United States
International Trade Commission

# USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report

Corrected August 2025
July 2025
Publication Number: 5642
Investigation Number: 332-600

# United States International Trade Commission

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# Errata

For the United States International Trade *Commission USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report*, Investigation No. 332-600, USITC Publication 5642, July 2025.

- On page 27, the text in box 1.1 was corrected from ". . . light vehicles and light vehicle parts imported from Canada or Mexico are subject only to the section 232 auto and auto parts tariffs and not to the IEEPA (fentanyl) or. . ." to ". . . light vehicles and light vehicle parts imported from Canada or Mexico that are subject to the section 232 auto and auto parts tariffs are not subject to the IEEPA. . ."
- On page 27, the text in box table 1 for the total tariff for non-USMCA qualifying light vehicle parts from Canada and Mexico was corrected from "MFN*," to "MFN*+25 percent". In the "Notes" of box table 1, the text was corrected from "Section 232 tariffs on auto parts imports from USMCA countries . . ." to "Section 232 tariffs on USMCA-compliant auto parts imports from USMCA countries . . .". Finally, added an additional source to box table 1.
- On page 33, footnote 22 was updated to better reflect the source.
- On page 34, the text was corrected from "Additional data information sources . . ." to "Additional data and information sources . . .".
- On page 49, the text was corrected from ". . . require that 40 percent of the content of a vehicle (or 45 percent for heavy trucks) . . ." to ". . . require that 40 percent of the content of a passenger vehicle (or 45 percent for trucks). . .".
- On page 56, the text was corrected from ". . . to assess whether something a part can be remanufactured. . ." to ". . . to assess whether a part can be remanufactured. . ."
- On page 66, the text was corrected from ". . . to disperse NEVI funds under the requirements of the IIJA. The law requires that funds be dispersed . . ." to ". . . to disburse NEVI funds under the requirements of the IIJA. The law requires that funds be disbursed . . .".
- On page 67, the text was corrected from ". . . an RVC threshold of 44–55 percent . . ." to ". . . an RVC threshold of 45–55 percent . . .".
- On page 119, the text was corrected from ". . . compared to cost of paying the NTR duty rate" to ". . . compared to the cost of paying the NTR duty rate".
- On page 136, the text was corrected from ". . . while U.S. exports of spark ignition engines . . ." to ". . . while U.S. exports of smaller spark ignition engines . . ." and from ". . . the United States exported $23.2 million worth of spark ignition engines . . ." to ". . . the United States exported $23.2 million worth of 1 liter to 2 liter spark ignition engines. . .". Corresponding edits were also made in footnote 372.
- On page 159, the text was corrected from ". . . BEV light trucks make up only 5.1 percent . . ." to ". . . BEV light trucks make up only 3.3 percent . . .".
- On page 160, the BEV pickup truck and work van share in figure 5.2 and, on page 287, the corresponding appendix table, table J.24, for the figure was corrected.
- On page 282, table J.13 had columns reformatted and unintended blank spaces removed for 2023 and 2024.

# Table of Contents

## Box



## Tables

## Figures

# Abbreviations and Acronyms

| Acronym | Term |
|---|---|
| AALA | American Automotive Labeling Act (1992) |
| AAPC | American Automotive Policy Council |
| ACC | California’s Advanced Clean Cars regulations |
| Act | the USMCA Implementation Act |
| ADAS | advanced driver assistance system |
| AISI | American Iron and Steel Institute |
| AMIA | La Asociación Mexicana de la Industria Automotriz (Mexican Automotive Industry Association) |
| BEV | battery-electric vehicle |
| BLS | Bureau of Labor Statistics (U.S. Department of Labor) |
| CANACERO | Cámara Nacional de la Industria del Hierro y del Acero (National Iron and Steel Industry Association) (Mexico) |
| CAR | Center for Automotive Research |
| CBP | U.S. Customs and Border Patrol |
| CHIPS Act | Creating Helpful Incentives to Produce Semiconductors and Science Act of 2022 |
| COMPAS | Cooperation Manufacturing Plant Aguascalientes (Mercedes-Benz Group and Nissan plant in Mexico) |
| COVID-19 | coronavirus disease 2019 |
| CUV | crossover utility vehicle |
| EDIS | Electronic Document Information System (USITC) |
| EV | electric vehicle |
| FCEV | fuel cell electric vehicle |
| GDP | gross domestic product |
| GM | General Motors |
| GTAS | Global Trade Analytics Suite database (S&P Global) |
| GWh | gigawatt hours |
| HS | *Harmonized Commodity Description and Coding System* (*Harmonized System*) |
| HTS | *Harmonized Tariff Schedule of the United States* |
| ICE | internal combustion engine |
| IIJA | Infrastructure Investment and Jobs Act |
| ILO | International Labour Organization |
| IRA | Inflation Reduction Act of 2022 |
| IT | information technology |
| LVC | labor value content |
| MCU | microcontroller unit |
| MEMA | Motor & Equipment Manufacturers Association |
| NAFTA | North American Free Trade Agreement |
| NAICS | North American Industry Classification System |
| NiMH | nickel-metal hydride |
| NTR | normal trade relations (most-favored nation) |
| OEM | original equipment manufacturer |
| OICA | Organisation Internationale des Constructeurs d’Automobiles (International Organization of Motor Vehicle Manufacturers) (headquartered in Paris, France) |
| PSRO | product-specific rule of origin |

| Acronym | Term |
|---|---|
| R&D | research and development |
| ROO | rule of origin |
| RVC | regional value content |
| SDV | software-defined vehicle |
| SUV | sport utility vehicle |
| UAW | International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (also known as United Auto Workers) |
| Unifor | Canadian union formed by the Canadian Auto Workers union (CAW) and the Communications, Energy and Paperworkers Union of Canada (CEP) |
| USITC | U.S. International Trade Commission |
| USITC DataWeb/Census | U.S. International Trade Commission Interactive Tariff and Trade DataWeb (USITC DataWeb)/U.S. Census Bureau (Census) |
| USMCA | United States-Mexico-Canada Agreement |
| USTR | Office of the U.S. Trade Representative |
| USW | United Steelworkers |
| VW | Volkswagen |

# Glossary

**cast body parts—**a process in which vehicle components are made by pouring molten metal into a mold and solidified.

**drivetrain**—the system in a motor vehicle that connects the transmission to the drive axles.

**e-axle (electric axle)**—a drive unit that integrates into an axle structure the main components necessary to propel a vehicle using an electric motor as the main power source.

**electrification**—the ongoing technological transition from internal combustion engine vehicles to battery-electric and hybrid vehicles (collectively known as electric vehicles).

**ingot**—a block of metal.

**non-oriented electrical steel**—a soft magnetic steel alloy with a random grain structure. This type of steel is used in electric motors and generators.

**powertrain**—the main components that generate and deliver power to a vehicle–types include internal combustion engine, hybrid, electric vehicle, and fuel cell electric vehicle.

**Rapid Response Labor Mechanism**—the USMCA's rapid response labor mechanism is a facility-specific enforcement tool within the USMCA that allows the United States and Canada to take expedited action against factories in priority sectors in Mexico if credible evidence shows workers being denied their rights to freedom of association and collective bargaining.

**stamped body parts**—aluminum or steel vehicle components shaped from flat metal sheets by using a press to form or stamp the sheets into body parts.

**USITC DataWeb/Census**—the U.S. International Trade Commission Interactive Tariff and Trade DataWeb (USITC DataWeb)/U.S. Census Bureau (Census).

**USMCA Automotive Committee**—the USMCA Interagency Committee on Trade in Automotive Goods.

**USMCA Implementation Act**—the United States-Mexico-Canada Agreement Implementation Act.

# Executive Summary

As required by section 202A(g)(2) of the United States-Mexico-Canada Agreement (USMCA) Implementation Act (the Act), this report, prepared by the U.S. International Trade Commission (Commission or USITC), assesses the impact of the USMCA automotive rules of origin (ROOs) on the U.S. economy, the U.S. automotive industry, and other pertinent industries. The Act requires the Commission to prepare a series of five biennial reports on the economic impact of the ROOs and to provide those reports to the President, the U.S. House Committee on Ways and Means, and the U.S. Senate Committee on Finance.

This is the second report in the series; the subsequent three reports are due in 2027, 2029, and 2031. This report provides the Commission's assessment for the period from July 1, 2020, when the USMCA entered into force, through the end of 2024 and addresses the following:

- The economic impact of the automotive ROOs on–
    - The gross domestic product of the United States;
    - Exports from and imports into the United States;
    - Aggregate employment and employment opportunities in the United States;
    - Production, investment, use of productive facilities, and profit levels in the automotive industries and other pertinent industries in the United States affected by the automotive ROOs;
    - Wages and employment of workers in the automotive sector in the United States; and
    - The interests of consumers in the United States;
- The operation of the automotive ROOs and their effects on the competitiveness of the United States with respect to production and trade in automotive goods, taking into account developments in technology, production processes, or other related matters;
- Whether the automotive ROOs are relevant in light of technological changes in the United States; and
- Such other matters as the Commission considers relevant to the economic impact of the automotive ROOs, including prices, sales, inventories, patterns of demand, capital investment, obsolescence of equipment, and diversification of production in the United States.

This executive summary presents a brief explanation of the ROOs and then summarizes the results of the Commission's economic model (which quantifies the likely impacts of the ROOs), the effects of the ROOs on the U.S. automotive industry, the assessment of the relevancy of the ROOs in light of technological changes, and external factors affecting the U.S. automotive industry.

## Scope of the Report

This report focuses on the U.S. automotive industry, including both vehicle manufacturers and vehicle parts producers operating in the United States, and supplying industries, including the steel and aluminum industries. The report analyzes the economic impact of the USMCA automotive ROOs on the U.S. automotive industry and the U.S. economy. Furthermore, the report examines the competitiveness of the U.S. automotive industry within the United States, USMCA partner, and non-USMCA markets;

technological changes within the U.S. automotive industry that affect the relevancy of the ROOs; and external factors that affect the U.S. automotive industry. Analysis in this report focuses on the first four and a half years since the USMCA entered into force (July 2020 through December 2024), with 2019 data often included as a baseline for comparison.

This report discusses four categories of vehicles—passenger vehicles, light trucks, heavy trucks, and other vehicles—but focuses on the ROOs for two categories: passenger vehicles and light trucks (collectively referred to as "light vehicles"), as they made up 98 percent of U.S. vehicle sales, 96 percent of U.S. vehicle imports, and 94 percent of U.S. vehicle exports by quantity in 2024.

For this 2025 report, the Commission conducted a survey of motor vehicle producers with production operations in the United States. The Commission issued a questionnaire to 22 firms, seeking quantitative and qualitative data that are not publicly available. All 22 motor vehicle producers responded to the questionnaire. The survey results were valuable inputs into the economic model and provided additional information for the other aspects of the report.

# Overview of the Rules

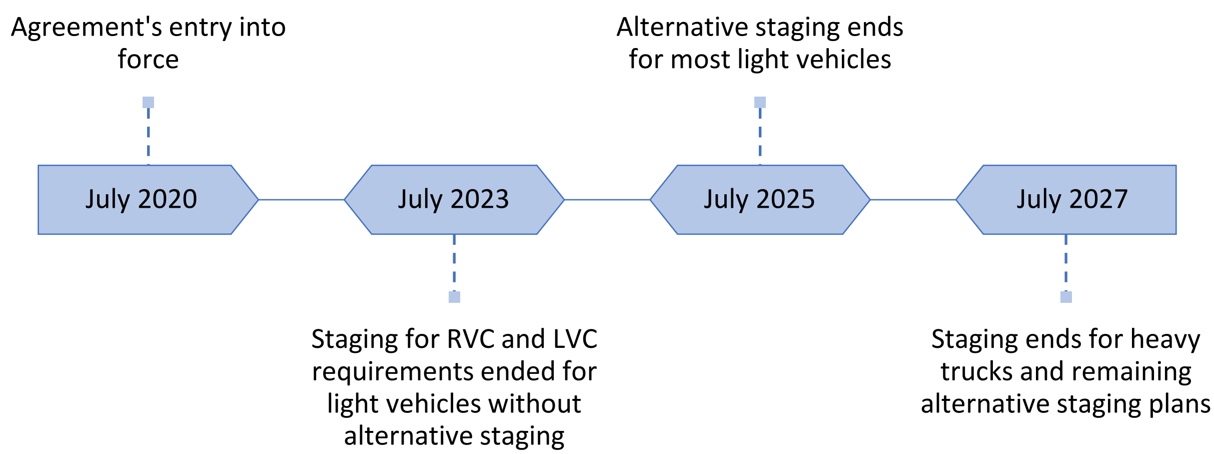
The USMCA automotive ROOs have three major components: regional value content (RVC), labor value content (LVC), and steel and aluminum purchasing requirements. The RVC requirement stipulates that vehicle and vehicle parts manufacturers must use a certain amount of U.S.-, Mexican-, or Canadian-sourced content for those goods to qualify for duty-free treatment. The RVC requirement ranges from 75 percent (for light vehicles and their core parts) to 65 percent (for complementary parts). The RVC requirement for core parts is 75 percent, which can be met individually for each part or by averaging together the value of all core parts.[1] The LVC requirement stipulates that for passenger vehicles at least 40 percent (or 45 for light and heavy trucks) of content, by value, must originate from suppliers paying their workers at least $16 per hour. The steel and aluminum purchasing requirements stipulate that vehicle manufacturers must purchase at least 70 percent of their steel and aluminum from USMCA parties to qualify for duty-free treatment.

