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Master Thesis

In the Era of Sanctions: A Study on Shifting Logistics Routes and South Korea-Russia Car Export

제재 하에서의 물류 경로 변화와 한국-러시아 자동차 수출에 관한 연구

HANSUNG UNIVERSITY

2026

The Graduate School of Hansung University

Major in International Commerce

Dept. of International Trade

Bondarenko Nataliia

Master Thesis

Advisor Professor Hong Seung-Lin

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The Graduate School of Hansung University

Major in International Commerce

Dept. of International Trade

Bondarenko Nataliia

Approved Bondarenko Nataliia Master Thesis in International Commerce

June, 2026

Judge Chair 홍승린 (signature)

Judge 권오 (signature)

Judge 최원석 (signature)

ABSTRACT

In the Era of Sanctions:

A Study on Shifting Logistics Routes and South Korea-Russia Car Exports

Bondarenko Nataliia

Major in International Commerce

Dept. of International Trade

The Graduate School

Hansung University

This research analyzes the structural transformation of South Korea's automotive exports to the Russian Federation and the subsequent reconfiguration of logistics routes centered on Central Asia following the full-scale 2022 sanctions regime. Utilizing country-specific export statistics for new and used vehicles from 2017 to 2023, the study tracks the evolution of traditional direct maritime supply chains into indirect, roundabout trade corridors via neighboring post-Soviet states.

The findings indicate that due to intensified regulatory controls, particularly engine displacement restrictions, direct automotive exports from South Korea to Russia plummeted. However, this decline did not result in a total market exit. Instead, commercial actors reconfigured their networks to navigate regulatory pressures, leading to the emergence of the "Bishkek Route" via Kyrgyzstan and Kazakhstan as a primary

conduit for parallel imports. While direct exports of new vehicles to Russia virtually ceased, South Korean used car exports to Central Asia experienced exponential growth. This phenomenon demonstrates a profound degree of "Logistical Fluidity" among private market actors responding to external trade shocks.

Furthermore, this study temporalizes the evolution of these export channels into a three-stage trajectory: the pre-sanction phase optimized by direct Roll-on/Roll-off maritime shipping; the active utilization of regional tariff differentials and customs loopholes; and the current phase marked by highly sophisticated fiscal barriers. Specifically, Russia's introduction of horsepower thresholds and the radical increase in vehicle utilization fees impose more formidable market entry barriers than physical customs enforcement. To maintain transactional liquidity despite the SWIFT ban, actors secured "Financial Fluidity" via decentralized payment mechanisms utilizing stablecoins like Tether (USDT).

In conclusion, as the impending April 2026 customs harmonization within the Eurasian Economic Union threatens to close Central Asian loopholes, South Korean exporters must urgently diversify into Southeast Asia and Africa. Additionally, industry associations should implement compliance frameworks and VIN-based digital tracking to protect vulnerable small-and-medium enterprises.

Keywords**:** Car Exports, Russian Sanctions, Logistics Changes, Central Asia Supply Chain, Used Car Export Controls

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Chapter 1. Introduction

For a long time, South Korea has been playing a pivotal role in the global car industry by selling a wide variety of all kinds of vehicles to many countries. One of its main markets, Russia, has continuously had a high demand for South Korean automobiles. Recently South Korean car exports to Russia have increased due to some reasons, such as reasonable prices, good quality, fuel-efficient and sustainable vehicles from manufacturers like Hyundai, Kia and KG Mobility.

Unfortunately, the geopolitical environment has changed rapidly, inducing a lot of complications and problems that affected the trade relations between South Korea and Russia. Once stable and set export channels have changed due to sanction policies and implemented trade limitations which disrupted the dynamics of these economic relationships. These sanction policies created some notable barriers to trade between major car-producing countries and regions, such as Russia, the EU, the USA as well as South Korea itself. Thus, these measures have created unique yet complicated challenges for industries dependent on flawless cross-border exchanges.

South Korean vehicle exporters should navigate a lot of limitations, including strict regulations on logistics and transportation methods. Also, there are specific limitations on several types of cars, such as heavy-duty trucks and luxury-class cars.

The core value of this research lies in addressing the “pre-sanction” versus “post-sanction” shift. Although, the vehicle industry has faced significant limitations and restrictions, especially due to challenges affecting car export. Thus, many businesses have had challenges, the vehicle related one has been especially affected.

It can be inferred that currently one of the biggest challenges for South Korean vehicle exporters is to comply with new procedures and restriction related rules. These regulations

include limitations on high-tech parts, making it more difficult for car manufacturers to send their vehicles to certain countries and certain markets. Therefore, car manufacturing companies should carefully follow all procedures to ensure that their exports and shipping remain legal and comply with the international trade policies. When it comes to the Russian market, South Korean businesses and government official establishments have been forced to reconsider their market strategies for selling vehicles abroad.

Vehicle exporters now have to get special permissions and follow the updated regulatory requirements in order to keep legal and effective trade relations. These changes and updates have sparked questions about the course South Korean vehicle exporters could ship to Russia. Some industry analysts worry that, if these challenges continue to remain, car manufacturers could switch their attention to other markets.

Understanding these challenges caused by limitations and geopolitical shift in trade tendencies are essential for analyzing how long will of South Korean vehicle exports last in long run and proposing possible approaches and methods for overcoming new demands in the industry. By analyzing the reaction of Russian government and South Korea businesses to the developing trade environment, this study will try to investigate future possibilities for vehicle exports.

Furthermore, the physical movement of goods and vehicles has changed. A lot of changes have been implemented to the ways that cars are transported from South Korea to Russia. Large-scale vehicle transportation has traditionally favored Roll-on/Roll-off (Ro-Ro) shipping due in great part to its efficiency and cost-effectiveness. Air freight and container shipping have been used as alternatives on occasion in recent years, but they are often less effective and more expensive for large-scale vehicle shipments. But new trade restrictions have made logistics more complicated, forcing South Korean car exporters to

reconsider the possibility and practicability of various routes as well as well as methods of transportation.

Due to these challenges, South Korean car exporters are aggressively searching for new markets in the post-Soviet region. Countries like Kyrgyzstan and Kazakhstan are increasingly attractive alternatives due to their relatively stable regulatory environments and growing consumer demand for durable and affordable cars. Because these countries are not subject or under the same restrictions as Russia, trade is simpler and difficulties in logistics are reduced to the minimum. Moreover, the rapid growth of the region's transportation and commerce networks has given South Korean companies and manufacturers greater opportunities to increase their influence in Central Asia. By broadening their markets, South Korean exporters can reduce and minimize the danger that come with an excessive dependence on one market.

This paper offers a thorough examination of these patterns, looking and analyzing the ways that market changes, logistical limitations and sanction policies are affecting South Korean car exports. This study provides important insights for exporters and policymakers navigating and directing this complicated global climate while examining how sanction policies affect trade volumes, compliance standards and market diversification methods.

The study focuses on three important aspects: the historical background and current situation of South Korean vehicle exports to Russia, the logistical challenges and transportation methods, and the future prospects for expanding into other post-Soviet countries. The goal of this paper is to provide and create a path for adjusting to this new trade environment while keeping the competitive advantage of South Korea's car industry.

The general purpose is to investigate how recent regulatory shifts and sanction policies have influenced South Korea's vehicle exports to Russia, while exploring emerging opportunities in Central Asian markets: specifically, Kazakhstan and Kyrgyzstan.

The specific objectives of this study are first, to examine the patterns of South Korean car exports to Russia by comparing the "pre-sanction" and "post-sanction" eras. Second, to identify the specific sanction policies that have influenced South Korea's car exports to Russia, and to assess their associated limitations and impacts. Third, to evaluate the advantages and disadvantages of various transportation methods, including Roll-on/Roll-off (Ro-Ro) shipping, air-freight, and container shipping under current restrictions. Fourth, to analyze the strategic importance of Kyrgyzstan and Kazakhstan as emerging alternative markets. Finally, to offer actionable solutions for South Korean car exporters to modify their plans within the current geopolitical climate.

Regarding the core inquiry of this dissertation, the primary question addresses how the export structure looked before the implementation of major sanctions. Subsequently, the study investigates how specific sanctions, such as luxury segment and engine size restrictions, changed trade volume and compliance rules. Lastly, it explores how logistics have adapted to these shifts, particularly through the development of new routes.

This study is significant because it provides a practical roadmap for exporters and policymakers navigating a highly volatile trade environment. As many businesses struggle to interpret complex new regulations, this research offers a clear analysis of legal and efficient trading methods.

The study's importance is twofold:

First, Strategic Compliance. It addresses the strict rules regarding the luxury segment and high- tech parts, ensuring trade remains legal and sustainable.

Second, Economic Opportunity. It highlights how current challenges serve as a catalyst for market diversification.

By exploring both the hurdles in the Russian market and the burgeoning opportunities in Central Asia, this study serves as a guide for maintaining the competitive advantage of South Korea's automotive industry in a changing global economy.

This study is grounded in a data-based analysis that integrates quantitative trade statistics with qualitative industry insights. By prioritizing empirical data, the research provides a thorough understanding of South Korean vehicle exports to Russia and alternative markets. This approach ensures that the findings are not merely theoretical but are driven by actual market changes observed in the data.

To ensure the analytical consistency, this study establishes three primary criteria for comparison. First, it divides the timeline into pre-sanction and post-sanction periods. Second, it distinguishes between direct exports to Russia and indirect exports. Third, it compares the Russian market with alternative markets in Central Asia.

Criteria	Before Sanctions	After Sanctions
Export Type	Direct Export	Indirect (Bypassing)
Logistics Route	Ro-Ro (Marine)	Overland ("Bishkek Route")
Target Market	Russian Mainland	Central Asia (Hubs)

[Table 1] Research Analytical Framework

This table above summarizes the comparative framework of thesis. It highlights the shift from traditional direct marine logistics to complex overland and indirect routes necessitated by the changing regulatory environment.

The key variables used in this study are defined as follows. Export Volume refers to the total monetary or unit value of South Korean car exports and is used to measure changes in the scale of vehicle trade over different periods. Logistics Route defines the

geographical path from the departure port in South Korea to the final destination country, including both direct and transit routes used to the export process. Transport Mode includes the technical means of car transportation, such as Ro-Ro vessels, container shipping, and overland truck transportation, which are analyzed in terms of efficiency, cost and adaptability under changing trade conditions and constant sanctions.

The core of this research relies on data collected from official trade reports, including customs clearance figures, market share analyses, and international trade publications. First, the study utilizes export volume and value statistics to identify precise trends in the transition from new to used vehicle exports. Second, it incorporates logistics and transportation data, featuring detailed comparisons of Roll-on/Roll-off (Ro-Ro), container shipping, and air transport metrics to determine cost efficiency and feasibility under current restrictions. Furthermore, the analysis examines regulatory documentation to evaluate specific export limitations and permissions required between 2024 and 2026.

Influence of Data on Research Findings:

The specific data sets mentioned above directly dictate the analytical flow of this thesis. For example, fluctuations in export volumes serve as the primary evidence for identifying structural market shifts and the emergence of new logistics hubs in Central Asia. By analyzing these data points, the study can move beyond general observations to provide practical, evidence backed suggestions for car exporters and policymakers navigating the 2024:2026 trade environment.

While trade sanctions and frequently updated restrictions create challenges in obtaining real time figures, this study accounts for these limitations by cross referencing official reports with general trade estimates. To ensure a complete Figure, the quantitative data is supplemented with expert opinions and industry insights. This ensures that even where

raw data is limited, the conclusions remain grounded in the practical experiences and strategies of current industry participants.

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Chapter 2. The Baseline: South Korean Car Exports Before Sanctions

South Korean car exports to Russia had been continuously increasing prior to recent geopolitical changes, as South Korean car manufacturers gradually established themselves as dependable and competitively priced choice for Russian consumers. With Russia's quick economic growth and the opening of its markets, South Korean car exports to Russia started to increase noticeably in the 1990s and early 2000s. South Korean vehicle manufacturers, in particular Hyundai, Kia and later KG Mobility, established a solid presence in the Russian car industry during this period by providing vehicles that combined competitive price ranges with trustworthy and high-quality goods.[1)]

A major factor in this rise was the expanding demand for cars in Russia, that was fueled by urbanization, rising incomes, and improving consumer confidence and trust. As the Russian middle class rapidly grew, so did their demand for more modern and contemporary vehicles, particularly ones that were more dependable and fuel-efficient than the typical domestic manufactured models[2)]. By providing a wide selection of cars that were appropriate for Russian driving conditions and roads, South Korean car manufacturers saw and grasp the opportunity and established themselves as major participants. Their vehicles were viewed as less expensive substitutes and alternatives for the European and Japanese models that had previously dominated the Russian market[3)].

[1)] Hyundai Motor Company (2014), 『Annual Report 2014』, p. 12-35.

[2)] ITC (International Trade Centre) (2023), 「Trade Map: Trade statistics for international business development」.

[3)] McKinsey & Company (2019), 「Automotive in Russia: Market dynamics and future outlook」.

For example, Hyundai Sonata, Tucson and Accent's combination of durability, quality, contemporary style and looks as well as relatively lower prices, they quickly gained favor among Russian consumers[4], making Hyundai one of the most successful and popular South Korean vehicle manufacturers in the country. In order to avoid some import duties and taxes, Hyundai's plan involved localizing some of its manufacturing to Russia. This ultimately made their cars more inexpensive for the typical, ordinary Russian consumer. The Kia Rio and Sportage, which were well-suited to Russian roads and offered a balance of space, comfort, and affordability, helped Kia, which is Hyundai's subsidiary, acquire popularity as well.[5]

South Korean companies gained a sizable part of Russian market in the late 2000s and early 2010s, with Hyundai and Kia securing a leading position. Both, Hyundai and Kia accounted for over 25% of all car sales in Russia by 2014. However, as both domestic and foreign companies increased their product offers, the Russian car market was also becoming more competitive. Despite this, Russian consumers continued to hold South Korean products in high regard because of large part to their reputation, for dependability, affordability, durability, and simplicity of maintenance[6].

As the market's interest in vehicles grew bigger, SsangYong, a brand known for its SUVs, started to increase its presence in Russia alongside Hyundai and Kia. Due to Russia's large land area and severe climate zones, SUVs were increasingly viewed as a

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[4] PwC (PricewaterhouseCoopers) (2020), 「Global automotive perspectives: South Korea's role in the global automotive industry」.

[5] Russian Federation Ministry of Industry and Trade (2021), 「The automotive industry in Russia: Economic outlook and trends」.

[6] SsangYong Motor Company (2015), 『Annual Report 2015』, p. 24-40.

practical choice[7]. South Korean car manufacturers' emphasis on SUVs and crossovers matched the growing demand for these vehicle categories among consumers.

The established distribution networks in Russia, which included both official dealerships and independent sellers, also benefited the South Korean car industry at this time, supporting sales. The market presence of South Korean vehicles was further reinforced by the network of service centers that provided post-purchase assistance. In order to reduce costs and lessen the difficulties caused by import taxes, companies and big manufacturers like Hyundai and Kia expanded their local manufacturing and assembly units and parts in Russia.

As a result, South Korean vehicle, both locally built and imported, had solidified a significant presence in Russia by the early 2010s. Due to their competitive pricing high dependability and reliability, and manufacturers' capacity to adjust to the needs and desires of Russian consumers and customers, South Korean vehicles' market in Russia has been growing very rapidly.

Section 1. Analysis of the Export Structure (Pre-2022)

In order to take advantage of Russia's expanding middle class and rising demand for reasonably priced, dependable vehicles, South Korean car manufacturers entered the Russian market in the early 2000s. In order to cut expenses and get around import taxes, Hyundai and Kia implemented a double strategy of exporting vehicles from South Korea and setting up local production plants and factories in Russia. By the middle of the decade around 2010s, South Korean car manufacturers had established a solid presence in the Russian market and were often ranked high among the best-selling international brands.

The Korea international Trade Association (KITA) reports that South Korea's car shipments to Russia reached a height of almost $2.5 billion in 2012, making up about 10%

[7] WTO (World Trade Organization) (2023c), 『World trade report 2023: Trends in international trade』.

of the country's total car exports in that year[8]. The popularity of SUVs and small mid-size cars, which matched Russian customer tastes, was the primary cause of this rise.

Important elements influencing South Korean car exports to Russia:

First, Competitive Pricing and Quality. Russian buyers were drawn to South Korean vehicles because if their modern style, affordability and fuel-efficiency. In a price-sensitive market like Russia, Hyundai and Kia (later KG Mobility was also included in this list) provided greater value for money when compared to their European and Japanese rivals.

Second, to solidify their market position, Hyundai and Kia made substantial investments in local production facilities within Russia. By establishing manufacturing plants Hyundai in St. Petersburg in 2010, followed by Kia in 2011, these companies sought to reduce import tariffs and mitigate risks associated with currency fluctuations. Operating local factories not only lowered logistical expenses but also enabled both manufacturers to tailor their vehicle designs to better meet the preferences and requirements of Russian consumers.[9]

Third, Prior to the enforcement of sanctions, Russia experienced relative economic stability, which contributed to steady growth in passenger car demand. The government actively supported the automotive sector through various incentives aimed at encouraging vehicle purchases. These favorable conditions created an advantageous environment for South Korean manufacturers, facilitating their expansion and strengthening their market presence in Russia.[10]

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[8] KITA (Korea International Trade Association) (2013), 『Annual Trade Report: Automotive Exports to Russia』.

[9] Kim, J. (2015), 「The Globalization of Hyundai and Kia: Strategies for Emerging Markets」, 『Journal of International Business Studies』, 46(4), p. 456-478.

[10] World Bank (2018), 『Russia Economic Report: Stabilization and Recovery』.

Even though South Korea and Russia do not have bilateral Free Trade Agreement (FTA), South Korean car exporters benefited from broader trade policies and agreements with other neighboring countries. Also, Russia's membership in the Eurasian Economic Union (EAEU) provided certain advantages in tariffs, making it easier for South Korean car manufacturers to export their cars. These factors contributed to smoother trade operations even though there is no direct FTA between Russia and South Korea.

The difficulties that South Korean car manufacturers face:

Currency Unpredictability: The Russian ruble's decline, especially following the 2014 oil price collapse increased the cost of imported cars and decreased the purchasing power of consumers.

Geopolitical Tension: Economic uncertainty brought forth by the 2014 annexation of Crimea and the Western sanctions that followed affected consumer confidence and car sales.

Competition from Local and International Brands: Global firms like Renault-Nissan and Volkswagen, as well as Russian brands like Lada, which also possessed substantial local production capabilities, posed a serious threat South Korean manufacturers.

Thus, dwelling upon export trends prior sanction policies it could be mentioned that following the 2014-2016 economic crisis, South Korean vehicle shipments to Russia began to rebound in the years preceding the most recent sanctions. The introduction of new SUV models and improved economic conditions in Russia during 2019 contributed to a 15% growth in South Korean vehicle exports, as reported by the Korea Automobile Manufacturers Association (KAMA).[11] However, the global automotive industry faced significant setbacks in 2020 due to supply chain disruptions and lockdown measures related to the COVID-19 pandemic, which led to a decline in sales during that period.

[11] KAMA (Korea Automobile Manufacturers Association) (2020), 『Annual Automotive Export Data』.

