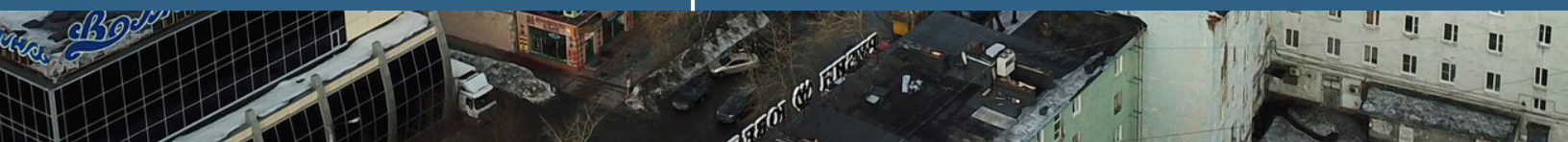

JANUARY 2023

RUSSIA SHIFTING IMPORT SOURCES AMID U.S. AND ALLIED EXPORT RESTRICTIONS

CHINA FEEDING RUSSIA'S TECHNOLOGY DEMANDS



Andrew David
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At this pivotal moment of geopolitical competition, the United States and its allies must actively chart a course toward economic prosperity at home and competitiveness on the world stage. Silverado Policy Accelerator works to promote these objectives by advancing bipartisan economic, strategic and technological policy solutions in three interconnected areas: cybersecurity, international trade and industrial security, and the intersection of ecological and economic security (Eco2Sec). Silverado uses a novel accelerator model that combines the expertise of a traditional think tank with the dynamism of a venture approach. The three stages of our accelerator model—Cultivating, Incubating, and Accelerating—are designed to transform fresh policy ideas into actionable policy initiatives, nurturing a new strategic and economic vision from the ground up.



Silverado's **Trade and Industrial Security** pillar focuses on shaping trade policy to support American workers, secure America's supply chains, and advance equitable trade practices.

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EXECUTIVE SUMMARY

Overview

Following Russia’s invasion of Ukraine in February 2022, the United States formed a coalition with 37 allies and partners that imposed sanctions and export controls to limit Russia’s access to foreign goods and technology and erode its ability to sustain the war.¹ U.S. sanctions have immobilized Russian Central Bank assets and targeted thousands of individuals and entities. U.S. export controls were imposed to “choke off exports of technologies and other items that support Russia’s defense industrial base . . . and to degrade Russia’s military capabilities and ability to project power.”² Export controls include bans or restrictions on products for military end use or to military end users, bans on exports of certain foreign-origin items like semiconductors produced with U.S. advanced technologies, tools, and software,³ and restrictions on exports of luxury goods to impose costs on Russian oligarchs.⁴ In addition, many multinational companies closed their Russian plants or stopped exports to Russia.⁵

The combination of these actions by the United States and its partners has isolated Russia from the global economy and degraded Russia’s military capabilities. However, despite an initial decline in overall Russian imports, Russia continues to have access to some dual-use technologies, such as semiconductors, through increased trade with countries like China. Looking specifically through the lens of trade

statistics, this report examines the impacts of government measures and company actions on Russia’s ability to access foreign goods and technologies, including those that could support and sustain the Russian government’s war efforts.

The report examines: (1) overall trends in Russia’s imports to determine the extent to which Russia can import goods generally and (2) Russia’s imports of select goods (integrated circuits, smartphones, appliances, passenger vehicles, and vehicle parts) directly impacted by export controls or firm exits to assess in more depth the impact of these measures.

This report finds that the United States, its allies, and the private sector need to continue to stay ahead of Russia’s efforts to adapt to government measures and shift to new supply chain networks to access important goods and technologies, including by shifting import sources and importing goods directly or through transshipment points in some post-Soviet states. This can be done through enhanced coordination, additional resources, and further strengthening enforcement efforts.

Key findings: Overall import trends

Prewar imports and inventories were high: Russian imports substantially increased prior to the invasion of Ukraine. As a result, Russia entered the war with strong inventory levels for

¹ See USDOC, BIS, “Resources on Export Controls”; Bown, “Russia’s War on Ukraine.” See also U.S. Department of State, “The Impact of Sanctions and Export Controls.” Relatedly, in the European Union, sanctions “are designed to weaken Russia’s economic base, depriving it of critical technologies and markets and significantly curtailing its ability to wage war.” Council of the EU and the European Council, “EU Restrictive Measures.”
² Estevez, “Statement of Alan F. Estevez before HFAC.”
³ See USDOC, BIS, “Resources on Export Controls.”
⁴ USDOC, BIS, “Imposition of Sanctions on ‘Luxury Goods’ Destined for Russia and Belarus.”
⁵ Yale SOM, CELI, “Over 1,000 Companies.”

some products, such as certain consumer goods. There was also significant growth in integrated circuit (“IC”)⁶ imports in late 2021, though inventory data for ICs are not available. The strong inventory may have mitigated some of the initial impact of export controls.

declined by \$4.6 billion (52 percent) from October 2021 to October 2022, though the EU was the second largest supplier to Russia in October 2022 (\$4.2 billion in exports). U.S. and UK exports each declined by \$0.4 billion (85 and 89 percent, respectively) and Ukraine and Japan’s exports each declined by \$0.3 billion (100 and 41 percent, respectively).

Figure ES1: Global exports to Russia, by value, Jan 2019–Oct 2022



Notes/Sources: Based on data for 98 countries/economies (counting EU members separately). UN Comtrade database; national statistics databases; CEIC Data database; Global Trade Tracker database.

Russian imports rebounded by the fall of 2022: Russian imports declined sharply in March and April 2022, and in April 2022 were 43 percent below the prewar median level (figure ES1). Russian imports then rebounded, exceeding median monthly prewar imports by September 2022. In the most recent three-month period, August to October 2022, combined imports were 1 percent lower than in the same period in 2019 and 11 percent lower than in the same period in 2021.⁷

Many countries have significantly curtailed exports to Russia: EU exports to Russia

Russian imports from several countries significantly increased, led by China: A few countries increased exports well above prewar levels, including China, Belarus, Turkey, Kazakhstan, Kyrgyzstan, Armenia, and Uzbekistan. Exports from many other countries rebounded from their spring 2022 lows, and some post-Soviet states increased their transshipments of goods produced by multinational firms that no longer export the goods directly to Russia.

Key findings: Case studies

China and Hong Kong have stepped in to fill some of Russia’s demand for integrated circuits: Russia is continuing to import integrated circuits, albeit at lower volumes, particularly from China and Hong Kong. An additional smaller volume of integrated circuits is transshipped through third countries.

Russia has rebuilt supply chains for consumer goods, such as smartphones, appliances, and passenger vehicles: The widespread availability of substitutes and Russia’s ability to import goods through third countries means that many consumer products remain available. However, some of these products are inferior to the goods that Russia

⁶ The definition of integrated circuits, for the purpose of this report, is based on semiconductors or “chips” classified (for trade purposes) in Harmonized System (HS) 8542, “electronic integrated circuits; parts thereof.”

⁷ This report will compare 2022 import data to the prewar median as well as to both 2021 and 2019. Data for 2020 will generally not be used for comparison purposes due to the impact of the COVID-19 pandemic. While 2021 are used for comparison purposes, they reflect an elevated level of imports in the second half of the year. UN Comtrade database; national statistics databases; CEIC Data database; Global Trade Tracker database.

was able to import prior to the war, and prices for some goods have increased.

Vehicle part imports continue to be constrained: It has been difficult for Russia to find substitutes for certain vehicle parts and is taking more time to rebuild the supply chain. China and other countries are supplying some of these goods and Russia is gradually adding advanced features back into domestically produced vehicles.

Recommendations

The combined impact of the United States and allied coalition's export controls and sanctions and firm exits has greatly hampered Russia's capabilities. However, as Russia has continued its war against Ukraine, additional resources, oversight, and enforcement must be marshaled to prevent Russia from acquiring the foreign goods and technologies it needs to sustain these war efforts.

1. Create a Joint Interagency Task Force on Export Enforcement: The U.S. Department of Commerce and U.S. Department of Justice have engaged in key, coordinated enforcement efforts to curb Russia's war efforts.⁸ These critical actions could be further enhanced by leveraging the full set of authorities and resources of key U.S. government entities engaged in investigation and enforcement, including the Federal Bureau of Investigation and the U.S. Department of Homeland Security. This Task Force could immediately begin work in the following non-exhaustive areas: (1) identify gaps in sanctions and export controls where further measures might be warranted by monitoring trends and information showing Russia's adaption to existing measures; (2) coordinate to gain enhanced visibility to identify

and shut down illicit transshipment and other evasion schemes; (3) prioritize enforcement of particular sectors of the greatest concern, such as semiconductors; (4) pursue civil and criminal penalties to the fullest extent possible; and (5) work with other agencies like the U.S. Department of the Treasury to use secondary sanctions⁹ to increase sanctions and export controls enforcement.

2. Provide additional enforcement resources to the Bureau of Industry and Security:

Russia is adapting to the existing export controls and continues to import a broad range of goods, including export-controlled products. The vast and opaque global supply chain networks for technologies like semiconductors create enforcement challenges even for the most adept authorities. Russia's war against Ukraine, the United States and China's strategic and technological competition, and ongoing national security threats from other countries, such as North Korea and Iran, warrant bringing all resources to BIS and other agencies that are on the front lines of keeping dual-use technologies out of the hands of our adversaries. A recent funding boost for FY 2023¹⁰ will help, but these efforts must be sustained over the long term and funded to ensure that BIS is equipped with the technological and human resources needed to maximize effectiveness of export control enforcement. This would include partnering with other agencies, as in recommendation 1.

3. Prioritize oversight and enforcement of semiconductor exports to Russia:

While Russia's imports of semiconductors have fallen due to export controls, Russia continues to import this technology, including from China and Hong Kong. Importantly, a wide range of advanced and commoditized semiconductors

⁸ See, for example, USDOC, BIS, "Commerce Cuts Off."

⁹ Treasury, "Russia Harmful Foreign Activities."

¹⁰ USDOC, "Secretary Raimondo Statement."

can be used for civilian and military applications, including larger node sizes that are high powered and fit for many military purposes. The Joint Task Force in recommendation 1 could work on curbing China and Hong Kong's exports of semiconductors to Russia, including by working with the larger global coalition and with the private sector. Specific attention should be placed on understanding: (1) the exact product mix that Russia is importing from non-sanctioning sources; (2) to what extent Russia is acquiring this technology through other means such as through appliances, old computers, or e-waste as suggested in multiple press reports; and (3) whether expanded export control

coverage is needed by the United States or allies to fill gaps or whether Russia's continued access could be best deterred through augmented export control enforcement actions.

4. Establish Private Sector Export Enforcement Advisory Committee:

Government efforts alone will not be sufficient to strengthen export enforcement and deter sanctions evasion. The private sector must play a key role in advising the government about trends and market activities that can help enhance the government's ability to take action against bad faith and illicit actors that are aiding adversaries and distorting markets to the detriment of legitimate actors.

