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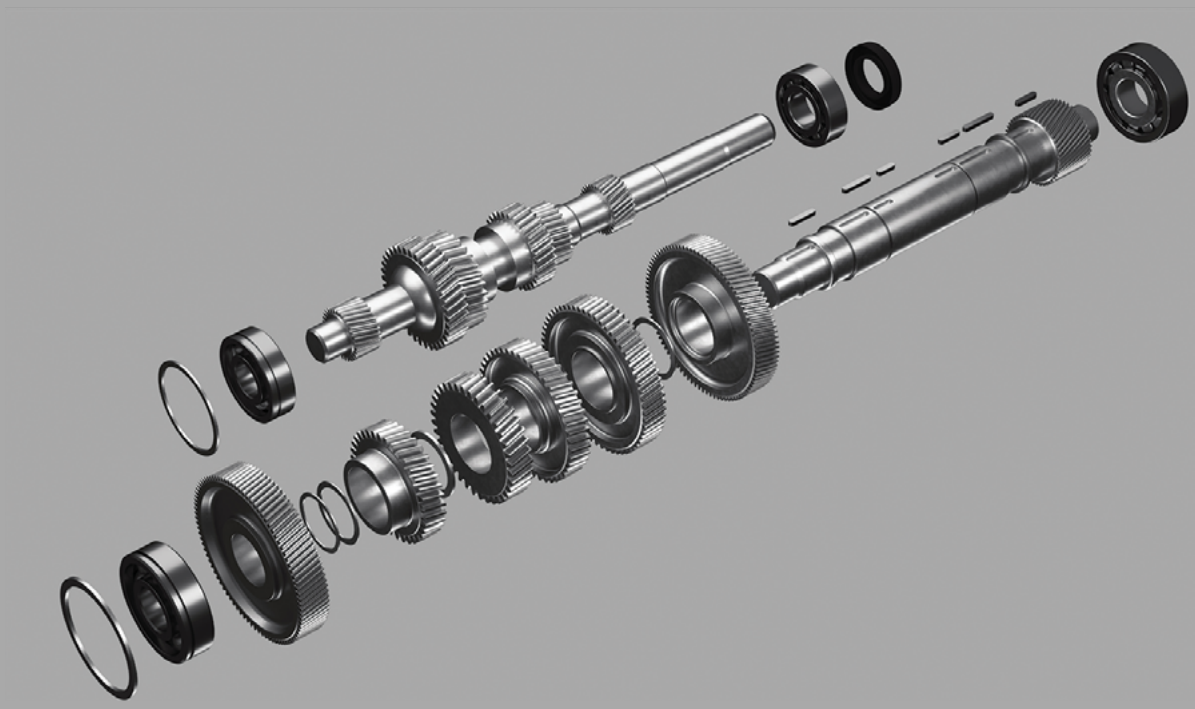
# The Role of Steel and Aluminum and Tariff Pressures in North America's Automotive Supply Chain



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# Executive Summary

The automotive industry in North America faces growing uncertainty and complexity as new tariffs and the upcoming 2026 revision of the United States–Mexico–Canada Agreement (USMCA) begin to disrupt established patterns of regional integration. This white paper examines the impact of aluminum and steel tariffs on the North American automotive industry, analyzing how these measures affect supply chains and ultimately increase vehicle costs for consumers, even when the vehicles are produced within the USMCA countries.

Tariffs on steel and aluminum were first implemented in 2018 under Section 232 of the Trade Expansion Act, setting rates of 25.0% on steel and 10.0% on aluminum imports. This measure aimed to reduce the use of aluminum and steel from China. In 2019, however, the United States suspended these tariffs for Mexico and Canada. In 2025, the United States reinstated and expanded these measures, raising the tariff on aluminum to 25% and later doubling both tariffs to 50.0%.

Over the years, integration between the three North American countries has deepened, with parts and components crossing the border multiple times during the production process. However, renewed tariff measures have introduced new challenges that affect production costs and sourcing decisions.

These changes carry significant cost implications. A typical automobile incorporates roughly 1,000 pounds of steel, contributing an estimated $6,000 to $7,000 to the vehicle's total cost.[1] Aluminum adds another 350 to 560 pounds, representing approximately $1,000 per unit.

Moreover, new USMCA provisions included in the original treaty are taking effect in 2027 and will require that all steel and aluminum be melted and poured within a partner country to qualify as originating.[2] This change will reshape sourcing strategies and highlight the growing need for regional coordination to sustain North America's competitiveness in the global automotive market.

## Rising Trade Uncertainty

*New 2025 tariffs + 2026 USMCA review disrupt regional auto supply chains.*

## Tariffs Increased

*Steel & aluminum duties elevated up to 50% in 2025.*

## Cross-Border Production Impact

*Parts move across borders multiple times, making the sector highly tariff-sensitive.*

1 Larry Avila, "Tariffs on Steel, Aluminum Likely Mean Higher Costs for Auto Industry," WardsAuto, February 12, 2025, https://www.wardsauto.com/news/archive-auto-tariffs-trump-steel-aluminum-automotive/739872/

2 USMCA, Automotive Appendix Article 6.1, footnote 74, 4-B-1-25 (2020).

# Introduction

The automotive industry stands as one of the most significant pillars of economic integration in North America. Beyond its symbolic role as a driver of industrial progress, it is a cornerstone of employment, innovation, and bilateral trade, linking thousands of firms and millions of workers across the region. Together, the three countries employ roughly 3 million direct workers in the automotive sector, with millions more indirectly supported through logistics, retail, professional services, and component manufacturing. This interdependence illustrates how deeply intertwined the North American economies have become through shared production networks, cross-border supply chains, and co-investment in technological transformation.

In the United States, the automotive industry remains a cornerstone of the nation's manufacturing base, serving as a vital source of technological innovation. It supports a vast ecosystem of suppliers, from raw material producers to software and engineering firms, and fuels innovation in electric vehicles (EVs), automation, and advanced materials. The industry's influence extends beyond assembly lines, creating ripple effects throughout transportation, energy, and research sectors. However, even as the United States remains a major producer of light vehicles, domestic manufacturing has not been sufficient to meet the rising demand of consumers. As a result, imports have become a significant component of the market, particularly from Mexico, South Korea, Japan, and Canada.

In Mexico, the automotive industry serves as the backbone of the country's manufacturing base and remains one of its most important generators of foreign exchange. Beyond final vehicle assembly, Mexico has become a powerhouse in auto parts manufacturing, supplying a wide range of components, including wire harnesses, metal stampings, advanced electronics, and powertrain components, to North America and beyond. Most of the fully assembled vehicles produced in Mexico are destined for export, primarily to the United States and Canada, and are concentrated in lower-cost, high-volume segments. As the largest contributor to manufacturing GDP and a leading source of export revenue, the sector anchors a wide network of suppliers, supports hundreds of thousands of jobs, and sustains Mexico's position as an essential hub for integrated automotive production.

Canada supplies essential components and finished vehicles to both the U.S. and Mexican markets, making it a critical link in North America's deeply integrated automotive ecosystem. The country's automotive corridor, anchored in Ontario and extending through a network of specialized manufacturing hubs, hosts several major global automakers, as well as a dense base of Tier 1 and Tier 2 suppliers. This cluster has evolved beyond traditional assembly to become a leader in electric-vehicle technologies, lightweight materials, advanced powertrains, and automation systems. Canadian firms contribute high-value inputs such as aluminum castings, battery components, electronics, and precision-machined parts that feed directly into production lines across the continent. As a result, Canada plays an indispensable role in enhancing regional competitiveness and supporting trilateral supply-chain resilience under the USMCA framework.

The United States–Mexico–Canada Agreement (USMCA) has further deepened this interconnection, updating the framework established under the North American Free Trade Agreement (NAFTA). The USMCA introduced stricter Rules of Origin (ROOs) to encourage regional content and strengthen domestic manufacturing, especially in the automotive sector. These provisions have spurred additional investment in North America while prompting firms to reassess their sourcing strategies to maintain tariff-free status. The result is a highly integrated production system in which components and subassemblies often cross the U.S.–Mexico border multiple times before reaching final assembly.

However, the sector also faces significant challenges related to trade policy and raw material costs. Steel and aluminum, essential inputs for vehicle manufacturing, have become focal points of trade tensions. Tariffs imposed on these materials in 2018 and reintroduced in 2025 disrupted supply chains and forced manufacturers

to adjust sourcing and compliance strategies under the USMCA. Given that an average vehicle contains around 1,000 pounds of steel and up to 560 pounds of aluminum, such measures have a tangible impact on production costs and pricing. Compounding these pressures are new ROO provisions set to take effect in 2027, which will require that the melt and pour process for steel and aluminum occur within a USMCA member country for the material to qualify as "originating."

These developments underscore the growing importance of resilient, regionally integrated supply chains in sustaining North America's competitiveness. The automotive industry exemplifies both the benefits and the complexities of economic interdependence. As trade rules evolve, companies must navigate new compliance requirements, balance cost structures, and invest in innovation to maintain their competitive edge.

This report examines these dynamics in detail, highlighting the economic significance of the automotive industry in the United States and Mexico, and analyzing how policy shifts, tariffs, and production realignments are shaping the future of this critical sector in North America.

## A Deeply Integrated North American Auto Ecosystem

*The U.S., Mexico, and Canada share tightly linked supply chains, employing millions across the region.*

## Policy & Trade Shifts Are Reshaping Production

*USMCA rules, tariffs, and new steel/aluminum requirements are changing sourcing strategies and regional investment.*

# The Automotive Industry in North America

The automotive industry in North America is one of the most integrated and dynamic manufacturing ecosystems in the world, encompassing the United States, Mexico, and Canada. This regional network supports around 3 million direct jobs and represents a critical share of industrial output, trade, and technological innovation. Under the USMCA, the three countries operate within a unified production platform that allows vehicles and components to cross borders multiple times before final assembly.

The annual light vehicle production in North America is around 16.5 million units. According to Wards Intelligence, the United States accounts for 69.0% of North America's light vehicle production, followed by Mexico with 23.0% and Canada with 8.0%. Also, approximately 3 million new light vehicles are imported into the United States from outside North America to supply the demand for new vehicles.