The RVC and LVC requirements were phased in over three years, with full implementation occurring July 1, 2023. The steel and aluminum purchasing requirements took effect immediately (figure ES.1).

[1] For more information, see "Core Parts Dispute" in chapter 2.

**Figure ES.1** Timeline of the USMCA automotive rules of origin staging requirements, 2020–27

RVC = regional value content; LVC = labor value content.




Sources: Compiled by the USITC from 19 C.F.R. Appendix A to Part 182 §§ 13 and 19(2) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 3 and 8, 4-B-1-19 through 4-B-1-23 and 4-B-1-29 through 4-B-1-31 (2020).

Alternative staging extends the time by which vehicle manufacturers must meet the ROOs from mid-2023 to at least mid-2025 (five years after entry into force). The Commission's analysis of alternative staging petitions reveals that a minority of vehicles produced within the USMCA countries use alternative staging. The 13 approved alternative staging plans affected less than one-quarter of models produced in USMCA countries in 2024. Nearly all alternative staging plans end by mid-2025.

# The ROOs Impacted the U.S. Automotive Industry but had Minimal Impact on the Overall U.S. Economy

The Commission used an economic simulation model and detailed data from the U.S., Mexican, and Canadian automotive industries to assess in three steps the likely impacts of the USMCA automotive ROOs on the U.S. economy and the automotive industry. The first step involved analyzing Commission questionnaire responses regarding tariffs paid on USMCA trade and changes in sourcing of core parts and materials to meet the ROOs at the vehicle-model level. The second step in the analysis used a model to translate the changes in production costs and tariffs estimated in the first step into changes in vehicle prices within eight industry segments of the light vehicle markets in the United States and Canada. The final step in the analysis examined the potential for the industry-specific effects to trigger an economy-wide effect on U.S. gross domestic product and aggregate employment. A summary of the model's estimated impact on the U.S. automotive industry, employment, and wages since the USMCA entered into force through the end of 2024 is presented below (table ES.1).

**Table ES.1** Summary of estimated impacts of the USMCA automotive rules of origin
In number of units, dollars, and number of workers.

| Economic outcome | Estimated impact |
|---|---|
| U.S. imports of light vehicles from other USMCA countries | −37,591 vehicles |
| U.S. imports of light vehicles from non-USMCA countries | 14,314 vehicles |
| U.S. vehicle production | −15,037 vehicles |
| Employment in U.S. parts production | 5,387 workers |
| Employment in U.S. steel production | 2,463 workers |
| Employment in U.S. vehicle production | −302 workers |
| Wage payments in U.S. parts production | $335.8 million |
| Wage payments in U.S. vehicle production | −$23.8 million |
| Revenue from U.S. parts production | $3,419.1 million |
| Revenue from U.S. vehicle production | −$250.8 million |
| Average vehicle prices | $33.33 |

Source: USITC estimates. See chapter 3 for more information.

At the economy-wide level, changes in U.S. gross domestic product and aggregate employment attributed to the ROOs were less than 0.01 percent. Therefore, economy-wide effects have been practically zero since the USMCA entered into force, consistent with the small, estimated effects within the U.S. automotive industry and the industry's size relative to the U.S. economy.

# Effects of the USMCA ROOs on the Competitiveness of the U.S. Automotive Industry

This report analyzes effect of the ROOs on the competitiveness of the U.S. automotive industry, which includes vehicle manufacturers and parts suppliers with production operations in the United States. For this report, the Commission considers industry competitiveness as the ability of U.S. producers to meet the demand for U.S.-produced vehicles and parts in USMCA countries and non-USMCA countries at a price and quality that is accepted in the market.

The report first identifies the factors of competitiveness for the automotive industry that are most likely to be impacted and affected by the ROOs—costs, investment, and product differentiation. Then it examines indicators of changes in U.S. competitiveness, including market share, production, and trade, in the U.S., Canadian, Mexican, and non-USMCA markets, and analyzes the extent to which these changes are attributable to the ROOs. Additionally, the report looks at the impact of the ROOs on the competitiveness of U.S. automotive labor since entry into force, noting that wages can be viewed both as a component of production costs to the vehicle manufacturer and as an indicator of automotive employment competitiveness. Industry information is derived from responses to the Commission's questionnaire, modeling results, interviews with industry representatives, and other sources, which provide context for changes in competitiveness since entry into force.

## Cost, Investment, and Product Differentiation Are Competitive Factors Most Likely Affected by the ROOs

The factors of automotive industry competitiveness most likely to be affected by the ROOs are costs, investment, and product differentiation. The Commission survey found that most sourcing changes associated with meeting the ROOs resulted in an increase in production cost, but some resulted in a decrease or no change to cost. The Commission's survey indicated that the United States and Mexico were the largest destinations for sourcing changes of core parts, steel, and aluminum attributable to the ROOs.

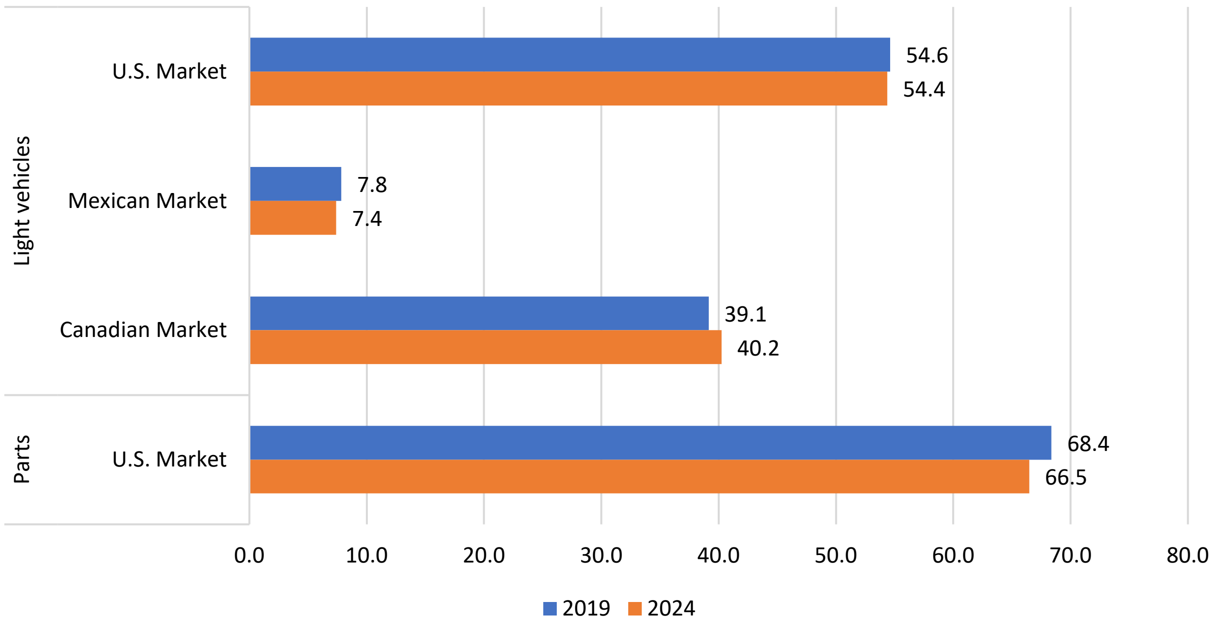
Total investment in U.S. automotive manufacturing increased from $27.9 billion in 2019 to $87.8 billion in 2023, before declining to $34.1 billion in 2024. This change in investment is only partially attributable to the ROOs, though investments in parts manufacturing specifically are more likely to be ROOs-related. The United States was the recipient of about 80 percent of vehicle manufacturing investment in the USMCA region between 2019 and 2023, and most of the investments were linked to electrification. In terms of product differentiation, the ROOs may also lead vehicle manufacturers to make decisions that limit the number of models offered within the USMCA region. These decisions could impact their competitiveness relative to non-USMCA imports because consumers may shift to other producers if their preferred vehicle styles are not available.

## Within the Domestic Market, Market Share in the U.S. Automotive Industry Remained Relatively Unchanged Since Entry into Force

The U.S. market shares of vehicle sales in the United States and parts consumption in the United States have both remained relatively unchanged since entry into force. The U.S. share of vehicle sales has remained consistently around 54 percent, while U.S. producers' share of U.S. parts consumption decreased from 68.4 percent in 2019 to 66.5 percent in 2024 (figure ES.2). However, other indicators show signs of positive changes in competitiveness. For example, within the U.S. market, U.S. light vehicle production increased from 8.6 million vehicles in 2020 to 10.1 million in 2024, but still fell short of the 10.5 million vehicles produced in 2019. U.S. parts production also increased from $311.8 billion in 2019 to $268.4 billion in 2020 and $349.0 billion in 2024, surpassing 2019 levels. The increase in U.S. parts production, especially for certain core parts, is at least partially attributable to the ROOs according to Commission modeling.

**Figure ES.2** U.S. share of vehicle sales in USMCA countries and U.S. parts consumption in 2019 and 2024

In percentages.




Sources: Wards Intelligence, "U.S. Light Vehicle Sales" for years 2019–24, accessed January 13, 2025; Wards Intelligence, "Canada Vehicle Sales by Model, 2019–2023," accessed August 1, 2024; Wards Intelligence, "Canada Light Vehicle Sales by Brand and Company, December 2024," accessed January 2, 2024; Wards Intelligence, "Mexico Vehicle Sales by Model, 2019–2023," accessed August 1, 2024; Wards Intelligence, "Mexico Light Vehicle Sales by Brand and Company, December 2024," accessed January 2, 2024; Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," accessed March 29, 2024; Wards Intelligence, "North American Production, December 2024," accessed January 21, 2025; U.S. Census, "Manufacturers' Shipments, Inventory, and Orders (M3) Survey," February 4, 2025; USITC DataWeb/Census, Imports for consumption and domestic exports, North American Industry Classification System (NAICS) 3362 and 3363, accessed February 4, 2025.

Notes: Source country of vehicles was determined using production data. Data for U.S. parts production represent parts classified in NAICS 3362 (Motor vehicle body and trailer manufacturing) and 3363 (Motor vehicle part manufacturing). The U.S. market share for vehicle parts is calculated by determining the share of total vehicle parts consumed in the United States that were produced in the United States. Market share for U.S. parts in Canada and Mexico is not included due to a lack of data for Canadian and Mexican total parts consumption. See chapter 4 for more information on market share calculations.

Employment and wage data show some signs of changes in competitiveness, though it was unclear to what extent the changes can be attributed to the ROOs. U.S. automotive employment has increased 2.5 percent since 2019, outperforming global growth in the industry. However, the Commission's modeling estimates that the net employment effect of the ROOs across vehicle and parts production was an increase of 0.5 percent, suggesting that the overall increase was largely attributable to other factors. Even though U.S. automotive wages have increased in absolute terms since entry into force, wages have remained flat in real terms.

# U.S. Competitiveness Trends in Other USMCA Countries and Non-USMCA Countries Vary

Trends in U.S. competitiveness differ across the Canadian, Mexican, and non-USMCA markets. Within the Canadian market, the U.S. automotive industry shows some signs of increased competitiveness. The United States remains the largest source of light vehicles sold in the Canadian market, and the U.S.

market share of light vehicle sales in Canada remained relatively unchanged since 2019, increasing from 39.1 percent to 40.2 percent in 2024. However, the U.S. share of vehicles imported to Canada declined from 54.7 percent in 2019 to 40.8 percent in 2024. Meanwhile, the U.S. share of vehicle parts imported to Canada increased from 61.9 percent in 2019 to 64.4 percent in 2024, indicating some increased competitiveness.

Within the Mexican market, the U.S. automotive industry shows mixed signs of changes in competitiveness. U.S. producers' market share of light vehicle sales in Mexico have remained relatively flat at 7–8 percent in recent years. At the same time, China replaced the United States as the leading source of vehicles imported to Mexico in 2022, with the U.S. share declining from 38.4 percent in 2019 to 28.5 percent in 2024. The United States remains the leading source of Mexico's imports of vehicle parts, although the U.S. share of parts imported to Mexico decreased from 61.1 percent in 2019 to 54.3 percent in 2024. Finally, the U.S. share of light vehicle exports and vehicle parts exports to non-USMCA markets remained relatively unchanged from 2019 to 2024.

# The ROOs Remain Largely Relevant in Light of Technological Changes

In addition to analyzing the economic and competitiveness effects of the USMCA automotive ROOs, the Commission also examined the extent to which the ROOs remain relevant in light of technological changes occurring in the automotive industry. The Commission found that, for the 2020–24 period covered by this report, the rules remain relevant for most of the automotive industry.

The Commission found three instances in which technological changes created divergence between the ROOs and the automotive industry. The first two were covered in the Commission's 2023 report and pertain to the classification of electric pickup light trucks, which are currently subject to a different set of product-specific ROOs than their internal combustion engine counterparts, and cast aluminum vehicle bodies, which are not granted a key flexibility related to qualifying the good as originating that is granted to stamped vehicle bodies. The third divergence discussed in this report is the difference in RVC requirements for some e-axles, which are drive units integrating into an axle structure the main components necessary to propel a battery-electric vehicle, replacing the function of an engine. The report concludes with discussion of four technologies that may impact the continued relevancy of the ROOs: nontraditional automotive inputs, battery recycling, alternative battery chemistries, and hydrogen fuel cell vehicles.