PART I: PREWAR IMPORTS AND INVENTORY

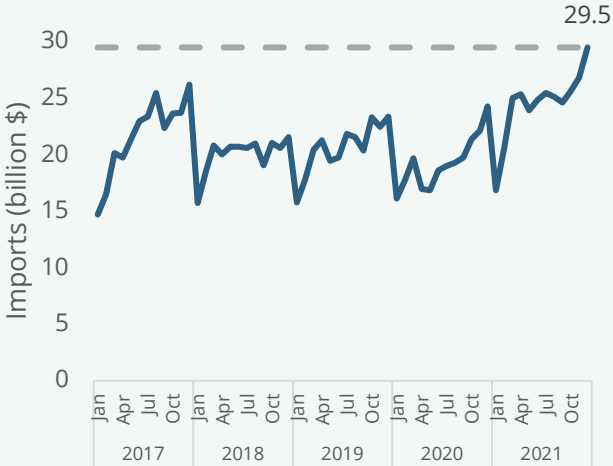
Growth in Russia’s imports in 2021

Russia’s imports substantially increased in 2021, with imports rising from \$24.2 billion in December 2020 to \$29.5 billion in December 2021, a 22% increase (figure 1).¹¹ Unseasonably high imports continued in January and February 2022.¹² On an annual basis, 2021 imports reached their highest level since prior to the devaluation of the Russian ruble in 2014.¹³ In comparison to (pre-COVID-19) 2019 trade flows, the largest increases in imports were from China (up \$18.6 billion), the European Union (up \$9.4 billion), Korea (up \$5.0 billion), the United States (up \$3.8 billion), and Belarus (up \$2.0 billion).¹⁴

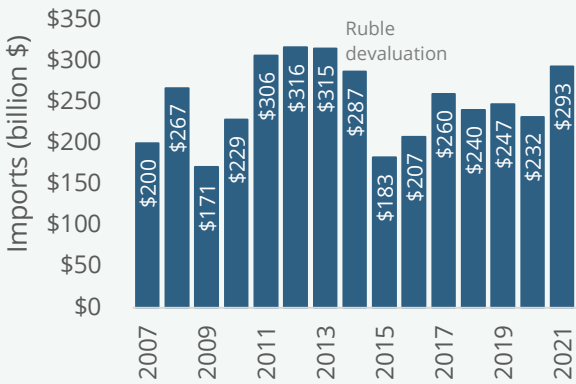
The increase in imports in 2021 was driven by a number of factors, including long-term factors related to Russia’s liquefied natural gas (LNG) export capabilities and short-term increases in consumer goods imports. The largest increases—at the product level—were imports of (1) new LNG tankers from Korea, reflecting the large number of orders placed in prior years;¹⁵ (2) electronics, particularly in the categories that include smartphones, computers, and modems; and (3) equipment for new LNG facilities under construction in Russia (e.g., machinery for liquefying gases) (figure 2).¹⁶ There was also a surge in imports of goods for which no product was specified, likely partly driven by an increase in aircraft imports.¹⁷

Figure 1: Russia’s imports, by value

Monthly Import trend, 2017-21



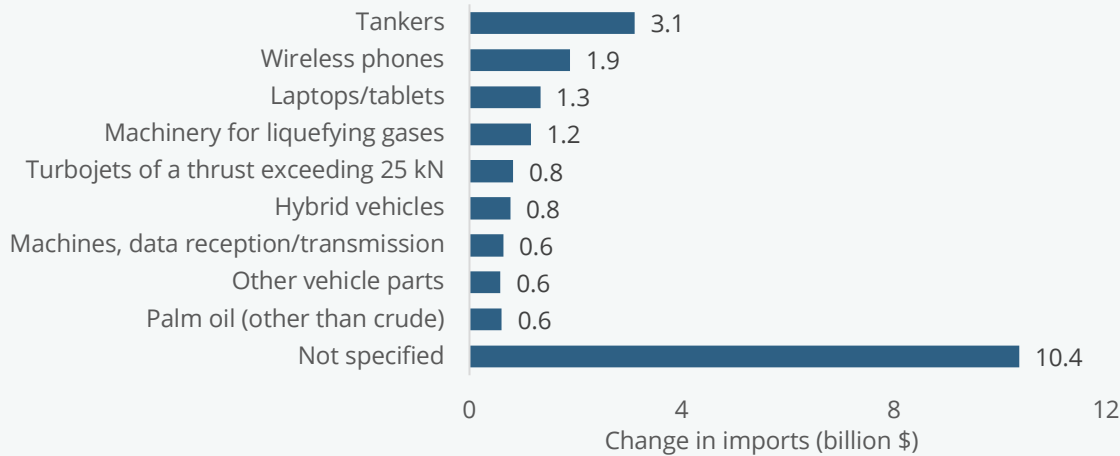
Annual Import trend, 2007-2021



Source: UN Comtrade database.

¹¹ UN Comtrade database.
¹² UN Comtrade database; national statistics databases; CEIC data database; Global Trade Tracker database.
¹³ The ruble devaluation was the result of the fall of oil prices and imposition of sanctions in response to Russia’s invasion of Crimea. UN Comtrade database; Aleksashenko, “The Ruble Currency Storm.”
¹⁴ UN Comtrade database.
¹⁵ Korean firms have received significant new LNG tanker orders from Russia in recent years to transport LNG from new export terminals in Russia. Song and Lee, “Samsung Heavy Eyes”; Humpert, “Novatek Orders”; The Maritime Executive, “Samsung Heavy Industries Completes.”
¹⁶ UN Comtrade database; Trade Data Services Inc., Import Genius database.
¹⁷ UN Comtrade database.

Figure 2: Change in imports, by value, 2019 to 2021, top ten products



Notes/Source: Products included are Harmonized System (HS) 8901.20, 8517.12, 8471.30, 8419.60, 8411.12, 8703.40, 8517.62, 8708.29, 1511.90, and 9999.99. Products in the “not specified” category likely include, but are not limited to, aircraft. UN Comtrade database.

Russian imports, at a broader level, increased across a range of sectors, though there are data limitations as Russia limited publication of data for some products, such as aircraft (table 1). The largest increase was in imports of machinery

and transportation equipment. Breaking out this category separately indicates that there were large increases in imports of machinery and information and communications technology products.¹⁸

Table 1: Russian imports by sector, 2019–21, billion \$

	2019	2020	2021	Change, 2019 to 21
Food and live animals	22.3	21.4	23.6	+1.2
Beverages and tobacco	3.9	3.7	4.2	+0.3
Crude materials, inedible, except fuels	9.7	9.1	11.5	+1.8
Mineral fuels, lubricants, and related materials	2.0	1.7	2.3	+0.3
Animal and vegetable oils, fats, and waxes	1.2	1.3	2.0	+0.9
Chemicals and related products, n.e.s.	38.7	33.5	42.6	+3.9
Manufactured goods classified chiefly by material	30.3	27.5	34.2	+3.9
Machinery and transport equipment				
Machinery	36.4	35.7	45.1	+8.7
Office machines, computers, telecommunications	22.6	23.4	28.6	+6.0
Electrical machinery, apparatus, and appliances, n.e.s.	14.8	15.4	18.5	+3.7
Transportation equipment	31.4	20.2	31.9	+0.5
<i>All machinery and transport equipment</i>	<i>105.3</i>	<i>94.7</i>	<i>124.2</i>	<i>+18.9</i>
Miscellaneous manufactured articles	30.2	28.8	35.1	+4.8
Other and not specified	3.6	10.0	13.9	+10.3
Total	247.2	231.7	293.5	+46.3

Notes/Source: n.e.s.: not elsewhere specified. Numbers may not add due to rounding. Based on SITC codes. Products in “not specified” include, but are not limited to, aircraft. The increase in transportation equipment and some other categories may have varied if aircraft and other products in “not specified” were allocated to the appropriate categories. UN Comtrade database.

¹⁸ UN Comtrade database.

Russia entered the war with strong inventory levels

Russia entered the war in Ukraine with solid overall inventory levels for a range of goods. According to official Russian government statistics, the retail inventory to sales ratio was at its highest ever January level in 2022. According to a separate measure, the number of days of retail inventory in January 2022 was at the highest level in that month since the 1990s.¹⁹ These increases were generally small compared to prior years, but overall indicate solid inventory levels at the start of the war. Further, while inventory information is not available for semiconductors specifically, we

know there was significant growth in Russian imports in 2021.

Anecdotal information also indicates that some firms built up inventories just before and after the start of the war in anticipation of export controls and a likely sustained crisis that would lead to further constraints on the ability to secure foreign goods and technology.²⁰ For example, according to Reuters, “Russian telecom operators stockpiled foreign-made parts in February and March ahead of sanctions.”²¹

These inventory levels may have helped to mitigate some of the initial impacts of the export controls that ensued after Russia’s invasion.

PART II: RUSSIA’S IMPORTS ARE REBOUNDED WITH A VARIED PRODUCT AND COUNTRY MIX

Overview of Russian imports

The sanctions, export controls, and voluntary firm withdrawals led to a sharp contraction in Russia’s imports in March–April 2022, but these imports gradually rebounded as Russia adapted supply chains. The immediate impact of these measures was a result of restrictions on product exports and firms deciding to stop exports of goods. In addition, sanctions, export controls, and firm exits had other impacts that also affected exports, such as the initial fall in the value of the ruble, difficulty in making

international payments, disruption in logistics, increased shipping costs, decreased demand for certain goods (e.g., auto parts), disruption in existing relationships between importers and suppliers, and uncertainty related to all of the previous factors.²² This led to Russia’s imports in April 2022 falling to 43 percent below the median prewar level.²³

Russia’s imports subsequently increased from their April low, and by September 2022 reached median monthly prewar levels (figure 3).²⁴ In the

¹⁹ Federal State Statistics Service (Rosstat) data from CEIC Data database.

²⁰ Park, “Samsung, LG Fret”; Kim, “LG Suspends”; Mukherjee and Marrow, “Russian Mobile Calls”; Kim, “Orion, Lotte, Paldo”; Normanton, “Sanctions Bring Russian Car Market.”

²¹ Mukherjee and Marrow, “Russian Mobile Calls.”

²² Simola, “Can Russia Reorient”; Darvas and Martins, “The Impact of the Ukraine Crisis”; EIU, “Country Report Turkey Edition”; Prokopenko, “The Cost of War”; Kim et al., “Korea Inc”; Uddin, “Apparel Shipments”; Yu and White, “Chinese Smartphone Shipments”; Karim, “Trade with Russia”; *Hellenic Shipping News*, “Who Accommodates”; *South China Morning Post*, “Ukraine Invasion: Western Sanctions.”

²³ UN Comtrade database; national statistics websites; CEIC Data database; Global Trade Tracker database.