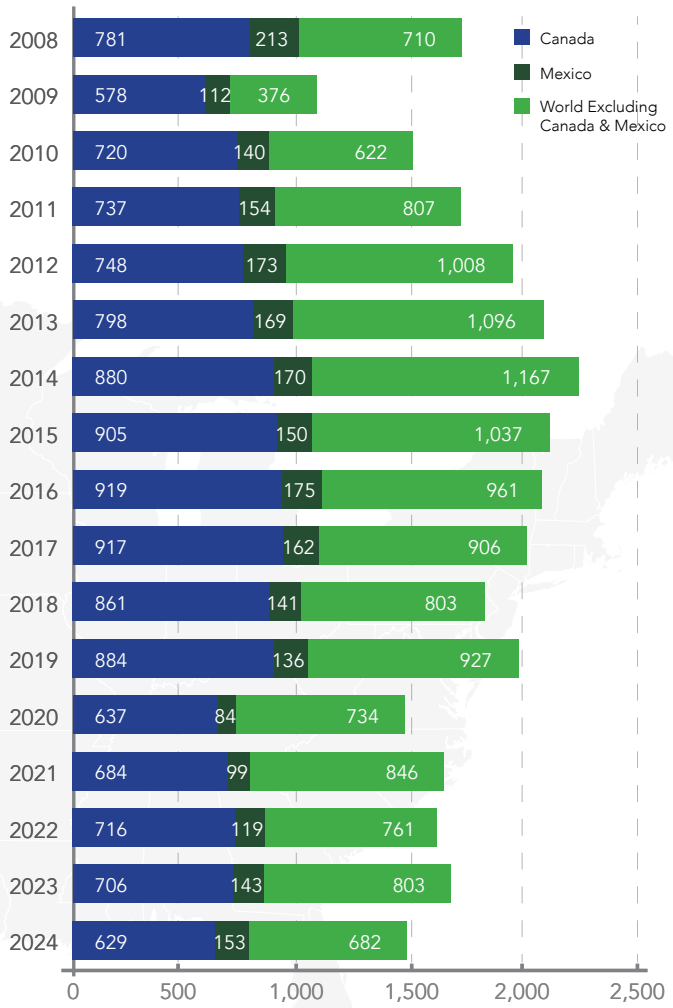
## United States

The automotive industry in the U.S. accounted for 4.8% of the country's Gross Domestic Product (GDP) in 2023, totaling $1.2 trillion for that year.[3] This amount represents a decrease of 2.9% compared to 2019 levels.

Despite the automotive industry's significant contribution to total GDP, most vehicles purchased in the U.S. are imported due to a persistent gap between domestic production and consumer demand. In 2024, U.S. light-vehicle production totaled 10.2 million units. Meanwhile, national automotive sales reached 16.3 million units in the same year, a 6.9% decrease from 2019.[4]

Approximately half of the new passenger vehicles and light trucks exported from the U.S. are destined for Canada and Mexico, its closest trading partners under the USMCA framework. Exports to North American markets have remained far more stable than those to other global destinations. Between 2009 and 2014, the total number of new passenger vehicles and light trucks exports rose steadily but gradually decreased since its 2014 peak. Since 2020, however, the number of exports for light vehicles has remained lower than pre-pandemic levels.

U.S. Exports of New Passenger Vehicles and Light Trucks (Thousand Units)



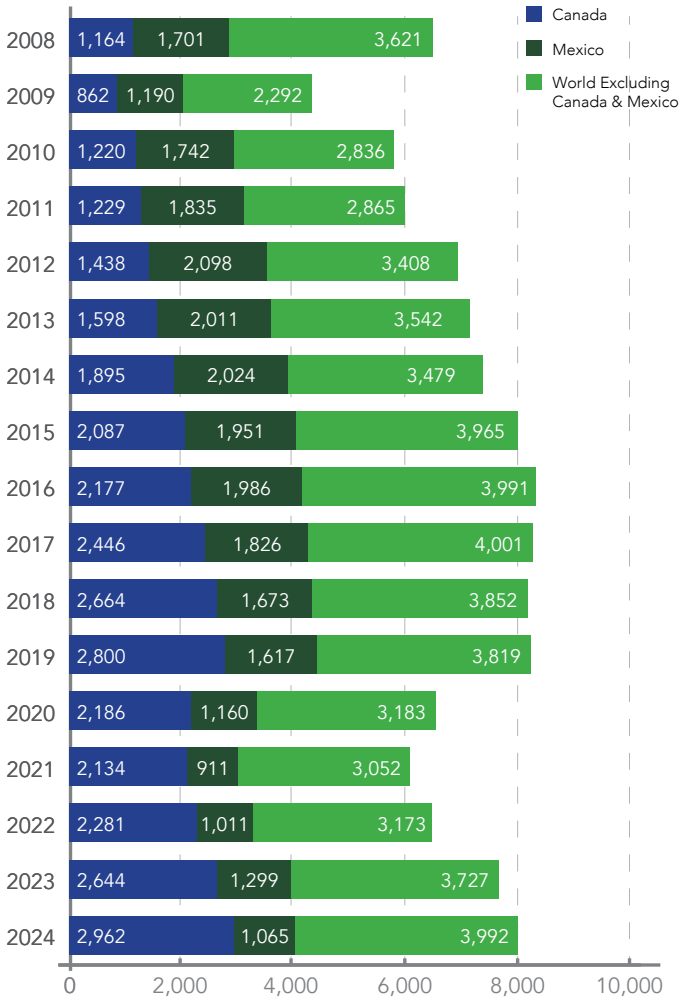

Note: Hunt Institute using data from the International Trade Administration.

3 Alliance for Automotive Innovation. Data Driven: State of the Auto Industry Report, January 2025. Washington, DC: Alliance for Automotive Innovation, 2025. https://www.autosinnovate.org/posts/papers-reports/Alliance%20for%20Automotive%20Innovation%20-%20DATA%20DRIVEN%20Report%20(January%202025).pdf.

4 Federal Reserve Bank of St. Louis. "TOTALSA: Total Vehicle Sales." FRED, Federal Reserve Bank of St. Louis.https://fred.stlouisfed.org/series/TOTALSA.

U.S. imports of new passenger vehicles and light trucks continue to be concentrated among its North American partners, Mexico and Canada. Together, these two countries account for roughly half of all U.S. light-vehicle imports. Over the past decade, imports from Mexico have shown steady long-term growth, rising from just over 1.1 million units in 2008 to nearly 3 million units in 2024, making Mexico the United States' largest source of imported light vehicles. Imports from Canada, while smaller, have remained relatively stable compared with broader global trends.

U.S. Imports of New Passenger Vehicles and Light Trucks (Thousand Units)




Note: Hunt Institute using data from the International Trade Administration.

## Automotive Sector Drives U.S. Economy

*Accounts for 4.8% of U.S. GDP in 2023, totaling $1.2 trillion.*

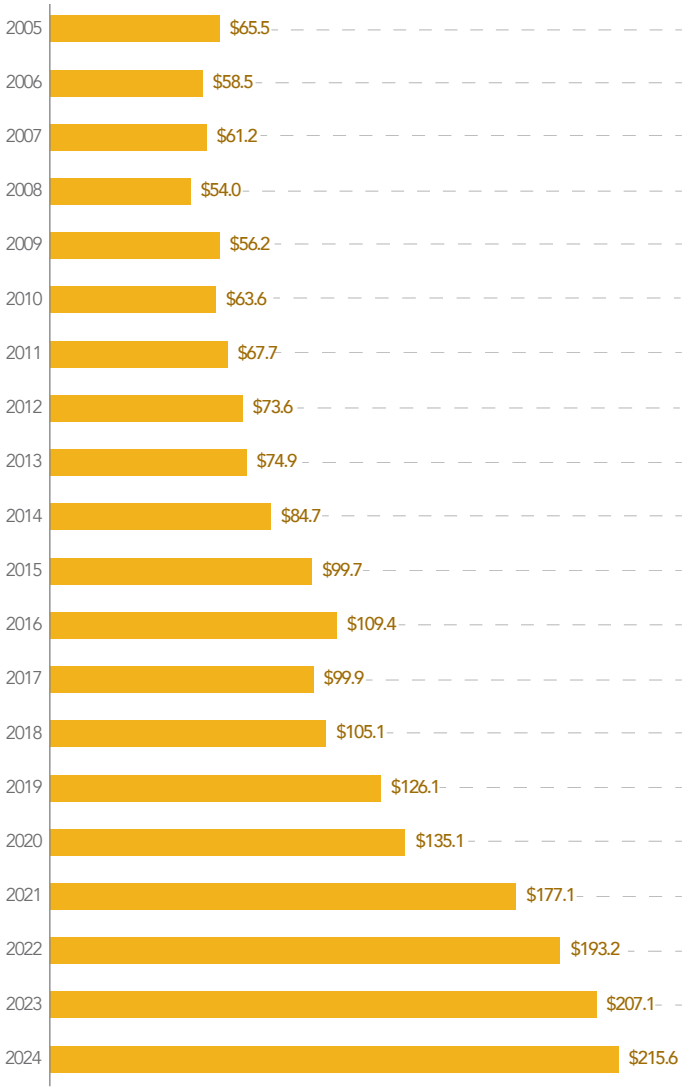
## North America Remains Core Export Market

*About half of U.S. vehicle exports go to Canada and Mexico, sustaining stable regional trade.*

Total investment in the U.S. automotive industry has consistently been high. Over the past two decades, the automotive industry has averaged an annual FDI of $95.5 billion in the U.S. Total domestic investment in the automotive industry reached $63.4 billion in 2024, representing a 22.4% increase from 2019 levels.[5] Meanwhile, total FDI in the U.S. for the industry reached $215.6 billion in 2024, the highest since 2005.

This upward trend in investment has been particularly evident in recent years, as the industry undergoes a major technological transformation toward electrification. In 2023, the U.S. automotive industry experienced a surge in major investments, driven by the transition to electric vehicles (EVs) and bolstered by federal incentives under the Inflation Reduction Act (IRA) and the Bipartisan Infrastructure Law (BIL). Notable investments included Rivian's continued expansion in Illinois and plans for a new facility in Georgia, Toyota's $1.3 billion allocation to its Kentucky plant for future EV production, and Stellantis's $4.1 billion commitment for EV and battery manufacturing across Illinois and Indiana.

FDI Position in the U.S. Automotive Industry
(USD Billion)




Note: The FDI position refers to the value of direct investors' equity in, and net outstanding loans to, their affiliates. The position may be viewed as the direct investors' net financial claims on their affiliates, whether in the form of equity (including retained earnings) or debt.
Source: Hunt Institute using data from the Bureau of Economic Analysis.