Before the recent wave of sanctions, South Korean car exports to Russia were marked by strategic investments, competitive advantages, and considerable market flexibility. Hyundai and Kia maintained a strong foothold through the operation of local manufacturing plants and customer-focused strategies, enabling them to navigate geopolitical and economic challenges effectively. Nonetheless, the imposition of current restrictions has substantially altered this landscape, necessitating a comprehensive reassessment of South Korea's vehicle export strategies moving forward.

Section 2. Analysis of Major Manufacturers and Popular Vehicle Segments

Small and compact vehicles, medium-sized sedans, and SUVs made up most of South Korea's car export to Russian territory since they were fit and ideal for the Russian market. These vehicles met the needs of the majority of Russian buyers, who prioritized performance affordability, durability as well as fuel economy to handle the difficult driving conditions of the country in general, which included severe temperature differences, weather conditions in different regions, which include adverse conditions, uneven and even partially rough surfaces, and lengthy travel distances. Most of the vehicle categories that South Korean car manufacturers ship to Russia are thoroughly examined in these sections and categories, along with the major manufacturers[12)].

Let's look at a few examples while analyzing them carefully:

Small or compact vehicles: One of the most common and popular vehicle types that South Korea ships to Russia. They were rather perfect and fitting for lengthy highway travels as well as overloaded city streets because of their price, fuel efficiency, and rather a compact size. The Hyundai Accent and Kia Rio were and still are two of the most popular car models. Because of its smart design, affordable running cost as well as fuel efficiency, the Kia Rio became one of the top-selling foreign vehicles in Russian territory.

[12)] Automotive World (2019), 「Russia's automotive market: Trends and forecasts」, 『Automotive World』.

Given the rising urban population and changing gasoline prices, these attributes made it extremely popular and desirable to Russian consumers. On the other hand, the Hyundai Accent is slightly on the higher end but established a solid reputation for dependability and affordability for average Russian customers. Especially, it became popular among families with limited finances as well as first-time car owners.

Mid-Sized Sedans: With an optimal combination of cost, comfort, and usefulness, mid-sized sedans were another rather popular category in the Russian market. Middle-class families with fixed budgets and professionals looking for spacious but not too big, comfortable cars at affordable price ranges were drawn to these categories. Also, one of the most popular car brands in the Russian car market was the Hyundai Sonata. The Hyundai Sonata was an appealing choice for long-distance driving throughout the country's landscapes since it blended comfort, size, and price range. Russian customers loved it for its spacious and modern interior, modern latest technology, and smooth and lawless ride. On the other hand, the Kia Optima became popular too. The main reason was its modern and simple appearance, good-quality materials and up-to-date equipment, such as driver-assistance technology. Professionals and families with higher incomes were looking for a more luxurious driving experience.

SUVs and Crossovers: Due to Russia's waste territory, severe climate zones, different regions with different temperature factors, and difficult landscapes as well as long roads, and highways, many Russian consumers prefer SUVs and crossovers as the most fitting option for given circumstances. As the Russian middle class rose and looked for bigger, and adaptable vehicles, the demand for these cars increased dramatically in the 2010s. Two of the top-selling South Korean SUVs in Russia were the Hyundai Tucson and Kia Sportage. Both models gained popularity in Russia due to their durable construction, high ground clearance, and affordability, features well-suited for regions with harsh winters

and poorly maintained or uneven roads. The Hyundai Tucson, a compact SUV, became an attractive option for families or individuals seeking more interior space than a typical sedan or small car, while still remaining within a reasonable price range for its category. Meanwhile, the Kia Sportage attracted a broad customer base in both urban and rural areas, thanks to its strong off-road capabilities and modern, stylish design. Buyers who prioritized a combination of reliability, affordability, and visual appeal found these models especially appealing.

South Korean car manufacturers strengthened their presence in Russia by producing cars locally as it has been already mentioned above. Thus, high import taxes and restrictions could be avoided. Companies like Hyundai and Kia partnered with local manufacturers and set up factories. This strategy allowed them to cut costs, making their vehicles more affordable for the average Russian consumers. For example, it is worth to mention the Russian version of the Accent and the Kia Rio, which made Hyundai Solaris is a great example of domestically produced model. Thus, by producing cars within Russian territory, these companies could design more models which are specifically suited to local preferences and driving environment. This improved not only customer satisfaction rate but also helped build stronger relationships between Russian customers and South Korean car manufacturers. Also, local manufacturing supported the Russian economy in a few ways, such as creating jobs and contributing to industrial growth.

Important Manufacturers Involved: Such big companies as Hyundai, Kia, and SsangYong were the main South Korean car manufacturers that were exporting cars to Russian territory. With rather sizable market shares, Hyundai and Kia were the two most dominant among them. With a wide range and big variety of cars, such as the Sonata, Tucson, and Accent, Hyundai, in particular, became the top South Korean car manufacturer in Russia. Nevertheless, Kia followed closely behind, making a good

impression with car models like the Rio, Sportage, and Optima. On the other hand, a lesser but still important competitor, SsangYong, concentrated on a specific market and was an expert in SUVs and crossovers. Even though SsaangYong had a smaller market share than Hyundai and Kia, SsangYong attracted customers looking for reasonably priced yet trustworthy and dependable cars with distinctive models like the Korando.

Small and compact automobiles, mid-sized sedans, and SUVs with crossovers were the main exports from South Korea to the Russian market, with Hyundai and Kia setting the standard and SsanYong following behind. Because of their price range, fuel efficiency, modern design, user-friendly interface and durability, all of which matched the demands of Russian consumers, these cars became more and more popular and appealing. Thus, South Korean car manufacturers were able to efficiently fulfill local demand by securing and strengthening their position in the Russian market and navigating import duties thanks to the choice to construct cars locally in Russia.

Section 3. Traditional Logistics: The Efficiency of Ro-Ro and Direct Container Routes

However alternative methods including container shipping and air freight have also contributed to the export process, Roll-on/Roll-off (Ro-Ro) vehicles had been the main way of transporting South Korean automobiles to the Russian territory. Each of these methods of transportation has its advantages and disadvantages of its own, and how they are used depends on upon a number of factors and aspects, including the volume of shipments, the kind of vehicle being shipped, cost expenses, and time limitations or requirements.

Before the sanctions were imposed in 2022, the way cars were sent from South Korea to Russia was very simple and followed a direct path. Most vehicle exporters used a method called “direct custom clearance”. This means they shipped the vehicles straight to

Russian ports (e.g. Vladivostok port) and paid the taxes directly to the Russian government.

At that time, there were two main choices:

The first choice is that most people chose the fastest and safest way by sending cars by ship (Ro-Ro) or in containers through China directly to Russia.

The second choice is that there was another way through Kyrgyzstan, but it was not popular for everyone. Which means only people sending brand-new cars used Kyrgyzstan route because they could save approximately between 10,000$ and 15,000$ on taxes.

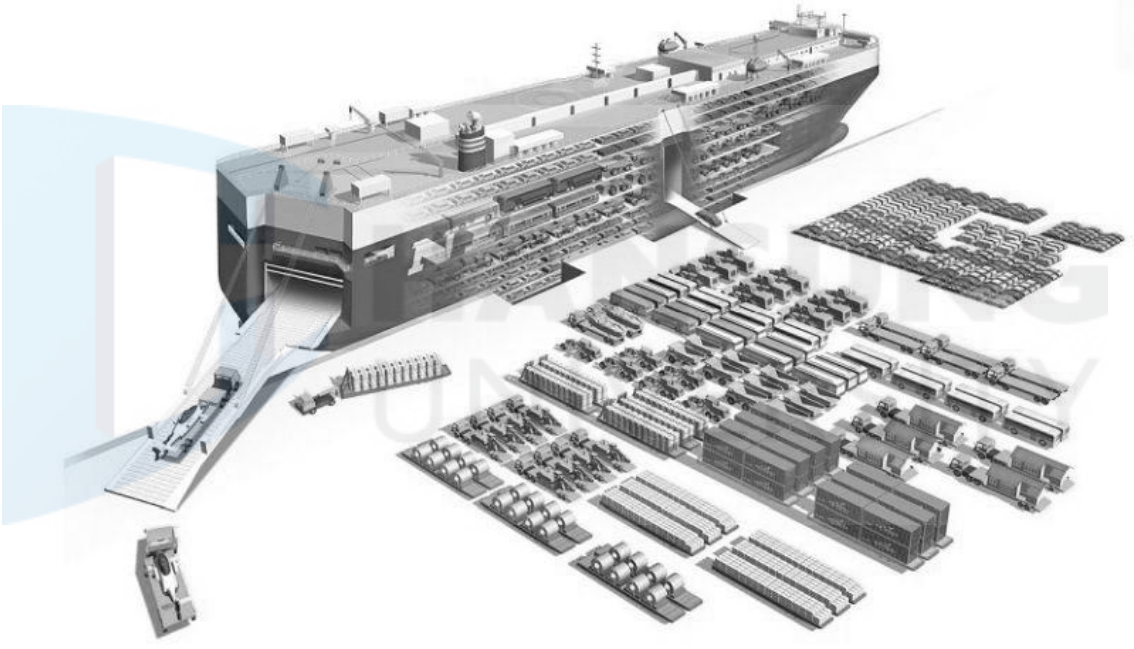
However, the second route was longer and riskier for both parties, most regular exporters preferred the direct Russian route. Efficiency and speed were the most important things for the business before the war started.

To analytically evaluate the transition in logistical strategies, the following table compares the primary transportation modes based on four key criteria: cost-efficiency, lead time, operational risk, and vulnerability to international sanctions.

Transport Mode	Cost (Est. per Unit)	Lead Time	Risk Level	Sanction Exposure
Direct Ro-Ro	Low (500-600)	Fast (7-10 days)	Low	High (Direct Port-to-Port)
Container	High (4,000$-5,000$)	Slow (45-60 days)	Medium	Medium (Third-party Transit)
Land corridor (Kyrgyzstan)	Moderate	Moderate (20-30 days)	High (Trucking/Customs)	Low (Indirect/Gray Market)

[Table 2] Primary transportation modes based on four-key criteria

This table evaluates how different transport modes have been impacted by sanctions. While Ro-Ro was the standard, its high vulnerability to sanctions led to a strategic shift toward overland routes, despite higher costs and longer delivery times. Thus, the shift from Ro-Ro to the Kyrgyzstan Lad Corridor was not a choice for efficiency, but a 'risk-vs-sanction' trade-off. Exported accepted higher transit risks and moderate costs to lower their 'Sanction Exposure', which became the dominant factor after 2024.



[Figure 1] Overview of a Car Carrier

The most frequently used delivery method is Ro-Ro since it is simple, cheap, and dependable. A large number of vehicles can be transported at a time thanks to the ships' design with its various decks, which can fit and carry several vehicles at once. The cars are tightly secured in one place after they are driven into the ship, checked and only then ensured that they won't sustain any damage, movement or other problems during the

transportation. This type of method lessens the possibility of accidents or crashes like scratches or dents that might happen when vehicles are loaded, been placed or unloaded using cranes or other types of the equipment.

The main port city in South Korea is Busan. Although it is known as one of the biggest and frequently used ports of departure for South Korean ships. Busan's port has very strategic location and advanced infrastructure that makes it the primary center for car exports. Shipped from Busan, Ro-Ro vessels go to a number of Russian ports, but mostly to the two main ports that are placed in Vladivostok and St. Petersburg. On the one hand, Vladivostok, which is situated on Russia's Pacific coast, is a major entrance point with an easy access for ships coming from East Asia.[13] On the other hand, St. Petersburg is a significant port for goods shipped from or for Europe. Due to the large volume of cars being carried and the comparatively low cost of transportation as compared to alternative ways, South Korean manufacturers particularly benefit from the usage of Ro-Ro boats for automobile exports.

Thus, Ro-Ro shipping provides flexibility with consideration to schedules and frequency range, enabling car manufacturers to maintain a regular shipment schedule to satisfy Russian market expectations and its consumers. This method has kept logistics expenses low while enabling South Korean car manufacturers to provide the Russian market with a steady flow of supply. Based on the particular route, weather conditions, and season, Ro-Ro vessels often take approximately 10-14 days from Busan to get to Vladivostok's port and up to 16-18 days to get to St. Petersburg's port. [14]

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[13] Hyundai Motor Company (2014), 『Annual Report 2014』, p. 12-35.

[14] ITC (International Trade Centre) (2023), 「Trade Map: Trade statistics for international business development」.

Container shipping is used as a backup alternative for some cargo types, even though Ro-Ro boats are the primary means of transporting South Korean cars to Russia. Container shipping is the process of placing vehicles into large containers and then loading them onto container ships for transportation. Usually, this method is suited mostly for smaller vehicles or luxury cars that need particular protection while in transit or shipment. To protect them from the possible damage during the long route, luxury cars, such as the Hyundai Genesis, are commonly delivered in containers due to the reasons that were mentioned above[15].

The biggest advantage of container shipping is that it gives the vehicles more security and safety because the sealed containers shield the vehicles from numerous environmental factors like dust, rain, and acidification due to salty water and wind. This is especially important for expensive and luxury vehicles that are likely to be exposed to certain factors. Because the vehicles are kept inside a secured and sealed container during the shipping, the chances of theft are reduced to the minimum.

Although, because of the increased cost of using containers and the slower loading of the vehicles and their unloading time frames, container shipping is usually more expensive than Ro-Ro shipping. The time and cost of the transportation methods are increased in price since containers must be loaded onto and unloaded from ships using the special equipment, such as cranes. Due to this circumstances, container shipping is a less favorable choice for large number of shipments of vehicles. Although, for smaller or compact, more specialized vehicles, container shipping is considered a good substitute, especially where the necessity for extra security and protection perfectly explains the higher costs and other expenses.

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[15] McKinsey & Company (2019), 「Automotive in Russia: Market dynamics and future outlook Urals」.

Depending on the specific route and port stops, a container ship's flight from South Korea to Russia typically takes 18-22 days, which is longer than a Ro-Ro vessel's.[16] When the flexibility and cost-effectiveness of Ro-Ro shipping are insufficient to fulfill the demands of the export, container shipping is often saved for those situations.

Although flying is not a common way to transport vehicles, air transport is occasionally utilized for quick deliveries, particularly for luxury cars, specialty models, or limited quantities of vehicles that need to be delivered right away not worrying about the cost. Air transport is rarely used for car exports in general since it is significantly more expensive than shipping by Ro-Ro or containers. For most car manufacturers, air transportation is a last resort due to the lengthy distances required and the high price of air freight[17].

When speed is important, however, air shipping has significant benefits. Air shipping can be taken into consideration, for example, when Russian luxury car purchasers need a vehicle quickly or for specific high-profile clients. Air freight can significantly reduce delivery times as compared to Ro-Ro or container transportation time, but it comes at a higher expense. It is not a typical practice for the bulk export of cars at once and is only utilized in rare circumstances.[18]

Air freight is typically used for transporting cargo by air, using the aircraft specifically designed for this purpose. The number of vehicles an aircraft can carry at one time depends on its size and the way cargo hold is arranged.

On the one hand, air fright is not a practical option for regular vehicle shipments due to its extremely high expenses. Compared to Ro-Ro shipping, air freight can be several times

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[16] PwC (PricewaterhouseCoopers) (2020), 「Global automotive perspectives: South Korea's role in the global automotive industry」.

[17] Air Freight Services (2023), 『The high cost of air shipping cars』.

[18] Luxury Car Shipping (2020), 「Air freight for luxury car shipments」.

more expensive due to this, it is usually reserved for urgent and quick shipping or highly valuable cars rather than standard exports in bulk.[19)]

Complicated procedures and regulations, such as transporting vehicles to Russia requires a complex system of import taxes, documentation, verification, and customs laws. The related paperwork can be burdensome, even if Ro-Ro m itself may be simple. The process has been made more difficult in recent years by geopolitical tensions and sanctions, which have caused stricter regulations and guidelines as well as more attention to vehicle imports. [20)] To avoid delays or fines, exporters must make sure that all required documentation is in place, including compliance with Russian import laws and compliance to sanctions.

Russia's capacity to participate in international trade, including the shipping of vehicles via Ro-Ro, has been significantly affected by the sanction policies placed on Russia. Significant problems and hardships for export companies have been created as a result of Western sanctions that have targeted several sectors of the Russian economy. Restricted financial transactions with Russian importer companies and limited access to specific European ports are the outcomes of the sanctions. Thus, several car exporters have been forced to look for another ways to get their cars to the Russian market, frequently finding other routes of shipments through non-EU nations like Kazakhstan, Kyrgyzstan or Turkey. [21)]

The effects of sanction policies on Russia extend well beyond logistical challenges, significantly complicating the payment processes associated with Roll-on/Roll-off (Ro-Ro) shipping. For both Russian companies and consumers, conducting financial

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[19)] IATA (International Air Transport Association) (2020), 『Air freight: Costs and considerations』.

[20)] WTO (World Trade Organization) (2023b), 「The Impact of Sanctions on Global Trade」.

[21)] Global Logistics News (2022), 「How Sanctions Affect Ro-Ro Shipping to Russia」.

transactions, particularly with international suppliers, has become increasingly burdensome.[22] These difficulties have resulted in higher operational costs, extended delivery times, and elevated risks for businesses involved in vehicle exports.

Moreover, Russian consumers now face growing obstacles in maintaining and repairing imported vehicles, as the flow of spare parts and service components has been severely disrupted. This has not only impacted vehicle ownership costs but has also undermined long-term reliability and accessibility within the automotive market.

Sanctions have significantly affected container shipping method as well, which is the foundation of international trade. Depending on smaller, less effective operators has resulted from major shipping companies suspending services to sanctioned countries. For example, in order to sustain trade balance, Russia has been pressured by sanctions to use alternate channels, such as ports in nearby nations like Oman and India.[23]

The occurrence of "shadow fleets" that are older, less governed ships that operate beyond the area of international sanctions is one notable adaptation to current situation the world of trading. Because of their age and lack of maintenance, these ships are serious risk to the environment and public safety, even though they have allowed sanctioned countries to continue trading. [24]

Since air travel depends on international collaboration and has access to modern technology, it has been sensitive to restrictions most of all methods of shipping. Sanction policies significantly reduce the operating number of airlines in targeted countries by restricting access to aircraft, replacement components and equipment, and most important international airspace. Many aircraft have been reduced as a result of sanction policies on

[22] Russian Trade Journal (2022), 「Russia's Car Import Market Amid Sanctions」.

[23] Maritime Executive (n.d.), 「How Sanctions Are Changing Global Shipping」.

[24] IATA (International Air Transport Association) (2022), 「Sanctions and Air Transport」.

Russia, for example, because of a shortage of spare components and lack of maintenance skills[25].

Sanctioned countries, especially Russia, have begun to leasing from non-sanctioned countries, utilizing old aircraft, and depending on third-party operators to ship products in order to reduce these difficulties and challenges. Although, these methods have resulted in a major decrease in efficiency and a rapid increase in costs. The economic impact of sanction policies has been worsened by the banning of recent and modern aircraft, which has also resulted in a reduction in the quality and safety of air transport services.

Sanction policies have had a severe effect om the international system without any doubt. On the one hand, major methods of shipping, such as air freight, container shipping and Ro-Ro shipping, have faced limitations and challenges due to these restrictions. Thus, the cost of shipping has risen and the efficiency of these systems and methods has been diminished. Greatly increased expenses and higher costs for components being shipped are some of the consequences of these challenges.