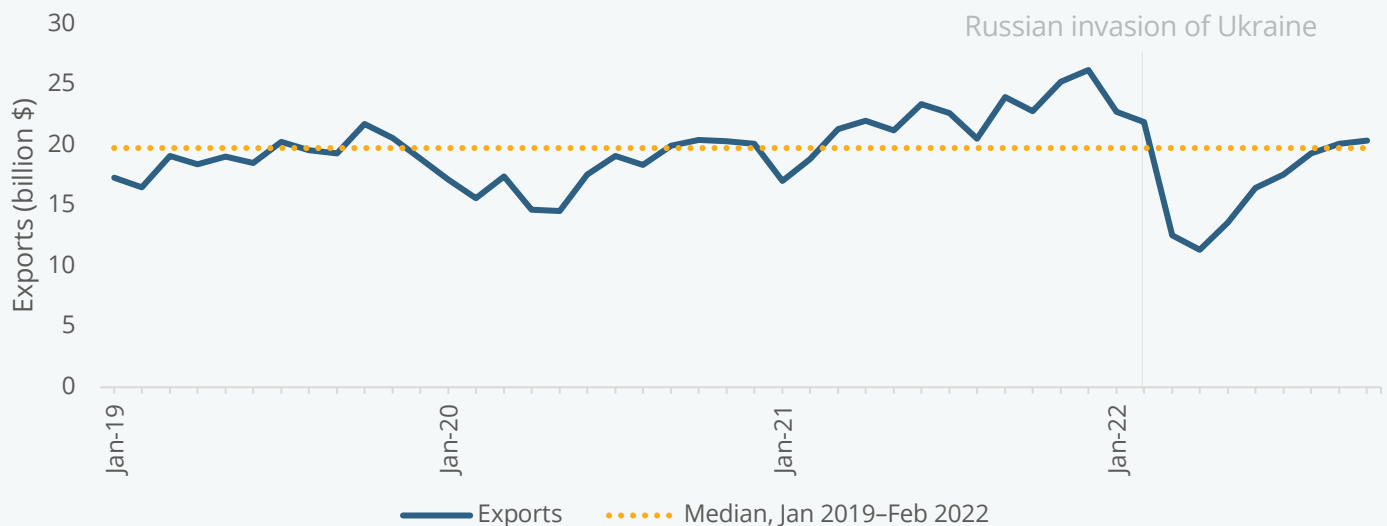
²⁴ See appendix 1 for the full methodology.

most recent three-month period, August to October, combined imports were 1 percent lower than in the same period in 2019 and 11 percent lower than in the same period in 2021. This recovery in imports was a result of Russia increasing sourcing from existing suppliers, finding substitute products, establishing relationships with new suppliers, improving logistics, legalizing “parallel imports,”²⁵ taking steps that led to the recovery and stabilization in the value of the ruble, establishing new payment mechanisms, increasing yuan payments, and other factors.²⁶ The recovery in imports does not mean that Russia has access

to all the same goods, perfect substitutes, or goods at the same prices. The case studies below will provide a more detailed picture of the extent of the recovery and composition of imports across a range of industry sectors.

Several countries significantly increased exports to Russia, and these increases have been a key driver of the recovery in Russian imports (figure 4). China has emerged as, by far, the largest supplier to Russia, with Belarus, Turkey, Kazakhstan, Kyrgyzstan, Armenia, and Uzbekistan also significantly increasing exports, in some cases transshipping goods produced elsewhere.²⁷

Figure 3: Global exports to Russia, by value, Jan 2019–Oct 2022



Notes/Sources: Based on data for 98 countries/economies (counting EU members separately) for which trade data were available. October 2022 exports from Belarus to Russia were estimated based on the change in exports to the Commonwealth of Independent States (CIS). UN Comtrade database; national statistics databases; CEIC Data database; Global Trade Tracker database.

²⁵ The Russian government authorized parallel imports in May 2022 to allow the import of goods legally sold in another country into Russia without the permission of the trademark holder. According to a Russian government official, parallel imports, as of December 2022, had reached \$20 billion for the year. Russia also lowered another trade barrier by reducing phytosanitary restrictions for certain countries, which eased imports of some agricultural products from those countries. Perry et al., “What Trademark Holders”; Ivanova and Seddon, “Russia’s Wartime Economy”; EIU, “Country Report Turkey Edition”; AzerNews, “Russia’s Rosselkhozadzor”; Produce Report, “New Refrigerated Rail Link.”

²⁶ Despite the improvement of these conditions, some still remain impediments to broader trade. Simola, “Can Russia Reorient”; Darvas and Martins, “The Impact of the Ukraine Crisis”; Ji, “China-Russia Trade”; Laskar, “India-Russia Trade”; Karim, “Trade with Russia”; Reuters, “The Yuan’s the New”; Ivanova and Seddon, “Russia’s Wartime Economy”; Polymetal International Website; UzReport, “Artel Will Start”; *UzDaily*, “Russian Retailers”; IntelliNews, “Chinese and Turkish Brands”; Telecompaper, “Russian Smartphone Sales”; Gizmochina, “Russia Smartphone Market”; *Hellenic Shipping News*, “Who Accommodates”; Li, “Russian Forwarders”; Silk Road Briefing, “New China-Russia”; Oxford Economics, “Big Shifts”; Mirdha, “RMG Exports.”

²⁷ UN Comtrade database; national statistics databases; CEIC Data; Global Trade Tracker database.

Figure 4: Exports to Russia, by value, Oct 2022 (left) and change in exports from Oct 2021 to Oct 2022 (right)

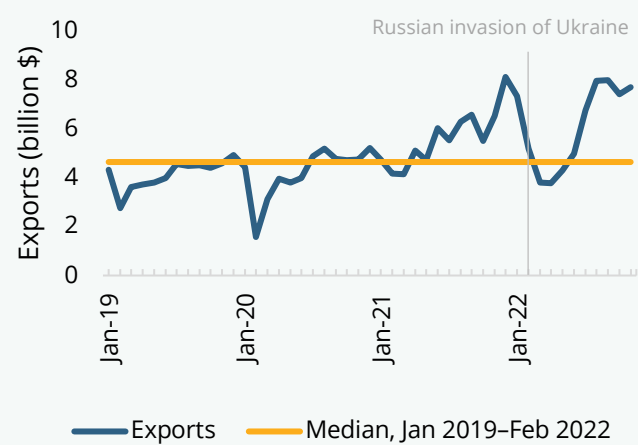


Notes/Sources: The left chart includes countries with at least \$200 million in exports to Russia. The right chart includes countries with a change in exports of at least \$200 million. Belarus’s October 2022 export to Russia are an estimate based on the change in exports to the CIS members. UN Comtrade database; national statistics databases; CEIC Data database; Global Trade Tracker database.

China was the largest supplier to Russia

China was both the largest supplier to Russia in October 2022 and the country with the largest year-over-year increase in exports to Russia. While China’s exports to Russia declined in the spring of 2022, they never fell significantly below typical levels and quickly rebounded to near record highs (figure 5).²⁸ The increases in China’s exports to Russia from November 2021 to November 2022, by value, were of vehicles and parts in Harmonized System (HS) chapter 87²⁹ (up by \$463 million, 120 percent) and machinery and mechanical appliances in HS chapter 84³⁰ (up by \$228 million, 16 percent).³¹

Figure 5: China’s exports to Russia, by value, Jan 2019–Nov 2022



Source: GACC, Customs Statistics database.

²⁸ GACC, Customs Statistics database.
²⁹ Chapter 87 covers vehicles other than railway or tramway rolling stock, and parts and accessories thereof.
³⁰ Chapter 84 covers nuclear reactors, boilers, machinery and mechanical appliances and parts thereof.
³¹ Global Trade Tracker database.

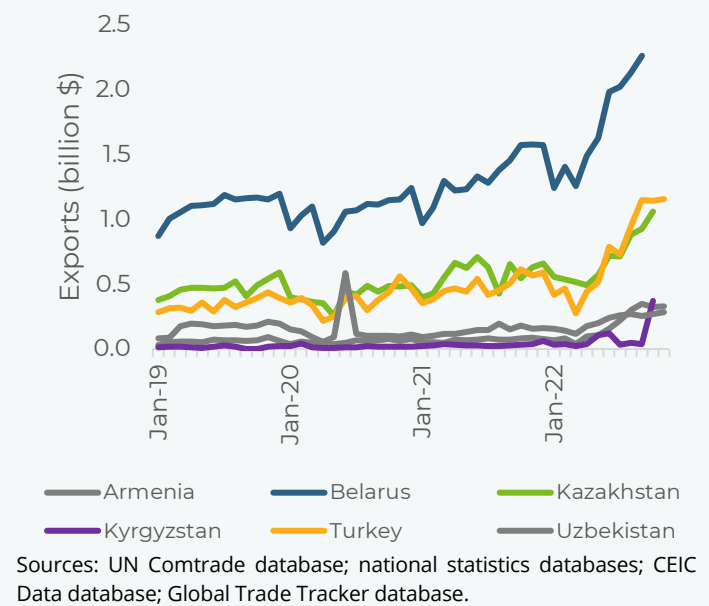
Belarus and Central and Western Asia are key exporters to Russia

Turkey and post-Soviet states such as Armenia, Belarus, Kazakhstan, Kyrgyzstan, and Uzbekistan have also substantially increased their exports to Russia (figure 6). Belarus is also subject to export controls, but some other countries have become key transshipment points for goods that are ultimately sent to Russia. Some of these countries experienced substantial increases in imports, though not all such increases can be attributed to the transshipment of goods. These countries have also increased exports of domestically produced goods.³² Media reports and trade data indicate that a broad range of products are transshipped through these countries. The case studies below will delve into some examples of transshipments.

PART III: CASE STUDIES

This analysis focuses on case studies of five products (integrated circuits; smartphones; washing machines and refrigerators and freezers; passenger vehicles; and vehicle parts) to analyze the extent to which Russia has been able to replace imports of specific products and examine in more depth how they have replaced those products. The case studies were selected to provide a sample of different end users, markets, extent to which products were impacted by export controls as compared to voluntary firm exits, share of the market supplied by imports, size and logistical complexity, unit values, and industry concentration.³³ The case studies were selected

Figure 6: Exports to Russia, select countries, by value, Jan 2019 to latest available month



specifically to focus on a subset of industries impacted by export controls and/or firm exits—broader sanctions may affect many industries, but the direct impact is hard to quantify. The analysis in these case studies is informed by a framework on factors affecting the ability of importers and buyers to purchase foreign-made products and import them into a country developed by the U.S. International Trade Commission (USITC) (see Appendix B).

³² UN Comtrade database; national statistics databases; CEIC Data database; Global Trade Tracker database; BBC Monitoring, "Kyrgyzstan Sees Unprecedented"; Rastogi, "Parallel Smartphone"; KazTAG, "Massive Export"; Ivanova. "Russia's Wartime Economy"; Transparency International Georgia, "Georgia's Economic Dependence"; bne IntelliNews, "Turkey's Port Warehouses."

³³ Appliances were also selected for inclusion because there have been multiple reports of integrated circuits from appliances being used in Russian weapons. However, it is not possible to determine from public data whether imports of new appliances are being disassembled for this purpose. Whalen, "Sanctions Forcing"; Nardelli, Baschuk, and Champion, "Putin Stirs European Worry"; Watson, "Russians Are Using"; MacAskill, "Exclusive-Russian Weapons." Washing machines and refrigerators and freezers typically account for the largest share of the appliance market in Russia, by value. Statista, "Household Appliances."