# External Factors Influencing the Automotive Industry

This report provides estimates of the economic effects of the USMCA automotive ROOs on the U.S. automotive industry and economy. The modeling approach was designed to isolate the effects of the ROOs from other external factors that have influenced the U.S. automotive industry. To provide context for the data and analysis presented throughout the report, this section details these other factors. The developments fall into three categories: USMCA-related factors (the forthcoming joint review of the USMCA, the ongoing core parts dispute, and the Rapid Response Labor Mechanism), recent trade actions and laws (the Inflation Reduction Act, section 232 and 301 tariffs, and other federal and state policies), and industry-specific and macroeconomic factors (electric vehicle adoption, labor union actions, labor supply, Chinese investment in Mexico, and overall macroeconomic conditions). In the Commission's 2023 report, it found that two external factors (the COVID-19 pandemic and subsequent semiconductor shortage) likely had a greater effect on the U.S. automotive industry than the ROOs. By contrast, in its 2025 analysis, the Commission believes that no single current external factor has been clearly more important than the ROOs. However, the combination of non-ROOs external factors likely had a more significant effect on the U.S. automotive industry than the ROOs.

# Chapter 1 Introduction

The U.S. International Trade Commission (USITC or Commission) prepared this report to meet the requirements of section 202A(g)(2) of the United States-Mexico-Canada Agreement (USMCA) Implementation Act (the Act).[2] The Act requires the Commission to prepare a series of five biennial reports on the economic impact of the USMCA automotive rules of origin (ROOs), their operation and effects on competitiveness, and whether they remain relevant in light of technological changes and to provide those reports to the President, the U.S. House of Representatives Committee on Ways and Means, and the U.S. Senate Committee on Finance. This is the second report in the series; the subsequent three reports are due in 2027, 2029, and 2031.[3] The USMCA automotive ROOs are described in more detail below.[4]

## Scope

Appendix A to this report sets out the full text of section 202A(g)(2) of the Act. That section requires that the Commission submit a report that addresses the following:

- The economic impact of the automotive ROOs on
  - The gross domestic product of the United States;
  - Exports from and imports into the United States;
  - Aggregate employment and employment opportunities in the United States;
  - Production, investment, use of productive facilities, and profit levels in the automotive industries and other pertinent industries in the United States affected by the automotive ROOs;
  - Wages and employment of workers in the automotive sector in the United States; and
  - The interests of consumers in the United States;
- The operation of the automotive ROOs and their effects on the competitiveness of the United States with respect to production and trade in automotive goods, taking into account developments in technology, production processes, or other related matters;
- Whether the automotive ROOs are relevant in light of technological changes in the United States; and

[2] Pub. L. No. 116-113, § 202A(g)(2), 134 Stat. 42 (2020) (codified at 19 U.S.C. § 4532(g)(2)).
[3] The Commission's reports alternate with the years in which the Office of the U.S. Trade Representative (USTR) will provide USMCA automotive ROOs-related reports to the U.S. House of Representatives Committee on Ways and Means and the U.S. Senate Committee on Finance. The most recent USTR report was submitted in July 2024. USTR, *Report to Congress on USMCA Trade in Automotive Goods*, July 1, 2024.
[4] Throughout this report and unless otherwise specified, "USMCA automotive rules of origin (ROOs)" and "ROOs" refer to the provisions set forth in the automotive appendix to the USMCA. 19 U.S.C. § 4532(a)(5); USMCA, Chapter 4 Rules of Origin, Appendix to Annex 4-B, Product-Specific Rules of Origin, 4-B-1-1 through 4-B-1-47 (2020).

- Such other matters as the Commission considers relevant to the economic impact of the automotive ROOs, including prices, sales, inventories, patterns of demand, capital investment, obsolescence of equipment, and diversification of production in the United States.[5]

This report discusses the economic impact of the ROOs on the U.S. economy, the automotive industry, and other pertinent industries; changes in the competitiveness of the U.S. automotive industry in the U.S. market, other USMCA markets (Canada and Mexico), and non-USMCA markets; and technological changes within the U.S. automotive industry that affect the relevancy of these ROOs.[6] The ROOs apply to light vehicles (passenger vehicles and light trucks), heavy trucks, motor vehicle parts for those vehicles, and steel and aluminum purchases made by producers of these goods.[7] The report primarily focuses on light vehicles, which comprise the largest part of the industry. Heavy trucks, particularly those that are similar to light vehicles (e.g., electric and hybrid pickup trucks), however, are also discussed.[8] Analysis in this report focuses on the first four and a half years after the USMCA entered into force (July 1, 2020, through December 31, 2024), with 2019 data often included as a baseline for comparison. Although the Commission's analysis primarily concludes in 2024, Box 1.1 details recent tariff-related actions pertaining to automotive trade that have occurred since then.

**Box 1.1: New tariffs pertaining to USMCA automotive trade**
The period examined in this investigation covers 2019 to 2024, but this text box provides information on tariffs and related actions announced between January 1, 2025, and June 6, 2025, that affect the tariff rates on automotive imports into the United States from Canada and Mexico as well as from other countries.

**IEEPA (Fentanyl)**—Effective February 4, 2025, products originating from China (including Hong Kong) are subject to an additional 10 percent ad valorem duty under the International Emergency Economic Powers Act (IEEPA).[a] That additional duty increased to 20 percent ad valorem on March 4, 2025.[b] Effective March 4, 2025, products originating from Canada and Mexico are subject to an additional 25 percent ad valorem duty under the IEEPA.[c] This additional duty was amended effective March 7, 2025, to apply only to products originating in Canada and Mexico that did not enter duty free under USMCA.[d]

**Section 232 (Steel and aluminum derivative products)**—Effective March 12, 2025, imports of certain steel and aluminum derivative products, including from Canada and Mexico, were subject to an additional 25 percent ad valorem duty under section 232 of the Trade Expansion Act of 1962, as amended, on the declared value of the steel and aluminum content.[e] Effective June 4, 2025, the additional duty was increased to 50 percent.[f]

**Section 232 (Autos and auto parts)**—Effective April 3, 2025, certain vehicles ("automobiles") are subject to an additional 25 percent ad valorem duty under section 232.[g] For vehicles imported from Canada and

[5] USMCA Implementation Act, 19 U.S.C. § 4532(g)(2)(C).
[6] These rules are set out in the appendix to Annex 4-B of the USMCA. 19 C.F.R. Appendix A to Part 182; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, 4-B-1-1 through 4-B-1-47 (2020).
[7] This report will use the terms "vehicle parts" when referring to "motor vehicle parts" and "vehicle manufacturers" for "motor vehicle producers with operations in the United States."
[8] For a discussion of the categorization of electric and hybrid pickup trucks under the USMCA, see chapter 5.

Mexico that enter with duty-free treatment under the USMCA, the tariff applies only to the non-U.S. content.[h] Effective May 3, 2025, certain automotive ("automobile") parts are subject to an additional 25 percent ad valorem duty under section 232.[i] Parts imported from Canada and Mexico that enter with duty-free treatment under USMCA are currently exempt from the section 232 tariffs.[j] Under an executive order dated April 29, 2025, each U.S. vehicle manufacturer may receive a tariff offset equivalent to 3.75 percent of the aggregate MSRP value of all vehicles assembled in the United States from April 3, 2025, through April 30, 2026, and 2.5 percent of the aggregate MSRP from May 1, 2026, through April 30, 2027.[k]

**IEEPA (Reciprocal)**—The President announced "reciprocal" tariffs, citing IEEPA, applicable to most imports from all countries on April 5, 2025, but goods subject to section 232 actions are excluded, which covers most vehicles and parts.[l] The President announced further amendments, effective May 16, 2025, to these tariff actions to avoid the cumulative effect of overlapping tariffs on certain articles.[m] As a result of this action, light vehicles and light vehicle parts imported from Canada or Mexico that are subject to the section 232 auto and auto parts tariffs are not subject to the IEEPA (fentanyl) or steel and aluminum derivative product tariffs described above.[n] The table below summarizes tariff treatment of light vehicles and light vehicle parts under executive actions described above.

**Box table 1**: Tariff treatment of light vehicles and light vehicle parts, as of June 6, 2025

| Product | Section 232 | IEEPA (fentanyl) | Total tariff |
|---|---:|---:|---:|
| USMCA-qualifying vehicles from Canada and Mexico | 25 percent minus the value of U.S. content | 0 | 25 percent on non-U.S. content |
| USMCA-qualifying vehicle parts from Canada and Mexico | 0* | 0 | 0* |
| Non-USMCA qualifying vehicles from Canada and Mexico | 25 percent | 0 | MFN+25 percent |
| Non-USMCA qualifying vehicle parts from Canada and Mexico | 25 percent | 0 | MFN+25 percent |
| Vehicles and parts from China | 25 percent | 20 percent | MFN+70 to 145 percent (including section 301)* |
| Vehicles and parts from other countries | 25 percent | n/a | MFN+25 percent |

Sources: USTR, 83 Fed. Reg. 14906, August 16, 2018; USTR, 83 Fed. Reg. 28710, June 20, 2018; USTR, 83 Fed. Reg. 40823, August 16, 2018; USTR, 83 Fed. Reg. 47974, September 21, 2018; USTR, 84 Fed. Reg. 20459, May 9, 2019; USTR, 89 Fed. Reg. 76581, September 18, 2024; EOP, 90 Fed. Reg. 9121, February 7, 2025; EOP, 90 Fed. Reg. 11426, March 6, 2025; EOP, 90 Fed. Reg. 11463, March 7, 2025; EOP, 90 Fed. Reg. 9113, February 7, 2025; EOP, 90 Fed. Reg. 9117, February 7, 2025; EOP, 90 Fed. Reg. 9183, February 10, 2025; EOP, 90 Fed. Reg. 9185, February 10, 2025; EOP, 90 Fed. Reg. 11746, March 11, 2025; EOP, 90 Fed. Reg. 11785, March 11, 2025; EOP, 90 Fed. Reg. 14705, April 3, 2025; CBP, "UPDATED GUIDANCE – Proclamation "Adjusting Imports of Aluminum and Steel in the United States,"" June 3, 2025..

Notes: Section 232 tariffs on USMCA-compliant auto parts imports from USMCA countries will rise to 25 percent on the value of the non-U.S. content once a process is in place for calculating the U.S. content for those parts. The total tariff on vehicles and parts from China includes section 301 tariffs originally put in place in 2018. Table does not include tariffs on steel and aluminum derivative products or additional antidumping and countervailing duties. As discussed above, IEEPA (reciprocal) tariffs only apply to heavy trucks and thus not included in the table.

The duration of these tariffs on U.S. vehicles and parts, as well as the economic effects of these tariffs on production, imports, exports, and sales, are not yet evident.[o] Despite increased tariffs, vehicles and parts imported from Canada or Mexico under USMCA are eligible for much lower duty rates than imports from Canada or Mexico that do not meet USMCA ROOs or imports from outside USMCA, which may affect the decision to comply with the ROOs to receive the preferential duty rate. The Commission may conduct further analysis of the effects of these tariff actions on the operation and economic impacts of the ROOs in future reports.

[a] EOP, 90 Fed. Reg. 9121 (February 7, 2025).
[b] Total tariff on vehicles and parts from China includes section 301 tariffs originally put in place in 2018. CBP, 90 Fed. Reg. 11426 (March 6, 2025); EOP, 90 Fed. Reg. 11463 (March 7, 2025).
[c] The tariffs originally were effective on February 4, 2025. EOP, 90 Fed. Reg. 9113 (February 7, 2025); EOP, 90 Fed. Reg. 9117, (February 7, 2025). The tariffs were paused for 30 days. EOP, 90 Fed. Reg. 9183 (February 10, 2025); EOP, 90 Fed. Reg. 9185 (February 10, 2025). See International Emergency Economic Powers Act, 50 U.S.C. §§ 1701 *et seq.*
[d] EOP, 90 Fed. Reg. 11787 (March 11, 2025); EOP, 90 Fed. Reg. 11785 (March 11, 2025).
[e] BIS, 90 Fed. Reg. 11249 (March 5, 2025); BIS, 90 Fed. Reg. 11251 (March 5, 2025). See section 232 of the Trade Expansion Act of 1962, 19 U.S.C. § 1862.
[f] EOP, Proclamation 10947, 90 Fed. Reg. 24199 (June 9, 2025).
[g] EOP, Proclamation 10908, 90 Fed. Reg. 14705 (April 3, 2025).
[h] USDOC, ITA, 90 Fed. Reg. 21450, May 20, 2025.
[i] EOP, Proclamation 10908, 90 Fed. Reg. 14705 (April 3, 2025).
[j] The 25 percent tariff does not apply to auto parts that qualify for preferential treatment under USMCA until the Secretary of Commerce establishes a process to apply the tariff exclusively to the value of non-U.S. content. EOP, Proclamation 10908, 90 Fed. Reg. 14705 (April 3, 2025).
[k] MSRP is manufacturer's suggested retail price. EOP, Proclamation 10925, 90 Fed. Reg. 18899 (May 2, 2025).
[l] The actions under section 232 (autos and auto parts) cover light vehicles and light vehicle parts, so IEEPA (reciprocal) tariffs do not apply to such products. However, heavy trucks and buses, as well as their parts, are subject to the IEEPA (reciprocal) tariffs. EOP, 90 Fed. Reg. 15041 (April 7, 2025).
[m] EOP, Proclamation 14289, 90 Fed. Reg. 18907 (May 2, 2025); DHS, CBP, 90 Fed. Reg. 21487 (May 20, 2025).
[n] EOP, Proclamation 14289, Sec. 3(a)(i), 90 Fed. Reg. 18907, 18908 (May 2, 2025).
[o] The IEEPA (fentanyl) and IEEPA (reciprocal) tariffs are also subject to a number of judicial actions. Although two district courts have entered judgments against these tariffs, these decisions have been appealed and no final judgments have been issued as of the time of this report. *V.O.S. Selections, Inc. et al. v. United States et al.*, Nos. 25-066 & 25-077, Slip Op. 25-66 (Ct. Int'l Trade May 28, 2025); *Learning Resources Inc., et al. v. Trump et al.*, No. 25-1248, Mem. Op. at 2 (D.D.C. May 29, 2025).