In response to the growing challenges posed by international sanctions, countries under these restrictions, particularly Russia, have sought out various alternative strategies to circumvent trade limitations. While these workarounds may offer temporary solutions, they often come with significant drawbacks. Some methods introduce risks to public safety or raise concerns about environmental sustainability, highlighting the complex trade-offs involved in navigating sanctions.

As the global geopolitical landscape continues to evolve, companies and organizations engaged in international trade must closely monitor how sanctions influence transportation routes and logistics practices. A thorough understanding of these effects is essential for developing new approaches that minimize risk and maintain the efficient

[25] Reuters (2022a), 「How Sanctions Are Grounding Russia's Aviation Sector」.

movement of vehicles and components, even within the constraints of increasingly restrictive trade environments.

In conclusion, this chapter has shown that the car trade between South Korea and Russia was stable, and easy to manage before 2022. Everything was based on direct shipping and clear tax rules. This answers my first research question by providing that the ‘Baseline’ for this business was built on high speed and low complexity.

However, everything changed when the international community started putting sanctions on Russia. In the next chapter I will explain exactly how these new rules stopped the direct trade and made the engine size of the car, the most important part of the vehicle, for whether a car could be sold or not.

The analysis in this chapter provides a baseline for understanding the pre-sanction export structure. It demonstrates that the initial system was heavily reliant on direct Ro-Ro shipping to Russian ports, which serves as the reference point for evaluating subsequent changes.

HANSUNG UNIVERSITY

Chapter 3. The Regulatory Shift: Impact of Sanctions on Export Performance

While the previous chapter established the baseline for Korean car exports before 2022, this chapter focuses specifically on the structural transformation triggered by international sanctions. It analyzes the shift toward indirect logistics and the emergence of Central Asian markets as critical transit points.

Political sanctions, particularly those introduced in response to Russia's geopolitical conflict, have had a profound impact on the global automotive trade. Key vehicle-producing regions such as the United States, the European Union, and South Korea have implemented a range of sanctions that have disrupted supply chains and reshaped trade dynamics. These measures have created a highly complex environment for exporters, encompassing everything from broad economic restrictions to targeted bans on specific types of vehicles and components. As a result, automakers and logistics providers have been forced to navigate intricate legal frameworks and adapt to shifting regulations.

One of the most significant consequences of these sanctions has been the prohibition of exporting dual-use vehicles, models that can serve both civilian and military purposes. Additionally, high-tech components such as microchips used in modern vehicle electronics have become increasingly restricted. This has presented major difficulties for Russian car manufacturers and consumers, who continue to depend heavily on imports for advanced electronics and critical automotive parts.[26)]

For South Korean automakers like Hyundai and Kia, both of which previously held substantial market shares in Russia, the introduction of sanctions has necessitated a

[26)] BBC News (2022), 「Sanctions on Russia and Their Impact on the Global Economy」.

strategic reassessment. These companies must now align with evolving international regulations while safeguarding profitability in other global markets. Managing legal and financial risks in sanctioned regions has become a central concern, prompting firms to explore alternative avenues for global growth. Striking a balance between regulatory compliance and commercial viability remains one of the most pressing challenges shaping their long-term strategies.[27)]

In the face of these challenges, the global vehicle trade has seen a change in both the supply and consumer's demand dynamics, when car manufacturers are also looking for alternative markets and new strategies to mitigate the risks caused by sanction policies. As the situation continues to unfold, vehicle manufacturers and exporters will need to react and adapt quickly to constantly changing political and economic situation.

Section 1. Evolution of Sanction Measures and Export Controls

As it had been already mentioned above, global trade has been heavily impacted by the international community's enforcement of the economic sanctions of Russia, especially following the Russian intervention in Ukrainian territory. Thus, as previously established that among the affected industries, the vehicle industry (manufacturing, exporting, selling, etc.) was disrupted severely, especially for South Korea, which has been a major vehicle exporter to Russia.

Sanctions are tool used by countries and international organizations to impose international law, protect security or respond to sudden geopolitical conflicts. Dwelling upon Russia's case, economic sanctions were enforced by the EU, the USA and other

[27)] European Commission (2023a), 「Dual-Use Goods and Sanctions Compliance」.

allied countries and regions in response to Crimea annexation in 2014 and Russia's further actions in Ukrainian territory starting in 2022.[28)]

The shift in export rules happened in two very important stages which changed the market step-by-step. In the first stage (the "first sanction" stage), sanctions were only placed on expensive luxury cars worth more than 50,000$ and on all EVs. During this time, the business did not stop, but it became more difficult. For example, a car like a 2022 BMW X4 with a 2.0L diesel engine was suddenly considered a luxury segment item because its value and price was over 50,000$.

Because of this, car exporters could no longer send these cars directly to Russia. They had to start using 'Kyrgyzstan route'. Even though sending a car in container through China cost approximately 5,000$ and took two months, it became the only legal way to move these high-value segment cars. However, many exporters discovered that shipping the car by Ro-Ro to Vladivostok and then using car carrier to Kyrgyzstan was much cheaper than a container, even if it was riskier. This stage was the beginning of the 'logistic revolution' for South Korean vehicle exports.

In the table below, I would like to compare South Korea and Russia regarding their economic sanctions and their effects on the car trade:

[28)] Council on Foreign Relations (2024), 「Two years of war in Ukraine: Are sanctions against Russia making a difference?」.

	South Korea	Russia
Role in car trade	Major exporter of vehicles to global car markets (e.g. Hyundai, Kia)	Major importer of vehicles, with more than 30% of the imported market being supplied by South Korean manufacturers[29)]
Impact of sanctions		
Trade embargoes	Mostly restricted from exporting cars and vehicle parts to Russia[30)]	Partially restricted and limited from importing cars and vehicle parts from South Korea and other countries[31)]
Financial sanctions	Difficult to receive payments from Russian buyers due to penalties on Russian banks	Russian banks were excluded from SWIFT system, which made a limited access to international financial systems[42]
Technology restrictions	Restricted from exporting high-tech car manufacturing technology to Russia[42]	Banned from obtaining high-tech car manufacturing technology from South Korea and other countries[43]

[29)] Kim, S. (2023), 「Impact of Sanctions on Korean Car Exports to Russia」, 『Journal of International Trade』, 28(2), p. 10-25.

[30)] European Commission (2023b), 『Sanctions Against Russia: Overview and Impact』, p. 45-62.

[31)] Smith, R. (2022), 「Economic Sanctions and Their Impact on Global Trade」, 『International Relations Quarterly』, 45(3), p. 12-18.

Asset freezes	Not impacted directly, But South Korean companies could result significant losses due to frozen Russian assets	International organizations have frozen Russian assets (e.g. individuals and government organizations)[42]

[Table 3] Comparison of South Korea and Russia economic sanctions

Economic impact		
Export decline	Car exports from South Korea to Russia decreased by 78% in 2022[32)]	Russia has lost access to affordable vehicle market from South Korea[41]
Revenue losses	Hyundai reported a $1.2 billion decrease in revenue from the Russian market in 2022[33)]	Prices for the vehicles went up and the consumer spending decreased[34)]
Supply chain disruptions	Logistical challenges and difficulties in vehicle shipping and components supply due to sanctions [35)]	Disruption in supply chains for car manufacturing and assembly due to sanctions and import severe restrictions[43]

32) KITA (Korea International Trade Association) (2023), 『Trade Statistics: South Korea-Russia』, p. 112-135.

33) Hyundai Motor Company (2023), 『Annual Report 2022』, p. 78-91.

34) BOK (Bank of Korea) (2023), 『Economic Impact of Sanctions on South Korea』.

35) Lee, H. (2023), 「Supply Chain Disruptions in the Automotive Industry」, 『Korean Economic Review』, 19(1), p. 33-40.

Broader economic impact	Vehicle industry is a key contributor to South Korea's GDP (losses affected the overall country's economy) [46]	Sanctions significantly weakened the Russian economy; sanctions affected industrial output and consumer purchasing power[42]
Response to sanctions	Exploring alternative routes and markets in order to reduce reliance on Russia (e.g. Kazakhstan, Kyrgyzstan, etc.)	Increasing reliance on domestic car manufacturing and non-Western car suppliers (e.g. China)[41]

[Table 4] Economic Implications of Mutual Sanctions

To summarize the table above, it can be inferred that, first and foremost the payment system and logistic networks were influenced significantly. Restrictions which were enforced on Russian banks' access to SWIFT[36)] payment system have drastically complicated transactions for vehicle exports. Which also led to payment delays, higher transactional fees and increased inspections have made the car trade relationships between Russia and other car exporting countries less attractive. Also, the indirect trade routes have increased, with countries like Kazakhstan and Kyrgyzstan that became a mediator for the re-export of cars to Russia. The emerge of these alternative, but less transparent trade flows and new supply chains shows us the unintended consequences of sanctions.[37)]

Another critical disadvantage is the loss of a market access, which made car manufacturers from the USA and the EU limited their activities in Russia due to the

[36)] Reuters (2022b),「SWIFT Restrictions and Trade Challenges」

[37)] Financial Times (2022),「Russia's Economic Adaptations to Sanctions」.

sanctions, but on the other hand created a big opportunity to fill the gap in Russian market for non-West countries that are not under the sanctions (e.g. China).[38)]

In place of Western brands, Russian consumers are increasingly turning to domestic alternatives, such as vehicles produced by Russian automakers like AvtoVAZ, though these local models often fail to meet the performance or luxury standards set by their Western counterparts. Additionally, while South Korean brands like the Hyundai Genesis or Kia Stinger were not initially as prevalent in the luxury car market, sanctions have nonetheless hindered their ability to enter and expand in the Russian luxury segment.[39)]

The analysis of export volumes shows a direct correlation to specific regulatory milestones. To understand the shift from traditional trade to the current sanctioned environment, it is necessary to examine the chronological introduction of restrictive measures and their immediate impact on market behavior.

As illustrated in Table below, each “New Rule” acted as a catalyst for logistical reconfiguration. The introduction of the 160HP threshold under Decree No. 1713 represents a shift from physical export bans to prohibitive fiscal barriers. The data suggests that the market does not react to sanctions as a single event, but rather as a series of technical shocks that require immediate adaptation to the supply chain.

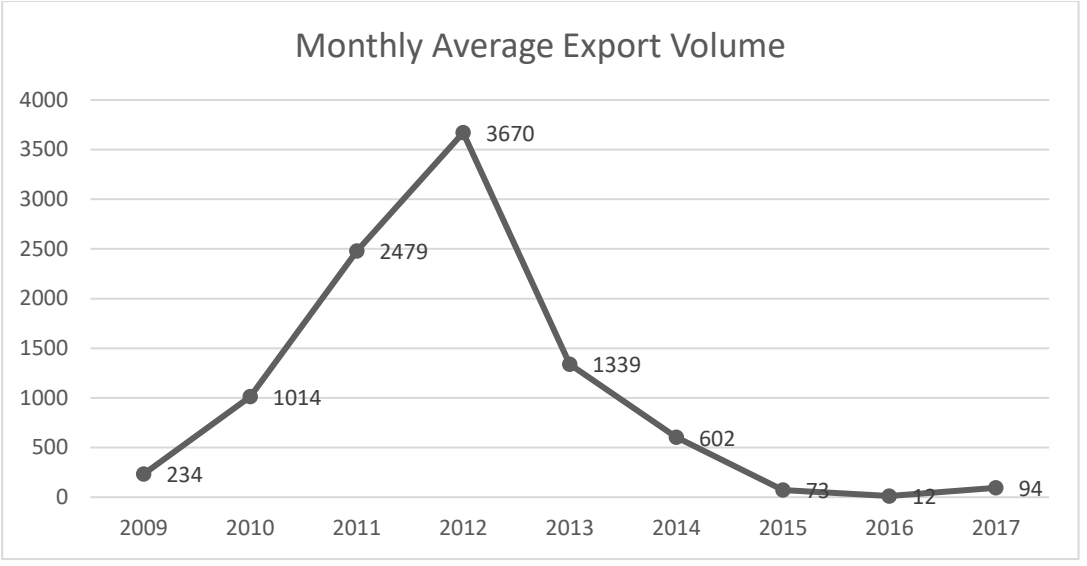
Due to sanctions and other limitations, the rising demand from Russian consumers for the used car export market has recently begun to recover. However, not all used car exporters see Russia as their main destination, a lot of businesses have benefited from the constant rising number of customers.

[38)] The Guardian (2022), 「Impact of Sanctions on Automotive Industries」.

[39)] Korea Times (2023), 「South Korea's Role in Sanctions」.

Date	Regulatory Milestone	Primary Restriction	Immediate Market Impact
February 24, 2024	Initial Export Ban Expansion	Restrictions on vehicles over 50,000$	Cessation of luxury brand direct exports
January 7, 2025	New Regulatory Rule	Additional technical compliance requirements	Temporary freeze in customs processing in Bishkek
February 24, 2025	Technical Threshold Ban	Engines exceeding 2,000cc	78-80% drop in direct Korean port shipments
October 1, 2025	Decree No. 1713	Power threshold exceeding 160HP	Utilization fee jumped from 5,000 to 600,000 Rubles
April 2026	EAEU Customs Harmonization	Possible End of “Bishkek Loop” customs benefits	Projected collapse of current indirect transit routes

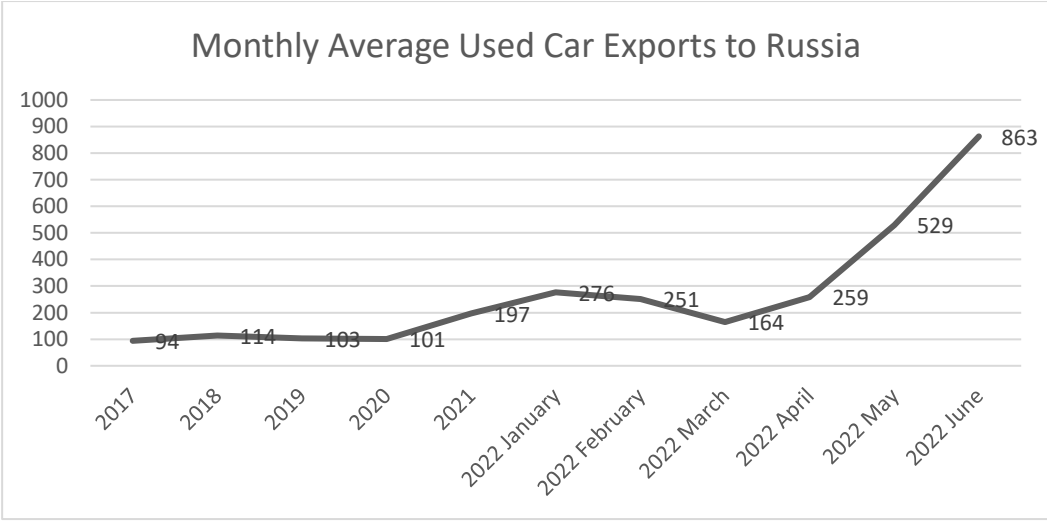
[Table 5] Chronological Evolution of Export Regulations and Market Impact



[Figure 2] Monthly Average Export Volumes

The Figure above shows that South Korea has previously had a spike in its exports of used vehicles to Russia, especially from 2010 to 2013. Exports of the used cars to Russia rose from circa 1,000 units per month in 2010 to 3,670 units per month in 2012. On the one hand, this growth was temporary, nevertheless, since exports dropped in 2013 due to Russian import regulations. By 2015, It can be inferred that car exports to Russia nearly stopped.[40)]

[40)] KITA (Korea International Trade Association) (2022), 『Itemized Export Statistics』.



[Figure 3] Monthly Average Used Car Exports to Russia

As the figure above illustrates, since May 2022 South Korea's used car exports to Russia have increased drastically. Monthly shipments, which used to be circa 100.200 unites, increased to 529 units in May 2022 and 863 unites in June 2022. Additionally, exports to Kazakhstan, a key transit country for Russian-bound cars, rose from 200-300 unites to 565 in May and 651 unites in June.[41)]

Section 2. Technical Analysis: Engine Displacement and Dual-Use Restrictions

The types of vehicles that are under sanctions are not just based on their classifications or country of origin, but rather these restrictions and limitations are based on the specific models, their features and components, which may include high-tech technologies, luxury features.

The updated Strategic Goods Export and Import Notice, released by the Ministry of Trade, Industry and Energy, greatly expands the range of controlled exports. The newly banned items and goods include passenger vehicles with engine capacity more than

41) KAEA (Korea Used Car Export Association) (2023), 『2023 Used Vehicle Export Statistics』.

2,000CC and all types of electric vehicles (e.g. EVs, HEVs, PHEVs) as well as various types of commercial vehicles. The newly implemented laws require vehicle exporters to obtain government approval before shipping these types of vehicles to Russia. While approval system provides for case-by-case exceptions, the vague and lack of definitive requirements and criteria suggest that obtaining the approvals could be hard. Thus, these regulations and restrictions ban the shipment if high-demand used cars to Russia.[42)]

To put it in other words, the second major stage of sanctions was the most damaging. As Iit has been mentioned above, this is when the rules changed to include all cars with the engine larger than 2,000cc (2.0L). This changed everything, because it included regular family SUVs and diesel cars that were previously allowed.

For example, a BMW X6 with a 3.0L diesel engine became almost impossible to ship using old methods of car shipping. Because the prices of these cars increased over two years, using expensive 5,000$ containers became economically unviable. At this point, the market completely moved away from direct shipping route to Russia which was used before sanctions. Almost every exporter shifted to Vladivostok Ro-Ro route because it was the only way to keep the costs low enough to make a profit. This explains why the engine size of the car became the most important factor in the entire South Korean export industry.

[42)] MOTIE (Ministry of Trade, Industry, and Energy) (2023), 『Revised Strategic Goods Export and Import Notice』.

Brand Model	Car Model/Type	Engine Volume	Year of Production	Reason for Sanctions	Relevant Sanctions
Mercedes-Benz	S-Class, E-Class, G-Class	2.0L to 6.0L V6, V8, V12	2022-2024	Luxury cars, symbols of wealth. Luxury cars deemed unnecessary imports.	Restrictions on luxury vehicle exports. Sanctions aim to limit high-end goods to Russia.
BMW	7 Series, X5, X6	3.0L to 4.4L V6, V8	2021-2024	High-end, luxury, advanced technology with dual-use components.	Sanctions on technology and high-end vehicle imports, preventing luxury goods from reaching Russia.
Audi	A8, Q7, Q8	3.0L V6, 4.0L V8	2021-2023	High technology integration and advanced	Dual-use technology restrictions impacting

				driver assistance systems (ADAS).	advanced safety and electronics.
Porsche	911, Cayenne, Macan	2.9L V6, 4.0L V8	2022-2024	Luxury and performance cars; sophisticated electronic components.	Sanctions focus on advanced automotive technology and luxury branding.
Lamborghini	Urus, Huracan,	4.0L V8 Twin-Turbo (Urus), 5.2L V10 (Huracan)	2021-2024	Luxury and high-performance cars with large engine displacement. Considered non-essential luxury imports and symbol of wealth. Some models include	EU sanctions on luxury goods exceeding 50,000€ value to Russia. Restrictions on high-end car exports. Export controls on advanced automotive

				advanced electronic systems and dual-use high-performance components.	technology and electronic system. Ban on supply of luxury vehicles to the Russian market under EU Regulation packages (2022 onward)

[Table 6] Sanctioned Car Categories: European Luxury Brands

A detailed analysis of each car model's engine capacity, technologies, components and use of the materials that could support military or dual-use applications (military and civilian) is a part of the enforcement of these sanctions. As the data in the table below shows with a detailed list of a car manufacturers and models that are affected and under these sanctions, along with some information about their features and the brief explanation for their inclusion.