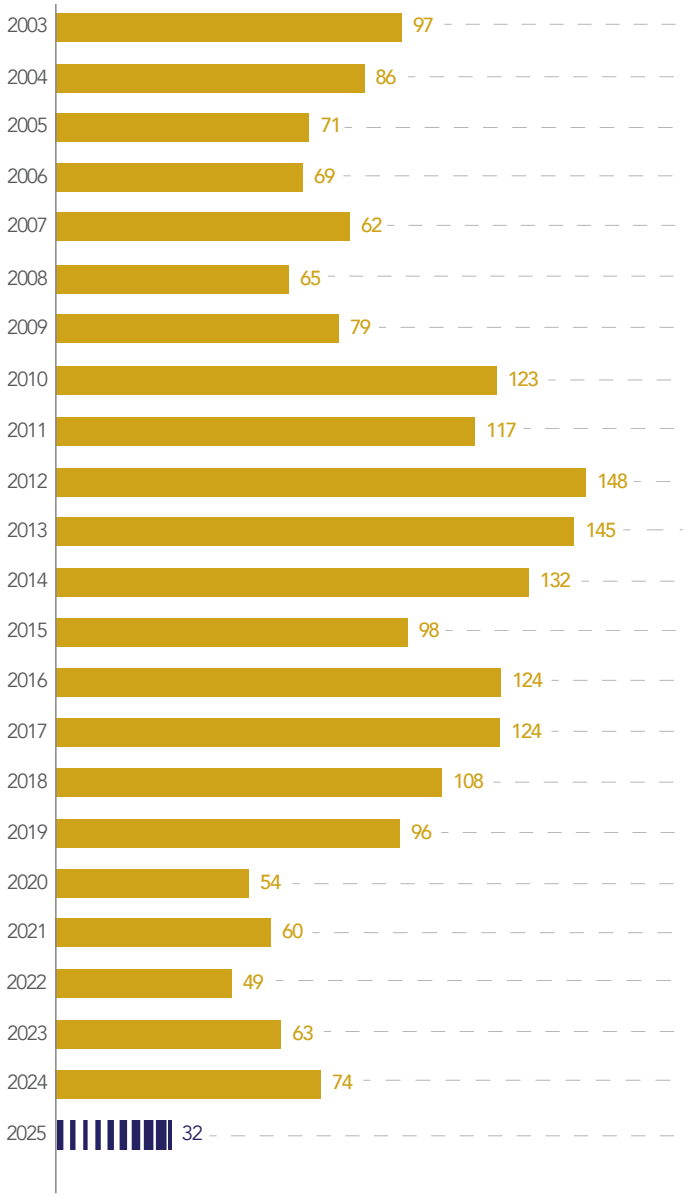
5 U.S. Bureau of Economic Analysis. Table 3.7ESI. Investment in Private Fixed Assets by Industry. National Data: Fixed Assets Accounts Tables, Interactive Data Application. https://apps.bea.gov/iTable/?ReqID=10&step=2&_gl=1*2ihvt3*_ga*NDE1MTQ1ODc4LjE3NDk3NDM0Njk.*_ga_J4698JNNFT*czE3NTcyODMxMzIkbzE0JGcxJHQxNzU3M-jgzNTQ4JGo2MCRsMCRoMA..#eyJhcHBpZCI6MTAsInN0ZXBzIjpbMiwzXSwiZGF0YSI6W1siVGFibGVfTGlzdCIsIjEzOCJdXX0=

Despite growth in the auto industry's FDI, the number of automotive projects in the U.S. has been declining. The industry peak occurred in 2012 with 148 projects. In 2014, 132 projects were reported. By 2024, the number had fallen to 74. Similarly, in the first five months of 2025, only 32 projects were reported.

Employment within the auto parts and motor vehicle manufacturing sector has risen steadily since 2015, except for 2020. The auto part and motor vehicle manufacturing sector in the U.S. employed approximately 1.0 million workers in 2024, a 0.6% decrease compared to its peak in 2023.[6]

Despite the growing trend in employment within the sector, its productivity has been declining. By 2024, output per worker in motor vehicle manufacturing was only 87.0% of its 2017 level, raising concerns over competitiveness and capital efficiency.[7]

FDI in the U.S. Automotive Industry
(Number of Projects)

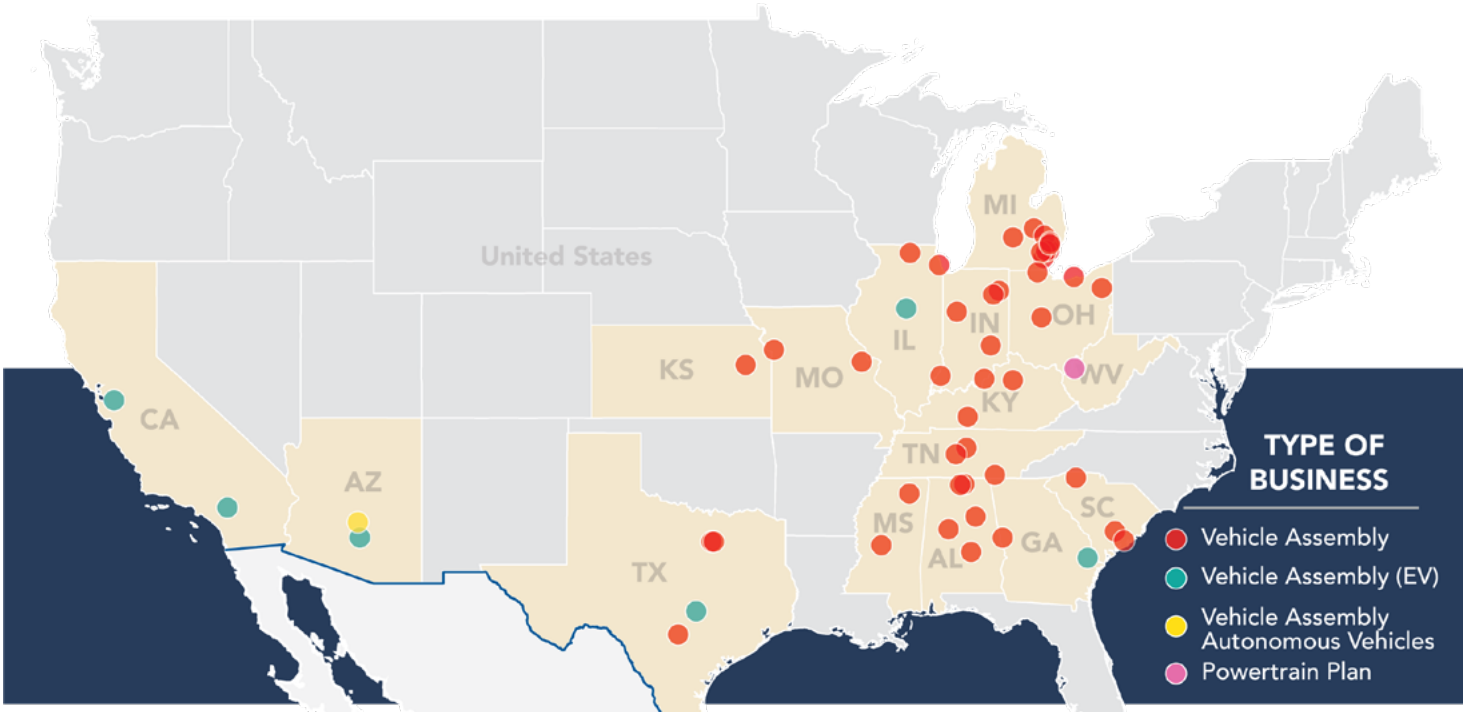



Note: Data for companies investing in the United States between January 2003 and May 2025.
Source: Hunt Institute using data from FDI Markets.

6 U.S. Bureau of Labor Statistics, Automotive Industry: Employment, Earnings, and Hours (Washington, DC: U.S. Department of Labor), https://www.bls.gov/iag/tgs/iagauto.htm#emp_national.

7 U.S. Bureau of Labor Statistics, Labor Productivity for Manufacturing: Motor Vehicle Manufacturing (NAICS 3361) in the United States [IPUEN3361L000000000], FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/IPUEN3361L000000000.

# U.S. Automotive Landscape




**Alabama**
- Mazda
- Honda
- Hyundai
- Mercedes-Benz

**Arizona**
- Lucid
- Waymo

**California**
- Tesla
- Karma

**Georgia**
- Kia
- Hyundai

**Illinois**
- Ford
- Rivian
- Stellantis

**Indiana**
- GM
- Honda
- Subaru
- Toyota

**Kansas**
- GM

**Kentucky**
- GM
- Ford
- Toyota

**Michigan**
- GM
- Stellantis
- Ford

**Mississippi**
- Nissan
- Toyota

**Missouri**
- Ford
- GM

**Ohio**
- Ford
- Stellantis
- Honda
- [redacted]

**South Carolina**
- Volvo
- BMW
- Mercedes-Benz

**Tennessee**
- Nissan
- GM
- Volkswagen

**Texas**
- GM
- Tesla
- Toyota

**West Virginia**
- Toyota

# Mexico

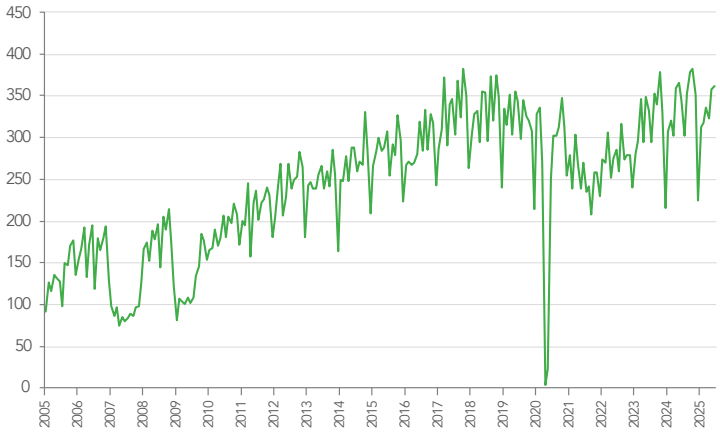
In Mexico, the automotive industry accounted for 4.3% of the country's GDP in 2024, contributing $79.5 billion to the national economy.[8] Unlike the U.S., Mexico is a net exporter of vehicles, as its domestic production exceeds consumer demand.

Light vehicle production in Mexico has had an overall increasing trend since 2022, reaching its peak in 2024. During 2024, the automotive industry assembled 4.0 million light vehicles, a 4.8% increase from 2023 levels. [9] That same year, sales of new light vehicles totaled 1.5 million units, a 9.7% increase compared to 2023 levels. In 2024, 87.2% of the light vehicles produced were exported abroad. Mexico's main export market was North America, with the U.S. receiving 79.7% of its production and Canada receiving 8.5%.

Mexico's investment in the automotive industry has also been significant in the country. Since 2022, FDI in auto-related manufacturing in Mexico has risen steadily. In 2024, Mexico attracted $9.4 billion in automotive FDI, the highest since 2018. Since 1999, the U.S., Japan, and Germany have been the countries that have invested the most in the auto-related manufacturing within Mexico.[10]

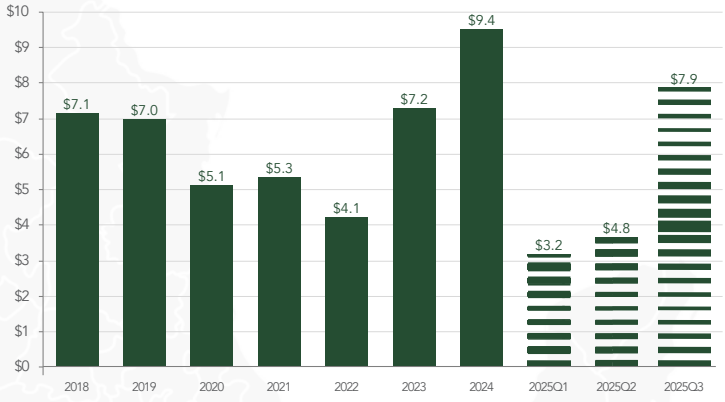
Between 2021 and 2023, the automotive manufacturing industry experienced growth, hitting its peak in 2023. In 2024, Mexico's automotive manufacturing sector employed over 800,000 workers, a 1.2% decline from 2023.[11] Despite the slight decrease in employment within the sector, labor productivity has remained steady. Output per worker increased 11.4% in 2024 compared to 2018 levels, suggesting stability despite lower employment.