# Industry Coverage

For this report, the Commission defines the U.S. automotive industry as including both U.S.- and foreign-headquartered vehicle and vehicle parts manufacturers with production operations in the United States. In terms of vehicle parts manufacturing, the report's coverage includes vehicle parts suppliers and producers of nontraditional automotive inputs, including those that have become more prevalent in the global automotive industry in recent years.[9] The steel and aluminum industries, although not exclusively automotive focused, are additional pertinent industries that have also been impacted by the USMCA automotive ROOs because both industries provide critical structural components that account for the majority of the weight of vehicles. In particular, the USMCA introduced new requirements for vehicle manufacturers to purchase steel and aluminum from USMCA countries to qualify for preferential treatment.

[9] For more information on nontraditional automotive inputs, see chapter 5 of this report.

# Product Coverage

This report covers three categories of vehicles, as defined by the USMCA: passenger vehicles, light trucks, and heavy trucks. These categories are presented in figure 1.1.

For this report, passenger vehicles and light trucks are often grouped together as "light vehicles." These vehicles are typically manufactured by the same companies, using similar supply chains, and are subject to similar USMCA automotive ROOs. This report focuses primarily on the ROOs for light vehicles because the USMCA applies the greatest number of rule changes and more stringent rules to light vehicles compared to heavy trucks or other vehicles. Furthermore, light vehicles compose the largest share of the vehicle market and, in 2024, made up 98.6 percent of U.S. vehicle sales, 96 percent of U.S. vehicle imports, and 94 percent of U.S. vehicle exports by quantity.[10]

The USMCA provides ROOs for vehicle parts for light vehicles, heavy trucks, and other vehicles.[11] The agreement categorizes vehicle parts for light vehicles as follows: core parts, principal parts, and complementary parts. Core parts in a vehicle include major systems such as the engine, the transmission, or an advanced battery.[12] Principal parts are significant parts not included in core parts and include air conditioners, seats, air bags, and major components of core parts (e.g., transmission shafts, electronic brake systems, and clutches).[13] Complementary parts are other automotive parts (e.g., small electric motors, headlights, and wiring sets) that are not core parts or principal parts.[14] The agreement contains only two automotive parts categories for heavy trucks: principal parts and complementary parts.[15]

[10] Wards Intelligence, "U.S. Vehicle Sales by Model, 2020–2024," February 19, 2025; USITC DataWeb/Census, general imports and total exports, accessed February 26, 2025. HS subheadings for light vehicles and heavy trucks are provided in appendix F. The USMCA's definition of heavy trucks excludes HS headings 8702 and 8705, which differs from the industry definition.

[11] HS subheadings for automotive parts are provided in appendix F of this report.

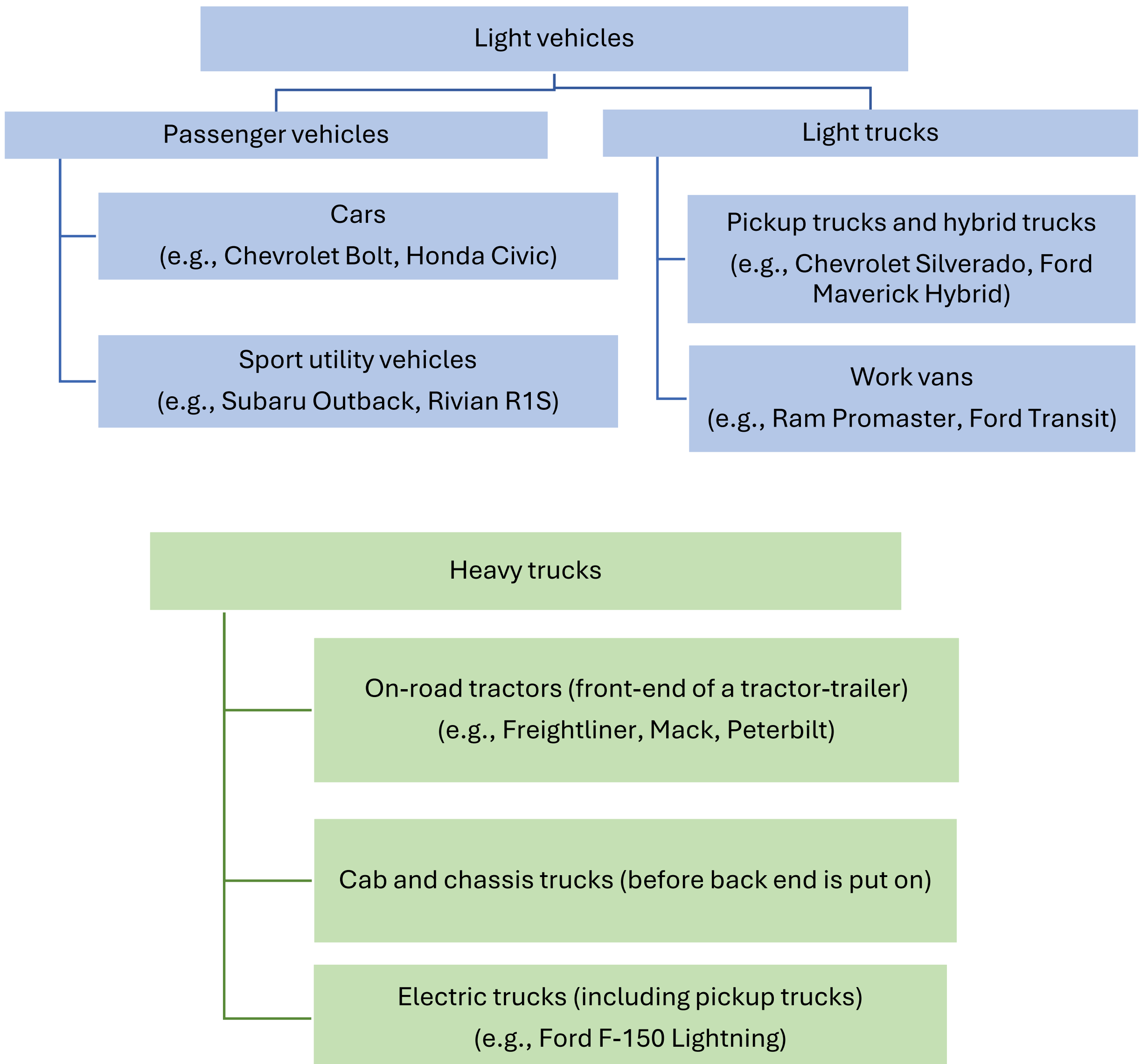
[12] 19 C.F.R. Appendix A to Part 182 § 20, Table A.1; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Table A.1, 4-B-1-34 (2020). According to the appendix's chapeau, the formatting and organization of 19 C.F.R. Appendix A to Part 182 does not conform with ordinary conventions in the Code of Federal Regulations because it directly incorporates provisions of the USMCA without revision.

[13] 19 C.F.R. Appendix A to Part 182 § 20, Table B; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Table B, 4-B-1-36 through 4-B-1-37 (2020).

[14] 19 C.F.R. Appendix A to Part 182 § 20, Table C; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Table C, 4-B-1-38 through 4-B-1-39 (2020).

[15] The USMCA does not have a core parts list for heavy trucks, as it does for light vehicles. The core parts for light vehicles are included in the principal parts list for heavy trucks, except for lithium-ion batteries, which are classified as a complementary part for heavy trucks. For more information on these differences and their impacts, see chapter 2. 19 C.F.R. Appendix A to Part 182 § 20, Table D and Table E; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods; Table D and Table E, 4-B-1-40 through 4-B-1-42 (2020).

**Figure 1.1** Vehicle categories in the United States-Mexico-Canada Agreement




Source: 19 C.F.R. Appendix A to Part 182 § 12; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 1 and 10 (2020).
Note: All *Harmonized Commodity Description and Coding System* (HS) subheadings listed here are based on nomenclature from the 2012 edition. For a discussion of changes to HS subheadings since then, see chapter 5 of this report. Passenger vehicles with compression-ignition engines (diesel) are excluded. All electric trucks, including electric pickup trucks, are included in heavy trucks. See chapter 5 of this report for more information.

# Roadmap for Future Reports

This report is the second in a series of five biennial reports on the economic impact of the USMCA automotive ROOs. It discusses the ROOs and their economic impacts, competitiveness effects, and continuing relevancy in light of technological changes in the United States that have occurred between the USMCA's entry into force (July 1, 2020) and December 31, 2024. The statute requires that the next report in this series be submitted in 2027 and the reporting requirements remain the same.

The Commission expects the impacts of the USMCA automotive ROOs on the automotive industry and the overall U.S. economy to increase and become more evident over time. The impacts of the ROOs tend to be somewhat delayed for multiple reasons. First, many of the requirements did not fully apply immediately on entry into force but rather are being phased in over staging periods. The staging periods incrementally increase the regional value content (RVC) requirements for light vehicles—and also the labor value content (LVC) requirements for passenger vehicles—over a period of years.[16] The RVC requirements for heavy trucks are staged in three equal parts through July 2027, and the LVC requirements went into effect upon entry into force.[17] The requirement for manufacturers to purchase steel and aluminum produced in USMCA countries also fully applied upon entry into force.[18]

Additionally, alternative staging has allowed manufacturers to delay full implementation of the ROOs beyond the original staging period, until July 1, 2025, or later for certain vehicle models (figure 1.2). Figure 1.2 includes the original staging period, as well as alternative staging for both light vehicles and heavy trucks. The full extent of the effects of the USMCA will likely not be apparent until the agreement is fully implemented.

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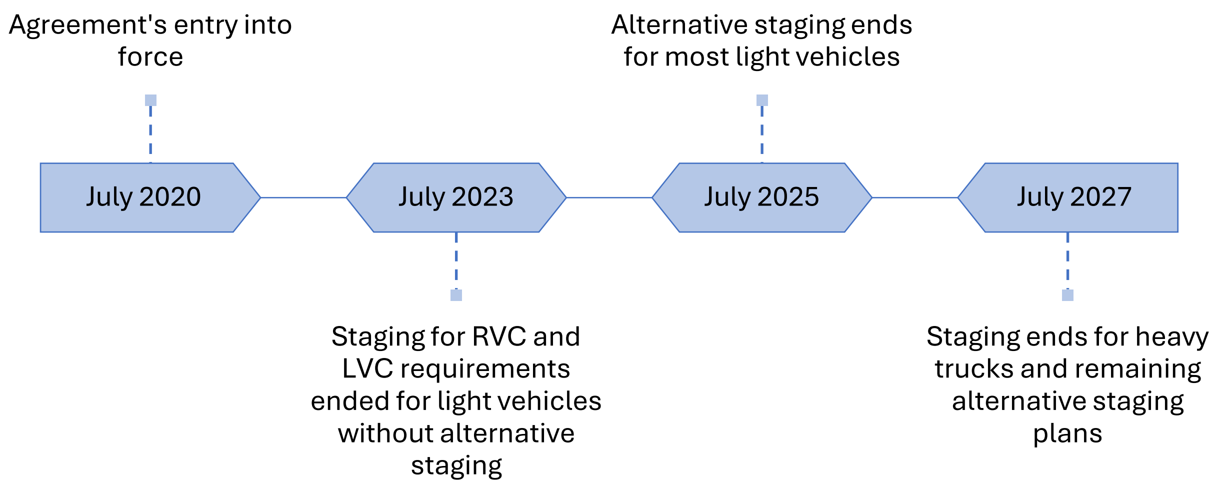
[16] LVC requirements for light and heavy trucks went into effect immediately on entry into force.

[17] 19 C.F.R. Appendix A to Part 182 §§ 15(2) and 18(2) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-specific Rules of Origin for Automotive Goods, Article 4 and Article 7, 4-B-1-224-B-1-23 and 4-B-1-26 through 4-B-1-27 (2020).

[18] Starting July 1, 2027, the so-called "melted and poured" rule will come into force, where all steel manufacturing processes must occur within one or more of the parties, starting with the initial melting and mixing through the coating stage. USMCA, Appendix to Annex 4-B, Provisions Related to the Product-specific Rules of Origin for Automotive Goods, Article 6.1 footnote 74, 4-B-1-25 (2020).

**Figure 1.2** Timeline of the USMCA automotive ROOs staging requirements, 2020–27

RVC = regional value content; LVC = labor value content; ROOs = rules of origin; USMCA = United States-Mexico-Canada Agreement.




Sources: Compiled by the USITC from 19 C.F.R. Appendix A to Part 182 § 13 and 19(2) (2020); USMCA, Chapter 4 Rules of Origin, 2018, 4-B-1-19–23 and 4-B-1-29–31 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 6.1 footnote 74, 4-B-1-25 (2020).
Note: Starting July 1, 2027, the so-called "melted and poured" rule will come into force, where all steel manufacturing processes must occur within one or more of the parties, starting with the initial melting and mixing through the coating stage. The RVC and LVC requirements and the alternative staging provisions are described in more detail below.