Chevrolet	Chevrolet Suburban, Tahoe, Traverse	5.3L V8, 6.2L V8	2020-2023	Vehicles with large engines and off-road capability.	Vehicles targeted due to their powerful engines, and potential dual-use capabilities for military purposes.
Hyundai	Santa Fe, Tucson	2.4L, 3.3L V6	2022-2023	Advanced automotive technology; popular in Russia.	South Korean vehicles subject to restrictions based on dual-use technologies and luxury car exports.
Kia	Sorento, Sportage, Carnival, Mohave	1.6 HEV Hybrid, 3.3L V6, 2.2L, 3L	2021-2023	Luxury and performance-oriented cars with advanced safety systems.	Sanctions restrict high-end and luxury vehicles, as well as technologies in luxury and performance categories.
Toyota	Land Cruiser, Lexus LX	3.5L V6, 5.7L V8	2021-2023	Off-road and luxury vehicles, dual-use military components.	On a luxury end of the market and off-road vehicles, are restricted due to their potential dual-use and advanced electronics.

[Table 7] Sanctioned Car Categories: Asian and US Mass Market Brands

The particular car models, engine size and volumes, and other features which are selected in this table are based on several, major factors that make these cars more likely to be under sanctions. These major factors include the cars' technological significance dual-use (military and civilian) potential as well as the technological complexity.

For example, referring to the technological complexity, could be mentioned because of the vehicle's potential for dual-usage in both commercial and military purposes (GPS system, autonomous driving technology, powerful engines) are mostly limited. As for high-performance vehicles, such as vehicles with engine larger than 3.0 liters are often questioned because they use advanced materials and technologies that could be used for military goals (navigation, surveillance system).

Next, luxury vehicles such as the Hyundai Genesis or Kia Stinger are subject to restrictions due to their high market value and advanced technologies. These cars often contain components, such as aerospace-grade materials or high-tech electronics, which are valuable and might be used in military applications. The export of these vehicles is seen as a way to limit access to advanced technology.

To illustrate the practical impact of the shifting regulatory landscape, several key models from South Korean car manufacturers and international brands serve as critical case studies.

For instance, the Kia Morning (1.0L) remains unaffected by both engine-size sanctions and increased utilization fees, maintaining its export stability. In contrast the Kia K5 (2.0L gasoline, 3-5 years old) initially faced no direct sanctions. However, its export viability was later compromised by the increased Russian utilization fee based on its horsepower threshold.

Technological classification also plays a decisive role. The Kia Sorento (1.6L Hybrid) despite its small engine displacement, was restricted during the 'First Wave' sanctions

(February 2024), which banned all vehicles over 2,000cc. even if legal pathways were found, the updated Russian utilization fee for engine over 2.0L rendered this model economically unfeasible.

Model	Engine	Sanction Status	Utilization Fee Impact	Primary Export Barrier
Kia Morning	1.0 Gasoline	None	Minimal	None (Stable Export)
Kia K5	2.0L Gasoline	None	High	High Horsepower Tax
Kia Sorento	1.6L Hybrid	Sanctioned	Medium	Electrified Powertrain Ban
Kia Sorento	2.2L Diesel	Sanctioned	Critical	Engine >2,000cc Limit
BMW X4	2.0L Gasoline	Conditional	High	50,000$ Price Cap

[Table 8] Impact of Regulatory Constraints on Key Car Models (3-5 years)

Premium segment faced a ‘Price-vs-Volume’ barrier. The BMW X4 (2.0L), while technically compliant with engine-size regulations, frequently exceeded the 50,000$ price cap established in early sanction phases, effectively halting its direct export through standard legal channels.

This complexity explains the shift toward indirect logistics described in Chapter IV, as the exporters seek the mitigate these cumulative costs through alternative customs territories like Kyrgyzstan.

Beyond the direct export restrictions imposed by the South Korean government, the economic viability of the trade is further constrained by Russian domestic fiscal policy. Specifically, Government Decree No. 1713 (October 2024/January 2025) significantly increased the 'utilization fee' for imported vehicles. For cars with engine displacements between 2.0L and 3.0L, the fee increased dramatically, often exceeding the profit margin of the sale itself. This creates a 'double barrier': while a vehicle like the Kia K5 2.0L may legally leave South Korea, the fiscal burden imposed by Decree No. 1713 makes it non-competitive in the Russian market compared to domestic or Chinese alternatives. [43)]

Dwelling upon the military potential of the vehicle. Some vehicles are under sanctions due the possibility of their usage in military operations or as the platform to support military operations.

Thus, by putting vehicles with such characteristics and features and sanctions, the sanctions aim to stop the transfer of technologies that could be potentially used against the countries enforcing the restrictions. This is especially relevant for the vehicles that are thought to have dual-use properties as the same technology that make them valuable for the civilian purpose can also be used for military purposes.

To conclude, this chapter has answered the second research question by showing how the 2022 sanctions created new rules for the exporters. We have seen the transition from luxury car limits to 2.0L engine limit forced a total change in how business done. It was no longer about what the customer wanted, but what the sanctions allowed.

Consequently, the post-sanction shifts are characterized by a transition toward indirect toward indirect trade. The findings in this chapter show that the adaptability of Korean

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[43)] Government of the Russian Federation (2024), 『Decree No. 1713: On Amendments to the Calculation of Utilization Fees for Wheeled Vehicles』.

export is maintained through third-country intermediaries, answering the research question regarding trade flow adaptation.

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Chapter 4. Logistical Adaptation and the Transformation of Supply Chains

Following the analysis of trade structural shifts and the rise of indirect export models in previous chapter, this chapter examines the physical transformation of supply chains. The transition from direct to circumvention trade has necessitated a fundamental reorganization of logistic routes. As traditional maritime paths face increasing regulatory and operational difficulties, the selection of transport modes and bypasses has shifted from a focus on cost-minimization to risk-mitigation and accessibility.

Sanctions against Russia have profoundly reshaped the global vehicle export industry, exposing weaknesses in supply chains and forcing car manufacturers to adapt to a constantly changing geopolitical situation. In the middle of this constantly changing situation lies the disruption of the complex network of international trade that once supported the production of vehicles worldwide. Major components for vehicle manufacturing, such as glass, rubber, and steel, traditionally sourced from a network of global suppliers, have become challenging for Russian car manufacturers to obtain.[44)]

This has not only slowed vehicle manufacturing but also brought attention to the challenges of relying on domestic alternatives, which often fall short in quality and performance compared to their imported counterparts. The delays in production, decreasing output, and a growing scarcity of new vehicles in the Russian market could be considered as a result.[45)]

[44)] BBC News (2022), 「Sanctions on Russia and Their Impact on the Global Economy」.

[45)] European Commission (2023a), 「Dual-Use Goods and Sanctions Compliance」.

The sanctions have forced car manufacturers to rethink their strategies and methods outside the Russian territory. Once considered Russia as a profitable export market, businesses in Eastern Europe and Asia are now adapting to the new reality of complicated trade ties[46]. For example, South Korean vehicle manufacturers, who are renowned for their technological experience and knowledge, have reduced back exports to Russia in favor of countries and regions less affected by geopolitical instability.[47] This change shows the rapid change of global trade flows, as both countries' businesses navigate the complexities of sanctions and seek new opportunities.

One of the most pressing challenges currently facing car exporters is the need for strict legal compliance. Both vehicle manufacturers and logistics providers must navigate an increasingly narrow and complex framework of international restrictions and regulatory requirements. Failure to comply can result in significant financial losses, reputational damage, or even legal consequences.[48] As sanctions lists continue to evolve and change frequently throughout 2024 and 2025, keeping pace with these updates has become a formidable task, adding further complexity to international trade operations.[49]

These developments are likely to have long-term and far-reaching effects on both the Russian automotive industry and the broader trade environment. In Russia, limited access to essential components, raw materials, and advanced automotive technologies has significantly weakened the domestic vehicle market and reduced production capacity. As a result, manufacturers and consumers have faced rising costs, supply shortages, and declining availability of modern vehicles and spare parts. The disruption of international

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[46] The Guardian (2022), 「Impact of Sanctions on Automotive Industries」.

[47] Korea Times (2023), 「South Korea's Role in Sanctions」.

[48] WTO (World Trade Organization) (2023a), 「Legal Framework for Export Controls」.

[49] Bloomberg (2024), 「Updates on Sanctions Policies」.

supply chains and technological cooperation has also slowed innovation and reduced competitiveness within the Russian automotive sector.

Although Russia now relies more heavily on locally produced vehicles, these models often fall short in terms of quality and innovation. Meanwhile, global car manufacturers are under increasing pressure to diversify their supply chains, adapt their production strategies, and identify new markets that are less exposed to geopolitical instability.

South Korean automakers, in particular, find themselves in a difficult position. As longstanding global players with deep economic interests, they must carefully balance their commercial goals with the political realities of aligning with Western led sanctions and trade policies. This delicate balancing act underscores the broader dilemma faced by exporters navigating today's shifting geopolitical and economic landscape.

Section 1. Reconfiguration of Transformation Routes: From Direct to Indirect

The full-scale invasion of Ukraine, launched on February 24, 2022,[50] prompted a swift and coordinated response from Western countries, including the United States, the European Union, and their allies. Among the array of sanctions imposed on the Russian Federation, a major focus was placed on restricting exports particularly those in the automotive sector. These measures were designed to exert economic pressure by limiting Russia's access to foreign goods, especially high-value items such as automobiles and their components.

In reaction to these unprecedented sanctions, the Russian government implemented countermeasures to cushion the domestic economy from the resulting disruptions. One of the most significant shifts in policy was the gradual easing of long-standing restrictions on the import of used vehicles. Prior to the conflict, Russia had maintained strict regulations on secondhand car imports to protect its domestic auto industry and uphold

[50] UK Parliament (2023), 『Conflict in Ukraine: A timeline (current conflict, 2022–present)』.

environmental and safety standards. However, the sudden shortage of new vehicle imports compounded by the exit of major international car manufacturers from the Russian market, prompted the government to seek alternative sources. As a result, policies were adjusted to facilitate the increased importation of used cars from abroad, marking a notable departure from previous regulatory approaches.

As a result, Russian buyers and intermediaries began to play an increasingly active role in international used car markets. Rather than relying solely on large-scale domestic importers, many individual buyers and smaller brokers traveled to key automobile-exporting countries such as the United Arab Emirates, Japan, and South Korea to purchase vehicles directly.

In the case of South Korea, it is important to clarify that the majority of these transactions were not structured as direct exports by Korean companies. Instead, Russian buyers and agents came into the Korean market and sourced vehicles on-site, which were then shipped to Russia or nearby countries. In this sense, South Korea served more as a procurement ground than a direct exporting party in the traditional sense.

The evolution of logistical routes reflects a strategic shift from efficiency-driven models to sanction-resilient corridors. Before 2022, the 'Bishkek route'(Kyrgyzstan) was primarily reserved for new premium cars to optimize customs duties. However, following the 2024-2025 sanctions and the surge in maritime container costs, this route was reconfigured and changed to mass-market.

A key insider finding is the transition from expensive container shipping to a multi-modal 'hybrid' land route. While a container via China now costs approximately 5,000$-6,000$ and takes up to 60 days. The alternative route, Ro-Ro to Vladivostok followed by car carriers to Novosibirsk and final transshipment in Bishkek, has become the dominant survival strategy for exporters. This route allows for a 10-15% profit margin, which is

otherwise spent by the high costs of legal container shipping or the new Russian utilization fees.

Logistical Stage	Route Path	Transport Mode	Key Economic Driver	Strategy
Phase 1 (Pre-Sanction)	Korea → Vladivostok (Russia)	Direct Ro-Ro	Speed and Low Risk	Standard Export
Phase 2 (Mid-Sanction)	Korea → China → Kyrgyzstan	Container	Bypassing Luxury Bans	High-Cost Safety
Phase 3 (Current)	Korea → Vladivostok → Novosibirsk → Bishkek	Multi-Modal (Ro-Ro + Truck)	Cost Reduction (5,000$ saving)	Survival/Gray Market

[Table 9] Comparative Analysis of Transit Corridors

As demonstrated in the table above, the choice of Vladivostok-Novosibirsk-Bishkek corridor is not based on the logistical speed, but on the fiscal necessity. By utilizing this route, exporters mitigate 'Double Barrier' of high container freight and the restrictive Russian Decree No.1713. This multi-stage transshipment serves as a 'regulatory buffer', allowing for the re-classification of cars before they enter the final market jurisdiction.

In addition to this informal market dynamic, the South Korean government imposed its own set of export control measures. Specifically, it designated vehicles with engine

displacements exceeding 2,000cc as well as electric vehicles as “strategic controlled items.” These categories were thereby subject to export restrictions to Russia and Belarus under national and international compliance regulations. As a result, it became legally impossible to ship such vehicles directly to these countries from South Korea.

		2017	2018	2019	2020	2021	2022	2023	2024
Kazakhstan	Export Volume	311	814	1,392	3,257	4,017	9,539	13,439	18,300
	Price per Unit	4.2	4.6	4.9	7.5	11.8	30.2	25.2	20.9
Russia	Export Volume	1,130	1,372	1,234	1,215	2,359	19,626	26,955	28,101
	Price per Unit	14.7	17.3	16.8	17.2	19.2	29.2	24.6	21.0
Kyrgyzstan	Export Volume	3,538	8,358	15,179	4,998	4,518	23,273	51,013	80,558
	Price per Unit	1.7	2.5	2.3	4.5	4.3	10.2	19.3	19.1

[Table 10] Trade Statistics by the Trade Association[51)]

However, this did not entirely halt the trade. Instead, new logistical pathways emerged. Exporters and intermediaries began routing vehicles through third countries, most notably Kazakhstan and Kyrgyzstan, which are members of the Eurasian Economic Union (EAEU) along with Russia. This allowed vehicles to enter the EAEU customs territory without encountering the same level of regulatory scrutiny or financial burden associated with direct exports to Russia.

While both Kazakhstan and Kyrgyzstan serve as transit countries, Kyrgyzstan has increasingly become the preferred route due to several practical advantages. These include lower customs duties, more flexible import procedures, and relatively easier access to local registration processes. Furthermore, logistical networks in Kyrgyzstan have become more developed in response to the rising volume of used car imports destined for re-export to Russia. As a result, data shows a disproportionately large share of South Korean used cars are now exported to Kyrgyzstan, from where they are transported overland to the Russian market.

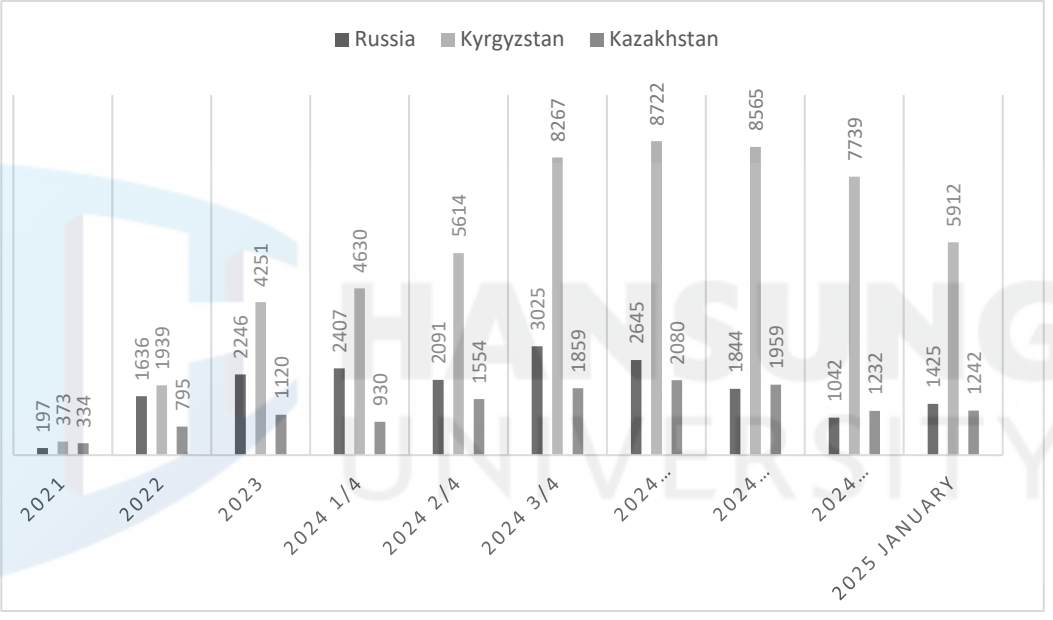
Overall, the landscape of used car exports to Russia has undergone a significant transformation since 2022. What was once a tightly regulated and largely centralized process has now become more decentralized, informal, and reliant on regional trade networks. The shift underscores how geopolitical events and international sanctions can reshape trade flows, create new market actors, and foster alternative logistical strategies in the global automotive trade.

The export trends to Russia include both direct exports to Russia and indirect exports that routed through neighboring countries such as Kazakhstan and Kyrgyzstan. It is

[51)] KITA (Korea International Trade Association) (2024), 『Export Statistics by Product』

estimated that approximately 60% of exports to Kazakhstan and 70% of exports to Kyrgyzstan are, in fact, considered as the re-exportation to Russia. This indirect route and method are frequently used to get around logistical challenges or trade restrictions.[52)]

The last several months, the export volume of vehicles to Russia has shown a decreasing trend, mostly influenced by the increase in the vehicle scrappage program fee enforced by Russia in October of last year and in January this year. These measures have greatly affected by the demand for imported cars in Russia.



[Figure 4] Export Volume to Russia, Kyrgyzstan, and Kazakhstan

For example, if we take a look at the graph above it can be important to highlight that the total number of units exported to the three countries such as Russia, Kazakhstan, Kyrgyzstan in January 2025 was 8,579 units and about 6,000 units are thought to have ended up in Russia after taking into consideration local consumer's demand in Kyrgyzstan and Kazakhstan. This graph below represents a notable decrease when compared to the peak levels seen in previous years.

[52)] KITA (Korea International Trade Association) (2024), 『Export Statistics by Product』

The volume of car exports to Russia was far higher during its peal, but recent policy changes and economic conditions have led to a significant decline. Global trade dynamics have changed due to the scrappage program tax, which has greatly reduced the affordability of imported cars in the Russian market.

	2022	2023	2024						2025
	Annual	Annual	1/4	2/4	3/4	Oct.	Nov.	Dec.	Annual
Russia	1636	2246	2407	2091	3025	2645	1844	1042	1425
Kyrgyzstan	1939	4251	4630	5614	8267	8722	8565	7739	5912
Kazakhstan	795	1120	930	1554	1859	2080	1959	1232	1242
Total	4370	7617	7967	9259	13151	13447	12368	10013	8579

[Table 11] Export Volume to Russia, Kyrgyzstan, and Kazakhstan

Thus, the export environment to Russia has significantly changed, with both direct and indirect export methods. The estimated 6,000 units that were destined for Russian market in January represent a significant drop from its peak before, showing the effects of change in market dynamics and regulatory actions. As the situation continuously changes, it is very important to monitor these patterns development and different types of tactics and methods which the exporters will come with.