Mexico's Light Vehicle Production
(Thousand Units)




Note: Data as of June 2025.
Source: Hunt Institute using data from INEGI.

FDI in Mexican Auto-Related Manufacturing
(USD Billion), 2018-2025Q3




Source: Hunt Institute using data from Gobierno de México.

8 Instituto Nacional de Estadística y Geografía (INEGI), Cuentas nacionales > Producto interno bruto trimestral, base 2018 > Valores a precios corrientes > Actividades secundarias > 31-33 Industrias manufactureras > 336 Fabricación de equipo de transporte > 3361, 3362, 3363, Banco de Información Económica (BIE) ; average exchange rate 2024: $18.3335 MXN/USD, Banco de México, accessed from https://www.banxico.org.mx/SieInternet/.

9 INEGI, "Reporte del Registro Administrativo de la Industria Automotriz de Vehículos Ligeros (RAIAVL), diciembre 2024", Boletín de Indicadores 10/25 (January 9, 2025).

10 Gobierno de México, Motor Vehicle Manufacturing Industry Profile, Data México (Secretaría de Economía), https://www.economia.gob.mx/datamexico/es/profile/industry/motor-vehicle-manufacturing?yearSelectorGdp=timeOption0&yearEconomicCensus=option1.

11 Instituto Nacional de Estadística y Geografía (INEGI), "Encuesta Mensual de la Industria Manufacturera (EMIM): Personal ocupado, horas trabajadas y remuneraciones, subsector 336 Fabricación de equipo de transporte (SCIAN 2018: 3361, 3362, 3363)", https://www.inegi.org.mx/app/indicadores/?tm=0&t=10000215#bodydataExplorer.

# Automotive Industry in Mexico


**Aguascalientes**

- Nissan
- Mercedes-Benz

**Baja California**

- Toyota

**Guanajuato**

- Ford
- Volkswagen, GM
- Toyota
- Honda
- Mazda

**Chihuahua**

- Ford
- BRP

**Jalisco**

- Honda

**Nuevo León**

- Kawasaki
- Polaris
- Traton
- Kia

**San Luis Potosí**

- BMW, GM

**Coahuila**

- GM
- Daimler
- Stellantis

**México**

- Ford
- Stellantis, GM

**Puebla**

- Audi
- Volkswagen

**Sonora**

- Ford

# Canada

The automotive industry in Canada is a critical link in the North American automotive supply chain. In 2023, the industry contributed approximately CA$16 billion to Canada's GDP, representing about 1.0% of the national economy. While smaller in scale than the U.S. sector, automotive production remains one of Canada's largest export industries and a major employer, supporting more than 500,000 direct and indirect jobs across assembly, parts manufacturing, and logistics.[12]

Canada's automotive sector is deeply export-oriented. In 2024, Canadian assembly plants produced approximately 1.3 million light vehicles, with roughly 85.0% of them shipped to the U.S. market. By contrast, domestic vehicle sales totaled nearly 1.9 million units in 2024, indicating that most vehicles sold in Canada are imported, primarily from the U.S. and Mexico.[13] Over the past decade, Canadian auto plants, operated by global automakers such as General Motors, Ford, Stellantis, Toyota, and Honda, have specialized in strategic models, including SUVs, pickups, and, increasingly, electric vehicles (EVs).

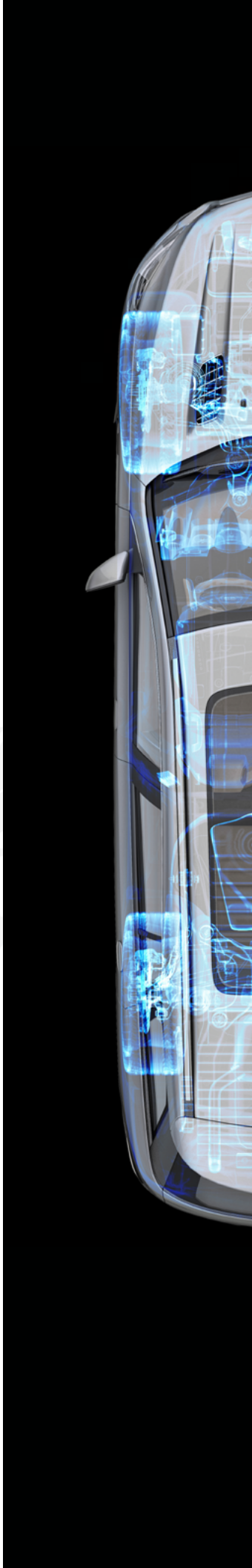
Beyond its assembly capacity, Canada plays a strategic upstream role in supplying the raw materials critical to automotive and EV production across North America. The country is a leading producer of nickel, cobalt, graphite, aluminum, and copper, all of which are essential for the manufacturing of electric motors and batteries. Canada also possesses significant reserves of lithium and rare earth elements.

## 85% of Canadian Vehicle Output Exported to the U.S. in 2024

*A highly integrated cross-border flow—Canada builds for the U.S. market and imports most vehicles sold domestically.*

## Critical Supplier of EV Minerals & Components

*Canada is a leading North American source of nickel, cobalt, graphite, aluminum & copper—essential inputs for EV motors and batteries.*



12 Canadian Vehicle Manufacturers' Association, Industry Facts, 2025, https://www.cvma.ca/industry/facts.

13 Statistics Canada, "New Motor Vehicle Sales, 2024," The Daily, March 14, 2025, https://www150.statcan.gc.ca/n1/daily-quotidien/250314/dq250314d-eng.htm.


# North America Integration & Its Complex Supply Chains

The automotive industry in North America is one of the most integrated and dynamic manufacturing ecosystems in the world, encompassing the United States, Mexico, and Canada. This regional network supports around 3 million direct jobs and represents a critical share of industrial output, trade, and technological innovation. Under the USMCA, the three countries operate within a unified production platform that allows vehicles and components to cross borders multiple times before final assembly.

The United States remains the region's largest producer and consumer of vehicles, supported by a highly diversified network of suppliers and research and development centers. Mexico has emerged as a leading hub for parts manufacturing and assembly, attracting foreign direct investment from major automakers and Tier 1 suppliers seeking competitive labor costs and proximity to the U.S. market. Canada plays a complementary role, specializing in the high-value assembly of vehicles, the production of advanced parts, and research in electric and autonomous vehicle technologies.

# The Role of Steel & Aluminum in the Automotive Industry in North America

Steel and aluminum are the two most essential materials in modern vehicle manufacturing, together accounting for approximately 75.0% of a car's total weight. Their role is structural, economic, and environmental, shaping everything from vehicle safety and performance to fuel efficiency and emissions reduction.

Steel remains the dominant material, representing approximately 55.0–60.0% of the average vehicle's weight.[14] It is primarily used in the body-in-white (the vehicle's frame and structure), chassis, engine components, and suspension systems, where high strength and crash resistance are critical. Modern automakers rely heavily on advanced high-strength steels (AHSS) to achieve lightweight designs while maintaining durability and safety standards.

Aluminum, by contrast, accounts for 10.0–15.0% of vehicle weight but continues to grow in importance due to its lightweight and corrosion-resistant properties.[15] It is increasingly used in body panels, engine blocks, transmission housings, and wheels, particularly in electric vehicles (EVs) and light trucks, where reducing overall weight improves range and efficiency. The average North American vehicle now contains about 500 pounds of aluminum, a figure projected to rise by 12.0–15.0% by 2030 as manufacturers transition to EV platforms.[16]

The origin of these two essential materials for vehicle manufacturing is largely foreign, with Canada serving as the primary source. Replacing these imports with U.S.-produced raw materials would be challenging, as domestic production capacity remains insufficient to meet the industry demand.

According to the U.S. Geological Survey's Mineral Commodity Summaries 2025, the United States remains structurally dependent on imported aluminum. Nearly half of all aluminum consumed domestically in 2024 was imported, primarily from Canada, followed by the United Arab Emirates, Bahrain, and China.[17] Despite modest gains in secondary production, driven by increased recycling and new federal funding for low-carbon metal initiatives, primary smelting capacity has continued to contract, leaving the domestic market exposed to international price fluctuations and supply-chain disruptions.

14 World Steel Association, Steel's Contribution to a Low Carbon Future, 2024, https://worldsteel.org.

15 International Aluminum Institute, Aluminum in Transport: 2024 Report, https://international-aluminium.org.

16 Ducker Carlisle, North American Light Vehicle Aluminum Content Study, 2023.

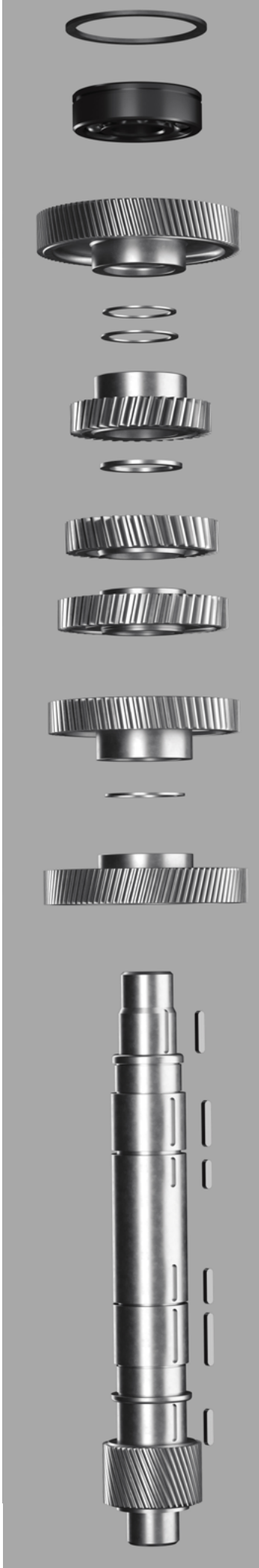
17 U.S. Geological Survey, Mineral Commodity Summaries 2025 (Reston, VA: U.S. Geological Survey, 2025), 32–34.

U.S. primary aluminum output declined to an estimated 670,000 metric tons in 2024, an 11.0% drop from the prior year, while total installed capacity remained roughly 1.36 million tons per year. This contraction mirrors a long-term trend that has seen multiple U.S. smelters idle due to high energy costs and competition from producers in Canada and the Middle East, where hydroelectric power makes production more cost-effective.

At the same time, U.S. aluminum imports totaled approximately 4.8 million metric tons in 2024, compared with about 1.4 million metric tons in exports of crude and semi-manufactured products. Canada continued to account for a majority (56.0%) of total U.S. imports between 2020 and 2023, followed by the United Arab Emirates (8.0%), China (8.0%), and Bahrain (4.0%).[18] While this trade pattern underscores the strength of continental integration under the USMCA, it also highlights the limited ability of the U.S. to meet domestic demand from internal sources alone. As a result, any shift in tariff policy or global supply availability reverberates quickly through the downstream manufacturing sectors, especially the automotive sector, where aluminum is a critical input.