Nonetheless, as described in the chapters covering competitiveness and economic impacts, vehicle manufacturers are increasingly sourcing parts and inputs from USMCA countries. Vehicle manufacturers have indicated in their alternative staging petitions that they plan to continue increasing the share of parts and inputs sourced from USMCA partners through at least mid-2027, when the USMCA will be fully implemented (figure 1.2).[19] Furthermore, vehicle manufacturers and parts suppliers have made capital investments that have gradually shifted the manufacturing to other locations within USMCA countries for vehicles and parts.[20] Automotive trade associations report that the three major components of the ROOs—RVC, LVC, and steel and aluminum purchasing requirements—described in chapter 2 of this report have contributed to these shifts.[21] Because of a longer staging period, any discernable effects on

[19] Alternative staging extended the deadline vehicle manufacturers had to fully meet the USMCA automotive ROOs from July 2023 to at least mid-2025 (five years after entry into force), with two models from two vehicle manufacturers extending beyond mid-2025. Approved petitions cover less than 15 percent of models produced in USMCA countries. USMCA Automotive Committee, information from alternative staging petitions submitted to the Automotive Committee July 2020 and aggregated by the USITC, February 15, 2025. 19 C.F.R. Appendix A to Part 182 § 19(2) (2020).
[20] See chapter 3 for the estimated impact of the ROOs on capital investments and see chapter 4 for analysis of the extent to which the ROOs impacted sourcing decisions and overall investment trends.
[21] USITC, hearing transcript, October 8, 2024, 25 (testimony of Matt Blunt, AAPC) and 32 (testimony of David Adams, GAC).

heavy truck manufacturing will likely occur several years after effects are noticed on the manufacturing of light vehicles.[22]

# Analytical Approach

This report includes quantitative and qualitative analyses of the impacts of the USMCA automotive ROOs. The quantitative analyses employ an economic model to estimate the impacts of the ROOs on the U.S. automotive industry, economy, and steel and aluminum industries. This report uses qualitative analyses to describe and assess the effects of the ROOs on the competitiveness of the automotive industry, including comparison of trends in the United States, USMCA countries, non-USMCA countries, and the U.S. labor market. Finally, the report reviews technological changes that may affect the relevancy of the ROOs.

## Survey

For the 2025 report, because the availability of public data required for the report was limited, the Commission conducted a survey of motor vehicle producers with production operations in the United States. The survey included a questionnaire that was sent to all 22 such producers in July 2024 that collected qualitative and quantitative data from January 2018 to August 2024.[23] All producers participated in the survey.

The survey provided the primary data necessary to analyze the impact of the USMCA automotive ROOs on the U.S. economy and automotive industry, effects on U.S. competitiveness, and the relevancy in light of technological changes. Moreover, the survey collected narrative responses documenting the effects of the ROOs on firm operations. Survey results are presented throughout this report and in appendix J.

## Other Information Sources

Official trade statistics for vehicles and vehicle parts were obtained from U.S. International Trade Commission DataWeb (USITC DataWeb)/U.S. Census Bureau (Census) and S&P Global's Global Trade Atlas.[24] Data for automotive production and sales were obtained from Wards Intelligence, the U.S. Census Bureau's Annual Survey of Manufactures, and Automotive World.[25] Investment data used to

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[22] 19 C.F.R. Appendix A to Part 182 § 19(2) (2020). At least one heavy truck manufacturer has plans to meet rules by 2027. DTNA, written submission to USTR, January 17, 2024, 8–9.

[23] See appendixes G and H of this report for a description of the Commission's survey methodology and a copy of the Commission's questionnaire (*The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*), respectively.

[24] USITC DataWeb/Census publishes official U.S. trade statistics made publicly available by the U.S. Department of Commerce and the U.S. Census Bureau. USITC DataWeb/Census, "DataWeb," accessed February 26, 2025; S&P Global, "GTAS, All HS Subheadings for Motor Vehicles," accessed March 1, 2025. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

[25] For this report, "vehicle production," and "vehicle assembly" are used interchangeably. However, "automotive production" typically includes parts production as well as vehicles. Census, "Annual Survey of Manufacturers (ASM)," accessed November 4, 2024; Wards Intelligence, "U.S. Vehicle Sales by Model, 2020–2024," February 19, 2025; Automotive World, "Global Vehicle Engine Plant Database–2024 Edition," May 23, 2024.

assess the competitiveness of the automotive industry were obtained from the Center for Automotive Research and Automotive Communities Partnership.[26] Employment data for motor vehicles and parts production were obtained from the U.S. Bureau of Labor Statistics.[27]

Additional data and information sources include U.S. government publications, industry interviews, public hearing testimony, and written submissions. Information on investments, spending, and the effects of the USMCA automotive ROOs was also drawn from individual firms' petitions for alternative staging, submitted to the USMCA Interagency Committee on Trade in Automotive Goods (USMCA Automotive Committee) in December 2020.[28] The Commission conducted more than 40 interviews with vehicle and parts manufacturers, vehicle and supplier associations, government organizations, and academic experts. The Commission also held a public hearing on October 8, 2024, and received 12 written submissions in connection with this investigation. The hearing had in-person and virtual participation and included persons representing vehicle manufacturers; vehicle, parts, and other trade associations; and labor unions. The transcript and all written submissions were made part of the Commission's public record in the investigation (with the exception of any confidential business information) and are available on the Commission's Electronic Document Information System (EDIS).[29]

# Modeling Approach

The ROOs can impact the U.S. automotive industry and economy in multiple ways. Manufacturers with vehicle models that did not already meet the ROOs would have needed to adjust their input sourcing in order to qualify for duty-free treatment. Some manufacturers may have chosen to make these adjustments and, if so, the ROOs would have had the effect of shifting input sourcing to USMCA countries. Others may have chosen not to adjust, in which case the ROOs would have had no effect on import sourcing and the imports of vehicles produced by these manufacturers may have been subject to tariffs. These changes may have increased their costs to produce and, subsequently, their vehicle prices. A detailed firm-level partial equilibrium model of the U.S. automotive industry was used to estimate these impacts of the ROOs on the U.S. automotive industry and economy. The economic model is at the vehicle-model level, where more than 300 vehicle-model lines are produced by 21 light vehicle manufacturers.[30] The model estimates the impacts of the USMCA automotive ROOs from two types of changes, as reported by manufacturers: payment of tariffs on USMCA trade in automotives due to not meeting the ROOs; and changes in costs from shifts in sourcing of core parts and materials to meet the

[26] CAR, "Automotive Communities Partnership," accessed January 14, 2025.
[27] BLS, "Automotive Industry: Employment, Earnings, and Hours," accessed January 25, 2025.
[28] The USITC aggregated information from individual petitions to preserve confidentiality. This use was authorized in the Act. 19 U.S.C. § 4532(b)(4)(B).
[29] A list of witnesses appearing at the hearing is provided in appendix C, and summaries included in written submissions are provided in appendix D.
[30] There are differences between the 21 vehicle manufacturers included in the model and the 22 vehicle manufacturers in the survey population. The economic model focuses on manufacturers who sell passenger vehicles and light trucks in North America, including those without production operations in North America, and does not include heavy trucks manufacturers. Meanwhile, the survey population covers all manufacturers with production operations in the United States, including heavy truck manufacturers, but does not include those who supply the North American market through imports only.

ROOs. The model estimates these impacts on production, investment, capacity, profits, wages, employment, sales, inventories, and consumer prices in the U.S. automotive industry.

In addition to the direct effects on the automotive industry, upstream industries (including steel and aluminum producers) and downstream industries (including retail automotive dealers) see indirect effects. In theory, if the ROOs lead to a shift in the sourcing of parts and other inputs to the United States and that shift results in increased production costs that are at least partially passed on into prices, then the ROOs would likely have positive effects on parts production and other upstream industries and negative effects on vehicle production and other downstream industries. The ROOs may also lead to positive effects on aggregate U.S. employment and gross domestic product (GDP) as a result of the direct and indirect effects, though economy-wide effects are likely to be small.

The estimation of the economic impacts compares observed data to a simulation of the state of the industry and the overall U.S. economy in 2024, absent adjustments that have been made because of the ROOs. Thus, the model estimates the impacts that can be attributed to the ROOs. For more information on non-ROOs-related factors, see chapter 2.

# Competitiveness

The Commission analyzed the effects of the USMCA automotive ROOs on the competitiveness of the U.S. automotive industry[31] with respect to trade and production. The report identifies the factors of competitiveness in the automotive industry most likely to be affected by the ROOs and then examines observable changes in relevant indicators of competitiveness of the U.S. automotive industry in various markets, and the extent to which those changes are related to the ROOs. This report considers industry competitiveness as the ability of U.S. producers to meet the demand for U.S.-produced vehicles and parts in USMCA countries and non-USMCA countries at a price and quality that is accepted in the market. The supply chains for vehicle manufacturers and parts suppliers are highly complex, spanning multiple countries among and outside of the USMCA countries. Changes in the ROOs that encourage U.S. vehicle manufacturers to source a greater share of parts domestically may harm competitiveness of vehicle manufacturers if the sourcing changes result in increased input costs. However, the ROOs may increase the competitiveness of U.S. parts suppliers and other pertinent industries because of an increase in demand and U.S. automotive employment and production.

# Technological Changes Impacting the Relevancy of the ROOs

To analyze whether the USMCA automotive ROOs remain relevant in light of technological changes in the United States, the Commission identified and evaluated additional key changes that have occurred (or are occurring) in the automotive industry and continued to monitor changes identified in its 2023 report. As noted in the Commission's 2023 report, battery electric vehicle pickup trucks and stamped and cast aluminum vehicle bodies are two technological changes affecting tariff classification and treatment in the ROOs, which continue to be evaluated in this report. The Commission identified an additional change

[31] For purposes of this analysis, the U.S. automotive industry includes foreign-headquartered vehicle manufacturers and parts suppliers with production operations in the United States.

in this report related to EV technology that may affect relevancy of the ROOs: the use of e-axles as the primary drive unit in EVs. The Commission also examined the classification of other battery chemistries and fuel cell vehicle parts, along with the increased prevalence of battery recycling and nontraditional automotive components. Finally, the Commission's questionnaire asked respondents about the effect of the topics raised in the 2023 report on the continued relevancy of the ROOs.[32]

# Report Organization

Chapter 2 provides overviews of the USMCA automotive ROOs and the USMCA automotive industry and describes certain non-ROOs-related factors affecting the U.S. automotive industry. Chapter 3 presents the results of the Commission's quantitative analysis that estimates the impact of the ROOs on the U.S. automotive industry, economy, and steel and aluminum industries. It focuses on the impact of the ROOs in the first four and a half years after the USMCA entered into force. Chapter 4 analyzes the effects of the ROOs on the competitiveness of the U.S. automotive industry since the USMCA entered into force. The chapter does so by examining trends in relevant indicators of competitiveness of the U.S. automotive industry in the U.S., Canadian, Mexican, and non-USMCA markets, as well as in the U.S. labor market, and the extent to which those changes are related to the ROOs. Chapter 5 describes current and potential future technological changes that may impact the relevancy of the ROOs. Each chapter also summarizes key findings or mentions noteworthy differences from the 2023 report.

[32] USITC, *USMCA Automotive Rules of Origin, 2023 Report*, June 30, 2023, 88–93.

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# Chapter 2
# Overview of the U.S. Automotive Industry, the USMCA Automotive ROOs, and Non-ROOs-Related Factors

## Introduction

This chapter is divided into three sections: a description of the automotive industry in United States-Mexico-Canada Agreement (USMCA) countries, a description of the USMCA automotive rules of origin (ROOs), and a description of other factors impacting the U.S. automotive industry. This chapter provides context for the report on the automotive industry and factors impacting the industry beyond the ROOs since USMCA entry into force on July 1, 2020. First, although the United States is the largest vehicle and parts manufacturer and consumer, the North American automotive industry, which includes Canada and Mexico, is highly integrated. Second, the ROOs have several different, interrelated sets of requirements (regional value content, labor value content, and steel and aluminum purchasing requirements) that affect sourcing decisions and costs for the U.S. automotive industry. Finally, many other factors, including the Inflation Reduction Act, section 232 and 301 tariffs, and the electrification of the automotive industry, have had significant effects on the automotive industry. These factors are divided into three groups: other important parts of the USMCA, non-USMCA trade actions and laws, and other industry-specific or macroeconomic factors.

## USMCA Automotive Industry

The USMCA automotive industry consists of vehicle and vehicle parts production in the United States, Mexico, and Canada. All three countries rank among the top vehicle-producing countries in the world, and all three produce a wide array of vehicles.

The U.S. automotive industry was the largest of the automotive industries in the three USMCA countries in 2024 (second largest globally behind China), with higher levels of production, sales, and trade than those in Canada and Mexico (table 2.1).[33] In 2024, the United States produced 10.6 million vehicles (66.1 percent of vehicle production by USMCA parties).[34] In that same year, 16.3 million new vehicles were sold in the United States.[35] In the United States, vehicle manufacturers and parts suppliers composed the country's largest manufacturing sector, accounting for nearly 10.9 percent of all manufacturing output and 1.6 percent of total U.S. output in 2024.[36] The U.S. automotive manufacturing sector accounted for more U.S. jobs than any other U.S. manufacturing sector in 2024. As of December 2024, the U.S.

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[33] OICA, "2024 Production," accessed February 28, 2025.

[34] Wards Intelligence, "North America Production, December 2024," January 21, 2025.

[35] Wards Intelligence, "U.S. Light Vehicle Sales, December 2024," January 3, 2025.

