Kazakhstan: Unfulfilled promise? (Rev. ed.). Carnegie Endowment for International Peace.

Tengizchevroil. (2024). Future Growth Project – Wellhead Pressure Management Project: Operational status update, Q4 2023. TCO. https://www.tengizchevroil.com.

U.S. Department of Justice and Federal Trade Commission. (2010). Horizontal merger guidelines. U.S. Department of Justice. https://www.justice.gov/atr/horizontal-merger-guidelines-08192010.

World Bank. (2024). Kazakhstan economic update: Winter 2023–2024. World Bank Group. https://www.worldbank.org.