This broader dependence on imported inputs is also reflected in the steel market. Although the United States remains one of the world's largest producers of crude steel, domestic output is insufficient to meet total industrial demand, particularly for the automotive sector, which depends on highly specialized grades. The U.S. produced approximately 90 million metric tons of crude steel in 2024, ranking fourth globally behind China, India, and Japan.[19] While the U.S. steel sector is competitive in standard carbon and alloy steel production, it lacks the technical capacity to substitute certain imported automotive grades without major capital investment. As the U.S. Chamber of Commerce has noted, "the production capacity needed to replace these imports simply does not exist domestically." [20]

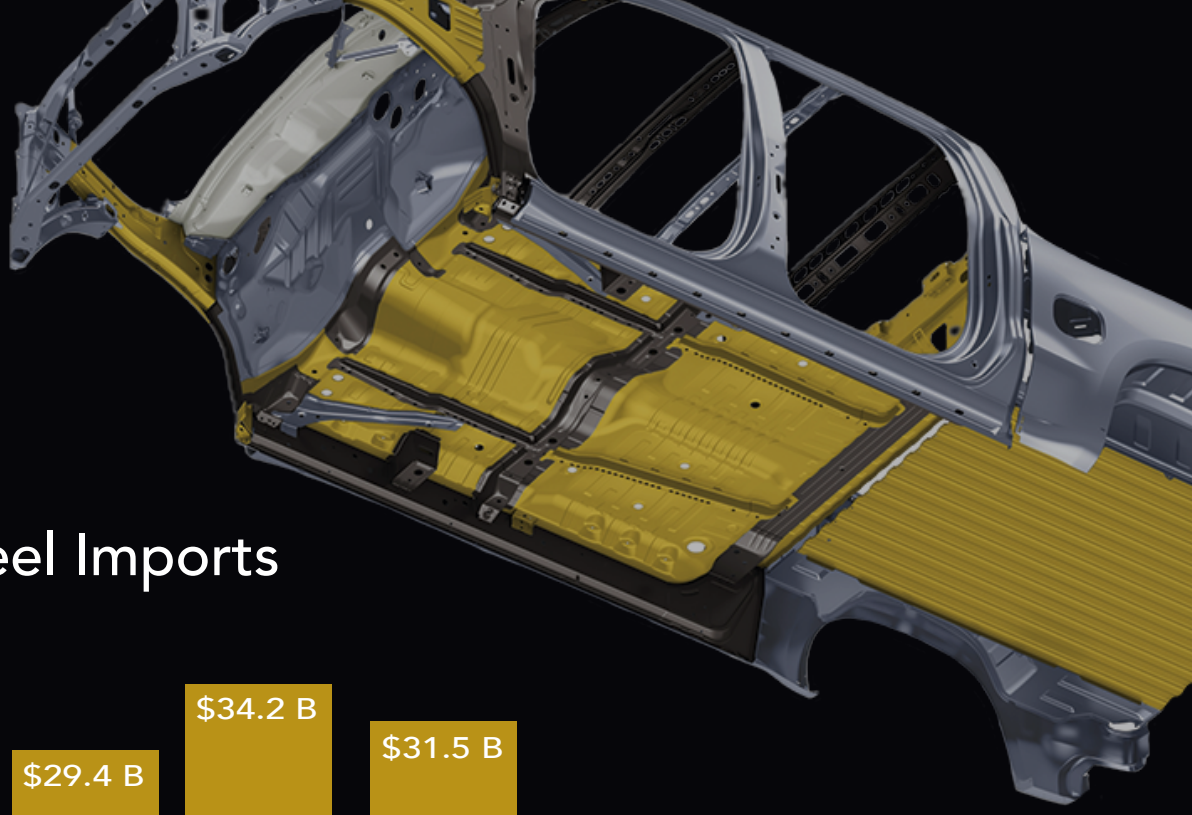
Canada and Mexico together supply more than 40.0% of U.S. steel imports. This dependency creates vulnerabilities in the supply chain, particularly when tariffs, trade disputes, or global supply chain disruptions occur.



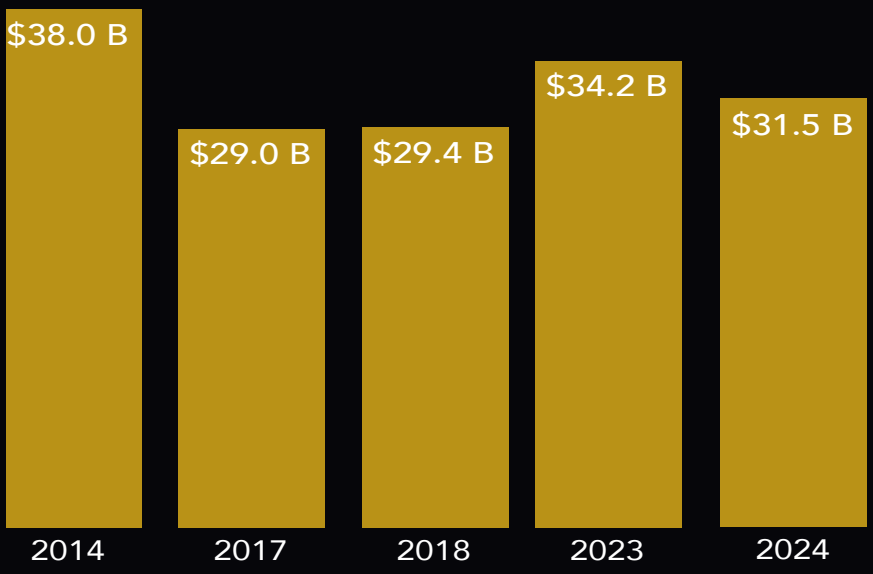
18 Ibid., 33.

19 World Steel Association, World Steel in Figures 2025 (Brussels: World Steel Association, 2025).

20 U.S. Chamber of Commerce, "How the Steel and Aluminum Tariffs Are Hurting U.S. Manufacturing," U.S. Chamber of Commerce, 2024.



## Total U.S. Steel Imports




Note: The steel import data is presented using 6-digit HS codes (Chapter 76).
Source: Hunt Institute using data from the U.S. Census Bureau.

# Overview of the Current Situation for Steel

Over the past decade, total U.S. steel imports have fluctuated, reflecting shifts in domestic production, demand, and global market conditions. Total steel imports to the U.S. reached their peak in 2014 with $38.0 billion. In 2024, steel imports totaled $31.5 billion, representing a 7.9% decrease from 2023 imports.

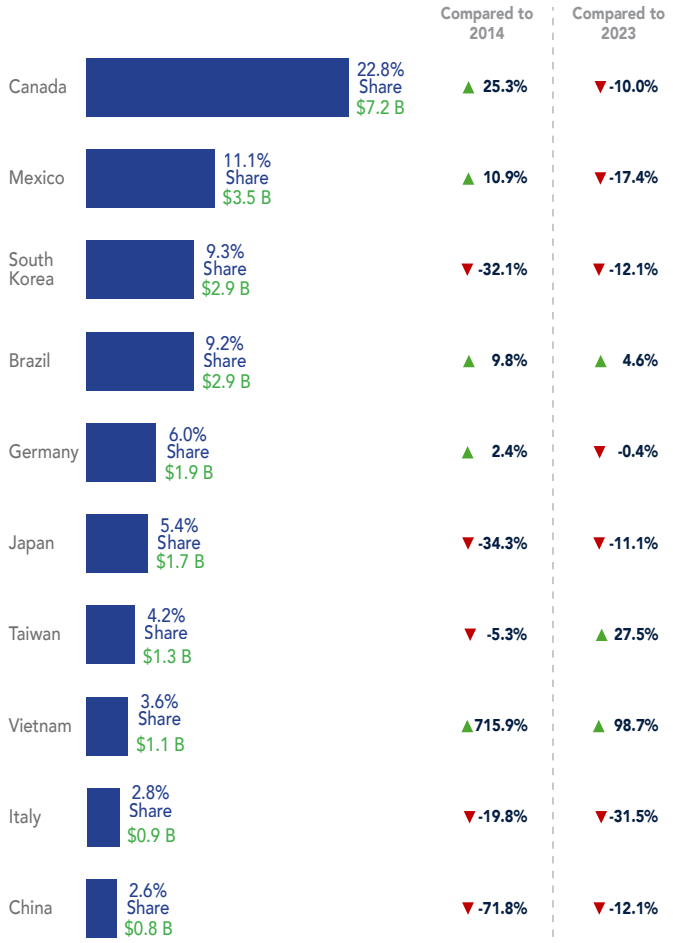
# Top Country of Origin Steel Imports by State (U.S.)

In 2024, a large share of steel imports to the U.S. were from North America. Canada was the main steel exporter to the U.S., with $7.2 billion, or a 22.8% share. Mexico exported $3.5 billion in steel, or 11.1% of the total U.S. steel imports, followed by South Korea with $2.9 billion, or 9.3% share.

Half of the main steel exporters for the U.S. had a Year-over-Year (YoY) increase in U.S. steel imports compared to 2014 levels, including Canada, Mexico, Brazil, Germany, and Vietnam. The rest had YoY decreases in their steel exports to the U.S.