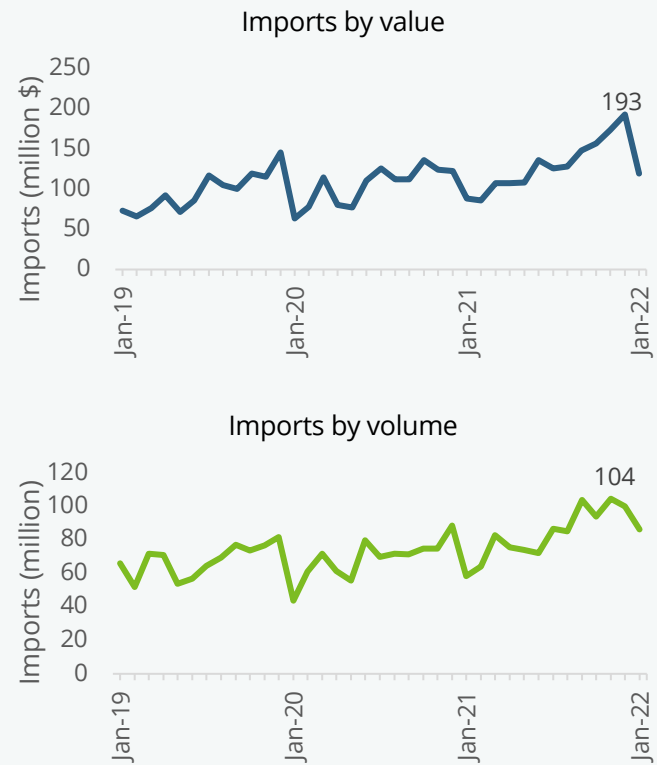
Case study 1: Integrated circuits (“Semiconductors”)

Integrated circuits³⁴ or semiconductors are dual-use technologies that can be used in a wide variety of applications from smartphones to missile systems. Knowing that Russia needed this technology for its war efforts, the United States and allies targeted semiconductor exports early on with export control measures. Russian imports of integrated circuits significantly declined after the imposition of export controls and exit of multinational firms from the Russian market and remain lower than pre-invasion levels.³⁵ However, Russia has made significant efforts to re-establish a network of suppliers in non-sanctioning countries from which to source semiconductors due to their potential use in military applications. Hong Kong and China were the largest shippers of these semiconductors after the invasion of Ukraine. Products are also shipped in smaller amounts through a range of third countries.

Background: Russian industry, market, and trade³⁶

Russian domestic production totaled 656 million integrated circuits in 2021, according to official government statistics, though a significant portion of production was exported.³⁷ The largest producer was Mikron,

Figure 7: Russia’s integrated circuit imports, by value and volume, Jan 2019–Jan 2022



Source: Global Trade Tracker database.

which reported in a 2016 corporate presentation that it exported 500 million integrated circuits annually.³⁸ Russian producers, however, are not able to produce newer and more advanced technologies.³⁹

³⁴ The definition of integrated circuits, for the purpose of this report, is based on semiconductors or “chips” classified (for trade purposes) in Harmonized System (HS) 8542, “electronic integrated circuits; parts thereof.”

³⁵ The United States, EU, and other countries imposed new restrictions on semiconductor exports to Russia immediately following Russia’s invasion of Ukraine and have further tightened such restrictions over time. A link to the full listing of U.S. export controls imposed on Russia in response to its invasion of Ukraine is included in the bibliography. Of particular note are U.S. export controls imposed in March 2022 that cover “technologies designed and produced in the United States, as well as certain foreign-produced items that contain or are based on U.S.-origin technology subject to the EAR or other technology that is subject to the EAR that are essential inputs to Russia’s key technology and other sectors.” Multinational firms also exited the market. Bown, “Russia’s War”; *The New York Times*, “Companies Are Getting”; Akin Gump, “BIS Imposes”; USDOC, BIS, “Implementation of Sanctions.”

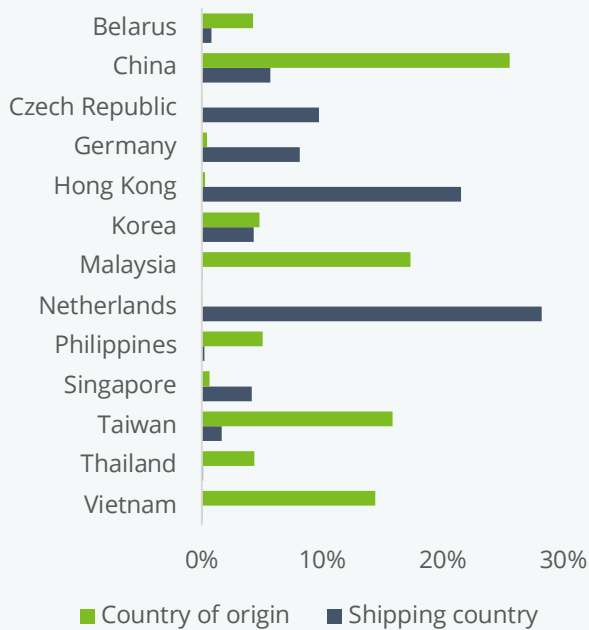
³⁶ Statista reports that the Russian semiconductor market was valued at \$3.1 billion in 2021. However, this may include a broader group of products than the integrated circuits covered in this case study. Statista, “Market Size.”

³⁷ In comparison, the global industry shipped 1.15 trillion semiconductors in 2021. Rosstat data from CEIC Data database; Global Trade Tracker database; SIA, Global Semiconductor Sales.”

³⁸ The company reported having integrated circuit packaging facilities in Shenzhen, China. Mikron, “Leading Semiconductor.”

³⁹ Jie and Sohn, “Chip Sanctions Challenge.”

Figure 8: Russia’s integrated circuit imports, 2021



Notes/Source: Share of the value of imports. Country of origin is based on Russian import data, while shipping country is based on exports to Russia. Global Trade Tracker database.

Some Russian fables firms contract with manufacturers such as Taiwan’s TSMC for integrated circuit production.⁴⁰

Russia’s integrated circuit imports increased from \$1.1 billion (837 million integrated circuits) in 2017 to \$1.6 billion in 2021 (998 million integrated circuits). Russia’s imports of integrated circuits, as with other goods, ramped up in the months immediately prior to the invasion of Ukraine. The value of December 2021 imports was up 57 percent from December 2020 imports and 32 percent from December 2019 imports (figure 7).⁴¹

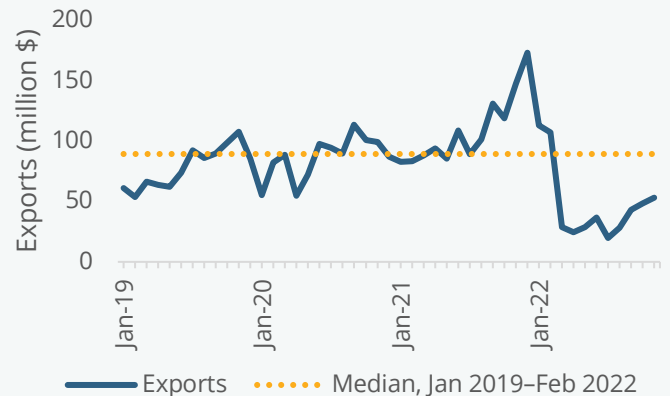
Russian imports of integrated circuits primarily originated in China, Malaysia, Taiwan, and

Vietnam in 2021, with China being the largest source. They were, however, primarily shipped to Russia from Europe and Hong Kong (figure 8).⁴² Imports of integrated circuits by companies that are suppliers to the Russian military occurred throughout 2021 (and in prior years).⁴³

Impact on Russian imports

Russia continues to be able to source a range of integrated circuits, albeit at a much lower volume than before the war, primarily from China and Hong Kong (figures 9 and 10). As with other goods, a small volume is also transshipped through other countries.⁴⁴ Exports of integrated circuits from China and Hong Kong alone to Russia in November 2022 were equal to 55 percent of median prewar

Figure 9: Integrated circuit exports to Russia, by value, Jan 2019–Nov 2022



Notes/Sources: Based on 57 economies (counting EU members separately) for which monthly data were available. November trade data were not yet available for all countries. These data, therefore, likely slightly understate IC exports to Russia. Armenia export data by country for November 2022 are not yet available, so for the purposes of this chart all Armenian exports in November were assumed to go to Russia (the export destination for 96 percent of Armenian IC exports in the first ten months of 2022). Global Trade Tracker database; national statistics databases.

⁴⁰ Jie and Sohn, “Chip Sanctions Challenge”; Brown, “Russia to Develop.”

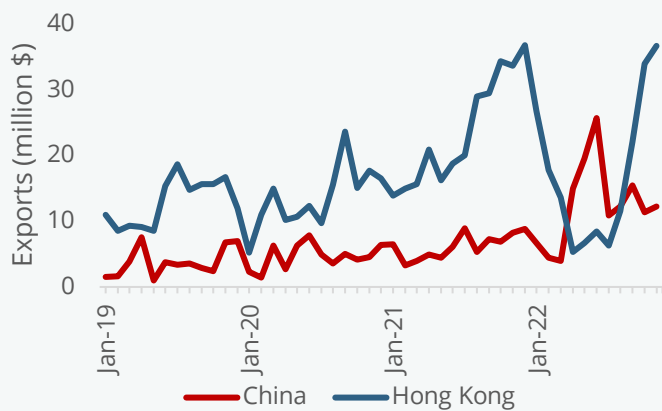
⁴¹ Volume data exclude parts. UN Comtrade database; Global Trade Tracker database.

⁴² UN Comtrade database.

⁴³ Byrne et al, *Silicon Lifeline*; Byrne et al, *The Orlan Complex*; Maroulis and Kim, “German Partnership Supplied.”

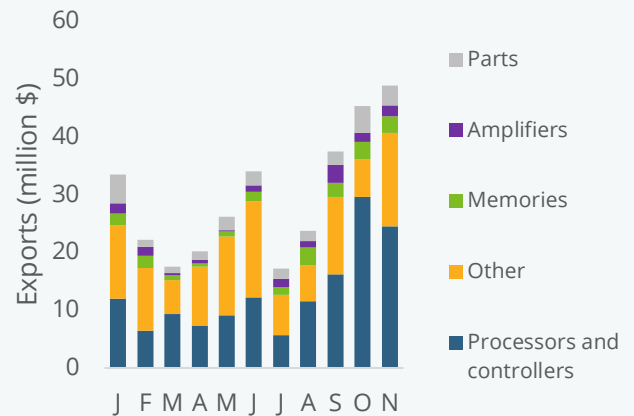
⁴⁴ UN Comtrade database; national statistics databases; Global Trade Tracker database; Stecklow et al., “The Supply Chain.”

Figure 10: Integrated circuit exports to Russia, by value, Jan 2019–Nov 2022, China and Hong Kong



Source: Global Trade Tracker database.

Figure 11: Hong Kong and China exports of integrated circuits to Russia, by value, Jan–Nov 2022



Source: Global Trade Tracker database.

exports to Russia from all countries. November 2022 exports from China and Hong Kong were 45 percent of 2019 imports and 33 percent of 2021 imports, respectively.⁴⁵ There was a report, however, of high failure rates for semiconductors from China.⁴⁶

According to various reports, exports to Russia in 2022 included goods produced by major multinational manufacturers that were shipped by third parties. They also include exports to Russian firms that are suppliers to the military.⁴⁷ The main types of integrated circuits exported to Russia by Hong Kong and China, since the invasion of Ukraine, were processors and controllers and goods in the “other” category (figure 11).⁴⁸

Case Study 2: Smartphones

In March 2022, following the Russian invasion of Ukraine, some of the largest smartphone suppliers to the Russian market—including Apple and Samsung—decided to stop shipments to Russia.⁴⁹ The exit of these firms from the Russian market, combined with retailers’ raising prices, currency fluctuations, and uncertainty over rules for firms willing to supply the Russian market, contributed to an initial decline in imports and a substantial decline in the Russian market. Russian retailers were partly able to continue to sell phones due to existing inventories within Russia. Over time, sourcing of cell phones directly from China and shipments through Western and Central Asia increased, leading to a recovery in the Russian smartphone market—though transshipments do raise the cost of some imports.

⁴⁵ Global Trade Tracker database.