[36] BEA, Interactive Data Application, "GDP by Industry," accessed February 28, 2025; BEA Data, "Gross Output by Industry," accessed February 8, 2025.

automotive sector employed about 309,600 people in motor vehicle manufacturing, 546,700 people in parts production, and 163,400 people in motor vehicle body and trailer manufacturing.[37]

**Table 2.1** Production, sales, and trade of vehicles, by USMCA country, 2024
In millions of units.

| Country | Production | Sales | Imports | Exports |
|---|---|---|---|---|
| United States | 10.6 | 16.3 | 8.7 | 2.8 |
| Mexico | 4.1 | 1.6 | 1.1 | 3.5 |
| Canada | 1.3 | 1.9 | 1.8 | 1.4 |
| All USMCA countries | 16.0 | 19.8 | 11.6 | 7.7 |

Sources: Wards Intelligence, “North America Vehicle Production by Model, December 2024,” January 17, 2025; Wards Intelligence, “North America Vehicle Sales by Vehicle Type 2014–2024,” January 17, 2025; S&P Global, GTAS, list of HS subheadings corresponding to all vehicles (both light vehicles and heavy trucks) in appendix F, tables F.1 and F.2, accessed March 25, 2025.
Notes: The data of all USMCA countries are the summation of the three individual countries and do not measure the USMCA market as a single market (i.e., the data exclude intra-country trade). The inclusion of used vehicles in trade data and lack of available inventory data may affect attempts to compare production, sales, imports, and exports for any one country.

Mexico was the second-largest vehicle manufacturer in the USMCA and seventh-largest globally in 2024.[38] The automotive industry in Mexico accounted for 3.6 percent of the country’s GDP and 18 percent of the manufacturing GDP and employed more than 1 million people. Major vehicle producers in Mexico included BMW, Ford, General Motors (GM), Honda, Kia, Nissan, Mazda, Stellantis, Toyota, and Volkswagen. Manufacturing activities in Mexico’s automotive industry are primarily concentrated in the northern (Baja California, Sonora, Chihuahua, Coahuila, Nuevo León, and San Luis Potosí) and central (Guanajuato, Aguascalientes, Jalisco, Estado de México, Hidalgo, Morelos, and Puebla) regions of the country.[39]

Canada manufactured the smallest number of vehicles among USMCA countries but was the 11th-largest vehicle manufacturer globally in 2024.[40] In Canada, Ford, GM, Honda, Stellantis, and Toyota, along with Hino, Multimatic, and Kenworth, assembled more than 1.3 million vehicles in 2024.[41] The automotive industry was one of Canada’s largest manufacturing industries, contributing $12.5 billion to GDP in 2020. Canada’s automotive industry is primarily concentrated in the Great Lakes (Ontario and Quebec) region.[42]

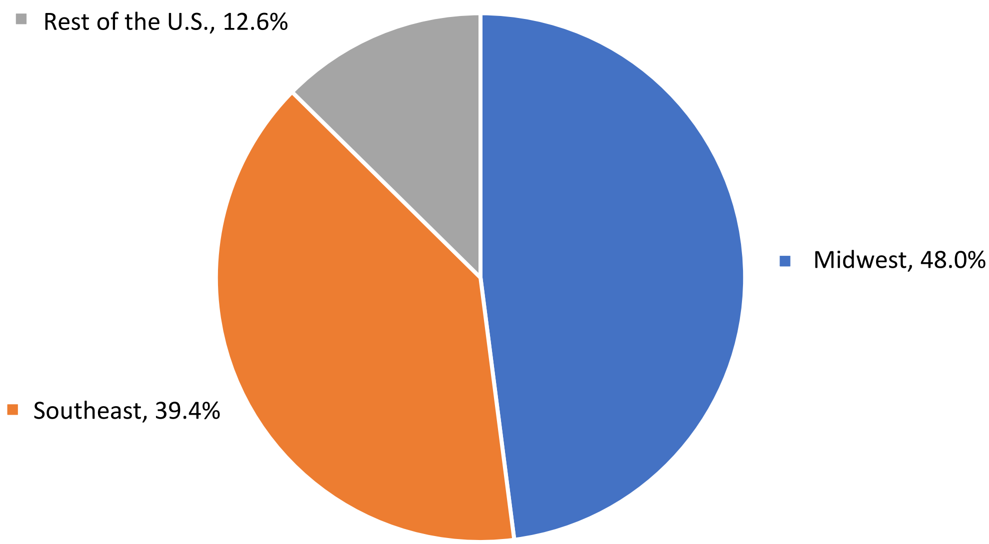
The U.S. automotive industry can be divided into three regions: the midwestern region, the southeastern region, and the rest of the United States. Production of motor vehicles is primarily located in the Midwest and Southeast (figure 2.1). In 2023, 10 motor vehicle producers in the Midwest (Illinois, Indiana, Kansas, Michigan, Missouri, and Ohio) operating 35 assembly plants produced the highest

[37] Automotive employment represented 0.6 percent of total U.S. nonfarm employment in December 2024. For more information on the impacts of the USMCA on U.S. employment, see chapters 3 and 4. USDOL, BLS, “Automotive Industry,” February 19, 2025.
[38] OICA, “2024 Production,” accessed February 28, 2025.
[39] ITA, “Mexico Country Commercial Guide, Automotive Industry,” November 4, 2023; Wards Intelligence, “North America Vehicle Production by State and Plant, 2019–2023,” March 29, 2024.
[40] OICA, “2024 Production,” accessed February 28, 2025.
[41] Wards Intelligence, “North America Vehicle Production by Model, December 2024,” January 17, 2025.
[42] Government of Canada, “Canadian Automotive Industry,” accessed November 7, 2022; Wards Intelligence, “North America Vehicle Production by State and Plant, 2019–2023,” March 29, 2024.

number of vehicles (5.1 million).[43] Three of those states (Michigan, Indiana, and Ohio) accounted for nearly 80 percent of total vehicle production in the region. In 2023, 15 vehicle producers in the Southeast (Alabama, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia) operating 21 assembly plants produced 4.2 million vehicles.[44] In 2023, five vehicle producers operating 7 assembly plants in the rest of the United States (most notably Arizona, California, and Texas) produced 1.3 million vehicles in 2023.

**Figure 2.1** Vehicle production breakdown, by U.S. region, 2023

In percentages. Underlying data for this figure can be found in appendix J, table J.1.




Source: Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024.
Notes: Production in the Midwest is in Illinois, Indiana, Kansas, Michigan, Missouri, and Ohio. The Southeast includes Alabama, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. The rest of the United States has reported vehicle production primarily in three states: Arizona, California, and Texas. Regions are defined by USITC staff.

Although U.S.-headquartered vehicle manufacturers had the strongest presence in the Midwest, the Southeast had more foreign-headquartered manufacturers in 2023. In the Midwest, Ford, GM, and Netherlands-based Stellantis were the three largest motor vehicle producers, accounting for about 70 percent of midwestern production in 2023.[45] In the Southeast, Nissan and Toyota, both Japanese-headquartered motor vehicle producers, were the leading vehicle producers, followed by Ford. Foreign-headquartered vehicle manufacturers accounted for 80 percent of southeastern production in 2023.[46] In the rest of the United States, U.S.-headquartered Tesla (52.4 percent) and GM (26.4 percent) accounted

[43] Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024.
[44] Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024.
[45] Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024.
[46] Foreign-headquartered vehicle motor vehicle producers in the southeastern region include Toyota, Nissan, BMW, Kia, Hyundai, Mercedes, Honda, Mazda, Volkswagen, Volvo, and Hino. Foreign-headquartered motor vehicle producers in the Midwest include Stellantis, Honda, Toyota, and Subaru.

for the majority (78.8 percent) of the production.[47] California and Texas accounted for 96.0 percent of vehicle production in the rest of the United States. Tesla accounted for all of California's production, and GM was the leading producer in Texas.[48]

# Trade in Vehicles and Vehicle Parts

The USMCA automotive ROOs and the ROOs under its predecessor, the North American Free Trade Agreement (NAFTA), have played an important role in creating a highly integrated automotive market among USMCA countries.[49] Most light vehicles and vehicle parts produced in Canada and Mexico are exported to the United States. U.S. demand is critical to the automotive industry in Mexico and Canada because the United States is the largest export market of vehicle parts for both countries.[50] Trade in vehicle parts is an important part of the supply chain in the USMCA region. In 2024, U.S. vehicle parts exports to the world totaled $85.9 billion, and U.S. imports totaled $182.9 billion, making the United States the largest exporter and importer of vehicle parts in the USMCA region (table 2.2).[51] Mexico was the second-largest vehicle parts exporter and importer in the USMCA region, with values totaling $83.2 billion and $58.2 billion in 2024, respectively.

**Table 2.2** Imports and exports of vehicle parts from and to the world, by USMCA country, 2024
In billions of dollars.

| Country | Imports | Exports |
|---|---|---|
| United States | 182.9 | 85.9 |
| Mexico | 58.2 | 83.2 |
| Canada | 37.1 | 21.4 |

Source: S&P Global, GTAS, list of HS subheadings corresponding to vehicle parts in appendix F, table F.5, accessed March 24, 2024.
Note: Data in this table reflect imports and exports of HS subheadings for which a majority of trade occurs in statistical reporting numbers that are specifically vehicle parts.

From 2019 to 2024, the quantity of light vehicles imported by the United States decreased by 293,000 units (3.4 percent) (table 2.3). The decrease was primarily driven by declines in U.S. imports of light vehicles from Canada of 556,000 units (33.8 percent) and Japan of 345,000 units (19.9 percent). These declines in U.S. imports were partially offset by increased imports of vehicles from South Korea (639,000 units). The top imported vehicle—from USMCA and non-USMCA partners—is classified under the HS

[47] In 2023, 69.9 percent of GM's U.S. production was in the Midwest. Another 10.1 percent was in the Southeast, and 20.0 percent was elsewhere in the United States. Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024.
[48] Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024. Lucid, the only vehicle manufacturer in Arizona, as well as heavy truck manufacturers Kenworth and Peterbilt (Texas) make up the remaining 4.0 percent of vehicle production in the rest of the United States.
[49] USTR, *Report to Congress on the Operation of the United States-Mexico-Canada Agreement with Respect to Trade in Automotive Goods*, July 1, 2024.
[50] S&P Global, "Global Trade Analytics Suite (GTAS)," Accessed March 25, 2025.
[51] This discussion of automotive trade between USMCA countries uses HS subheadings that are mostly or entirely made up of automotive goods at the HS 6-digit level, because that level is globally harmonized. Elsewhere in this report where U.S. data are presented, a narrower, more precise list of U.S.-specific codes is used exclusively for U.S. vehicle parts imports and exports; thus, data may not be directly comparable. For more information, see appendix F.

subheading for passenger cars with spark-ignition internal combustion piston engine with cylinder capacity between 1,500 and 3,000 cubic centimeters (HS 8703.23).[52] This HS subheading includes sedans and smaller sport utility vehicles (SUVs), such as the Honda Accord and Subaru Outback.

**Table 2.3** Quantity of U.S. imports of light vehicles, by source, 2019–24
In thousands of units.

| Source | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 2,908 | 2,310 | 2,294 | 2,389 | 2,747 | 3,011 |
| South Korea | 917 | 874 | 827 | 940 | 1,265 | 1,556 |
| Japan | 1,738 | 1,410 | 1,355 | 1,313 | 1,469 | 1,393 |
| Canada | 1,647 | 1,195 | 956 | 1,048 | 1,339 | 1,091 |
| Germany | 414 | 287 | 293 | 340 | 398 | 456 |
| All other sources | 1,004 | 1,007 | 1,014 | 900 | 809 | 829 |
| Total | 8,628 | 7,083 | 6,740 | 6,930 | 8,028 | 8,335 |

Source: USITC DataWeb/Census, general imports, list of HS subheadings corresponding to light vehicles in appendix F, table F.1, accessed February 12, 2025.
Note: Source countries are listed in descending order of 2024 value. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

From 2019 to 2024, the value of U.S. imports of light vehicles increased by $47.6 billion (23.8 percent) to $247.8 billion (table 2.4), despite the decrease in units imported. Much of the increase can be attributed to the increases in U.S. imports from South Korea and Mexico, $21.5 billion (135 percent) and $18.6 billion (31.3 percent), respectively. This increase in value was partially offset by a $7.7 billion (19.6 percent) decline in the value of U.S. imports from Canada. U.S. imports of light vehicles remained below 2019 levels in inflation-adjusted dollars until 2023.[53]

**Table 2.4** Value of U.S. imports of light vehicles, by source, 2019–24
In billions of dollars.

| Source | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 59.4 | 48.7 | 52.8 | 58.4 | 69.6 | 77.9 |
| Japan | 39.1 | 32.3 | 32.7 | 32.8 | 40.1 | 39.9 |
| South Korea | 15.9 | 16.2 | 17.6 | 21.8 | 30.7 | 37.4 |
| Canada | 39.6 | 29.2 | 25.1 | 28.5 | 38.7 | 31.9 |
| Germany | 17.8 | 12.4 | 14.8 | 19.6 | 23.9 | 25.5 |
| All other sources | 28.4 | 23.5 | 25.3 | 29.0 | 33.7 | 35.2 |
| Total | 200.2 | 162.3 | 168.3 | 190.2 | 236.7 | 247.8 |

Source: USITC DataWeb/Census, general imports, list of HS subheadings corresponding to light vehicles in appendix F, table F.1, accessed February 12, 2025.
Note: Source countries are listed in descending order of 2024 value. For inflation-adjusted values, please refer to appendix J, table J.30. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

[52] HS subheading 8703.23 includes motor cars and other motor vehicles principally designed for the transport of persons (other than those of heading 8702), including station wagons and racing cars with spark-ignition internal combustion piston engine and a cylinder capacity between 1,500 and 3,000 cubic centimeters.
[53] Inflation not only raised prices but also affected interest rates during this period. For more information, see the "Macroeconomic Conditions" section at the end of this chapter.