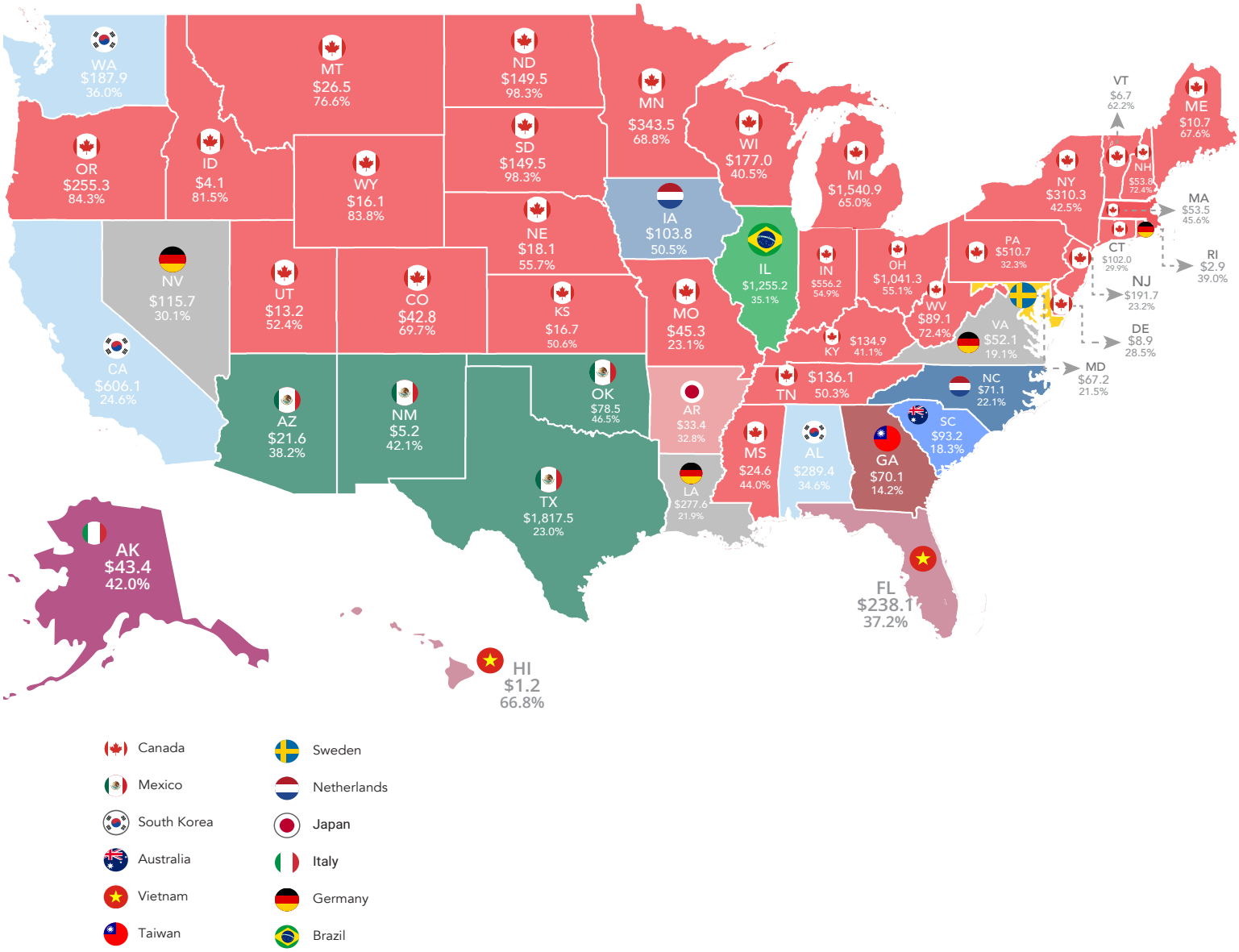
Compared to 2023 levels, however, most of the main exporters for 2024 had YoY decreases in U.S. steel imports. Only Brazil, Taiwan, and Vietnam had overall steel export increases to the U.S. in 2024.

Examining the top country of origin for steel imports to the U.S. by state in 2024 allows us to identify regional trade patterns and supply chains across the country. In 2024, Canada was the main steel exporter for 34 out of the 50 states. For the U.S. southern border states, Mexico was the primary source of steel imports for all, except California.



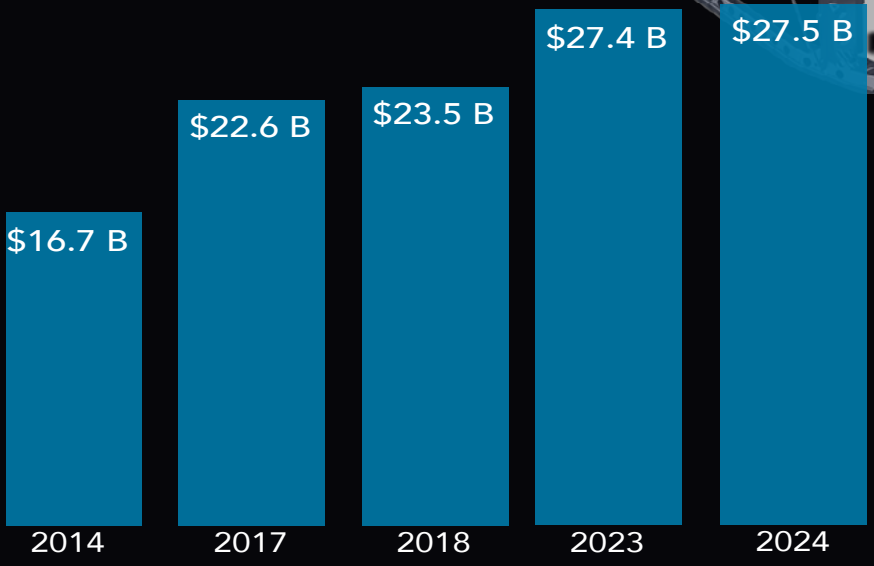

Note: The steel import data is presented using 6-digit HS codes (Chapter 76).
Source: Hunt Institute using data from the U.S. Census Bureau.

# Top Country of Origin Steel Imports by State (USD Million), 2024




Note: The steel import data is presented using 6-digit HS codes (Chapter 76).
Source: Hunt Institute using data from the U.S. Census Bureau.

## Total U.S. Aluminum Imports




Note: The aluminum import data is presented using 2-digit HS codes (Chapter 76).
Source: Hunt Institute using data from the U.S. Census Bureau.

# Overview of the Current Situation for Aluminum

From 2014 to 2024, total aluminum imports to the U.S. have shown an upward trend. In 2024, U.S. aluminum imports reached their peak with $27.5 billion, a 64.7% increase from 2014 levels. Compared to 2023 levels, 2024 had a slower growth rate in aluminum ports, with an increase of 0.4%.

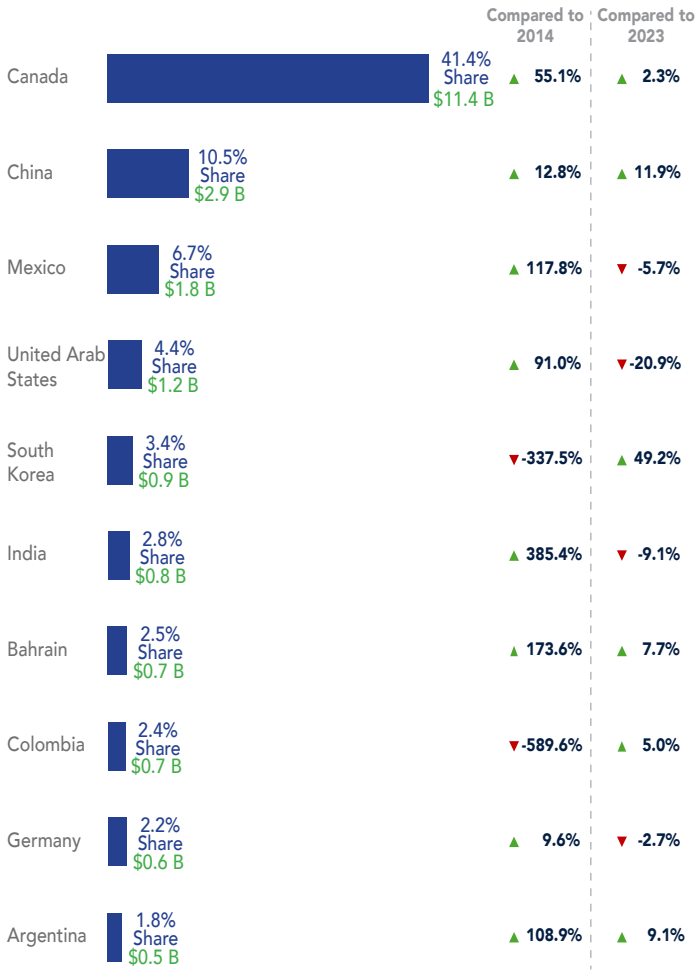
# Top Country of Origin Aluminum Imports by State (U.S.)

Almost half of the aluminum imports to the U.S. in 2024 originated from North America. In 2024, the U.S. imported $11.4 billion in aluminum from Canada, accounting for a 41.4% share. China was the second-largest aluminum exporter to the U.S. in 2024, with a 10.5% share, followed by Mexico with a 6.7% share.

Compared to 2014 aluminum import levels, all top 10 exporters to the U.S. had YoY increases in 2024. Only South Korea and Colombia had YoY decreases in aluminum exports during this period.

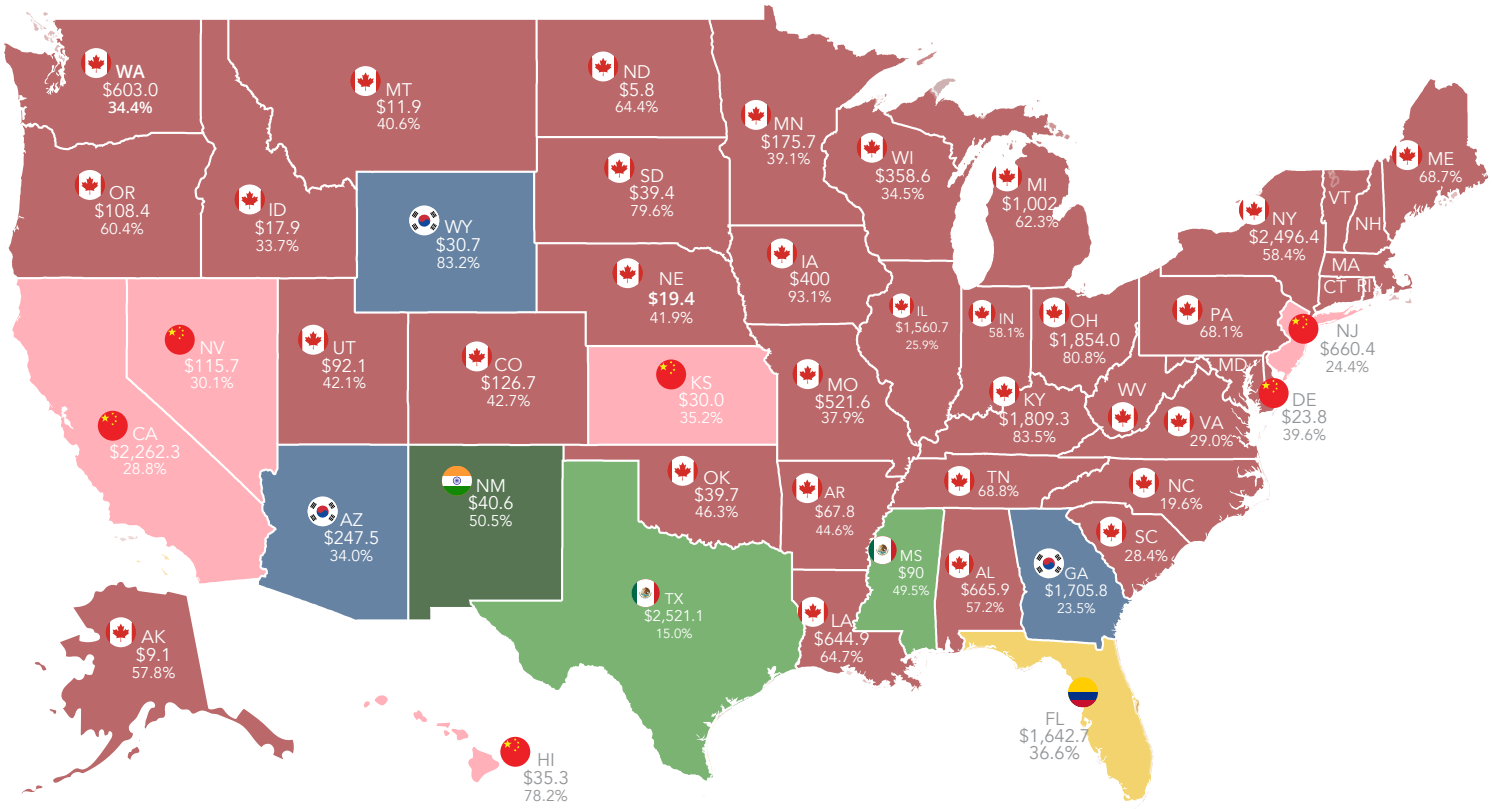
In 2024, most top 10 aluminum exporters to the U.S. had positive YoY growth in their export levels compared to 2023. Only the United Arab Emirates, Mexico, India, and Germany decreased their export levels to the U.S. during the same period.