⁴⁶ Evenden, “Russian Newspaper Reports.”

⁴⁷ Stecklow et al., “The Supply Chain”; Byrne et al, *The Orlan Complex*; Grey et al., “Exclusive: The Global Supply Trail”; Maroulis and Kim, “Russian Import Network.”

⁴⁸ Global Trade Tracker database.

⁴⁹ The decision by major multinationals to exit the Russian market was the primary factor that impacted smartphone exports to Russia. Allyn, “Apple Pauses”; Kim, “Samsung Suspends”; Yale SOM, CELI, “Over 1,000 Companies.”

Background: Russian industry, market, and trade

Russia has a large smartphone market, with 29 to 30 million smartphones shipped in 2021, though the volume declined 7 percent in 2021 from the prior year.⁵⁰ The largest suppliers to the Russian market, by volume, were Samsung (30 percent market share), Xiaomi (23 percent), and Apple (13 percent).⁵¹ Chinese brands supplied 44 to 50 percent of the market overall in 2021.⁵² Smartphones for the Chinese market in 2021 were primarily produced in China, Vietnam, and India, though Hong Kong was also a major re-exporter of phones to Russia.⁵³

Impact on Russian imports

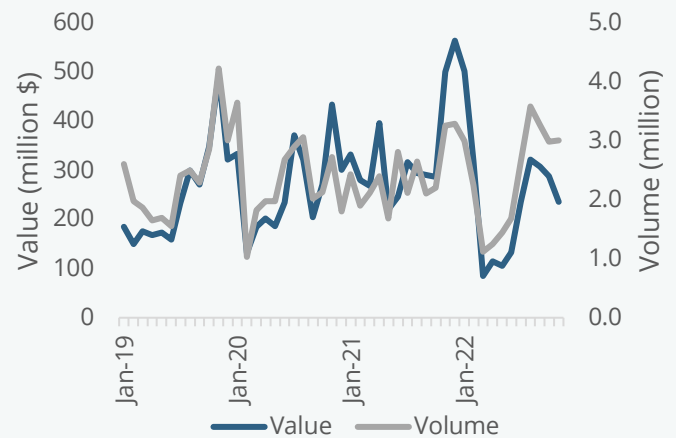
The Russian invasion of Ukraine had a significant short-term impact on the supply of phones to the Russian market as (1) firms such as Apple and Samsung stopped shipments to Russia; (2) currency fluctuations made it more challenging for Chinese firms to supply the Russian market; (3) and firms were uncertain as to whether the export controls would impact their ability to ship products to Russia.⁵⁴ Overall, Russian imports of smartphones reportedly declined by 38 percent in the first half of 2022 compared to the first half of 2021.⁵⁵

The immediate impact of the disruption in imports was somewhat reduced by the available inventories within Russia, which were at high levels compared to January levels in most prior years.⁵⁶ Chinese phone suppliers, for example, were able to meet the spike in demand following the invasion from existing

inventories at warehouses. Further, several Russian retailers indicated, months after the invasion of Ukraine, that they continued to be able to supply smartphone demand from inventories. Svyaznoy, a Russian retailer, specifically indicated in June 2022 that they continued to have inventory from prior to the Russian invasion.⁵⁷

Russia's imports of smartphones rebounded in the third quarter of 2022 due to a combination of imports of Chinese brands and transshipments of other phone brands through third countries.⁵⁸ Chinese firms gradually ramped up shipments to Russia and in August 2022 shipments peaked at 3.6 million units (of which 2.9 million were smartphones), before declining to 3.0 million units in November (of which 2.1 million were smartphones) (figure 12). The value of exports remained significantly

Figure 12: China's exports of wireless phones to Russia, by value and volume, Jan 2019–Nov 2022



Source: Global Trade Tracker database.

⁵⁰ TAdviser Website; Gizmochina, "Russia Smartphone Market"; Yu and White, "Chinese Smartphone Shipments."

⁵¹ Gizmochina, "Russia Smartphone Market."

⁵² Gizmochina, "Russia Smartphone Market"; TAdviser Website.

⁵³ UN Comtrade database.

⁵⁴ Allyn, "Apple Pauses"; Kim, "Samsung Suspends"; Li, "Ukraine Invasion"; Yu and White, "Chinese Smartphone Shipments."

⁵⁵ TAdviser Website.

⁵⁶ Rosstat data from CEIC Data database.

⁵⁷ Li, "Ukraine Invasion: Russian Consumers"; Tarar, "Gadget Prices"; Reuters, "New Apple iPhone."

⁵⁸ Russian retailers also started or increased sales of used and refurbished phones. Reuters, "Russia's No. 1"; TAdviser Website; Telecompaper, "Tele2 Russia."

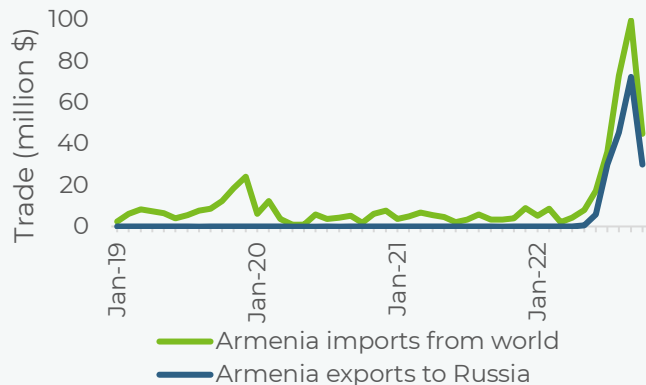
lower, however, as lower priced Chinese brands replaced higher priced brands from firms headquartered in sanctioning countries.⁵⁹ Overall, China was supplying smartphones to the Russian market at an annualized pace of 29.9 million units during July to November 2022, compared to annual smartphone sales of 29 to 30 million units in 2021.⁶⁰ Chinese firms captured 70 percent of the Russian smartphone market in the third quarter of 2022.⁶¹

Imports of phones under Russia’s parallel import scheme also significantly increased during the summer of 2022. Smartphones produced by firms such as Apple and Samsung continue to be shipped by third parties to Russia, despite these firms’ exit from the Russian market. These products are shipped

from their production locations in Asia—sometimes through Europe, Hong Kong, or other countries—to countries such as Armenia and Kazakhstan (figure 13). From there they are exported to Russia.⁶² Non-Chinese firms have continued to have significant market share in Russia, accounting for 30 percent of smartphone sales in Russia in the third quarter of 2022.⁶³ Over the first eleven months of 2022, Samsung accounted for 19 percent of sales (by units) and Apple for 10 percent. These market shares were down from 2021 and the market was smaller, but the still significant sales of these brands point to the inventory built up prior to the war and the ability of Russian importers to acquire these products through third countries.⁶⁴

The disruptions did lead to a sharp increase in smartphone prices in Russia immediately after the invasion. Prices have since fallen from their highs, though prices for products imported through the parallel import scheme are higher (10 to 20 percent according to one retailer) than they would be if Russia was able to directly import the phones. The market share gains for Chinese producers, on the other hand, tend to put downward pressure on prices as these are typically lower priced models. Overall, smartphone prices were only up 3% on average during the first 11 months of 2022 as compared to the prior year.⁶⁵

Figure 13: Armenia’s imports of wireless phones and exports to Russia, by value, Jan 2019–Oct 2022



Source: Global Trade Tracker database.

⁵⁹ Prior to 2022, there was not an HS subheading specific to smartphones. They were included with other wireless phones in HS 8517.12, “telephones for cellular networks or for other wireless networks.” Starting in January 2022, wireless phones were broken out in 8517.13, “smartphones,” and other wireless phones into 8517.14, “other telephones for cellular networks or for other wireless networks.” For consistency with earlier time periods, much of the data in this section covers all wireless phones (i.e., trade in 8517.12 prior to 2022 and 8517.13 and 8517.14 in 2022). References in the text to “smartphones” are specific to 8517.13.

⁶⁰ GACC Customs Statistics database; TAdviser Website.

⁶¹ Telecompaper, “Russian Smartphone Sales.”

⁶² UN Comtrade database; national statistics and customs websites and databases; Rastogi, “Parallel Smartphone”; KazTAG, “Massive Export.”

⁶³ Telecompaper, “Russian Smartphone Sales.”

⁶⁴ This also includes sales in early 2022, prior to the Russian invasion of Ukraine. By value, Apple accounted for 34 percent of sales and Samsung for 31 percent. Telecompaper, “Smartphone Sales Decline.”

⁶⁵ Aris, “Russian Retailers Launch”; Telecompaper, “Smartphone Sales Decline”; Reuters, “Russian E-Commerce”; CEIC Data database; GACC Customs Statistics database.

Case study 3: Washing machines and refrigerators and freezers

The exit of firms based in the sanctioning coalition countries and the array of measures imposed on Russia that led to disruptions in shipping, a fall in the value of the ruble, and challenges in cross border payments led to a significant decline in Russia's imports of washing machines and refrigerators and freezers⁶⁶ in the spring of 2022.⁶⁷ This decline was temporary, however, and over the longer-term Russian imports rebounded to at or above typical historical levels, with a significant increase in sourcing from countries such as China, Turkey, and Uzbekistan. Washing machine and refrigerator prices were still significantly higher year-over-year in November 2022, though significantly lower than their peak immediately after the invasion of Ukraine.

Background: Russian industry, market, and trade

Russia had a large washing machine and refrigerator/freezer market in 2021, with apparent consumption of 4.7 and 5.8 million units, respectively (figure 14).⁶⁸ U.S.-based Whirlpool was the leading supplier of laundry appliances (including dryers), with its Indesit (24 percent market share in 2021) and Whirlpool (8 percent) brands two of the six best-selling brands (by retail volume) in 2021. Other leading

laundry appliance brands included China-based Haier's Candy (12 percent) and Haier (6 percent) brands, Korea-based LG (12 percent), Turkey-based Arcelik's BEKO brand (12 percent), and Samsung (11 percent).⁶⁹ For refrigeration appliances, the leading brands were Indesit (18 percent of retail sales in 2021), Haier (13 percent), Whirlpool (10 percent), LG (10 percent), Belarus-based Atlant (8 percent), Switzerland-based Liebherr's Liebherr-Russland brand (8 percent), and Arcelik's Beko (5 percent).⁷⁰

Russia's washing machine and refrigerator/freezer market was supplied by a mix of domestic production and imports, with many of the foreign-based suppliers producing within Russia.⁷¹ Manufacturers in Russia produced 5.6 million washing machines in 2021 and 4.1 million refrigerators and freezers, with domestic washing machine production supplying more than 75 percent of the Russian market and domestic refrigerator and freezer production supplying under half of the market.⁷² The leading sources of washing machine imports in 2021 were China (47 percent of imports), the EU (34 percent), Belarus (8 percent), and Turkey (7 percent). The leading sources of refrigerator and freezer imports were China (46 percent of imports), the EU (21 percent), and Belarus (16 percent).⁷³

⁶⁶ This case study will cover washing machines in HS 8450.11-8450.20 and refrigerators and freezers in 8418.10-8418.50.