As previously noted, only certain categories of vehicles are directly exported to Russia, while cars with engine displacements exceeding 2,000CC are typically redirected to Kazakhstan or Kyrgyzstan for export, as such vehicles are prohibited from entering the

Russian market. Some exports labeled as destined for Russia may in fact be misclassified or represent attempts at situational management, suggesting possible errors in reporting.

Between January and May 2025, a total of 15,881 vehicles were directly exported to Russia. During the same period, 9,740 units were sent to Kazakhstan and 45,089 units to Kyrgyzstan, with estimates suggesting that approximately 50 to 70% of these vehicles ultimately reach Russia as their final destination. However, this figure remains an approximation, as statistical data cannot definitively confirm the ultimate destination country.

(Unit Price: 1,000$)		RU		KZ	KG	Total for 3 Countries (Avg.)		
		Export Volume		Export Volume	Export Volume	Export Volume	Export Value	Unit Price
Passenger vehicle	Gasoline	<1000CC	406	32	3,468	3,906	15,547	4.0
		1000~1500CC	1,335	12	349	1,696	20,474	12.1
		1500~2000CC	10,714	2,682	14,594	27,990	480,017	17.1
		2000~3000CC	22	3,789	6,823	10,634	367,010	34.5
		3000~4000CC		264	697	961	82,209	85.5
		>4000 CC		59	156	215	31,591	146.9

	Diesel	<1500 CC	29		5	34	427	12.6
		1500~ 2000CC	3,365	610	3,598	7,573	160,751	21.2
		2000~ 2500CC	3	1,257	7,733	8,993	217,929	24.2
		>2500 CC		437	2,054	2,491	110,332	44.3
	EV	Gasoline EV	4	229	1,358	1,591	64,551	40.6
		Diesel passenger EV	1	50	282	333	18,324	55.0
		Gasoline PHEV	1	9	39	49	2,225	45.4
		Diesel PHEV			9	9	662	73.6
		Pure EV		5	103	108	2,883	26.7
Van or Minibus	Diesel	<15-seater		48	156	204	4,636	22.7
		16~35-seater		2	2	4	88	22.0
		>36-seater		8	11	19	165	8.7

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	EV	Diesel HEV			1	1	13	13.0
		Pure EV		1		1	105	105.0
	Other	<15-seater		2		2	29	14.5
Total		15,881		9,740	45,089	70,710	1,603,814	22.7

[Table 12] Export Volume and Unit Price to Russia, Kazakhstan, and Kyrgyzstan

(Jan-May 2025)

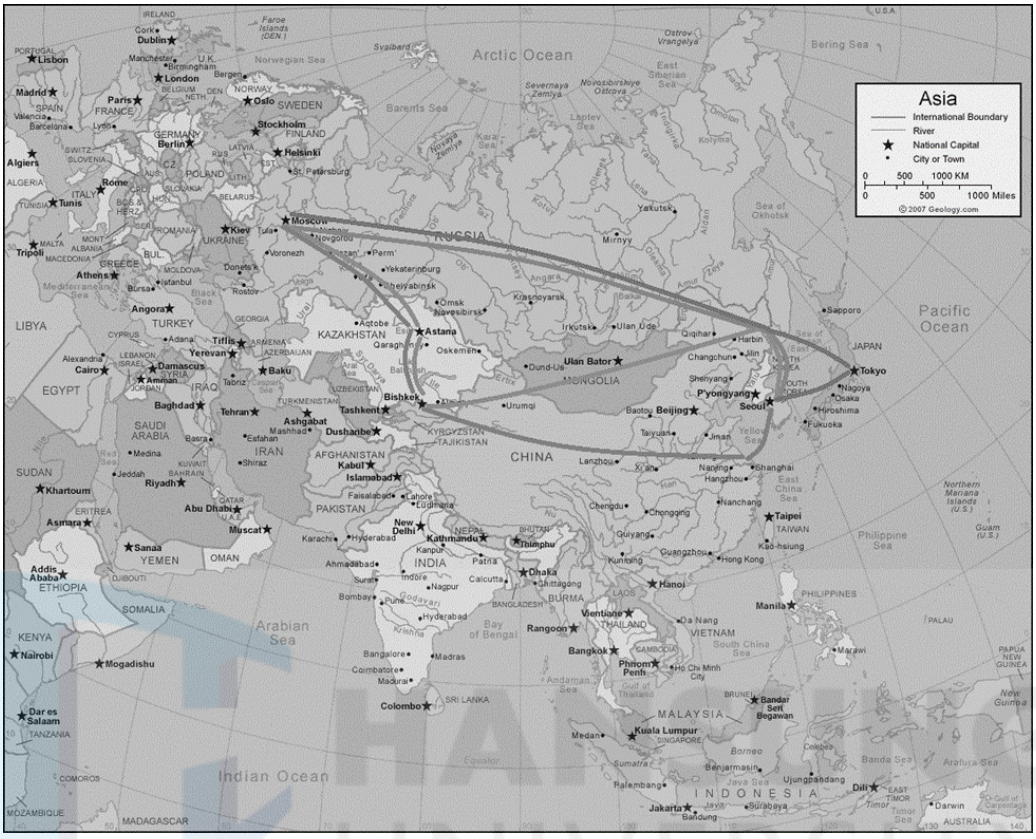
The recent increase in Russia's scrappage tax has had a particularly heavy impact on Chinese automotive brands operating in the Russian market. Originally introduced as part of Russia's broader strategy to bolster its domestic car industry and generate additional state revenue, the tax has significantly raised the cost of importing foreign vehicles. For Chinese automakers, who had been expanding rapidly and gaining substantial market share, the financial burden has been especially severe. By the end of 2024, it was reported that nearly one-third of the 1,200 Chinese new car dealerships in Russia had ceased operations. These closures reflect not only the immediate strain imposed by the tax hike but also the broader difficulties of sustaining profitability in an environment where consumers face rising prices and diminishing purchasing power.

To put it simply, after the strict 2.0L sanctions were introduced, land transportation became the most important part of the supply chain. The logistic shifted from a simple path to a complex 'Kyrgyzstan-centered' model.

Car exporters now rely on a more complex and indirect logistics system designed to reduce transportation expenses while also avoiding direct trade restrictions and sanctions-

related barriers. Instead of using traditional direct export routes, companies increasingly adopt a multi-stage delivery process that combines maritime shipping, rail transportation, and overland trucking across several countries. In the first stage, vehicles are transported from South Korea to Vladivostok using Ro-Ro vessels, which remain one of the cheapest and most efficient methods for shipping automobiles internationally. The average transportation cost for this maritime segment is relatively low, usually around 500-600 per vehicle, making it economically attractive despite the longer and more complicated overall route.

After arriving at the Russian port of Vladivostok, the vehicles enter the second stage of transportation, where they are moved inland through the Trans-Siberian transport network. Cars are typically loaded onto railway platforms or heavy transport trucks and shipped thousands of kilometers westward to logistics hubs such as Novosibirsk. This stage plays a critical role in connecting Far Eastern ports with Central Asian transit corridors and allows exporters to continue vehicle movement despite restrictions affecting direct maritime trade routes to certain destinations.



[Figure 5] Main Car Export Routes to Russia

In the final stage, the vehicles are transferred onto specialized car carriers and transported from Novosibirsk to Bishkek, Kyrgyzstan. Bishkek has become an important transit and customs clearance center for automobile exports because it provides an alternative entry point that helps companies manage sanctions-related trade complications. After customs procedures are completed in Kyrgyzstan, the vehicles can continue toward their final markets through indirect trade channels. Although this logistics structure is significantly slower, more expensive, and operationally more difficult than pre-sanction direct exports, it has become one of the key survival strategies for maintaining the flow of South Korean vehicles into the Russian market.

This route is much better for business than using containers through China. A container costs about 5,000$ and takes two months. By using the Vladivostok-Bishkek route 'under the key' (all-inclusive), the cost is significantly lower, and the shipping time is faster. Even for heavy cars like 3.0L BMW X6, which is no longer profitable to send by container, this Ro-Ro land route makes export possible. While this is officially recorded as an export to Kyrgyzstan, most of these cars are destined for the Russian market, proving that land logistics have adapted to hide the final destination.

First route is Korea → Vladivostok → Inland Russia (Direct Route).

This route involves transporting used vehicles from South Korea to the Russian port of Vladivostok, followed by inland distribution to major cities such as Moscow and St. Petersburg via the Trans-Siberian Railway (TSR) or trucking. While this was once the primary route for car exports to Russia, its usage has declined significantly in recent years due to stricter import regulations and increased taxes imposed by the Russian government.

Second route is Korea → Vladivostok → Kyrgyzstan/Kazakhstan → Russia (Indirect/Detour Route).

In this widely adopted route, vehicles shipped from South Korea to Vladivostok are subsequently re-exported to Central Asian countries such as Kyrgyzstan and Kazakhstan. After customs clearance and vehicle re-registration in these countries, the cars are then transported back into Russia by truck or rail. This detour has become the dominant method due to tightened Russian import restrictions and international sanctions. It is estimated that, between 2023 and 2024, approximately 70% to 80% of South Korean used vehicles entered Russia through this pathway.

Third route is Korea → Eastern China Port → Kyrgyzstan/Kazakhstan → Russia.

This route involves shipping vehicles from South Korea to eastern Chinese ports (e.g., Shanghai, Qingdao), then transporting them overland to Central Asia via rail or truck

(including through the TSR), before re-exporting to Russia. Although this option leverages China's developed logistics infrastructure, its practical application remains limited due to complex customs procedures, administrative delays, and relatively high costs. As a result, it accounts for a negligible share of overall vehicle exports to Russia.

The increasing reliance on bypass routes through Central Asia is largely attributed to Russia's tightening of import regulations, the introduction of higher tariffs and scrappage taxes, and efforts by exporters to avoid direct engagement with sanctions. Direct shipping routes to Vladivostok have declined in popularity due to the rising costs and administrative burdens associated with customs clearance and port procedures.

Also, there is an estimated utilization rates by each route that we can see on the Table below.

Path	Utilization Rate	Advantages	Risks
Korea → Vladivostok → Inland Russia (Direct Route)	10%	Fastest (7-10 days), direct port entry	High shipping costs, sanctions
Korea → Vladivostok → Kyrgyzstan/Kazakhstan → Russia (Indirect/Detour Route)	75%	Lower tariffs (EAEU member), avoids sanctions	Border delays, paperwork complexity
Korea → Eastern China Port → Kyrgyzstan/Kazakhstan → Russia	5%	Dual custom clearance (Chine + EAEU)	Political sensitivity, Extra handling costs

[Table 13] Estimated Utilization Rates by Route (2024-2025)

Although transportation via Chinese ports and inland corridors theoretically offers the shortest route in terms of both time and distance, practical implementation has proven problematic. Exporters have faced ongoing issues with inconsistent administrative processing by Chinese authorities, making this option less attractive and resulting in relatively low usage rates.

Similarly, while there have been instances of vehicle exports being rerouted through Japanese ports, where shipments from Korea are combined with Japanese used cars and sent to Vladivostok, this method remains highly limited in scale. It is currently considered a supplementary route rather than a primary logistics pathway.

Beyond the closure of dealerships, the tax policy has disrupted supply chains, affected local employment, and reduced the overall competitiveness of Chinese brands such as Chery, Geely, and Haval, companies that had previously been gaining popularity among Russian consumers. As the cost of importing vehicles rises, many buyers are turning toward more affordable domestic options. For Chinese manufacturers, this means declining sales, shrinking market share, and growing uncertainty about the future of their investments in Russia. The scrappage tax has not only increased financial pressure but has also exposed the risks foreign automakers face when operating in volatile regulatory environments.

China's experience illustrates the broader challenge that exporting nations now confront. Countries like South Korea, China, and Japan, longtime exporters of automobiles to Russia must adapt to a changing regulatory landscape that increasingly favors domestic production over imports. For South Korean automakers, the situation is particularly worrisome. Already coping with global supply chain issues and evolving consumer preferences, they now face additional hurdles in the form of higher taxes and trade restrictions. Japanese brands, known for their fuel-efficient and reliable vehicles, are

similarly struggling to remain competitive against locally produced models that benefit from state incentives and reduced tax burdens.

This evolving scenario raises important strategic questions for car-exporting nations, such as how should they respond to a market that is becoming more protectionist and unpredictable. One potential strategy is to identify and expand into regions with more favorable trade conditions such as Southeast Asia, Africa, and Latin America, where demand for foreign vehicles remains strong and regulatory barriers are less severe. Another option is to localize production, either by establishing manufacturing facilities in Russia or partnering with domestic firms, to bypass import taxes and remain cost-competitive. However, such moves involve significant investment and carry their own risks, especially in politically unstable or economically uncertain environments.

Moreover, foreign carmakers may need to strengthen their market presence through enhanced after-sales service, localized marketing, and brand differentiation in order to remain relevant. These efforts will be essential to counter the growing appeal of domestic alternatives and to maintain customer loyalty in an increasingly price-sensitive market.

Ultimately, the Russian scrappage tax represents more than just a short-term policy change it signals a deeper shift in how global trade is being reshaped by geopolitics and economic nationalism. For exporters, the key to survival will lie in their ability to remain flexible, diversify their markets, and adapt quickly to evolving trade conditions. Without a proactive and well-planned response, many may find themselves losing not only ground in the Russian market but also in other countries that may adopt similar protectionist measures in the future.

	2017	2018	2019	2020	2021	2022	2023	2024
Europe	38%	36%	38%	38%	36%	45%	1%	0%
South Korea	21%	23%	23%	23%	22%	18%	6%	3%
Japan	17%	18%	16%	15%	15%	9%	4%	2%
Germany	16%	17%	18%	19%	18%	9%	4%	2%
USA	6%	5%	3%	1%	2%	1%	1%	0%
China	2%	2%	2%	4%	7%	18%	51%	62%
Russia	0%						33%	31%

[Table 14] Russia's New Car Market

Russia’s recent increase in it scrappage tax has raised concerns not only for South Korean exporters but for other countries as well. At the same time, China has emerged as the leading exporter of automobiles to the Russian market, having rapidly expanded its presence through competitive pricing and strategic market entry. According to data reported in Chinese media, Chinese car manufacturers accounted for 51% of Russia’s new car sales in 2023 a figure that underscores their growing influence.

This success can largely be attributed to their ability to offer a diverse lineup of affordable vehicles, appealing to a wide range of Russian consumers. Projections suggest that China’s market share may surpass 62% in 2024, further cementing its dominant position. This shift highlights how Chinese automakers have been able to respond quickly

to changing conditions and seize the opportunities created by the withdrawal of Western brands following the imposition of sanctions.

Despite China's strong foothold in the Russian automotive market, it too has been affected by the recent increase in the scrappage tax. While Chinese manufacturers have managed to cushion some of the impact through economies of scale and cost-effective production, the strain on profitability is still evident. The tax hike has left automakers with a difficult choice that is either absorb the additional costs themselves or transfer them to consumers through higher prices. Both options carry drawbacks: increased prices may push consumers toward more affordable domestic alternatives, while tighter profit margins could limit manufacturers' ability to invest in technological development or broaden their product lines.

This situation highlights the fragile balance that foreign automakers must maintain when operating in unpredictable markets like Russia. Nevertheless, China's growing dominance in this space is a testament to the importance of adaptability and resilience in challenging environments. For other exporters such as South Korea and Japan, who face greater barriers under current conditions, China's strategy offers valuable insights. Emphasizing innovation, controlling costs, and forming strategic partnerships may help these countries better navigate the complexities of the Russian market. However, success will depend on a proactive approach and a willingness to adjust to the rapidly evolving geopolitical and economic landscape shaping the global automotive industry.

Due to Western economic sanctions on Russia, a unique form of indirect export has emerged. A significant portion of used cars exported to Kazakhstan or Kyrgyzstan are reportedly re-exported to Russia. Historically, Russia had not imported many South Korean used cars since 2015. However, following the outbreak of the Ukraine war in February 2022 and the subsequent continuation of Western automotive sanctions, Russia

has gradually increased its imports of South Korean used vehicles. These imports occur both directly and indirectly through neighboring countries like Kazakhstan and Kyrgyzstan.

Let's take a closer look at the export volumes by country. Based on the performance from 2017 to 2023, the ranking of new car exports is led by the United States (6,378,783 units), followed by Canada (1,150,132 units) and Australia (1,084,329 units). In the case of Russia, it ranks 7th in cumulative exports over the seven-year period, but for 2023 alone, its export volume was only 808 units, placing it at 92nd. This sharp decline is due to economic sanctions that have made normal exports nearly impossible. In fact, it raises questions as to how even these 808 new cars were exported under such restrictive conditions.

However, it is expected that in 2024, the number of used car exports or the ratio of used car exports compared to new cars will not likely increase compared to the previous year. Since the beginning of the year, shipping costs have risen significantly, and export restrictions targeting Russia are becoming more concrete. The prolonged disruption of Red Sea shipping routes caused by Yemen's Houthi rebels has made securing vessel space increasingly difficult, leading to a sharp rise in maritime freight costs. Under these circumstances, it is challenging to anticipate a strong performance in used car exports for 2024.

Export destination country	New Cars				Used Cars		
	2017	2023	Total	Rank	2017	2023	Total
USA	845,319	1,305,991	6,378,783	30	1,946	2,513	14,827
Canada	144,493	218,721	1,150,132	89	15	140	313
Australia	180,152	169,206	1,084,329	132	4	10	26
UK	105,371	87,669	619,282	102	3	9	137
Germany	113,336	92,692	593,024	60	71	327	1,697
Saudi Arabia	126,669	67,046	556,979	24	90	10,464	23,821
Russia	58,195	808	403,074	14	1,130	26,955	53,891
Uzbekistan	7,257	20,241	89,861	29	323	2,278	17,936
Kazakhstan	1,953	29,297	86,687	19	311	13,439	32,769
UAE	28,481	11,129	83,309	15	2,396	21,313	45,199

[Table 15] Used Car Export to Top New Car Markets

Dwelling upon the evolution of land transportation and transit corridors it shows that after arriving at Russian ports such as Vladivostok, Nakhodka or Vostochny, imported vehicles from South Korea are delivered to central Russia by truck carriers, car transporters, or sometimes by railway platforms.

The overall route from Vladivostok to Moscow is considered one of the longest domestic logistics chains in the world, lengthening over 9,000 kilometers and crossing numerous federal highways. To trace the chronological stages of this typical transportation route, the flow initially begins with the A-370 “Ussuri” Highway, which connects Vladivostok with Khabarovsk. This highway runs along the Chinese border and

serves as the primary corridor for vehicle import flows moving from the coastal area inland. Subsequently, the logistics chain utilizes the A-375 and M-56 highways, part of the larger trans-Siberian corridor—to link Khabarovsk and Chita. This specific route crosses challenging mountainous terrain, rendering transportation highly dependent on seasonal weather conditions.