The breakdown of the top country of origin for U.S. aluminum imports by state in 2024 identifies regional patterns. Canada was the main source of aluminum imports to 38 of the 50 states in 2024. Most southern states, however, had China, Mexico, India, Germany, Colombia, and Japan as their primary sources for aluminum imports in 2024.



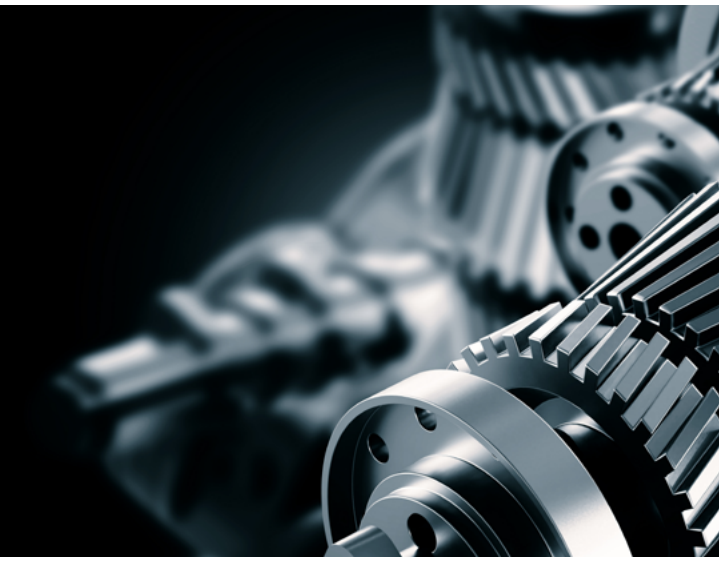

Note: The aluminum import data is presented using 2-digit HS codes (Chapter 76).
Source: Hunt Institute using data from the U.S. Census Bureau.

# Top Country of Origin Aluminum Imports by State (USD Million), 2024




- Canada
- China
- Mexico
- South Korea
- Colombia
- India

Note: The aluminum import data is presented using 2-digit HS codes (Chapter 76).
Source: Hunt Institute using data from the U.S. Census Bureau.



# Challenges with New Tariffs on Aluminum & Steel

Since 2018, the United States has utilized Section 232 of the Trade Expansion Act to impose tariffs of 25.0% on most steel and 10.0% on most aluminum, citing national security concerns. In May 2019, the United States removed these Section 232 duties on Canada and Mexico, replacing them with joint monitoring arrangements that allowed re-imposition "if imports surged." In 2024, to curb circumvention via third-country inputs routed through Mexico, the White House added origin-tightening rules: steel imported from Mexico can avoid Section 232 only if it is "melted and poured" in North America, while aluminum qualifies only if it is not smelted or cast in China, Russia, Belarus, or Iran. Documentation verifying the origin must now accompany entries submitted to U.S. Customs. Separately, in May 2024, the Trump administration also raised Section 301 tariffs on select Chinese steel and aluminum products to 25.0%.

Aluminum prices rose sharply in the second half of 2024, with benchmark premiums reaching their highest levels since 2021.[21]

In 2025, U.S. policy shifted again. The Trump administration reinstated the full 25.0% Section 232 duty on a broad range of products and later announced plans to raise Section 232 rates on covered steel and aluminum imports to 50.0%, citing persistent overcapacity and evasion risks. While the exact coverage and timing matter for firm-level exposure, automakers and suppliers face a materially tighter tariff environment than during 2019–2023.

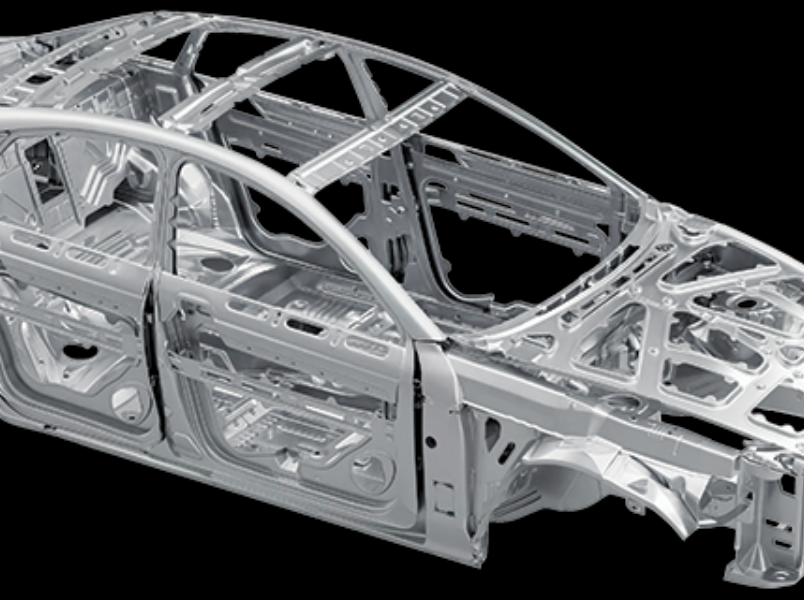
For North American automotive manufacturing, which depends on competitively priced flat-rolled steel, extrusions, and automotive-grade aluminum sheet, the effects are twofold. First, tariffs and origin rules increase input costs and add compliance burdens, particularly for cross-border platforms that integrate parts and metals from multiple plants in Canada, Mexico, and the United States. Empirical work on the 2018–2019 tariff episode found higher producer prices and statistically significant employment losses in metal-using manufacturing relative to non-exposed firms, implying that cost pass-through outweighed any protection benefits for downstream producers.[22] Analysts and industry reporting likewise linked metals tariffs to higher per-vehicle costs—frequently on the order of a few hundred dollars per unit—pressuring margins or retail prices depending on competitive conditions.

Second, policy uncertainty itself—about rates, exclusions, and origin tests—can slow sourcing changes. Even as USMCA integration supports regional steel and aluminum supply, many specifications (e.g., certain advanced AHSS or auto-body sheet) are still sourced through finely tuned, multinational contracts. Tighter "melt-and-pour" and "smelt-or-cast" requirements necessitate more documentation and may redirect some flows to North American mills and smelters; however, short-run substitution is limited by capacity, qualification timelines, and tooling.[23] For aluminum in particular, the United States remains structurally reliant on imports, so broad increases in tariff rates or origin constraints tend to ripple quickly into delivered prices for auto-grade material.

21 London Metal Exchange, "Aluminum Premiums Monthly Report," December 2024.

22 Aaron Flaaen and Justin R. Pierce, "Disentangling the Effects of the 2018–2019 Tariffs on a Globally Connected U.S. Manufacturing Sector," Federal Reserve Board FEDS Paper 2019-086 (rev. 2020).

23 USTR 2019 monitoring framework and 2024 origin-tightening rules (notes 2–3).



# The Role of the USMCA & the Ongoing Changes

The USMCA framework continues to play a stabilizing role in North America's aluminum and steel markets. Canadian producers, benefiting from relatively low electricity costs and established logistics routes, have maintained steady exports to the U.S. and Mexico, helping to cushion disruptions caused by global trade restrictions. Mexican processors, meanwhile, have attracted new investment in metal forming and component manufacturing due to competitive labor costs and proximity to U.S. assembly plants.

While the agreement was designed to strengthen regional integration and promote the use of North American materials, it has also introduced new compliance and sourcing challenges for manufacturers. The USMCA requires that 70.0% of a vehicle's steel and aluminum content originate within North America to qualify for duty-free treatment.

# Challenges in the Supply Chain

The automotive industry faces growing challenges in maintaining a stable and cost-effective supply of steel and aluminum. Both materials are vital inputs, yet their availability and pricing are increasingly affected by global market fluctuations and trade policy decisions.

Even when vehicles are assembled domestically in the U.S., many of their metal inputs come from abroad, particularly from Canada, which remains the largest foreign supplier of both materials to the United States. Consequently, tariff changes or new origin requirements can disrupt established supply chains and increase administrative burdens.

The regionalization goals of the USMCA also interact with broader structural shifts in the industry. As automakers transition to EVs, demand for advanced aluminum alloys and high-strength steel has surged. However, the production of these specialized materials is still concentrated in a small number of global facilities, many of which are located outside North America. This limits the ability of regional producers to satisfy the new content rules and threatens the competitiveness of U.S. and Mexican plants.

An example from the North American automotive industry can help us visualize this regional integration. A piston, a component made of aluminum alloys that forms part of an engine's cylinder, travels across North America six times before ultimately ending up in a vehicle sold in the United States. This illustrative exercise, elaborated by AlixPartners, shows how deeply intertwined the region's manufacturing processes have become.

The complex journey of a single automotive component, such as this piston, demonstrates the high level of integration and interdependence within the North American manufacturing system. Under the framework of the USMCA, production chains routinely cross borders multiple times before a finished vehicle reaches consumers, creating both opportunities for efficiency and significant risks of tariff exposure.


Source: AlixPartners.

The process begins in Quebec, Canada, where raw aluminum is extracted and prepared for industrial use. This raw material is then transported to Toronto, where it is melted and cast into a piston, marking the first transformation from raw metal into a vehicle component. From there, the piston crosses into the United States, traveling to Detroit for machining and finishing, where it encounters its first potential tariff as it enters U.S. territory.

After machining, the piston returns to Windsor, Ontario, for engine installation. This border crossing—its second—could trigger another tariff or a value-added tax, depending on policy conditions and certification of origin under the USMCA. Once the engine assembly is completed, it is shipped south to Mexico, where it becomes part of a pickup truck assembled in a Mexican plant. Under current USMCA provisions, this movement remains duty-free.

Finally, when the finished pickup truck crosses back into the United States for delivery to dealerships, it may face an import tariff of up to 25% of its value, particularly if the trade environment shifts or exemptions expire.

# The Impact on the Consumer

According to WardsAuto, a 25.0% tariff on steel imports alone could increase the cost of building a single vehicle by as much as $1,500. This estimate is based on the fact that a typical car contains approximately 1,000 pounds of steel, with the metal's contribution to the overall vehicle cost ranging between $6,000 and $7,000.[24] When a 25.0% tariff is applied to imported steel, this additional charge proportionally raises the manufacturer's total production cost, exerting pressure on pricing across the supply chain. Nowadays, the tariff is 50%.

Aluminum, while used in smaller quantities than steel, also plays a significant role in overall cost. Automakers rely on 350 to 560 pounds of aluminum per vehicle, representing an average of US $1,000 per unit. Given aluminum's importance in lightweight design and electric-vehicle construction, tariffs on this metal compound the financial strain already created by steel duties.