⁶⁷ Exports of washing machines and refrigerators were impacted by both export controls and voluntary firm exits. though only certain countries have imposed restrictions on exports. For example, the EU banned the export of certain products with a value exceeding EUR 750 in March 2022. In addition, some firms stopped shipping appliances to Russia following the invasion of Ukraine, including BSH Hausgeräte, Electrolux, LG, and Samsung, with BSH also closing its plant in Russia and Whirlpool selling its Russian plant to Arcelik. IntelliNews, "Chinese and Turkish Brands"; Chemical Monitor Worldwide, "Two More European"; Kim, "LG Suspends"; Lee and Lee, "Samsung, LG Set Up"; BSH, "BSH Achieves"; M-Brain Russian News, "Russia: Workforce Being Cut"; Council of the European Union, Council Regulation (EU) No 833/2014 of 31 July 2014; Global Trade Tracker database.

⁶⁸ Apparent consumption is domestic production plus imports minus exports. UN Comtrade Database; CEIC Data database.

⁶⁹ Euromonitor International, "Sector Capsule: Home Laundry Appliances."

⁷⁰ Euromonitor International, "Sector Capsule: Refrigeration Appliances."

⁷¹ IntelliNews, "Chinese and Turkish Brands"; Impact Financial News, "Haier Launches"; Lee and Lee, "Samsung, LG Set Up"; Whirlpool Corp, "Form 8-K."

⁷² CEIC Data database; UN Comtrade database.

⁷³ UN Comtrade database.

Impact on Russian imports

The firm withdrawals had a significant short-term impact on imports and prices, but little long-term impact on Russia’s ability to import products and a more muted long-term impact on prices. In the short term, immediately following the invasion of Ukraine, imports fell precipitously due to firms stopping shipments, exchange rate fluctuations, international payment challenges, and interruptions in logistics.⁷⁴

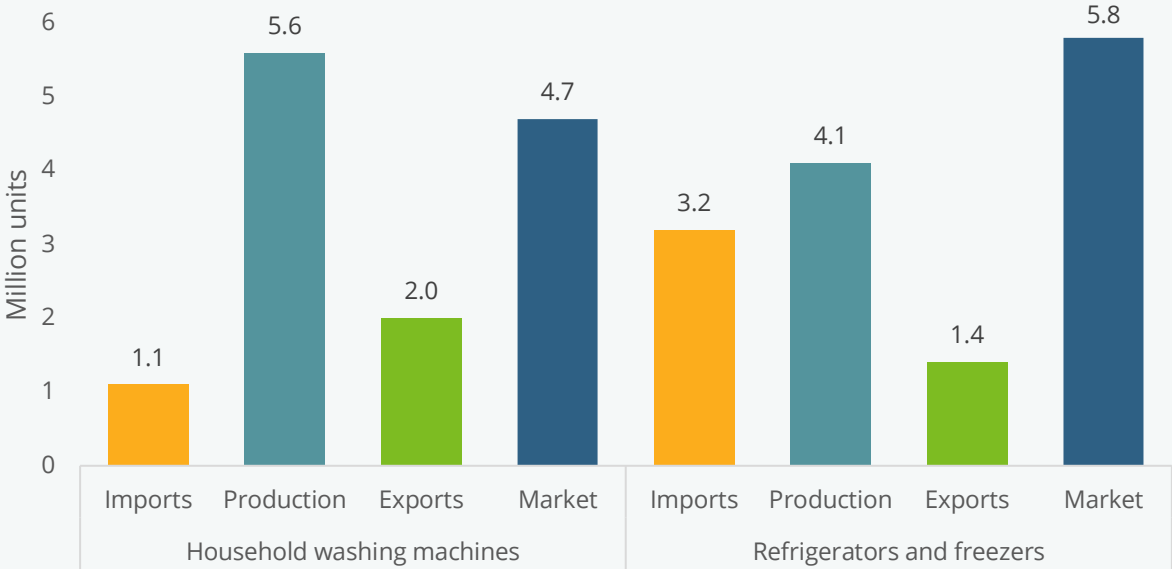
By the late summer and early fall 2022, however, Russia had largely replaced lost import sources. China and Turkey combined exported washing machines to the Russian

market at an annual rate of 2.8 million units during September to November 2022 (compared to Russian imports of 1.1 million units from all sources in 2021) (figure 15).⁷⁵

China, Serbia, Uzbekistan, and Turkey exported refrigerators and freezers at an annual rate of 3.2 million units during August to October (compared to Russian imports of 3.2 million units from all sources in 2021) (figure 16). In addition, data for Belarus, a major supplier before the war were not available.⁷⁶

Several factors contributed to the significant recovery in Russian imports. First, Chinese, Turkish, and Belarussian firms took advantage of the scaling back by U.S., European, and

Figure 14: Russian production and trade of washing machines and refrigerators and freezers, by volume, 2021



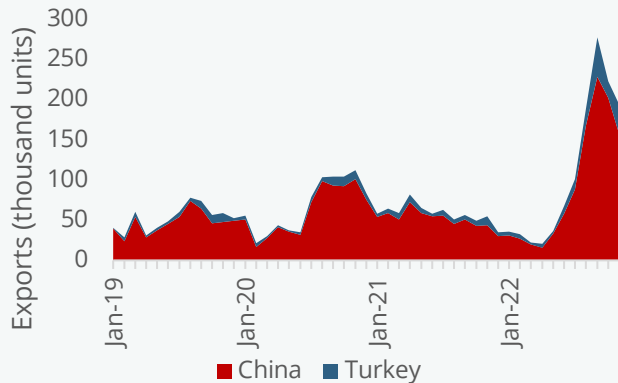
Sources: UN Comtrade database; CEIC Data database.

⁷⁴ While this section focuses on Russia’s ability to import, some of these early actions may make the impact on domestic production appear to be more significant than it will be in the long-term. For example, Whirlpool sold its plant to Turkish manufacturer Arcelik, which will continue to produce at Whirlpool’s plant in Russia and will continue to sell under several of Whirlpool’s brand names. In addition, Haier is continuing with construction of a new refrigerator plant in Russia. Interfax, “VEB Fund to Lend”; Park, “Samsung, LG Fret”; Kim, “LG Suspends”; IntelliNews, “Chinese and Turkish Brands”; Chemical Monitor Worldwide, “Two More European”; *Korea News Gazette*, “Russia’s Retaliatory”; Statista, “Household Appliances”; Whirlpool Corp, “Form 8-K”; BSH, “BSH Achieves”; M-Brain Russian News, “Russia: Workforce Being Cut”; *South China Morning Post*, “Ukraine Invasion: Western Sanctions”; Kim, “LG Electronics Halts”; Jung, “Korean Enterprises”; Woo and Choi, “Russia’s Retaliatory Financial Measures.”

⁷⁵ Global Trade Tracker database; UN Comtrade database..

⁷⁶ UN Comtrade database; CEIC Data database.

Figure 15: China and Turkey, exports of washing machines to Russia, units, Jan 2019–Nov 2022

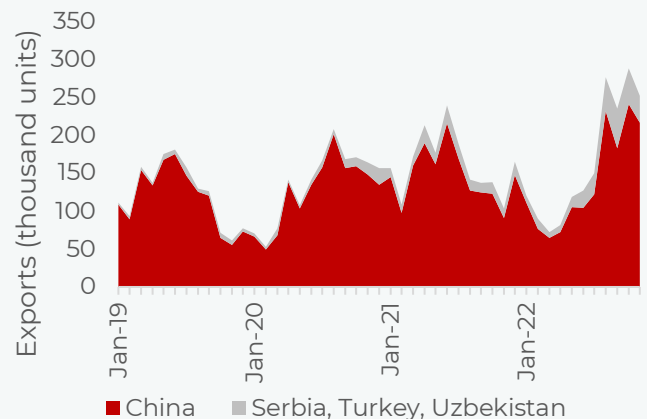


Source: Global Trade Tracker database

Korean firms to gain market share.⁷⁷ In September 2022, Haier was the leading supplier of both washing machines and refrigerators, with Turkish-based Arcelik’s Beko brand gaining market share in both products and Belarusian Atlant gaining market share in refrigerators.⁷⁸ Second, Russian firms started new shipping lines to deliver imports.⁷⁹ Third, Russian importers identified new suppliers of refrigerators and washing machines to fill the gap left by the exit of certain brands.⁸⁰ For example, Russian retailer M-Video Eldorado reached an agreement with Uzbek producer Artel for the supply of various appliances, including washing machines and refrigerators and freezers.⁸¹ Finally, there have been some transshipment of goods, but these appear to be relatively small in comparison to the other sources of supply developed by Russian importers.⁸²

The disruptions have likely contributed to an increase in consumer prices, with washing machine prices up 32 percent year-over-year in November 2022 and refrigerator prices up 22 percent—though both are considerably lower than their March 2022 peak.⁸³ It is difficult to disaggregate price effects from global inflation and other dynamics, but the price increases in Russia are considerably higher than those experienced in many neighboring European countries.⁸⁴ Producer prices for washing machines have fluctuated and were significantly above prior year levels during June to September 2022. They fell sharply in October 2022, but then increased again in November.⁸⁵ Further, the export controls do impact the

Figure 16: China, Serbia, Turkey, and Uzbekistan, exports of refrigerators and freezers to Russia, units, Jan 2019–Nov 2022



Notes/Sources: For Uzbekistan, data are only available in kilograms. The number of units, therefore, is an estimate based on the average per unit weight of Russian imports in 2021. Global Trade Tracker database; UN Comtrade database.

⁷⁷ IntelliNews, “Chinese and Turkish Brands”; M-Brain Russian News, “Russia: Demand.”
⁷⁸ IntelliNews, “Chinese and Turkish Brands.”
⁷⁹ Russia Business News, “FESCO Increases Capacity.”
⁸⁰ *UzReport*, “Artel Will Start”; *UzDaily*, “Russian Retailers.”
⁸¹ *UzReport*, “Artel Will Start.”
⁸² Nardelli, Baschuk, and Champion, “Putin Stirs European.”
⁸³ Rosstat data from CEIC Data database.
⁸⁴ European Central Bank, Statistical Data Warehouse; CEIC Data database.
⁸⁵ Rosstat data from CEIC Data database.

product variety available to Russian consumers, as certain imported products—such as products supplied by European firms—are no longer available.

Case Study 4: Passenger Vehicles

Restrictions on certain vehicle exports and the exit from the market of many multinational manufacturers⁸⁶ have had a significant impact on the composition of Russian vehicle imports. As of November 2020, however, these measures no longer appear to be limiting the volume of Russian vehicle imports. Russia has increased vehicle imports from China, shifted vehicle imports from Europe, Japan, and Korea from new vehicles to used vehicles, and increased the transshipment of vehicles through Western and Central Asia. The export controls and firm exits do contribute to higher prices and limit imports of new vehicles from major manufacturers outside of China.