# U.S. Imports of Vehicle Parts

From 2019 to 2024, U.S. imports of vehicle parts increased by $42.4 billion (27.4 percent) to $197.3 billion (table 2.5). The increase was primarily driven by growth in imports of vehicle parts from Mexico of $20.8 billion (34.5 percent). High levels of inflation during this period also contributed to the increase in the value of U.S. imports of vehicle parts. U.S. imports of vehicle parts remained below 2019 levels in inflation-adjusted dollars until 2022.[54]

**Table 2.5** Value of U.S. imports of vehicle parts, by source, 2019–24
In billions of dollars.

| Source | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 60.3 | 51.2 | 59.6 | 69.2 | 78.4 | 81.2 |
| Canada | 16.8 | 14.0 | 16.3 | 18.4 | 20.0 | 19.5 |
| China | 15.4 | 11.3 | 15.0 | 18.5 | 17.9 | 18.3 |
| Japan | 14.9 | 12.0 | 14.9 | 16.3 | 15.4 | 15.8 |
| South Korea | 9.4 | 8.2 | 10.2 | 13.6 | 13.5 | 12.7 |
| All other sources | 38.0 | 34.0 | 42.5 | 47.8 | 49.0 | 49.9 |
| Total | 154.9 | 130.6 | 158.5 | 183.7 | 194.3 | 197.3 |

Source: USITC DataWeb/Census, general imports, list of HTS statistical reporting numbers corresponding to vehicle parts in appendix F, table F.3, accessed February 12, 2025.
Note: Source countries are listed in descending order of 2024 value. Vehicle parts are only reported in value because of the variability in measurements of quantity (i.e., quantity reported in unit and weight measurement categories) among different products. For inflation-adjusted values, please refer to appendix J, table J.31. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

# U.S. Exports of Vehicles

From 2019 to 2024, the quantity of U.S. exports of light vehicles decreased by 380,000 units (12.4 percent) to 2.7 million units (table 2.6). The decrease was primarily driven by the decline in light vehicle exports to Canada of 256,000 units (27.5 percent). This decline was partially offset by increased U.S. exports to United Arab Emirates of 102,000 units (53.3 percent). Similar to trends reported for U.S. imports of vehicles, the top vehicle classification among U.S. exports—to USMCA and non-USMCA partners—was under the HS subheading for passenger cars with spark-ignition internal combustion piston engine with cylinder capacity between 1,500 and 3,000 cubic centimeters (HS 8703.23).

[54] For more on inflation, see the “Macroeconomic Conditions” section at the end of this chapter.

**Table 2.6** Quantity of U.S. exports of light vehicles, by destination, 2019–24
In thousands of units.

| Destination | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Canada | 934 | 685 | 752 | 813 | 776 | 677 |
| United Arab Emirates | 191 | 130 | 144 | 226 | 281 | 293 |
| Mexico | 194 | 130 | 171 | 196 | 229 | 249 |
| Germany | 198 | 170 | 192 | 183 | 196 | 166 |
| Georgia | 121 | 46 | 72 | 117 | 142 | 134 |
| All other destination markets | 1,418 | 1,197 | 1,379 | 1,118 | 1,180 | 1,157 |
| Total | 3,056 | 2,357 | 2,711 | 2,654 | 2,805 | 2,676 |

Source: USITC DataWeb/Census, total exports, list of HS subheadings corresponding to light vehicles in appendix F, table F.1, accessed February 12, 2025.
Note: Destination countries are listed in descending order of 2024 value. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard. U.S. exports of light vehicles to Georgia are almost entirely (more than 95 percent from 2019 to 2024) made up of used vehicles.

From 2019 to 2024, the value of U.S. exports of light vehicles fluctuated, increasing by $1.4 billion (2.0 percent) to $70.1 billion (table 2.7). The increase was primarily driven by growth in exports of light vehicles to Mexico of $2.2 billion (62.7 percent) and United Arab Emirates of $2.1 billion (94.4 percent). This growth was partially offset by a $2.4 billion (32.8 percent) decrease in U.S. exports of light vehicles to China. High levels of inflation led U.S. vehicle exports to remain below 2019 levels in inflation-adjusted dollars throughout this period.[55]

**Table 2.7** Value of U.S. exports of light vehicles, by destination, 2019–24
In billions of dollars.

| Destination | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Canada | 24.7 | 19.3 | 24.8 | 29.3 | 26.7 | 24.0 |
| Germany | 7.1 | 6.8 | 7.7 | 7.7 | 8.9 | 7.9 |
| Mexico | 3.5 | 2.3 | 3.2 | 4.1 | 5.2 | 5.7 |
| China | 7.4 | 6.2 | 6.6 | 5.7 | 6.5 | 5.0 |
| United Arab Emirates | 2.2 | 1.5 | 1.9 | 3.1 | 4.1 | 4.2 |
| All other destination markets | 23.9 | 19.8 | 23.2 | 23.3 | 25.9 | 23.3 |
| Total | 68.7 | 55.9 | 67.4 | 73.1 | 77.3 | 70.1 |

Source: USITC DataWeb/Census, total exports, list of HS subheadings corresponding to light vehicles in appendix F, table F.1, accessed February 12, 2025.
Note: Destination countries are listed in descending order of 2024 value. For inflation-adjusted values, please refer to appendix J, table J.30. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

# U.S. Exports of Vehicle Parts

From 2019 to 2024, U.S. exports of vehicle parts increased slightly by $6.4 billion (7.3 percent) to $93.5 billion (table 2.8). The increase was primarily driven by growth in vehicle parts exports to Mexico of $5.5 billion (16.5 percent). High levels of inflation during this period led U.S. exports of vehicle parts to remain below 2019 levels in inflation-adjusted dollars throughout the period.[56]

[55] For more on inflation, see the "Macroeconomic Conditions" section at the end of this chapter.
[56] For more on inflation, see the "Macroeconomic Conditions" section at the end of this chapter.

**Table 2.8** Value of U.S. exports of vehicle parts, by destination, 2019–24
In billions of dollars.

| Destination market | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 33.4 | 25.5 | 29.1 | 33.2 | 37.0 | 38.8 |
| Canada | 29.4 | 22.0 | 21.6 | 25.8 | 31.7 | 29.5 |
| Australia | 1.3 | 1.2 | 1.4 | 1.6 | 2.0 | 2.6 |
| Germany | 2.2 | 1.8 | 2.0 | 2.2 | 2.5 | 2.4 |
| China | 2.6 | 3.4 | 3.0 | 2.7 | 2.6 | 2.3 |
| All other destination markets | 18.3 | 15.2 | 16.2 | 17.3 | 17.8 | 17.9 |
| Total | 87.1 | 69.1 | 73.3 | 82.8 | 93.7 | 93.5 |

Source: USITC DataWeb/Census, total exports, list of Schedule B statistical reporting numbers corresponding to vehicle parts in appendix F, table F.4, accessed February 12, 2025.
Note: Source countries are listed in descending order of 2024 value. Vehicle parts are only reported in value because of the variability in measurements of quantity (i.e., quantity reported in unit and weight measurement categories) among different products. For inflation-adjusted values, please refer to appendix J, table J.31. For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

# Operation of the USMCA Automotive ROOs

The USMCA automotive ROOs define whether a vehicle qualifies for duty-free treatment when traded between USMCA countries.[57] These ROOs were designed to replace the NAFTA automotive ROOs; the latter were less stringent yet in some ways more complex. Although the USMCA ROOs cover all vehicles, this section focuses primarily on the ROOs as they apply to light vehicles (passenger vehicles and light trucks) because light vehicles make up the majority of vehicle production, imports, and exports within the United States. The discussion covers aspects of heavy trucks and how their ROOs differ, as well as how the rules affect used vehicles and recovered materials.[58]

Vehicle manufacturer survey results indicate that the USMCA automotive ROOs' influence on vehicle manufacturers' sourcing decisions varied depending on whether a vehicle model was already in production or in the planning stage. For those in production, the ROOs alone led to sourcing changes; for new models in the planning stage, changes that were necessary to meet the ROOs were incorporated into a broader sourcing decision framework. The Commission sent questionnaires to 22 vehicle

[57] 19 C.F.R. Appendix A to Part 182 provides the Uniform Regulations Regarding the Interpretation, Application, and Administration of Chapter 4 (Rules of Origin) of the Agreement between the United States of America, the United Mexican States, and Canada. This appendix provides further details on implementing the USMCA automotive ROOs as agreed by the parties, including allowing alternative staging for the steel and aluminum requirements and options to extend alternative staging beyond 2025. Additional information on the implementation of the ROOs can also be found in USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods (2020).
[58] For more information on the product coverage of this report, see "product coverage" section of chapter 1. All products in the ROOs are classified using nomenclature from the 2012 edition of the *Harmonized Commodity Description and Coding System* (*Harmonized System* or HS), described as HS 2012 in the USMCA Agreement. Even if a vehicle or part is now classified under a different HS subheading using current nomenclature from the 2022 edition (either because its HS classification was altered or because a new subheading was created), for the purposes of the agreement, the product follows the product-specific rules of origin for the subheading it would have been classified in using nomenclature from the 2012 HS edition. See appendix E for discussion on how this use of the 2012 HS nomenclature can affect the relevancy of the ROOs.

manufacturers and asked them to identify sourcing changes they made because of the USMCA automotive ROOs. In total, light vehicle manufacturers identified 68 sourcing changes that occurred since January 1, 2018. Of those 68, manufacturers fully attributed 82.4 percent to the ROOs.[59] However, for newer vehicle models (made after January 1, 2018), manufacturers indicated that 88.0 percent of their sourcing decisions were partially attributed to the ROOs and only 12.0 percent of their sourcing decisions were fully attributed to the ROOs.[60]

The ROOs establish three major requirements for finished vehicles—regional value content (RVC), labor value content (LVC), and the steel and aluminum purchasing requirements (figure 2.2). The RVC rules require vehicle manufacturers to use a certain percentage of content originating in a USMCA country for those goods to qualify for duty-free treatment.[61] The LVC rules, first introduced in the USMCA, require that 40 percent of the content of a passenger vehicle (or 45 percent for trucks) be produced using high-wage labor (defined as labor being paid an average hourly base rate of at least $16 per hour) for the vehicle to qualify for duty-free treatment.[62] The steel and aluminum purchasing requirements, also first introduced in the USMCA, require vehicle manufacturers to source at least 70 percent of their steel and 70 percent of their aluminum purchases from USMCA countries to qualify for duty-free treatment.[63] In addition to rules for vehicles, the ROOs provide product-specific rules of origin for various vehicle parts. The product-specific rules determine whether a vehicle part qualifies for duty-free treatment. The ROOs also categorize vehicle parts into one of three categories (core parts, principal parts, and complementary parts).[64] Each of these categories specifies a different RVC requirement.[65]

[59] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 2.2.2–2.2.11. The total number of sourcing changes is the aggregation of changes across all firms' model lines, parts (e.g., engines and transmissions) and materials (steel and aluminum), and dates these changes have occurred. For each sourcing change attributed to the USMCA Auto ROOs, vehicle manufacturers were asked whether it was fully attributable to the ROOs or partially attributable.

[60] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in section 2.3.

[61] For light vehicles the RVC requirement is 75 percent, for heavy trucks it is 70 percent. RVC requirements for parts range from 75 percent to 60 percent. 19 C.F.R. Appendix A to Part 182 § 13 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 3, 4, and 10 (2020).

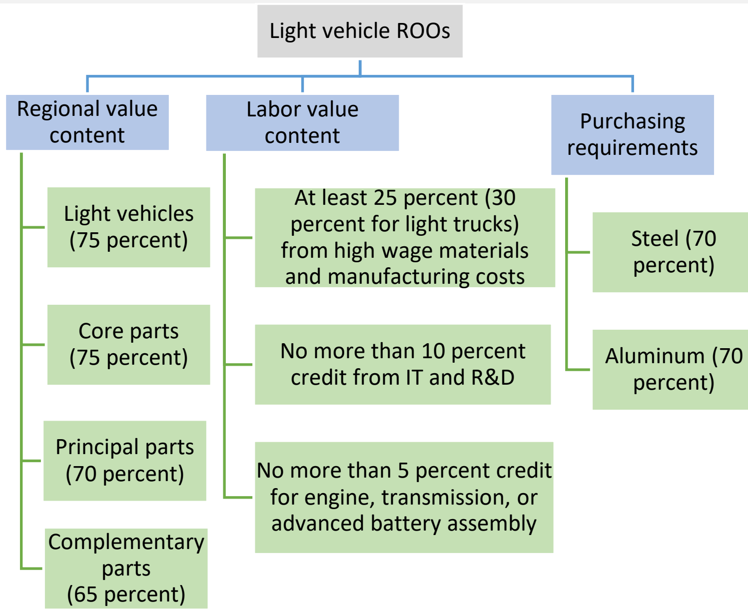
[62] These rules are further described in the LVC section below. 19 C.F.R. Appendix A to Part 182 § 12 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-26 through 4-B-1-27 (2020).

[63] 19 C.F.R. Appendix A to Part 182 § 17(1) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 6, 4-B-1-25 through 4-B-1-26 (2020).

[64] Product-specific rules of origin are ROOs at the product-specific level, often categorized by HS heading or subheading level of aggregation. For a complete list of the USMCA product-specific rules of origin, see 19 C.F.R. Appendix A to Part 182 § 13 (2020) or USMCA Appendix to Annex 4-B, Article 2, 4-B-1-3 through 4-B-1-19 (2020).