Furthermore, the R-297 "Amur" Highway extends the corridor from Chita to Novosibirsk, representing one of the most vital east-west federal routes that ensures a stable flow of goods and imported vehicles across the Siberian region. Following this, the route transitions into the M-53, M-54, and M-55 segments, which pass through key Siberian hubs such as Novosibirsk and Krasnoyarsk, thereby supporting the largest volume of logistical operations in central Russia. Finally, the journey concludes along the M-5 "Ural" Highway, which runs through Samara, Penza, and Ryazan directly into Moscow. This final leg serves as the most industrialized portion of the infrastructure, effectively connecting the Siberian and European regions of Russia.[53)]



[53)] Wikipedia (2024c), 「Russian federal highways」.

[Figure 6] Russian Federal Highways

As a result, this overland transportation plays a key part in imported vehicle distribution across Russia. Although, it can increase the delivery time and operational costs because of the long distances, road conditions as well as the weather conditions which can cause the delay of the delivery and fuel costs and expenses.

Even though these challenges exist, these routes remain the most practical, secure and most frequently used way for the imported vehicle logistics between the Far East and the central part of Russia.

Thus, after vehicles arrive at the Vladivostok port by Ro-Ro vessels or container ships, they continue their journey to central and western parts of Russia by land (trucks, car carriers etc.). The majority of vehicle carriers and transport trucks use federal highways such as the M-5 “Ural” and the M-11 “Neva” federal highways, which serve as the main logistic roads connecting the Far East with major big cities like Moscow, St. Petersburg and Kazan.



[Figure 7] Federal highway M-5

As the Figure above shows, the federal highway M-5[54] is one of the oldest and longest federal routes in Russia, lengthening more than 1,870 kilometers. It passes through important industrial regions such as Ufa, Chelyabinsk and Samara cities.

Despite the heavy traffic and seasonal weather conditions and challenges caused by these conditions, it remains the most used route for vehicle transportation because of its developed infrastructure and several rest and service zones for truck drivers.



[Figure 8] Federal highway M-11

On the other hand, the federal highway M-11 is a modern toll route connecting St. Petersburg and Moscow. It is often used for the final stage of the vehicle delivery to northern or western distribution centers. Trucks caring imported vehicles from Vladivostok typically combine parts of both highways, depending on the delivery destination and the route optimization system provide by the logistic company. [55]

[54] Wikipedia (2024a), 「M5 highway (Russia)」.

[55] Wikipedia (2024b), 「Moscow–Saint Petersburg motorway」.

Thus, this land part of delivery and transportation significantly affects the total delivery time and costs. For example, the average transit time from Vladivostok to Moscow takes from 10 to 14 days, but the time of the delivery can change due to weather conditions and customs clearance procedures at regional checkpoints. Moreover, fuel expenses, road tolls, and additional transportation fees contribute significantly to the overall logistics costs associated with indirect export routes. As transportation distances become longer and supply chains more complicated, these operational expenses continue to increase, placing additional financial pressure on exporters and logistics companies. For this reason, efficient route optimization, careful scheduling, and strategic vehicle load planning have become essential elements in reducing overall operational costs and maintaining the economic feasibility of automobile exports under the current sanctions environment.

Section 2. Comparative Analysis of Logistics Costs and Supply Volumes

To accurately measure the economic friction caused by logistics and sanctions, a price comparison is utilized. This analysis accounts for the Model Year, Mileage and Engine Power (20HP threshold) to ensure a fair market assessment against global standards.

Vehicle Model (2021-2022 MY)	Specifications	Origin Price (KRW/USD)	KBB Benchmark (USD)	Russian Retail (USD)	Primary Price Driver
Kia Morning (Picanto)	1.0L/76HP	9,500$	11,000$	17,500$	Logistics & Margin
Chevrolet Trailblazer	1.2L/137HP	16,000$	18,500$	26,00$	Below 160HP Fee
Hyundai Avante (Elantra)	1.6/123HP	15,500$	19,000$	28,500$	Standard Transit
Kia K5	2.0L/160HP	21,00$	24,000$	41,000$	>160HP Fee Jump
Hyundai Tucson	1.6T/180HP	23,000$	26,500$	44,500$	>160HP Fee Jump
Kia Sorento	2.2D/202HP	28,000$	32,000$	56,000$	>2.0L & >160HP
Hyundai Santa Fe	2.5T/281HP	30,000$	34,500$	62,000$	>2.0L & >160HP
Genesis GV80	3.0D/278HP	52,000$	58,000$	95,000$+	Luxury Tax & Fees
BMW X5	3.0L/265HP	65,000$	68,000$	125,000$+	Direct Ban & High HP

Rolls-Royce Cullinan	6.7L/563HP	380,000$	410,000$	750,000$+	Luxury Sanction Cap

[Table 16] Multi-Vehicle Price Disparity Analysis (KBB vs. Russian Retail)

The empirical data presented in Table 16 identifies a non-linear correlation between a vehicle's technical specifications and its final retail price in the Russian market. While a baseline price increase of approximately 60-80% is observed across all segments due to the transition from direct maritime routes to the Vladivostok-Bishkek Land Corridor, the most significant "price shocks" are triggered by specific regulatory thresholds. For the "Efficiency Segment," such as the Kia Morning and Chevrolet Trailblazer, the price gap remains relatively stable as these models fall below both the 2,000cc displacement limit and the 160HP power threshold. In these cases, the disparity is primarily driven by the physical costs of logistics, including the utilization of specialized car-carrying vessels and the multi-modal transit fees associated with Central Asian detours.

However, a critical "Fiscal Wall" is identified as vehicles cross the 160HP threshold, as evidenced by the pricing of the Kia K5 and Hyundai Tucson. The data suggests that Russian Decree No. 1713 functions as a primary disruptor of price parity, once a vehicle exceeds 160HP, the utilization fee undergoes a rapid increase in price. When compared against the Kelly Blue Book (KBB) global benchmark, these models exhibit a "Sanction Premium" that often exceeds 70% of the vehicle's original value.[56] This shift indicates that the current trade environment is no longer defined by the scarcity of goods, but by a deliberate fiscal strategy designed to make mid-to-high specification South Korean vehicles financially non-viable for the average consumer.

[56] Kelly Blue Book (2026), 『Automotive Fair Market Value and Used Car Pricing Guide (International Edition)』, "Used Car Values" section.

In the premium and luxury segments, represented by the BMW X5 and Rolls-Royce Cullinan, the price disparity reaches its apex, with destination prices often exceeding 200% of the KBB fair market value. For these assets, the "Sanction Premium" accounts for the extreme complexity of bypassing the 50,000$ export cap and the necessity of "gray market" documentation through third-party nations. This suggests a permanent fragmentation of the market: while low-specification cars continue to flow as essential commodities, luxury and high-performance vehicles have been forced into a high-cost "niche" economy. Ultimately, the comparison with global benchmarks confirms that the South Korean automotive sector is facing a "double-squeeze" of rising logistical overheads and aggressive destination-market taxes, leading to the "stagnation" of high-value exports identified in the research.

In Asia, the absence of countries from the top 25 exporters is likely linked to the presence of Hyundai and Kia manufacturing plants in China, India, and Indonesia, which primarily serve local markets. Meanwhile, in Africa, relatively low average income levels across many countries may explain the lower volumes of car exports.

In contrast, wealthier nations with higher new car export rates tend to have minimal used car exports. In these economically advanced countries, the ratio of used to new car exports typically falls below 1%. This pattern reflects a stronger preference for new vehicles in affluent markets, whereas used cars are in greater demand in regions with differing economic conditions and purchasing power.

Country	2019	2020	2021	2022	2023	Total	2017 vs 2023
Libya	212,314	103,083	113,021	61,841	151,464	875,533	69.4%
Egypt	11,143	14,955	28,470	38,516	59,248	180,136	382.2%
Turkey	849	3,940	35,302	40,514	65,614	147,003	11232.3%
Kyrgyzstan	15,179	4,998	4,518	23,273	51,013	110,877	1341.9%
Mongolia	15,446	12,856	17,629	8,952	16,504	95,734	60.5%
Tajikistan	5,064	9,769	9,326	16,267	21,434	66,873	1172.0%
Russia	1,234	1,215	2,359	19,626	26,955	53,891	2285.4%
UAE	3,237	2,826	4,020	8,872	21,313	45,199	789.5%
Azerbaijan	312	1,933	7,584	10,975	18,236	39,742	37891.7%
Kazakhstan	1,392	3,257	4,017	9,539	13,439	32,769	4221.2%
Other Countries	141,600	149,431	149,715	75,176	61,313	577,235	-
Total	413,745	317,241	391,644	338,015	503,105	2,063,750	-

[Table 17] Top 20 Used Car Export Destinations

The data shows a massive jump in car volumes going to Kyrgyzstan. However, we must analyze this carefully. Before the sanctions, people cleared customs in Russia to save time.

Now, after sanctions, they clear customs in Kyrgyzstan to save money and bypass the 'Luxury' and '2.0L' bans.

Unlike new cars, the volume of used car exports in 2023 has seen an extraordinary increase compared to 2017. While the growth rates in major export destinations such as Libya and Jordan are notable at 69.4% and 54.7%, respectively, other countries have experienced even more dramatic surges. For instance, Egypt's used car imports grew by 3.8 times, and Turkey's by an astounding 112.3 times. Similarly, countries like Kyrgyzstan, Tajikistan, Russia, the UAE, Azerbaijan, Oman, Kazakhstan, and Ukraine have also seen their import volumes increase by tens of times.

For example, in early 2025 over 45,000 units were sent to this region, but the local market in Kyrgyzstan cannot absorb that many cars. This proves, that the 'Land Transportation' routes are working as a bridge. The volumes have not disappeared; it has simply 'migrated' to these indirect routes to avoid the high costs of containers and the legal difficulties of direct shipping.

However, not all countries followed this upward trend. Several markets, including Yemen, Ghana, Cambodia, the Dominican Republic, and the Philippines, experienced significant declines in used car imports between 2017 and 2023, ranging from 50% to 70%. This decrease appears to be primarily driven by adverse economic conditions, which have reduced consumer purchasing power, rather than by direct import restrictions.

Overall, the used car export market has shown remarkable growth in many regions, driven by varying economic factors and demand dynamics. However, the contrasting declines in certain countries highlight the significant impact of local economic stability on import trends.

Among the countries highlighted in the table below, several have distinct reasons for their notably high ratios of used car exports. In Russia, the ongoing conflict in Ukraine

and the impact of Western economic sanctions have led to a substantial increase in used car imports from South Korea. Chile serves as an exception due to its Iquique Free Zone in the north, established to stimulate regional economic growth; used cars exported here are either used locally or re-exported to neighboring nations.

Turkey's figures are somewhat inflated because vehicles intended for Syria, where import restrictions are lifted due to the ongoing war, are offloaded and processed through Turkish ports. Reports indicate that Turkey itself does not have significant used car exports. Similarly, Kazakhstan's high used car export volumes largely reflect vehicles passing through the country on the wat to Russia.

In Saudi Arabia, the used car export ratio ranges between 5% and 15%, driven in part by the sizeable population of foreign workers, including many from India and Pakistan, who tend to favor used cars for economic reasons.

Country	2017~2024 Total Export Volume			2024 Total Export Volume		
	New Car	Used Car	Used Car %	New Car	Used Car	Used Car %
USA	7,811,496	17,044	0.2%	1,432,713	2,217	0.2%
Canada	1,382,565	415	0.0%	232,433	102	0.0%
Saudi Arabia	621,939	33,226	5.3%	64,960	9,405	14.5%
Russia	403,074	81,992	20.3%	0	28,101	
Chile	252,616	148,571	58.8%	16,309	13,259	81.3%
Iraq	246,979	10,135	4.1%	37,959	2,227	5.9%
Mexico	214,984	3	0.0%	21,371	1	0.0%
Turkey	183,030	221,077	120.8%	34,474	74,074	214.9%
Kazakhstan	126,642	51,069	40.3%	39,955	18,300	45.8%

Other Countries	13,974,105	27,998	0.2%	2,429,919	2,820	0.1%
Total	16,492,208	578,031	3.5%	2,694,468	149,289	5.5%

[Table 18] New Car Export Volume

The following data shows the new car export volumes for the top 25 countries by used car exports. On average, used car exports account for less than 20% of new car exports globally. However, the countries mentioned above exhibit used car export ratios that are tens or even hundreds of times higher.

In 2024, for instance, no new cars were exported directly to Russia, whereas used car exports reached 28,101 units. Albania, which has recently experienced a surge in demand, imported just two new cars compared to 25,641 used vehicles. Similar patterns are observed in other countries: Madagascar received 25 new cars versus 7,771 used ones; Yemen imported 30 new cars compared to 5,038 used cars; and Kyrgyzstan saw 309 new vehicles against a remarkable 80,558 used cars. Additionally, nations such as Tajikistan, Mongolia, and Libya exhibit a notably high ratio of used car exports relative to new car shipments. These figures underscore the distinctive market dynamics surrounding used cars in certain regions, influenced by a combination of economic conditions, regulatory environments, and geopolitical factors.

The logistical shift to the Bishkek corridor is also a strategic response to Russian Decree No. 1713. By routing vehicles through Kyrgyzstan, importers attempt to manage the valuation basis of the vehicle before it enters the Russian fiscal jurisdiction. As shown in the cost comparison, the increase in the utilization fee, which can now range from 5,000$ to over 15,000$ depending on the engine size and age, has made direct 'in-the-forehead' customs clearance through Vladivostok mathematically impossible for mid-range sedans and SUVs.

Although offering lower sanction risks, the Container from China, has become economically unviable for the mass-market due to prohibitive cost (approximately 5,000$ per unit) and excessive lead times of up to 60 days. This financial pressure, compounded by the rising vehicle prices and Russian utilization fee (Decree No. 1713), has forced a 'market migration' toward the Kyrgyzstan Land Corridor.

Based on this updated law we should also update Table 8 from Chapter III and reorganize it accordingly:

Model	Engine Size	KR Export Status	RU Import Status (Decree 1713)	Overall Market Status
Kia Morning	1.0L	Permitted	Low Fee	Very Strong
Kia K5	2.0L	Permitted	High Fee Increase	Weak (Price Sensitive)
Kia Sorento	2.2L	Banned	Critical Fee Increased	Halted (Legal/Fiscal Block)
BMW X4	2.0L	Price Blocked	High Fee Increase	Halted (Price/Fiscal Block)

[Table 19] Current Logistic Shift

The data presented in the Table above clarifies the strategic rationale behind the current logistical shifts. While Direct Ro-Ro remains the most cost-effective method (500-600), its high 'Sanction Exposure' at major Russian ports like Vladivostok has made it a liability for high-value or restricted car classes.

The third option represents a calculated trade-off, such as exporters accepted higher transit risks (theft or damage during shipment) and moderate costs in exchange for a

significantly lower regulatory profile. By utilizing Kyrgyzstan as a transit hub, market players can effectively manage customs valuations and bypass the 'direct-to-Russia' markets that trigger immediate sanction enforcement. Thus, the evolution of land transportation is not a sign of logistical efficiency, but a survival strategy driven by a need to maintain a 10-15% profit margin in an increasingly restrictive fiscal environment.

Currently, it can be observed that before the sanctions, the main logistic route for exporting South Korea's vehicles to Russian car market was direct Ro-Ro line from Busan port to Vladivostok port. Thus, this route ensured safe and fast delivery and least customs complications.

After the introduction of the sanctions, many importer companies began to change the shipment routes and change them to Chinese and Central Asians, as it has been mentioned above, hubs such as Dalian (China), Qingdao (China) and Almaty (Kazakhstan). This change resulted in much longer delivery time and higher transportation costs because of the additional border checks and re-export procedures.

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Period	Main Route	Transportation Method	Average Delivery Time	Approx. Cost per Vehicle (USD)	Main Characteristics
Before Sanctions	Busan → Vladivostok → Moscow	Ro-Ro shipping + Rail	18-25 days	~1,200-1,500	Direct sea route, stable customs procedures
After Sanctions	Busan → Dalian (China) → Kazakhstan → Russia	Container shipping + Truck	30-40 days	~2,000-2,800	Longer route through China, additional costs at custom clearance
After 2024 (Current Trend)	Busan → Qingdao → Almaty (Kazakhstan) → Moscow	Mixed (Container + Truck)	25-32 days	~1,800-2,200	More optimized transit through Central Asia

[Table 20] Logistics Routes Before and After Sanctions

As of the end of 2025, logistics have become more stable, with a big variety of different types of combined routes such as combining container and truck transport to reduce costs and time.

This table shows us a steady and gradual reduction in logistic costs for alternative routes through Qingdao (China) and Central Asian, especially through Almaty (Kazakhstan) to 2023. While direct routes to Vladivostok have become rather expensive because of port

congestion and limited Ro-Ro capacity, routes based on land through China and Kazakhstan are becoming more efficient and economically viable.

Route	2023 Avg. Cost (USD)	2024 Avg. Cost (USD)	2025 Avg. Cost (USD)	Change (%)
Busan → Vladivostok	~1,500	~1,700	~1,900	+26.7%
Busan → Dalian (China) → Russia	~2,300	~2,100	~1,950	-15.2%
Busan → Qingdao → Almaty (Kazakhstan) → Moscow	~2,600	~2,300	~2,100	-19.2%

[Table 21] Comparison of Vehicle Transportation Costs by Route (2023-2025)

Looking at current situation as of 2025, compared to the previous analysis, transportation routes through Qingdao (China) and Central Asian, especially through Almaty (Kazakhstan) are increasingly used because of the improved infrastructure and faster customs procedures. However, the direct route through Vladivostok remains the shortest and fastest, its cost advantage has declined drastically. Mixed logistic routes which combine sea plus rail plus truck now provide an optimal balance between cost and shipment speed.

In the context of automotive logistics, it is critical to distinguish between general cargo shipping and specialized maritime transport. While traditional Ro-Ro (Roll-on/Roll-off) methods were the baseline for pre-sanction trade, current logistics focus heavily on Pure Car Carriers (PCC) and Pure Car and Truck Carriers (PCTC).

These specialized vessels are designed specifically for the high-volume transport of vehicles, providing the necessary protection and handling efficiency that general cargo ships lack. The reliance on these specialized vessels has become a strategic constraint under the current sanction policies. Because these ships require deep-water port infrastructure and specialized docking facilities, exporters are limited in their ability to "bypass" major ports. This technical requirement explains why trade has consolidated around specific "gateway" ports rather than dispersing across smaller, less regulated maritime routes.

In summary, this chapter has answered the third research question by proving that logistics did not stop because of sanctions; they simply became more creative. We have compared (5,000$) with the more efficient Ro-Ro route through Vladivostok and Bishkek. This shows that the market has adapted by using Central Asian countries as a ‘buffer zone’.

The logistics analysis indicates that the choice of transport mode has shifted from cost-efficiency to risk-mitigation. This directly addresses the research question concerning the transformation of physical supply chains under sanctions.

Chapter 5. Market Adaptation and Future Outlook

Section 1. Market Forecasts and Corporate Adaptation Strategies

Looking at the future, the 'Central Asian Route' is no longer just a temporary fix, it has become a permanent part of the export strategy. As long as the 2.0L engine sanction remain, countries like Kyrgyzstan will continue to act as the main gateway for South Korean cars entering the Russian market.