Background: Russian industry, market, and trade

Russia had a large passenger vehicle market prior to the invasion of Ukraine, with 1.5 million passenger vehicles sold in 2021.⁸⁷ The majority of the market was supplied by domestic production, which totaled 1.4 million vehicles (including exports) in 2021.⁸⁸ Passenger vehicle

production in Russia in 2021 was dominated by foreign multinationals, either through direct plant ownership or joint ventures with Russian firms.⁸⁹ Russia also has a large used vehicle market, with 5.4 million used vehicles sold in 2019.⁹⁰

Russian imports of passenger vehicles totaled \$7.8 billion in 2021. The leading sources of passenger vehicle imports, by number of vehicles, were the European Union (25 percent of imports), Japan (23 percent), China (22 percent), the United States (9 percent), and Belarus (9 percent). By value the leading suppliers were the European Union (36 percent of imports), Japan (20 percent), the United States (16 percent), China (10 percent), and the United Kingdom (10 percent).⁹¹ The unit value of imports is impacted by the mix of vehicles and the share of imports accounted for by used vehicles.⁹²

Impact on Russian imports

Russia's imports of passenger vehicles plummeted immediately following its invasion of Ukraine, with the number of vehicles exported to Russia falling from 50,000 in January 2022 to 13,000 in May 2022 (figure 17).⁹³ This fall in exports to Russia was driven by a number of factors, such as the suspension of

⁸⁶ There were a number of export controls implemented on passenger vehicle exports to Russia following Russia's invasion of Ukraine. For example, the United States, in March 2022, prohibited the export of passenger vehicles without a license. The EU prohibited, in March 2022, the export of certain luxury goods, including passenger vehicles with a value exceeding EUR 50,000 (excluding ambulances). Japan similarly banned exports of luxury vehicles valued more than six million yen effective on April 5th, 2022. In addition, many of the largest multinational vehicle manufacturers halted vehicle production in Russia and exports to Russia. Aris, "Only 11 Foreign Car Brands"; Bellan, "These Are All"; EY, "Japan Implements Sanction"; 15 CFR Part 746; Council of the European Union, Council Regulation (EU) No 833/2014 of 31 July 2014; Toyota, "Toyota Statement."

⁸⁷ OICA, "Sales of New Vehicles, 2019"

⁸⁸ CEIC Data database.

⁸⁹ Association of European Businesses. "Year 2021 Ends"; Royal Thai Embassy in Moscow, "Auto Industry in Russia."

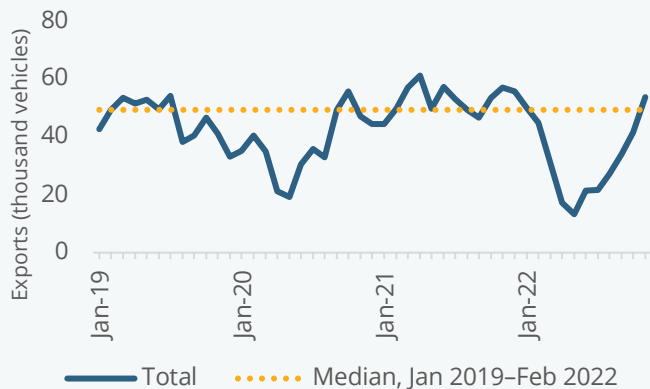
⁹⁰ EY, "The Russian and CIS."

⁹¹ UN Comtrade database.

⁹² UN Comtrade database.

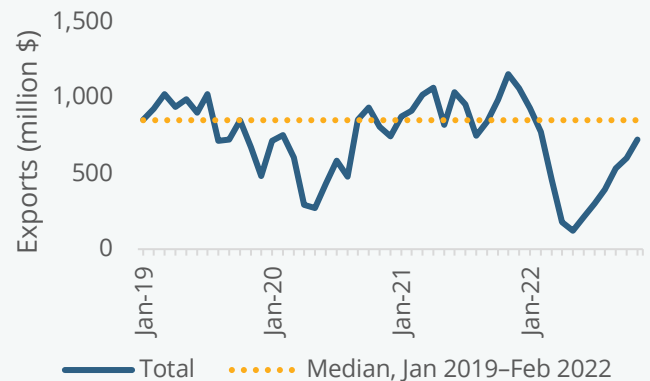
⁹³ The number of vehicles reported as exports to Russia has historically been significantly higher than Russia's reported imports. The data may include some complete knock-down (CKD) kits, which are all disassembled vehicles that are shipped to a plant to be assembled. Global Trade Tracker database.

Figure 17: Exports of passenger vehicles to Russia, by volume, Jan 2019–Nov 2022



Notes/Source: Data for 45 economies for which the number of vehicles was available. The data include the leading exporters in 2021, except Belarus. Kazakhstan data are also not included. Armenia data for November are an estimate based on vehicle weight. November data are partial, but include the largest suppliers among the 45 economies since the invasion of Ukraine. Global Trade Tracker database.

Figure 18: Exports of passenger vehicles to Russia, by value, Jan 2019–Nov 2022



Notes/Source: Data for 56 economies. The data include the leading exporters in 2021, except Belarus. Kazakhstan data are also not included. Armenia data for November are based on exports in HS 8703 to all countries, as country-specific data were not yet available. Armenia principally exported passenger vehicles to Russia in prior months. November data are partial, but include the largest suppliers since the invasion of Ukraine. Global Trade Tracker database.

sales in Russia by many multinational manufacturers, logistical challenges, the fall in the value of the ruble, and international payment challenges.⁹⁴ The strong ruble and improvement in international payments, lack of restrictions on used vehicle exports, increase in exports by Chinese producers, and transshipment of vehicles, however, led to a subsequent recovery of imports, which exceeded 50,000 by November 2022.⁹⁵ The value of imports remained significantly lower, reflecting the increase in used vehicle exports and higher share of lower priced vehicles from China (as discussed below) (figure 18). The largest vehicle suppliers to the market in Russia in the fall of 2022 were Japan (23,000 vehicles in November 2022, up 6 percent year-over-year) and China (20,000 vehicles in November 2022, up 70 percent year-over-year). Other major

exporters included Korea (2,900 vehicles in November 2022), Germany (1,600 vehicles in November 2022), Armenia (over 1,000 vehicles in October 2022), and Georgia (800 vehicles in November 2022).⁹⁶

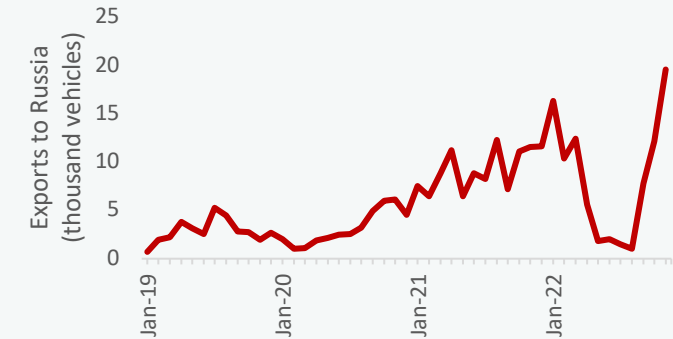
Chinese passenger vehicle exports declined immediately after the invasion, but subsequently started to significantly increase and reached record highs in November 2022 (figure 19). Chinese exporters were gaining significant market share in Russia prior to the invasion of Ukraine, and have taken advantage of the exit of firms based in sanctioning countries to gain further market share. Chinese firms are supplying both new vehicles to the Russian market and complete knockdown (CKD) kits for assembly in Russia. For example, the re-introduced Moskvitch-3 model is reportedly a

⁹⁴ Kamiyama, "Sanctions on Russia"; Aris, "Only 11 Foreign Car Brands"; Bellan, "These Are All the Automakers"; Automotive Logistics, "Automotive Logistics in Russia"; Campbell, "Carmakers Shut"; *The Yomiuri Shimbun*, "Russia-Ukraine Conflict"; News.am, "Japan Doesn't Allow."

⁹⁵ Global Trade Tracker database; Nishio, "Japan's Exports"; Silkroute.news, "Western Auto Brands"; Abelsky, "Car Market's Turn East"; Transparency International Georgia, "Georgia's Economic Dependence"; *The Asahi Shimbun*, "Japan's Used Car Exports."

⁹⁶ Global Trade Tracker database.

Figure 19: Chinese exports of passenger vehicles to Russia, number, Jan 2019–Nov 2022



Source: Global Trade Tracker database.

Chinese CKD assembled in Russia. Firms are expanding their presence through new dealerships, introducing new models, and forming new partnerships.⁹⁷

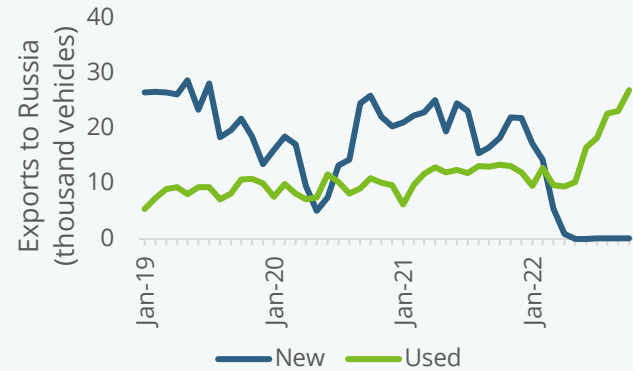
The export controls and firms exits have limited direct access to new vehicles from major multinational suppliers, with exports to Russia from Europe, Japan, and Korea shifting from new vehicles to used vehicles (figure 20). Germany and Korea were primarily new vehicle exporters prior to 2022, but, with export controls and firm exits, new vehicle exports have declined to near zero and used vehicle exports have significantly increased. Japan exported a mix of new and used vehicles prior to the war in Ukraine, but following the invasion its used vehicle exports substantially increased while its new vehicle exports fell to zero. The unit value of Japanese used vehicle exports significantly increased, including vehicles in the

same engine size categories, though it is not possible to determine whether the makeup of cars within those engine size categories has shifted.⁹⁸ A lack of available shipping, however, reportedly lengthens the amount of time needed to ship vehicles to Russia.⁹⁹

Russia is also importing a significant volume of vehicles through Central and Western Asian countries. Armenia’s imports of passenger vehicles significantly increased, with at least some of these vehicles being re-exported to Russia (figure 21).¹⁰⁰

Prices for new and used vehicles in Russia have both significantly increased. For used vehicles, it is difficult to determine how much of the difference is due to any changes in the product mix, as noted above.¹⁰¹

Figure 20: Germany, Japan, and Korea passenger vehicle exports to Russia, number, Jan 2019–Oct 2022



Notes/source: A breakout between new and used vehicles for one HS number was not available. Exports of these vehicles were included with new vehicles. Global Trade Tracker database.

⁹⁷ While Chinese firms have gained market share, not all firms had higher sales in November 2022 than in November 2021. Abelsky, “Car Market’s Turn East”; Kantchev and Kostov, “Where Are the Air Bags?”; EY, “The Russian and CIS”; Association of European Businesses, “New Car Sales Decrease”; Association of European Businesses, “Year 2021 Ends”; Kantchev and Kostov, “Where Are the Air Bags?”; Automotive Logistics, “Russia Carmakers”; Association of European Businesses, “New Car Sales Decrease”; NHK, “Russia Is Bringing Back”; Reuters, “Russia’s Car Sales”; Silkroute.news. “Western Auto Brands”; Gerden, “Russia Seeks Ways”; Automotive Logistics, “Russia Carmakers.”

⁹⁸ Global Trade Tracker database.

⁹⁹ Nishio, “Japan’s Exports.”

¹⁰⁰ Abelsky, “Car Market’s Turn East”; Global Trade Tracker database; Transparency International Georgia, “Georgia’s Economic Dependence.”

¹⁰¹ CEIC Data database; Just Auto, “Russia’s Light Vehicle Sales”; Global Trade Tracker database; Stolyarov, “Russia Turns to Japan”; TendersInfo, “Russian Federation”; Normanton, “Sanctions Bring Russian Car Market”; Posaner et al., “War and Sanctions.”