In response to these tariffs, U.S. automakers may attempt to increase domestic sourcing to avoid import penalties. However, higher domestic demand can lead to price inflation for U.S.-produced steel and aluminum as suppliers adjust to market conditions. This scenario creates a feedback loop in which cost avoidance through reshoring inadvertently drives up input prices, reducing the intended competitive advantage of local sourcing.

The actual financial impact of these tariffs varies considerably among companies. Manufacturers with vertically integrated operations or domestic supply bases are somewhat insulated from immediate cost spikes, while others, especially those reliant on foreign suppliers or multi-country supply chains, face more pronounced effects. Some automakers have opted to absorb a portion of the increased costs to maintain market competitiveness, while others have started adjusting their supply chains or directly passed the added expenses on to consumers through higher retail prices.

As a result, tariffs on steel and aluminum ripple through every level of the automotive value chain—from material procurement to retail pricing—affecting production strategies, cost structures, and ultimately the price paid by consumers. The degree of impact depends not only on trade policy but also on each company's sourcing model, production geography, and flexibility to adapt within the North American market.

Photos courtesy of GMC.

24 Larry Avila, "Tariffs on Steel, Aluminum Likely Mean Higher Costs for Auto Industry," WardsAuto, February 12, 2025, https://www.wardsauto.com/news/archive-auto-tariffs-trump-steel-aluminum-automotive/739872/.

# Policy Changes

North America's shifting trade environment—marked by new tariff pressures, evolving rules of origin, and intensifying competition in next-generation vehicles—presents Mexico with a critical opportunity. Recent signs of stagnation in manufacturing output, along with only modest gains in transport-vehicle production, underscore the need to reassess the country's position in the automotive sector. Mexico has established a successful export-oriented platform with deep integration into the United States and Canadian supply chains; however, its industry continues to rely heavily on foreign technology, imported steel and aluminum, and a production model centered on assembly rather than innovation.

The strategic choices made now will determine whether Mexico remains primarily a manufacturing base or advances toward becoming a technology-generating partner within North America. Increasing regional value-added, strengthening supply-chain resilience, and aligning industrial development with continental priorities will be essential.

Four policy directions stand out as key to advancing this agenda.

## 1. Building a Mexican Automotive Brand to Increase Domestic Value-Added

One policy approach involves boosting domestic value-added by creating a Mexican automotive brand. While Mexico has top-tier capabilities in components and engineering, most R&D, design, and decision-making still take place abroad. A national original equipment manufacturer could leverage local strengths within proprietary platforms and bring suppliers into higher-value areas like electronics, software, and electric-vehicle systems.

This would require coordinated support for applied research, prototyping, testing infrastructure, and a stronger dual-education system connecting firms with universities and public research centers. With these assets, Mexico could position itself as a complementary hub for North American engineering and R&D, while maintaining its role as a vital partner to foreign automakers.

## 2. Accelerating Technological Upgrading in Steel & Aluminum

A second priority concerns accelerating technological upgrading in North America's steel and aluminum ecosystem. Canada remains the dominant supplier of both materials to the United States and Mexico, providing the majority of the region's primary aluminum and a significant share of automotive-grade steel used in vehicle manufacturing. Yet despite the strategic importance of these metals, Mexico continues to rely heavily on imported high-grade inputs—particularly from Asia—leaving its automotive and advanced manufacturing sectors vulnerable to global price swings, trade frictions, and tariff adjustments. Building domestic capacity in advanced steel grades, automotive-grade aluminum sheet, cleaner production methods, and metal-recycling technologies would mitigate these risks and help firms meet increasingly stringent continental content rules. Such an upgraded metals base would also strengthen Mexico's position in emerging industries such as electric vehicles, batteries, and lightweight materials, sectors that will define the next generation of North American automotive production.

For the United States, improving long-term supply resilience requires a more diversified sourcing strategy that reduces over-reliance on a handful of foreign suppliers while deepening collaboration with Canada on clean-energy-driven metal production. Targeted incentives can play a critical role by supporting the expansion of domestic secondary aluminum production, high-grade steelmaking, and advanced finishing capabilities. At the same time, investments in cross-border research partnerships, modernization of permitting processes for low-carbon metal plants, and the creation of joint innovation funds for recycling, decarbonized materials, and lightweight alloys would help establish a more stable and competitive regional metals platform. These coordinated efforts, particularly ahead of the 2026 USMCA review, are essential to strengthening the resilience and global competitiveness of North America's automotive and manufacturing value chains.

## 3. Exploring Strategic Industrial Collaboration with Canada

As U.S. trade policy shows signs of increasing variability and the possibility of tariff shocks grows, Mexico may find value in expanding industrial cooperation with Canada. The two countries have complementary strengths: Canada is a major producer of upstream materials such as aluminum, while Mexico offers competitive manufacturing, a growing engineering workforce, and proximity to the U.S. market. Mexico's capabilities in assembly, testing, and process engineering further support continent-wide production strategies.

However, a more resilient and competitive North American industrial base will ultimately require deeper trilateral collaboration that meaningfully includes the United States, not only as the largest market but also as a critical hub for R&D, advanced manufacturing, and technology commercialization. U.S. regional clusters in the Midwest, Great Lakes, Texas, and the Southwest already house leading research universities, national laboratories, and innovation centers in automotive, aerospace, and clean technology. Integrating these capabilities into Canada–Mexico cooperation would help accelerate technology transfer, shorten the path from research to deployment, and ensure that breakthroughs in materials science, lightweight metals, battery chemistry, and automation benefit the entire region.

Governments in all three countries could help reduce barriers to collaboration by providing financial guarantees, offering targeted incentives, and implementing temporary regulatory adjustments that support early-stage projects. Knowledge transfer would be essential, beginning with memoranda of understanding between firms, research centers, and industry associations; bilateral and trilateral academic exchanges; and streamlined visa procedures for technical personnel. Joint R&D programs—particularly those focused on clean-energy metals, recycling technologies, AI-driven manufacturing, and supply-chain digitalization—would position North America to respond more effectively to global competition.

By aligning Canada's material strengths with Mexico's manufacturing capacity, and the United States' R&D and innovation ecosystems, the three countries could strengthen and diversify North America's production base without displacing existing supply relationships.

## 4. Protecting Mexico's Competitiveness Amid Rising Labor & Infrastructure Pressures

Protecting Mexico's competitiveness amid rising labor and infrastructure pressures will require striking a balance between higher wages and productivity growth. Minimum-wage increases have supported incomes but are outpacing productivity, raising risks for cost competitiveness as automakers reassess regional investment plans. Expanding vocational and technical training, accelerating factory digitalization, and supporting automation, particularly among small and medium-sized suppliers, can help firms manage labor costs while improving efficiency.

At the same time, stronger infrastructure is necessary for border logistics, customs, energy reliability, ports, and rail to sustain modern manufacturing. These improvements demand substantial investment, which may be challenging under current fiscal constraints. Clear reform signals, targeted public investment commitments, and transparent project prioritization frameworks could attract private capital and reinforce confidence in Mexico's long-term strategy.

In the northern border region, reliable energy and efficient freight operations are now as important as labor costs in securing new projects.

Taken together, these policy directions outline a path for updating Mexico's industrial strategy and giving the automotive sector a more forward-looking framework. Mexico is well-positioned to integrate technological upgrading, deeper regional partnerships, productivity-oriented wage policies, and stronger domestic innovation. With coordinated action among government, industry, and international firms, these efforts can be scaled to support long-term growth. As North America transitions toward electric mobility, new materials, and automated transport systems, Mexico has an opportunity not only to participate in the sector's evolution but to help shape it through sustained, strategic policy action.

# Conclusion

North America's automotive sector is entering a period of heightened uncertainty as tariff volatility, evolving USMCA rules, and structural supply-chain constraints reshape the economics of vehicle production. Despite deep regional integration, the industry remains vulnerable to disruptions in the steel and aluminum markets, where the United States continues to heavily depend on imports from Canada, as well as from Mexico and Asia to a lesser extent.

Rising tariff rates, now reaching 50.0% for both metals, have increased production costs across the region, intensified compliance burdens, and complicated cross-border logistics, even for highly integrated supply chains designed around duty-free movement. These pressures coincide with the transition toward electric vehicles, which requires more advanced alloys and long-term investment in new materials and technologies.

As the 2026 USMCA review approaches, strengthening regional coordination, enhancing domestic capabilities in advanced metals, and mitigating policy uncertainty will be crucial to maintaining North America's competitiveness in the global automotive manufacturing sector.

# Key Findings

- With vehicles containing approximately 1,000 pounds of steel and up to 560 pounds of aluminum, tariff increases—now as high as 50.0%—directly raise per-unit manufacturing costs and constrain pricing strategies.

- Nearly half of the U.S.'s aluminum consumption and more than 40.0% of its steel imports come from North American partners, especially Canada. U.S. domestic capacity cannot fully substitute these imports, especially for specialized automotive grades.

- By 2027, steel and aluminum must be melted and poured within North America to qualify as originating. These stricter rules increase documentation requirements and limit flexibility in sourcing.

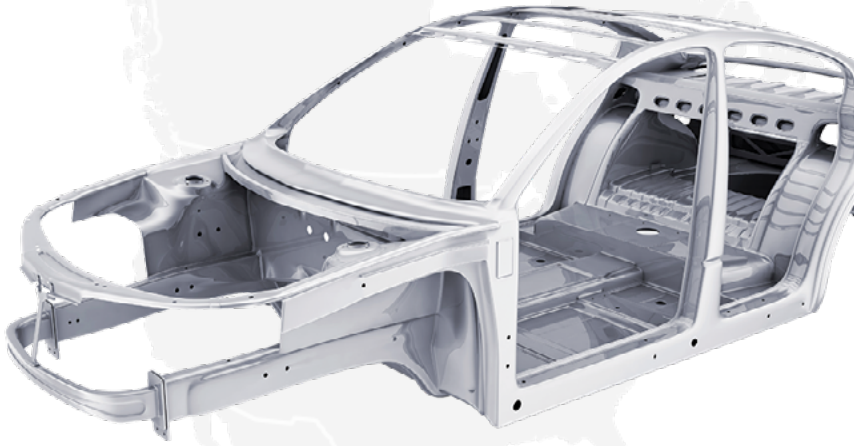
- Automotive components are routinely transported across North American borders multiple times. New tariff rules introduce cumulative cost exposure and greater administrative complexity for firms.

- Higher input costs have increased the production costs of both internal combustion and electric vehicles, with estimates indicating that steel tariffs alone can add over $1,000 per vehicle before considering aluminum tariffs.

- While foreign direct investment in North America's automotive sector remains strong, particularly in electrification, project numbers in the U.S. have declined, reflecting rising uncertainty.

- Canada provides essential upstream materials, while Mexico anchors production, assembly, and engineering capacity. Strengthening trilateral coordination will be crucial for maintaining regional competitiveness.

- EV production requires advanced metal alloys and lightweight materials that are currently sourced globally. Regionalizing these capabilities will be necessary to meet USMCA content rules and global market competition.



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