However, we must be realistic. While the Vladivostok-Bishkek route is currently the most cost-efficient way to move cars like BMW X6 and SUVs, it depend entirely on the political relationship between Russia and its neighboring countries. If custom rules in the Eurasian Economic Union (EAEU) becomes stricter, the 10,000$-15,000$ tax savings we see today might disappear. Therefore, exporters must prepare for a future where logistics costs might rise again, making the business more and more difficult.

The outlook for South Korean car exports is currently defined by a "Double Pressure' system which means the international sanctions from the origin and aggressive fiscal barriers from the destination. A critical turning point occurred in December 2025, when the Russian Federation revised Decree No.1713[55], shifting the calculation of the utilization fee from simple displacement to a horsepower (HP) threshold.

For years, the market relied on 'meeting sanction criteria' cars (3-5 years) which enjoyed a preferential rate of approximately 5,000 rubles. However, the new regulations state that any new car exceeding 160 HP (horse powers), even if it's within the sanctioned 2.0L engine limit (e.g. BMW X3 or high-trim Kia K5), is subjected to a commercial fee increase, increasing to over 600,000 Rubles.

Furthermore, the industry anticipates a final closure of the 'Kyrgyzstan loophole' by April 1, 2026. This policy will require the repayment of all customs savings

(approximately 10,000$-15,000$ per unit) upon entering the Russian territory. These combined factors suggest a looming crisis for the export sector, where even non-sanctioned cars may become economically unviable due to domestic Russian tax hikes.

Empirical evidence from major South Korean export firms indicates a sharp decline in sales and a corresponding drop in domestic auction prices for high-performance vehicles. As the cost of 'legalization' in Russia now rivals the car's purchase price, a market splitting is occurring, which means the demand is surging for low-displacement, low-horsepower units (e.g., Kia Morning, Chevrolet Trailblazer 1.2L), while mid-to-high range inventory is facing liquidity crisis. This suggests that the future of the sector lies not in luxury or power, but in absolute fiscal compliance with the <160 HP threshold.

Regulation Milestone	Specific Metric	Impact on Export Model	Market Sentiment
Decree 1713 (December 2025)	>160 Horsepower (HP)	High-spec sedans/SUVs (e.g. BMW, Genesis)	Market Collapse for premium units
Engine Cap	>2,000cc Displacement	Family SUVs (Sorento, Santa Fe)	Forced transit via 3rd countries
Future Policy (April 2026)	Abolition of Kyrgyzstan Customs Benefit	All transit-based exports	End of the 'Bishkek Route'

[Table 22] Fiscal Barriers Analysis (2025-2026)

This following paragraphs below outlines the key logistical limitations currently affecting the industry, as well as potential challenges that may arise in the future.

First, the infrastructure constraints and port congestion.

A major obstacle for Roll-on/Roll-off (Ro-Ro) shipping to Russia lies in the insufficient infrastructure at key Russian ports. While ports such as St. Petersburg and Vladivostok play important roles in handling car shipments, they frequently experience congestion caused by outdated facilities and limited capacity. These issues are compounded by an aging fleet of Ro-Ro vessels and the fact that some Russian ports cannot accommodate newer, larger ships. As a result, unloading and processing times are often delayed, lengthening the total transit period for vehicles.[57)]

Additionally, regional ports that are critical for distributing cars across Russia's vast territory remain underdeveloped. The absence of efficient infrastructure to facilitate rapid transfers from sea to land transport leads to further delays once vehicles reach port. This lack of efficiency increases operational costs and restricts the supply chain's flexibility.[58)]

Second, the impact of international sanctions and trade restriction.

Economic sanctions imposed by Western countries on Russia have significantly disrupted the logistics of car exports. With Russia's access to major European ports and financial networks effectively cut off, exporters have had to turn to alternative routes, often passing through Asian ports or smaller, less efficient harbors[59)]. This shift has not only driven up logistics costs but also introduced new challenges due to the reliance on underdeveloped transportation corridors.

In addition, ongoing political tensions have created a climate of uncertainty for logistics providers, making it difficult to anticipate changes in regulations or potential new restrictions. Such unpredictability results in higher compliance expenses, delays in customs clearance, and increased risks of interruptions in the shipping process.

[57)] Journal of Russian Trade (2022), 「Port Infrastructure and Shipping Bottlenecks in Russia」.

[58)] Russian Economic Review (2022), 「Infrastructure Gaps and Port Congestion in Russia」.

[59)] International Trade Policy Journal (2023), 「Sanctions and Their Impact on Russian Trade」.

Third, inadequate cold chain management for high-end vehicles.

With the rising demand for luxury and electric vehicles, logistics providers face growing challenges in managing cold chain requirements to protect these high-value products during transport. Roll-on/Roll-off (Ro-Ro) vessels, which are commonly used for large-scale shipments, often lack the specialized infrastructure needed for climate-sensitive cargo like electric vehicles and those equipped with advanced battery systems.[60] The absence of temperature-controlled containers and storage on these ships can increase the risk of battery damage or other types of deterioration, especially when vehicles are subjected to extreme weather or temperature fluctuations throughout the shipping process. Fourth, the environmental concerns and sustainability issues.

Growing global focus on environmental sustainability has brought increased scrutiny to the carbon emissions produced by the shipping industry. Although Roll-on/Roll-off (Ro-Ro) shipping remains a cost-effective method, it contributes substantially to CO2 emissions because it relies on large ships powered by heavy fuel oils. As environmental regulations become more stringent, shipping companies are likely to face greater pressure to adopt cleaner alternatives, including low-emission fuels or hybrid-powered vessels. For car exports to Russia, such regulatory shifts could raise operational costs and encourage exporters to consider greener transportation options, like rail freight or electric vehicles for land delivery.[61]

This paragraphs below explore potential future alternatives relevant to the topic of this thesis, highlighting possible developments, strategies and directions based on current trends and challenges.

First, the expansion of rail transport via the Trans-Siberian route.

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[60] Logistics Today (2021),「Cold Chain Logistics for High-Value Exports」.

[61] Shipping Innovations Journal (2022),「Environmental Regulations and Green Shipping Technologies」.

Rail transport presents a compelling alternative to traditional Roll-on/Roll-off shipping. The Trans-Siberian Railway, renowned as one of the world's longest rail corridors, has increasingly been used for freight, including the export of cars from South Korea to Russia. Rail offers notable advantages such as faster transit times and greater reliability, especially in regions where port infrastructure is either underdeveloped or congested.

The expansion of rail connectivity under China's Belt and Road Initiative (BRI) has further strengthened links between Asia and Russia, enhancing the appeal of rail transport for automobile exporters. Unlike sea routes, rail is generally less affected by weather-related delays, and ongoing upgrades to rail infrastructure promise to shorten shipping times considerably. Additionally, rail shipments provide improved cargo tracking and visibility, which can boost supply chain management and ultimately enhance customer satisfaction.[62)]

Second, the air freight for high-value and time-sensitive shipments.

While air freight is expensive, it is increasingly being considered as a viable option for high-value or time-sensitive car exports. The growing demand for luxury, electric, or limited-edition vehicles has led some car manufacturers to consider air freight for faster delivery to Russia, particularly for exclusive models or for vehicles in high demand.[63)]

Air-freight provides the key benefit of much faster delivery compared to traditional Roll-on/Roll-off shipping. As air cargo logistics improve and Russia's network of cargo hubs expands, this mode of transport may become increasingly appealing for shipping a wider variety of car models. Nevertheless, the relatively high costs associated with air freight mean it is likely to remain a specialized option, reserved for particular market segments where speed is a critical factor.

[62)] Trans-Siberian Railways Review (2021), 「Rail Transport as an Alternative for Car Exports」.

[63)] Air Freight Journal (2022), 「The Role of Air Freight in the Export of Luxury Vehicles」.

Third, the adoption of autonomous vessels and drones.

Looking ahead, the adoption of autonomous vessels and drones could significantly transform the logistics involved in car exports. AI- and IoT-enabled autonomous ships have the potential to enhance Roll-on/Roll-off (Ro-Ro) shipping by minimizing human error, optimizing fuel efficiency, and boosting safety measures.[64] These vessels might also handle challenging weather conditions more effectively, reducing delays and ensuring smoother transport operations overall.

On a smaller scale, drones could become a valuable tool for last-mile delivery from Russian ports to dealerships or even directly to customers. Although drone-based logistics are still developing, advancements in this technology may offer a cost-efficient way to reach remote parts of Russia where traditional transport infrastructure is lacking. This innovation could help overcome some of the geographic challenges currently faced in distributing vehicles across vast regions.

Fourth, the development of green shipping technologies.

As environmental regulations tighten worldwide, the advancement of greener shipping technologies presents an opportunity to lessen the ecological footprint of automobile exports. Innovations such as hydrogen-powered vessels, wind-assisted propulsion systems, and biofuel-fueled ships are gaining attention within the maritime industry.[65] These approaches not only help reduce carbon emissions but also have the potential to lower operational costs over time for exporters.

In the case of car exports from South Korea to Russia, embracing such green technologies could play a vital role in meeting international environmental standards

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[64] Maritime Technology News (2023), 「Autonomous Shipping and the Future of Logistics」.

[65] Global Shipping Sustainability Review (2023), 「Green Shipping Technologies: The Future of Sustainable Logistics」.

while minimizing the shipping sector's overall environmental impact. Additionally, incorporating hybrid or electric vehicles for last-mile delivery could further decrease the carbon emissions associated with land transportation.

Despite ongoing challenges ranging from infrastructural bottlenecks and sanctions to environmental concerns, there are promising alternatives emerging. Expanded use of rail transport, air freight options, and the integration of autonomous and eco-friendly shipping technologies all offer potential paths to improve the efficiency, reduce costs, and enhance the sustainability of South Korea's car export logistics.

In the short term, optimizing the use of existing Ro-Ro shipping methods and improving rail infrastructure will be key to addressing the current limitations. In the long term, however, innovation in autonomous systems, air freight, and green technologies could reshape the logistics landscape, offering more efficient and environmentally friendly alternatives for transporting vehicles to Russia.

Section 2. Policy Suggestions for the South Korean Export Sector

For the South Korean export car industry to survive, it must stop relying on 'loopholes'. My suggestion is for the exporters to diversify their markets. While the current Bishkek-Vladivostok triangle works for now, the high risks of land transportation, such as damage during the long car-carrier shipping from Novosibirsk, show that this is a fragile system. South Korea should look into formalizing trade agreements with Central Asian countries to stabilize these routes, ensuring that the 200,000 Rubles transport costs do not fluctuate wildly due to local political changes.

Taking into consideration the current situation and challenges in South Korea's used car export market it could be mentioned that after the peak demand during spring 2025, Korea's used car market has slowed down. In the domestic market, trading activity started weakening around mid-April and dropped more noticeably in May. While there's no

official data yet, information from the "AutoDealer" system shows that about 80,000 used cars were sold in May, which is a 12% drop compared to April (around 91,000 cars) and over 15% less than March (94,000 cars), which was the high season. [66)]

	2023		2024		2025		2025 Increase/Decrease	
							VS 2023	VS 2024
	April	Jan-Apr	April	Jan-Apr	April	Jan-Apr	Jan-Apr	Jan-Apr
Export Value	399,953	1,492,517	390,686	1,430,433	761,420	2,485,509	66.5%	73.8%
Export Volume	50,341	187,443	54,219	194,658	80,508	296,704	58.3%	52.4%
Price per Unit	7.9	8.0	7.2	7.3	9.5	8.4	5.2%	14.0%

[Table 23] Yearly Comparison of Export Performance (January-April Cumulative)

First, there is an expected decline in used car export performance, which means that there is no official data yet for used car exports in May, but judging from falling auction prices and trends on platforms that buy cars directly, it's likely that export performance also went down in May. Since export numbers from January to April were extremely high,

[66)] Platforms & Portals (n.d.), 『Auto Dealer Vehicle Sharing System』.

a slowdown in May seems natural. Especially concerning is the big drop in purchase prices of cars headed to Syria, which may signal a sharp decrease in exports to that country.

It's normal for markets to go up and down. It could be hard to always judge performance based on the best months. However, it's hard to know what counts as "normal." That's why when setting goals, people often use terms like "conservative" or "optimistic."

For reference, if the strong export trend from early 2024 continues, the total yearly export volume could reach 890,000 cars and 10 trillion won in value. But this is unlikely since most exports happen in the spring, and the summer and winter seasons are usually slower. Still, it can be hard to assume that it's impossible, because the full potential of South Korea's used car export market is still unknown. Many de-registered vehicles are sitting unsold, which suggests there's still untapped supply. Now is a good time to ask what improvements are needed to make Korea's used car exports more stable and valuable. The media has already talked a lot about why exports increased so rapidly, but to keep the trend going, we must think about realistic solutions and systems. We also need to prepare for possible future shocks, like an end to the war-related demand, sudden changes in exchange rates, or a spike in shipping costs. Thinking ahead now could help reduce damage later.

Second, there is a constantly growing attention on the used car market. In the second half of 2024, the Korea Institute for Industrial Economics and Trade (KIET) released a report called "Key Issues and Policy Suggestions for the Used Car Export Market." This was likely the first government-level study of the market.[67] The report used SWOT analysis to point out problems and give ideas to improve Korea's competitiveness. It emphasized the need for infrastructure, digital tools, and administrative support. On May

[67] KIET (Korea Institute for Industrial Economics and Trade) (2023), 『Major Issues and Policy Implications of the Used Car Export Market』.

30, the Korea Automobile Research Institute published a shorter report comparing Korea's market with Japan and China. It also stressed the importance of improving both hardware and software systems for better efficiency. The fact that public and private institutions are now paying attention to this market is a big step forward. It shows the market has potential and that businesses can grow and profit in the future.

Third, there is a need for market systemization and upgrades. Even though the market has seen record-high export numbers recently, it's unclear if this growth is due to strong systems or just a temporary war-driven boom. Visiting export lots in Songdo shows little improvement in facilities or systems. Most companies still manage sales with basic Excel files, not proper software. The proposed "Incheon Smart Auto Valley" export complex hasn't made visible progress, even though interest is high. But when everyone is responsible, no one truly takes charge. That's what seems to be happening now.

Below are some practical suggestions for improving used car exports, based on KIET's policy directions:

In terms of hardware improvements, the first priority is to Develop Multiple Medium-Sized Export Lots. Large export complexes are good for attracting buyers and managing inventory but building them is expensive. In contrast, Incheon's current lots work well mainly because the rent is low. If it's hard to build big complexes like Smart Auto Valley, it can be considered creating several mid-sized export lots (5,000-20,000 ㎡). These can be located in underused warehouse areas in Incheon or nearby cities like Gimpo, Paju, Ansan, or Hwaseong. A shared online system for checking available cars could help reduce inconvenience for buyers.

Simultaneously, it is crucial to Promote ERP Systems for Export Management. Unlike domestic used cars, there's no proper system for tracking exported cars. The whole process from purchase to deregistration, shipping, and final sale is managed manually.

Creating an ERP (Enterprise Resource Planning) system for exports would help businesses work more efficiently and keep better records. This would also allow exporters to share inventory online, which could be a useful marketing tool.

Furthermore, the government should Consider Export Business Licensing. In April, a new bill was proposed to turn used car exporting into a licensed business. The goal is to improve oversight while offering more support to reliable businesses. While this might feel like extra regulation, it could also bring benefits like access to support policies and greater trust. Licensing could be required only for businesses that export more than 5-10 cars a year. This approach would limit the burden on small operators. Also, shared office spaces and legal partnerships could help smaller players meet the requirements.

Shifting the focus to software improvements, a key initiative is to Introduce a Quality Disclosure System. Used cars for export can't realistically come with warranties. But sellers should be required to share all known issues before the sale. If something important was missed, a small compensation could be arranged later. This system would be more effective if launched alongside business licensing.

In tandem with this, the state should Provide Financial Support for Vehicle Purchases. Exporters often can't afford to buy and stock high-value cars, so they act more like agents. Most cars going to Russia are not pre-owned by Korean exporters they're just helping with transactions. Giving financial support, like loans backed by deregistered vehicles, could help exporters shift from agents to real sellers.

Another critical administrative step is to Improve the Deregistration Process. During export booms, deregistration has sometimes been delayed due to long wait times. Online deregistration was suggested but rejected, as deregistered cars must return license plates. However, if export businesses become licensed, they could be allowed to use an online system like junkyards already do.) Build a Mileage Verification System

Additionally, it is necessary to Build a Mileage Verification System. Mileage tampering has mostly disappeared in domestic sales but may still exist in exports. Some foreign buyers could still be manipulating odometers after deregistration. Such acts can damage the reputation of South Korean used cars. Japan solved this by building a mileage history system linked to auctions.[68] Korea could develop something similar, especially since most used cars are bought through auctions or platforms.

At the enterprise level, strategic advancements must begin as companies Move Beyond Agent-Based Exporting. Many Korean exporters only connect buyers and sellers, instead of buying cars themselves. Because they lack capital, they focus on quick, low-margin deals. However, those who manage to stock cars and directly sell to fixed buyers can avoid price wars and increase profits.

Alongside operational changes, the industry must Ensure Tax Transparency. Some companies inflate purchase prices to get higher VAT refunds. While rare, this is illegal and has led to tax investigations and arrests. Proper financial reporting is essential for the industry's health.

To compete effectively, the sector needs to Scale Up and Grow Stronger Companies. Korea has some large domestic used car sellers, but few big players in exports. Even companies with high revenue may split their business into smaller entities to manage taxes more easily. Export businesses must grow into proper mid-sized companies to compete globally. Some companies that saved money during the recent boom have already invested in new facilities. They need continued support to grow.

This scaling process can be accelerated if institutions Create a "Used Car Export Business School". Most exporters learned the business by trial and error. But as the market

[68] Ministry of Internal Affairs and Communications Japan (2024), 『International Trade Statistics Database (KM Search System)』

changes and deals become more complex, proper training is needed. A structured education program could teach car inspections, paperwork, marketing, and market development. Similar programs have existed before, run by the Incheon Chamber of Commerce and Seoul City. A new program could be developed by Incheon city or the port authority with help from export associations.

Finally, stakeholders should collaborate to Establish an Export Market Development Committee. Some export business groups already exist, but they lack real power. A special "Used Car Export Market Committee" could help address real-world problems and long-term strategies. With some government support, this could become a valuable tool for policy development and business growth.