Figure 21: Armenia’s imports of passenger vehicles from the world and exports to Russia, by value, Jan 2019–Oct 2022



Case Study 5: Motor Vehicle¹⁰² Parts

The export controls and firm exits have had a significant impact on Russia’s domestic auto industry as firms based in sanctioning countries have withdrawn from the market and Russian producers have struggled to find auto parts and introduce new models.¹⁰³ China emerged as the main supplier of auto parts, though Russian producers are still struggling to find some parts and are only slowly reintroducing certain advanced features. The Russian government waived certain safety and environmental requirements¹⁰⁴ that, combined with imports

from China, have enabled some motor vehicle production to return.

Background: Russian industry, market, and trade

Russia had a large motor vehicle parts market, comprised of both parts for the production of new vehicles and aftermarket replacement parts. Russia produced 1.6 million motor vehicles in 2021, including 1.4 million passenger vehicles and 0.2 million commercial vehicles.¹⁰⁵ Russia has significant auto parts production, but imports supply a large share of demand.¹⁰⁶ The level of domestic content in vehicles varies considerably by company, with some companies having relatively high levels of domestic content. Even firms that have high domestic content, however, rely on components that are supplied by foreign-owned plants and/or by plants that are in turn dependent on imported subcomponents for their production.¹⁰⁷

Russia’s auto parts imports totaled \$19.6 billion in 2021. Four economies—the European Union (34 percent of imports), China (17 percent of imports), Korea (17 percent), and Japan (13 percent) supplied a combined 81 percent of Russia’s imports. Imports were diversified across a range of products, with certain vehicle bodies and body parts the largest categories of imports.¹⁰⁸

¹⁰² While the above section focused on passenger vehicles, this section will focus on parts for all motor vehicles since passenger vehicle parts are not broken out separately in the HS. The data in this section covers vehicle parts included in HS 8706–8708, as well parts classified in certain other HS subheadings.

¹⁰³ There are a number of export controls on motor vehicle part exports to Russia. For example, the United States and EU implemented restrictions on exports of vehicle parts starting in March 2022, with coverage varying and some restrictions only applying to parts of luxury vehicles. In addition, some parts suppliers withdrew from the market and auto companies that stopped production in Russia halted the flow of parts for new vehicle production. 15 CFR Part 74; Toyota Tsusho, “Toyota Tsusho’s Response”; Suetomi, “Japan introduces.”

¹⁰⁴ Kantchev and Kostov, “Where Are the Air Bags?”; AFP, “Russia Lowers Car Safety Standards.”

¹⁰⁵ OICA, “2021 Production Statistics.”

¹⁰⁶ Vorotnikov, “Russian Regulation”; Gibbs, “Auto Suppliers Eye Presence”; Kantchev and Kostov, “Where Are the Air Bags?” Kandrashina et al., “The Level of Production”; Posaner et al., “War and Sanctions.”

¹⁰⁷ Vorotnikov, “Russian Regulation”; Kandrashina et al., “The Level of Production”; IntelliNews. “Nokian Tyres and Michelin”; CE Noticias Financieras, “Mexican Auto Parts”; Gerden, “Russia Liberalizes”; Gerden, “Russian Subsidies.”

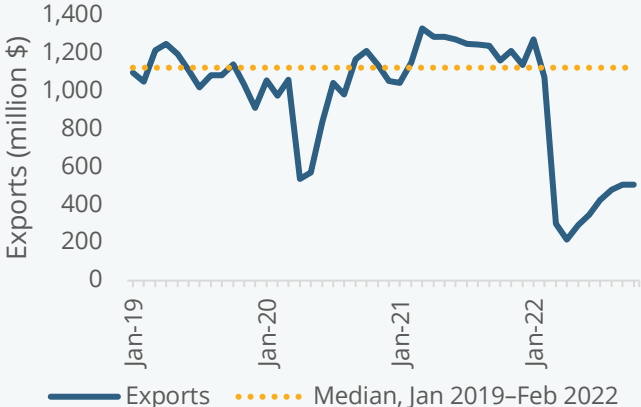
¹⁰⁸ Russia’s reported import values for parts are higher than mirror exports of parts to Russia, while Russia’s reported import values for vehicles are lower than reported vehicle exports to Russia. Overall Russia’s reported imports in chapter 87 are relatively close to reported mirror exports to Russia, indicating potential differences in product classifications. Global Trade Tracker database.

Impact on Russian imports

Export controls and firm exits had a substantial impact on Russia’s imports of auto parts, which fell precipitously following the Russian invasion of Ukraine (figure 22).¹⁰⁹ The disruption in imports (along with foreign firms suspending or closing parts plants in Russia) also impacted vehicle parts production in Russia, as many firms were not able to source subcomponents for parts production.¹¹⁰ Exports to Russia in October 2022 were still more than 50 percent below prewar levels and were supplied principally by China (59 percent), Turkey (12 percent), Korea (9 percent), and the EU (9 percent).¹¹¹

The challenge that Russian firms have had in finding auto parts is illustrated by the Russian government and firms reaching out to India, Iran, and Thailand to secure auto parts and the fact that some companies still have not reintroduced certain features requiring more advanced technology.¹¹² Further, the availability of replacement parts has reportedly been an issue.¹¹³ Nevertheless, it is difficult to quantify the extent of the gap between supply and demand as the closure of many vehicle plants owned by foreign companies means that demand will inherently be significantly lower until those plants are reopened. Russian

Figure 22: Global export of vehicle parts to Russia, by value, Jan 2019–Oct 2022



Notes/Source: Based on data for 70 economies for which data were available through October 2022. Global Trade Tracker database.

companies are redesigning products, establishing new supply chains for many parts, gradually reintroducing advanced features, and planning to reopen many of the plants acquired from foreign firms, so it remains to be seen whether the supply chain disruption for auto parts is long standing or if Russia is able to reestablish the supply chain over the next year.¹¹⁴

The sanctions and firm exits have also significantly raised prices for certain auto parts.¹¹⁵

¹⁰⁹ Global Trade Tracker database; Kantchev and Kostov, “Where Are the Air Bags?”; Kim, “Hyundai Shuts.”
¹¹⁰ IntelliNews, “Nokian Tyres and Michelin”; Vorotnikov, “Winds of War”; CE Noticias Financieras, “Mexican Auto Parts”; Hannay and Van Praet, “Magna to Idle.”
¹¹¹ Global Trade Tracker database.
¹¹² Abelsky, “Car Market’s Turn East”; Kantchev and Kostov, “Where Are the Air Bags?”; *The Telegraph*, “Indian Govt”; Roth and Sauer, “The Return of Banditry”; *Chiang Rai Times*, “Thailand Exports”; IntelliNews, “Barter Deal”; IntelliNews, “Iranian Auto Parts”; IntelliNews, “Iranian Sedans.”
¹¹³ Roth and Sauer, “The Return of Banditry.”
¹¹⁴ Abelsky, “Car Market’s Turn East”; Kantchev and Kostov, “Where Are the Air Bags?”; M-Brain Russia, “Russia: AvtoVAZ”; Posaner et al., “War and Sanctions”; Cooban, “Russian Car Sales”; McCausland, “Sanctions Force Russia”; Normanton, “Sanctions Bring Russian Car Market”; MENAFN, “Russian Automaker”; Gerden, “Russia Seeks Ways”; Ward-Glenton, “Russia Relaunches.”
¹¹⁵ CEIC Data database; Roth and Sauer, “The Return of Banditry”; *The Moscow Times*, “Ukraine War Drives.”

PART IV: CONCLUSION

Russia's invasion of Ukraine changed Russia's trade patterns and partners as the United States and its allies implemented sanctions and new export controls and many companies halted operations in Russia. As the war has dragged on, China and several other countries have actually increased their exports to Russia, leading to a recovery in Russia's overall imports. Several countries, particularly some post-Soviet states, have served as transshipment points, importing goods that Russia is not able to directly import and re-exporting them to Russia. As a result, Russia has had continued access to goods such as home appliances, smartphones, and passenger vehicles. Russia is also continuing to import integrated circuits, albeit

at lower volumes, particularly from China and Hong Kong. For vehicle parts, where it is more difficult to find substitutes and demand within Russia has likely fallen due to the lack of domestic production, the recovery in imports has been slower.

These findings warrant continued and strengthened oversight, enforcement, and coordination to prevent Russia from adapting to government trade restrictions and sanctions by seeking out new partners and supply networks and gaining access to foreign goods and technologies that will aid its ability to sustain the war against Ukraine.

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APPENDIX A: METHODOLOGY

The paper uses Russian import data for analyses of trends prior to 2022, but uses mirror foreign export data from supplier countries for 2022 data series since Russia no longer publishes import statistics.¹¹⁶ Foreign export data were available through October 2022 for 98 economies (counting EU members separately) that accounted for 99 percent of exports to Russia in 2021.¹¹⁷ While the coverage provided by these data is fairly comprehensive, there are several limitations. First, though covering most historical exports to Russia, it is possible that there are economies that have emerged as key exporters since the invasion of Ukraine that are not included in the data set. Second, for some economies, only aggregated export data are available, so it is not possible to comprehensively examine export trends for specific products.

Foreign export data are available for all 98 economies through October. In addition, export data for some economies are available through November and—for these economies—the full time series of data will be included when such data are presented separately. This report will compare 2022 import data to the prewar median as well as to both 2021 and 2019 data. Data for 2020 will generally not be used for comparison purposes due to the impact of the COVID-19 pandemic. While 2021 are used for comparison purposes, they reflect an elevated level of imports in the second half of the year.

¹¹⁶ Simola, “Russian Foreign Trade.”

¹¹⁷ This approach was used in a number of other publications that examined Russian imports since the invasion of Ukraine, such as Simola, “Russian Foreign”; Chorzempa, “Export Controls.”

APPENDIX B: FACTORS AFFECTING IMPORTS

There are three main groups of factors (product availability; market entry and acceptance; and prices and delivery costs), as identified by the USITC, that affect the ability of a firm to purchase foreign products and import them into a country (figure 23). The export controls and voluntary firm withdrawals impacted each group of factors. The following framework will be used in assessing the impact of export controls and firm withdrawals on the ability of Russia to import specific products.

Figure 23: Factors affecting the ability of importers and buyers to purchase foreign-made products and import them into a country

Product availability	Market entry and acceptance	Prices and delivery costs	Crosscutting (may apply to any factor)
<ul style="list-style-type: none"> • Available global supply • Contractual obligations of suppliers • Knowledge of available suppliers • Relationship between importers and suppliers • Export restrictions • Logistics (including shipping times) • Import restrictions 	<ul style="list-style-type: none"> • Intellectual property • Supplier reputation • Quality • Match between global production and domestic demand 	<ul style="list-style-type: none"> • Product prices • Logistics costs • Import duties • Export tariffs 	<ul style="list-style-type: none"> • Financing • Regulations • Standards and certifications

Source: USITC, *COVID-19 Related Goods*, December 2020.

APPENDIX C: ACRONYMS

AFP	Agence France-Presse
CIS	Commonwealth of Independent States
CKD	Complete knockdown kit
EIU	Economist Intelligence Unit
GACC	General Administration of Customs of the People's Republic of China
HS	Harmonized Commodity Description and Coding System or Harmonized System
IC	Integrated circuit
LNG	Liquefied natural gas
OICA	International Organization of Motor Vehicle Manufacturers
Treasury	U.S. Department of the Treasury
Rosstat	Federal State Statistics Service
UN	United Nations
USDOC, BIS	U.S. Department of Commerce, Bureau of Industry and Security
USITC	U.S. International Trade Commission
Yale SOM, CELI	Yale School of Management, Chief Executive Leadership Institute