The future trends in sanctions, particularly in relation to car exports and the automotive industry, are shaped by both evolving geopolitical dynamics and the shifting global trade environment. As of 2024, sanctions remain a critical tool used by many countries, particularly the United States, the European Union, and other Western powers, to influence and restrict trade with nations like Russia, North Korea, and Iran. However, it is evident that the landscape of sanctions is poised for several changes over the next few years, influenced by the following factors:

First and foremost, the expansion of secondary sanctions. Secondary sanctions, which target foreign companies and individuals doing business with sanctioned entities, are expected to become more common. As countries like Russia develop new trade relationships beyond Western partners, efforts to broaden sanctions are intensifying. The goal is to increase pressure by not only restricting the sanctioned nations themselves but also penalizing their trading partners, thereby discouraging others from engaging in transactions that could weaken the sanctions' impact. For example, the United States has already applied secondary sanctions to Chinese firms suspected of supporting Russia's

military activities. This trend could increasingly affect the automotive sector, where manufacturers of essential components such as chips and batteries may face heightened scrutiny to ensure compliance with sanctions regulations.[69)]

Additionally, the increased use of digital and technological sanctions. As technology becomes ever more integral to the global economy, it is expected that sanctions focusing on digital technologies, software, and advanced components will increase. The automotive sector is especially at risk because of its growing dependence on electronics, artificial intelligence, and autonomous driving systems. Future sanctions might specifically target certain vehicle models or critical parts, such as sophisticated navigation equipment, electronic control units (ECUs), and batteries used in electric vehicles. With ongoing advancements in smart car technologies, connected vehicles, and autonomous functions, countries imposing sanctions are likely to broaden their lists of restricted technologies, which could have significant consequences for automotive exports.[70)]

Moreover, there is a shift toward multilateral sanctions. Looking ahead, there may be a move away from unilateral sanctions toward more coordinated, multilateral frameworks. While countries like the United States and members of the European Union have often imposed sanctions independently, particularly against nations such as Russia and Iran, there is growing momentum for broader international alignment. Multilateral sanctions are generally viewed as more impactful, especially when it comes to limiting trade and the transfer of technology in sectors like automotive manufacturing, where supply chains span multiple countries. However, this kind of international cooperation could present new difficulties for manufacturers. Companies would not only need to comply with the laws of individual countries but also carefully navigate complex international agreements

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[69)] WTO (World Trade Organization) (2023b), 「The Impact of Sanctions on Global Trade」.

[70)] Digital Matter (2023), 「Logistics Management and the Future of IoT Devices」.

and overlapping sanctions systems. This added layer of regulation could increase the burden on compliance teams and require more sophisticated risk management strategies.

Next, there is an impact of climate change and green technologies on sanctions. The growing global emphasis on environmental sustainability is beginning to shape not only industry practices but also international policy, including the use of sanctions. As more countries invest in green technologies such as electric vehicles (EVs) and renewable energy, there is a possibility that sanctions could be used to discourage the production or export of vehicles that do not align with global climate objectives. At the same time, as the automotive sector increasingly shifts toward electrification, sanctions may become more focused on countries whose economies are closely tied to fossil fuels or high-emission industries. For example, major oil-exporting nations like Russia and Saudi Arabia could eventually be targeted by climate-related trade restrictions, as part of broader efforts to curb global carbon emissions and encourage cleaner alternatives. This shift would add a new dimension to the existing sanctions landscape, blending environmental goals with economic and political strategy.[71)]

Shifting focus to the more stringent enforcement and monitoring mechanisms is also an option. As international sanctions continue to expand and global supply chains become increasingly complex, the tools used to enforce these restrictions are also expected to grow more advanced. Emerging technologies such as blockchain, digital currencies, and enhanced financial monitoring systems are likely to play a bigger role in tracking the flow of goods, including automobiles and their components. These developments aim to ensure stricter compliance with international regulations and reduce the chances of unauthorized trade. For companies operating in the automotive industry, this could pose new challenges,

[71)] Global Logistics News (2022), 「How Sanctions Affect Ro-Ro Shipping to Russia」.

particularly since many rely on parts and raw materials sourced from multiple countries.[72]. Enhanced transaction monitoring may also lead to more detailed investigations into deals involving high-end or performance vehicles, especially those that could be linked to dual-use technologies. As a result, the room for maneuvering around sanctions is likely to shrink, and companies will need to stay alert to avoid legal and financial risks.

Also, there is an economic shifts and sanctions relief. While sanctions are a key tool for international diplomacy, there is always the possibility that sanctions will be lifted or eased in the future as a result of changing political and economic conditions. In the case of Russia, the ongoing conflict in Ukraine has led to the imposition of extensive sanctions, but political developments or negotiations may eventually lead to partial relief, especially if economic pressures begin to affect the global economy.[73] The easing of sanctions could have a significant impact on the automotive industry, especially if trade routes are re-opened and companies can once again export vehicles to previously sanctioned markets.[74]

Lastly, the geopolitical tensions and the role of china. China's expanding presence in global trade has started to reshape how sanctions operate, especially when it comes to countries like Russia and Iran. As Beijing continues to strengthen its economic and political ties with nations facing Western restrictions, its stance becomes increasingly important. China has often taken a critical view of sanctions driven by the U.S. and its allies, and as its global influence grows, the sanctions landscape is expected to become even more complicated. In some cases, Chinese businesses may act as go-betweens, supplying goods, technologies, or even vehicles that sanctioned countries can no longer receive through traditional channels. This kind of indirect trade could prompt

[72] Automotive Logistics (2022), 「Understanding the Challenges of Ro-Ro Shipping」.

[73] WTO (World Trade Organization) (2023b), 「The Impact of Sanctions on Global Trade」.

[74] Acropolium (2023), 「IoT in Transportation and Logistics: Boosting Supply Chain Visibility」.

policymakers to introduce sanctions that specifically target companies in China or in third-party nations involved in such transactions. If this happens, it would add further uncertainty and difficulty to international trade in the automobile sector and beyond.[75)]

Also it's worth to mention that current trends for transaction payment are constantly changing sue to the geopolitical situation in the world.

To begin with, there is SWIFT network limitations. As of 2025, the majority of major Russian financial institutions, including the central bank and leading commercial banks, remain excluded from the SWIFT international payment system due to ongoing sanctions imposed by Western countries. While exceptions previously existed, such as limited access for energy-related transactions through institutions like Sberbank and Gazprombank. These privileges have been increasingly restricted. Although remittances can theoretically still be conducted through smaller regional banks in Russia, direct access to Western financial institutions remains largely blocked. In practice, exporters have turned to intermediary financial institutions in Central Asia (e.g., Kazakhstan, Kyrgyzstan, Tajikistan) or countries in the Middle East and China to facilitate cross-border transactions.

Furthermore, the Rise of Stablecoin Transactions: Tether (USDT). Between 2024 and 2025, the use of stablecoins, particularly Tether (USDT), has become increasingly prevalent in trade settlements involving Russia. Tether, a cryptocurrency pegged to the U.S. dollar, offers the advantage of speed, borderless access, and limited exposure to conventional financial sanctions. It is especially popular in sectors such as used car trade, heavy machinery, and energy products.

[75)] PackageX (2023), 「IoT and Logistics: Revolutionizing the Supply Chain」.

The payment process using Tether (USDT) typically involves several key steps that facilitate cross-border transactions under sanctions. First, the South Korean exporter or broker provides the Russian buyer with a designated digital wallet address capable of receiving USDT. The buyer then purchases Tether locally, often using rubles or yuan, through either a cryptocurrency exchange or an over-the-counter (OTC) agent. Once the USDT is acquired, it is transferred to the South Korean party via blockchain-based platforms. Upon receipt, the exporter converts the USDT into Korean won using domestic cryptocurrency exchanges, thereby completing the transaction. This method enables relatively swift payments while bypassing conventional banking restrictions imposed by international sanctions.[76)]

This process requires users to complete exchange registration, undergo Know Your Customer (KYC) verification, and pay service fees. In some instances, intermediaries handle these procedures on behalf of clients.

Dwelling upon the legal ambiguity it's quite hard to be sure, but while neither South Korea nor Russia has explicitly banned the use of stablecoins for international trade settlements, regulatory uncertainty persists. South Korean law emphasizes the prevention of money laundering and requires strict compliance with foreign exchange regulations. Meanwhile, Russia has introduced a limited experimental framework (sandbox system) for trade-related cryptocurrency transactions starting in 2024, despite the central bank's broader prohibition of digital currency use for domestic payments.

Moreover, since Tether is issued by a U.S.-based entity, there exists a geopolitical risk that wallets linked to Russian users or associated transactions could be frozen under pressure from U.S. authorities, thereby undermining the dependability of this payment method. In addition, over-the-counter (OTC) trades, which are frequently used to bypass

76) Tether (2024), 『Tether Official Webpage』.

formal exchange processes, often lack adequate verification and regulatory oversight, increasing the likelihood of fraud, excessive transaction fees, and limited recourse in case of disputes. Collectively, these risks highlight the need for careful evaluation and due diligence when utilizing cryptocurrency-based solutions for international trade under sanctions.

Additionally, there are alternative intermediary payment channels. In addition to cryptocurrency-based settlements, some exporters utilize intermediary financial institutions located in countries not subject to SWIFT-related restrictions. Banks in Kazakhstan, Kyrgyzstan, and Tajikistan are commonly used in this capacity. However, such methods require the opening of local accounts, adherence to remittance caps, and identity verification. Transaction success rates and processing times vary depending on the involved institutions and regulatory conditions.

By 2025, direct international remittance through traditional financial networks such as SWIFT has become nearly impossible for trade between South Korea and Russia. As a result, exporters rely heavily on alternative methods such as cryptocurrency-based settlements (e.g., Tether) and intermediary banking networks in Central Asia, the Middle East, or China. While Tether offers convenience and speed, it also presents substantial regulatory, legal, and cybersecurity risks. Exporters must therefore weigh these risks carefully before selecting a suitable payment strategy.

A critical, yet often overlooked, challenge in the current export dynamic is the issue of After-Sales (A/S) Service and warranty maintenance. Since vehicles exported via the "Bishkek Loop" are designated as "parallel imports," they are effectively severed from the official South Korean manufacturer's warranty network in Russia.

This study identifies a trend where the traditional "Authorized Dealer" service model has been replaced by a fragmented, third-party maintenance ecosystem. Because official

parts supply chains are restricted, private market actors have established "parallel service" hubs. However, for the end-consumer, this creates significant long-term risk:

First, the warranty voidance, which means the irect manufacturers do not recognize the warranty of vehicles sold through indirect channels.

Second, the software updates. Modern vehicles requiring remote software updates or ECU coding are particularly vulnerable, as Russian IP addresses are often blocked.

Third, the part scarcity risk. The lead time for specialized components has increased from days to weeks, as parts must follow the same detour logistics as the vehicles.

Ultimately, the lack of official A/S infrastructure suggests that while cars are still reaching the market, the Total Cost of Ownership (TCO) has risen drastically due to the absence of institutional support.

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Chapter 6. Conclusion

This research has systematically examined the structural transformation of South Korea's car exports to the Russian Federation following the implementation of the 2022 sanctions regime. The findings identify a clear and persistent trend of logistical reconfiguration rather than a total cessation of trade, suggesting that private market actors possess a high degree of adaptability to international regulatory pressure. By synthesizing empirical data, this study confirms that the 2,000cc engine displacement limit acted as a definitive disruptor to the traditional supply chain, resulting in a recorded 78–80% decline in direct trade volumes. However, rather than a simple market exit, the evidence indicates a significant redirection of trade through secondary regional channels, fundamentally altering Central Asia's trade map.

The evolution of this export market follows a three-stage trajectory. First, the initial stage was defined by a reliance on direct maritime efficiency through Ro-Ro shipping, which was terminated by the first waves of sanctions. Second, the subsequent stage, characterized by the shift to the "Bishkek Route," allowed for the navigation of displacement bans through regional customs loopholes in Kyrgyzstan and Kazakhstan. Currently, a third, more complex stage is observed, defined by aggressive fiscal barriers. Here, the 160HP threshold and the massive spike in Russian utilization fees (increasing from 5,000 to 600,000 Rubles) have emerged as more significant limitations to market entry than the physical export bans themselves. This study introduces the concept of "Logistical Fluidity" to describe how trade networks rapidly reconfigure around such technical and fiscal restrictions. Additionally, this resilience is underpinned by "Financial Fluidity," where the transition to decentralized payment systems and stablecoins such as

USDT has allowed market actors to maintain liquidity despite the disconnection from the SWIFT banking network.

Regarding industrial and strategic recommendations, the identified reliance on the "Bishkek Loop" and the extreme vulnerability of this single-corridor dependency necessitate proactive risk management from industrial stakeholders. First, regarding strategic market diversification, South Korean exporters must prioritize a fundamental structural shift toward Southeast Asian and African markets, specifically targeting emerging economies such as Vietnam, Indonesia, and Nigeria. This transition is becoming a matter of survival rather than choice, especially as the April 2026 regulatory shifts suggest a potential "closing of the loop" in Central Asian customs benefits through the harmonization of the Eurasian Economic Union (EAEU) standards. Furthermore, industry associations and trade consortia must develop comprehensive compliance frameworks tailored for small-to-medium enterprises (SMEs) that lack the extensive legal resources of major OEMs. Industry-level initiatives should offer practical commercial guidance on evolving export controls and tools to assist firms in distinguishing between legitimate regional trade and sanctioned parallel imports, thereby mitigating the risk of secondary sanctions.

Additionally, industry-wide efforts must be made to enhance the transparency of digital export records and supply chain documentation through the implementation of VIN-based (Vehicle Identification Number) tracking systems. This is essential to prevent the South Korean used car industry from being unfairly labeled as a "gray market" entity by international regulators, which could lead to broader, sector-wide trade restrictions that would penalize honest market participants. High-quality data tracking and the potential adoption of blockchain-based logistics monitoring could be instrumental in maintaining

the global reputation of Korean brands while navigating complex geopolitical environments.

Finally, from an operational and product-development perspective, the findings suggest that the future competitive advantage in the region lies almost exclusively in the 1.0L to 1.2L segment, including models such as the Kia Morning and Chevrolet Trailblazer. Exporters should strategically pivot their product portfolios toward these low-displacement units to maintain financial viability. This pivot is necessary to offset the compounding costs of foreign destination taxes and the radical spike in utilization fees, which have effectively transformed the Russian middle-class market from a premium-segment consumer base into an economy-driven one where price sensitivity outweighs brand loyalty.

The primary limitation of this study remains the inherent lack of transparency in "gray market" and "parallel import" statistics, which are by nature designed to evade traditional regulatory tracking and customs oversight. Since transit through Kyrgyzstan and subsequent re-export to the Russian Federation are not always fully or accurately captured by direct customs reporting, the figures presented in this thesis should be interpreted as conservative estimates of the actual trade volume. There exists a persistent and significant "data gap" between country-of-origin export declarations in South Korea and final destination vehicle registrations in Russia that remains difficult to reconcile through official commercial channels alone. This discrepancy suggests that a substantial portion of the trade remains in a "shadow" zone, making precise quantitative forecasting and the assessment of tax compliance a significant challenge for researchers and policy analysts alike.

Furthermore, the rapidly evolving nature of international sanctions and the extreme volatility of the geopolitical landscape mean that the post-sanction environment described

here remains in a state of constant flux, where a single diplomatic shift can render existing logistics routes obsolete overnight. Future research would benefit immensely from a comparative analysis of Russian domestic production shifts and the aggressive market-share expansion of Chinese automotive brands, which are rapidly filling the vacuum left by Korean manufacturers within the same technical segments. Additionally, a deeper investigation into the specific mechanisms of tax and customs harmonization within the EAEU will be essential to predict the next phase of trade redirection once the "Bishkek route" reaches its regulatory limit in April 2026. Ultimately, this study concludes that the future viability of South Korea's automotive export sector will depend on its capacity to adapt to destination-market fiscal thresholds, such as horsepower ratings and localized tax decrees, rather than merely finding temporary logistical ways to bypass maritime blockades. This shift from physical barriers to fiscal friction represents a broader maturation of the global sanction environment that requires continuous academic scrutiny and sophisticated strategic monitoring to protect industrial interests in Eurasia.

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국문초록

제재 하에서의 물류 경로 변화와 한국-러시아 자동차 수출에 관한 연구

한성대학교 대학원
무역학과
국제상무전공
본다렌코 나탈리아

본 연구는 2022년 대러 경제 제재가 본격화된 이후, 한국산 자동차의 대러시아 수출 구조 변화와 중앙아시아를 중심으로 한 물류 경로의 전환 과정을 실증적으로 분석하는 것을 목적으로 한다. 이를 위해 본 연구는 제재 전후인 2017년부터 2023년까지의 국가별 신차 및 중고차 수출 통계 데이터를 비교 분석하였으며, 기존의 직접 해상 운송 경로가 중앙아시아 및 주변국을 경유하는 우회 무역 경로로 변모하는 과정을 추적하였다.

주요 분석 결과에 따르면, 2022년 제재 강화와 2,000cc이상 차량에 대한 수출 통제 조치로 인해 한국에서 러시아로 향하는 직접적인 자동차 수출 규모는 약 78%에서 80% 수준으로 급감하였다. 그러나 이러한 직접 무역의 쇠퇴가 한국 자동차의 전면적인 시장 철수로 이어지지는 않았다. 대신 무역 주체들은 제재의 규제를 우회하기 위해 새로운 경로를 개척하였으며, 이 과정에서 키르기스스탄과 카자흐스탄을 경유하는 이른바 '비슈케크

경로(Bishkek Route)'가 핵심적인 우회로로 부상하였다. 통계 데이터 분석을 통해 러시아로 직접 가는 신차 수출은 거의 사라진 반면, 키르기스스탄과 카자흐스탄으로 향하는 한국산 중고차 수출이 폭발적으로 증가했음이 증명되었다. 이는 대외적 무역 장벽에 대응하여 민간 시장 기업들이 보여준 매우 높은 수준의 '물류적 유연성(Logistical Fluidity)'을 의미한다.

또한 본 연구는 이러한 물류 경로의 진화 과정을 총 3단계의 흐름으로 구조화하여 제시하였다. 1단계는 제재 이전의 직접적인 정기선(Ro-Ro) 해상 운송 중심의 시기이며, 2단계는 관세 혜택과 통관의 허점을 활용하여 중앙아시아 우회로를 적극적으로 개척한 시기이다. 현재 진행 중인 3단계는 단순한 물리적 차단을 넘어선 고도화된 '재정적 장벽'의 시기로 진입하였다. 특히 러시아 정부가 도입한 160마력 기준의 제한과 자동차 폐기 수수료(재활용 부담금)의 급격한 인상(5,000루블에서 600,000루블로 폭등)은 현재 물류 통제보다 더 강력한 시장 진입 장벽으로 작용하고 있음을 밝혔다. 더불어 무역 주체들은 국제은행간통신협회(SWIFT) 결제망 차단에 대응하여 테더(USDT)와 같은 스테이블코인을 활용한 분산형 결제 시스템을 구축함으로써 '금융적 유연성(Financial Fluidity)'을 확보하고 있음을 확인하였다.

본 연구의 시사점은 다음과 같다. 첫째, 다가오는 2026년 4월 유라시아경제연합(EAEU)의 관세 기준 일원화와 규제 강화로 인해 기존의 중앙아시아 우회 경로가 마감될 위기에 처해 있음을 지적하고, 한국 자동차 수출 기업들이 동남아시아(베트남, 인도네시아) 및 아프리카(나이지리아) 등 대체 시장으로 포트폴리오를 빠르게 다변화해야 한다는 실무적 제언을 제시하였다. 둘째, 대기업에 비해 법적 대응 능력이 부족한 중소 수출업체들을

보호하기 위해 유관 산업 협회 차원의 제재 대응 가이드라인과 차량식별번호(VIN) 기반의 디지털 추적 시스템 도입이 시급함을 강조하였다. 본 연구는 급변하는 지정학적 위기 속에서 한국 자동차 산업이 지속 가능한 무역 구조를 구축하고 유라시아 시장에서의 산업 이익을 지키기 위한 기초 정책 자료로 활용될 수 있을 것이다.

주요어: 자동차 수출, 러시아 제재, 물류 변화, 중앙아시아 공급망, 중고차 수출 통제

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