[65] In the USMCA automotive ROOs, Tables A–E list the core, principal, and complementary parts of a motor vehicle that are subject to the ROOs. The RVC requirements for each list are in articles 3 and 4. 19 C.F.R. Appendix A to Part 182 § 14 and 20 Tables A.1, A.2, B, C, D, and E (2020); USMCA, Appendix to Annex 4-B, Articles 3 and 4, and Tables A.1, A.2, B, C, D, and E, 4-B-1-19 through 4-B-1-24 and 4-B-1-34 through 4-B-1-42 (2020).

**Figure 2.2** The USMCA automotive ROOs for light vehicles




Source: Created by the USITC from 19 C.F.R. Appendix A to Part 182 § 12 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 4 and 7, 4-B-1-22 through 4-B-1-23, 4-B-1-26 through 4-B-1-28 (2020).
Note: The ROOs for heavy trucks differ from light vehicle ROOs in several ways, including lower vehicle regional value content requirements (70 percent), higher labor value content requirements (45 percent), and the lack of a core parts list. Some ROOs, however, are the same for light vehicles and heavy trucks, including the regional value content requirements for principal and complementary parts and steel and aluminum purchasing requirements.

# Regional Value Content (RVC) Requirements

The RVC requirements in the USMCA automotive ROOs require passenger vehicles, light trucks, heavy trucks, and vehicle parts producers to use certain amounts of content originating in USMCA countries to qualify for duty-free treatment. The RVC requirements differ for light vehicles and heavy trucks and their respective parts both in terms of required levels and time to achieve those levels. Light vehicles (passenger vehicles and light trucks) face more stringent requirements than heavy trucks for content originating in a USMCA country. RVC requirements for other types of vehicles (e.g., 4-wheelers, golf carts, and large construction equipment) are the same as they were under NAFTA. The implementation of RVC requirements for light vehicles was phased in over a period of three years, with the rules fully entering into effect July 1, 2023; for heavy trucks, the staging continues through July 1, 2027.[66]

As mentioned above, the ROOs group light vehicle parts into three categories (core, principal, and complementary), each with different RVC requirements (table 2.9). In addition to these RVC requirements, the ROOs introduced a “core parts requirement,” which stipulated that, in order for a light vehicle to receive duty-free treatment, all the core parts in the vehicle (or all the parts aggregated

[66] Vehicle producers were able to request an alternative staging regime, which, if approved, permitted vehicle producers additional time to reach full compliance with the ROOs. Nearly all alternative staging regimes conclude by July 1, 2025. For more on staging, see the “Alternative Staging” section below. 19 C.F.R. Appendix A to Part 182 § 19 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 8, 4-B-1-29 through 4-B-1-30 (2020).

together, also referred to as a “super-core”) must meet the 75 percent RVC requirement.[67] RVC requirements are generally measured at the model or part level, though vehicle manufacturers can average the RVC requirements across models produced at the same plant or within the same country.[68] For example, a vehicle manufacturer might produce three different models at the same plant and average the RVC of those vehicle models together rather than calculating the percentages separately for each model.

**Table 2.9** USMCA vehicle parts RVC requirements, by parts category and vehicle type
In percentages. — (em dash) = not applicable; RVC = regional value content.

| Parts category | Light vehicle RVC | Heavy truck RVC |
|---|---|---|
| Core | 75 | — |
| Principal | 70 | 70 |
| Complementary | 65 | 60 |

Source: 19 C.F.R. Appendix A to Part 182 §§ 14 (13), (15–16), 15 (2–3) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 3 and Article 4, 4-B-1-19 through 4-B-1-21 and 4-B-1-23 (2020).
Note: Heavy trucks do not have a core parts list or core parts requirement. The principal parts list for heavy trucks in the Appendix to Annex 4-B includes both the parts listed as “core parts” for light vehicles and the parts listed as “principal.”

# Labor Value Content (LVC) Requirements

As mentioned previously, the LVC requirements in the USMCA automotive ROOs were new—no requirement existed under NAFTA. Under these LVC requirements, to qualify for duty-free treatment, a minimum percentage of the content (by value) in passenger vehicles, light trucks, and heavy trucks must be sourced from USMCA manufacturing facilities that compensate workers at $16 per hour or more.[69] To meet the LVC requirements, the labor cost must also make up at least 40 percent of the total manufacturing cost for passenger vehicles and 45 percent for light and heavy trucks.[70] The LVC requirement for light vehicles was implemented incrementally in four phases from entry into force on July 1, 2020, through July 1, 2023, although light and heavy trucks were required to meet their full 45 percent LVC requirement on entry into force.[71] As much as 10 percent of the LVC requirement, however, can be from a vehicle manufacturer’s spending on wages for high-wage information technology (IT) or research and development (R&D).[72] An additional 5 percent of the LVC requirement can be from a

[67] The USMCA core parts are the parts included in Table A.2 of the agreement. 19 C.F.R. Appendix A to Part 182 § 14(8–12) and 20 Table A.2 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 3, 4-B-1-19 through 4-B-1-22 and Table A.2, 4-B-1-35 (2020).
[68] 19 C.F.R. Appendix A to Part 182 § 16 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 5, 4-B-1-24 (2020).
[69] 19 C.F.R. Appendix A to Part 182 § 18(1–2) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-26 through 4-B-1-29 (2020).
[70] 19 C.F.R. Appendix A to Part 182 § 18(1–2) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-27 (2020).
[71] 19 C.F.R. Appendix A to Part 182 § 18(1–2) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-26 through 4-B-1-27 (2020).
[72] The percentage is calculated as wages spent on R&D or IT in USMCA countries divided by total annual vehicle producer expenditures on production wages in USMCA countries. 19 C.F.R. Appendix A to Part 182 § 18 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-27 through 4-B-1-28 (2020).

vehicle manufacturer that has a high-wage engine, transmission, or battery plant that meets minimum capacity requirements (or has a long-term contract with such a plant) located in a USMCA country.[73] Vehicle manufacturers have the flexibility to average LVC across models produced at the same plant or in more than one plant within the same country to meet the requirement.[74]

# Steel and Aluminum Purchasing Requirements

The steel and aluminum purchasing requirements were new in the USMCA automotive ROOs and had not been included in NAFTA. The USMCA automotive ROOs require that 70 percent of the vehicle manufacturers' steel purchases and 70 percent of their aluminum purchases, by value, originate from USMCA countries.[75] These requirements applied upon entry into force of the agreement (July 1, 2020), unless subject to alternative staging. They are measured separately from each other at the vehicle manufacturer level. Steel and aluminum goods are considered to be originating materials if they are made in any of the USMCA countries or if imported semifinished steel or unwrought aluminum undergo a transformation resulting in certain tariff shifts in USMCA countries.[76] An additional requirement that all steel manufacturing processes occur within a USMCA country for the steel purchases to qualify as originating under the ROOs will become effective on July 1, 2027 (i.e., "melted and poured").[77]

# Alternative Staging

Alternative staging extends the time beyond the standard staging provided for in the agreement for vehicle manufacturers to make sourcing changes necessary to fully comply with the USMCA automotive ROOs.[78] Vehicle manufacturers are, by default, limited to including no more than 10 percent of their annual production in USMCA countries in their alternate staging regimes and the ROOs require any alternative staging for light vehicles be completed no later than July 1, 2025. If a vehicle manufacturer, however, can demonstrate via a "detailed and credible plan" in its alternative staging petition to the USMCA parties that it will have the ability to meet the full extent of the ROOs by the date proposed in its

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[73] For passenger vehicles and light trucks, the plant must have a capacity of at least 100,000 engines, 100,000 transmissions, or 25,000 advanced battery packs. For heavy trucks, the plant requirement is a capacity of at least 20,000 engines, 20,000 transmissions, or 20,000 advanced battery packs. 19 C.F.R. Appendix A to Part 182 §§12,18(1–2, 12–14) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-26 through 4-B-1-29 (2020).

[74] 19 C.F.R. Appendix A to Part 182 § 18(15) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-28 (2020).

[75] 19 C.F.R. Appendix A to Part 182 § 17(1) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 6, 4-B-1-25 through 4-B-1-26 (2020).

[76] 19 C.F.R. Appendix A to Part 182 § 17(5)(a) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-25 (2020).

[77] Until then, semifinished steel imported from a non-USMCA country and stamped in a USMCA country can qualify as originating. USITC, hearing transcript, November 3, 2022, 193–95 (testimony of Kaitlin Wojnar, U. S. Steel); and 186–87, 195 (testimony of Kevin Dempsey, AISI); 19 C.F.R. Appendix A to Part 182 § 17(5)(a) and (b) (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7, 4-B-1-25 (2020).

[78] 19 C.F.R. Appendix A to Part 182, § 19 (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 8, 4-B-1-29 through 4-B-1-31 (2020).

petition, then the parties can approve an alternative staging regime for a larger share of their vehicle production or for a longer period of time.[79] Vehicle manufacturers that are using alternative staging are also required to submit annual progress reports to the Office of the U.S. Trade Representative (USTR), certifying that their original petition remains true and accurate.[80]

Most light vehicle manufacturers with operations within USMCA countries are using alternative staging for at least some portion of their production. The 13 vehicle manufacturers listed below requested and received approval for their respective petitions.[81]

- Cooperation Manufacturing Plant Aguascalientes (COMPAS)[82]
- FCA North America Holding LLC
- Ford Motor Company
- Honda North America, Inc.
- Hyundai Motor America
- Kia Motors Manufacturing Georgia
- Kia Motors Mexico
- Mazda North America
- Nissan North America, Inc.
- Tesla Inc.
- Toyota Motor North America Inc.
- Volkswagen Group of America, Inc.
- Volvo Car Corporation

Note that all 13 requests are from vehicle manufacturers that primarily produce light vehicles, even though heavy trucks were also eligible for alternative staging. U.S. light vehicle producers that did not participate in alternative staging include BMW, General Motors, Rivian, and Lucid.

A review of the alternative staging petitions filed in 2020 shows certain patterns with respect to the timing, coverage, and aspects of the ROOs most often included. In total, the 13 approved petitions affect less than 15 percent of the models produced in USMCA countries. The affected models account for

[79] 85 Fed. Reg. 22238, 22243 (April 21, 2020) (Request for petitions and outlining requirements of petitions for alternative staging); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 8, 4-B-1-30; USMCA Automotive Committee, information from alternative staging petitions submitted to the Automotive Committee, July 2020, aggregated by the USITC, February 15, 2023. As noted above, the USMCA Implementation Act authorized the USITC to use aggregated information collected by the USMCA Automotive Committee that preserves confidentiality for this report. 19 U.S.C. § 4532 (b)(4)(B).
[80] 85 Fed. Reg. 22238, 22243 (April 21, 2020); (Indicating that USTR will monitor if producers satisfy alternative staging requirements in maintaining list of approved producers). The government of Mexico has argued that the USMCA does not require progress reports after initial approval of an alternative staging petition. *See, e.g.,* Government of Mexico, Initial Written Submission for USMCA Panel on Core Parts, 49, March 29, 2022.
[81] USTR, "Alternative Staging," accessed February 7, 2023. Some of these vehicle manufacturers have exited alternative staging, but no public announcement has been made. USMCA Automotive Committee, information from modification requests, aggregated by the USITC, March 24, 2025.
[82] COMPAS is a manufacturing joint venture that is equally owned by Daimler and Nissan. Nissan, "Daimler and Renault-Nissan Alliance Start Manufacturing Joint Venture in Mexico," July 28, 2015.

about 18 percent of North American production and 13 percent of U.S. sales.[83] Almost all petitioning manufacturers requested to use alternative staging for greater than 10 percent of their vehicle production and thus had to provide a detailed and credible plan describing how they planned to meet the ROOs. Half of vehicle models that were included in petitions are assembled in the United States rather than Canada or Mexico. Nearly all alternative staging plans were scheduled to end by mid-2025. Two plans extend further, with the latest ending in mid-2027.

These plans provide some insight into which areas companies needed more time to comply with the ROOs.[84] Vehicle manufacturers most often requested to use alternative staging for the vehicle RVC, core parts RVC, and steel purchasing requirements. Almost all participating firms asked for additional time to meet vehicle RVC requirements and nearly 75 percent of firms asked for additional time to meet core parts requirements. Nearly half of firms requested additional time to meet the steel requirements, but almost all met the steel requirements by 2023. Several firms asked for additional time to meet LVC requirements. Only one firm asked for additional time to meet the aluminum requirements, and only until 2022.[85]

# Heavy Trucks

As mentioned above, important differences exist in the USMCA between the automotive ROOs for heavy trucks and the automotive ROOs for light vehicles. For example, to qualify for duty-free treatment, the RVC requirement for heavy trucks is 70 percent, but the RVC requirement for light vehicles is 75 percent. Heavy trucks also have a longer staging period, requiring full compliance with RVC requirements by July 1, 2027, compared to July 1, 2023, for light vehicles. The phase-in for heavy trucks includes fewer steps, with the RVC first increasing to 64 percent on July 1, 2024, and then increasing to the full 70 percent on July 1, 2027. Heavy trucks also do not have core parts requirements, but they lack some of the tariff-shift flexibilities granted to light vehicles (table 2.10).

**Table 2.10** Differences between the rules of origin for light trucks and heavy trucks
RVC = regional value content; LVC = labor value content.

| USMCA item | Light trucks | Heavy trucks |
|---|---:|---:|
| Staging ends | 2023 | 2027 |
| RVC requirement (percentage) | 75 | 70 |
| LVC requirement (percentage) | 40 | 40 |
| Core parts requirement | Yes | No |
| Tariff shift for principal and complementary parts | Yes | No |

Source: USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 3.4, 3.5, 4.2 and 4.3 or 19 C.F.R. Appendix A to Part 182 §§ 14–15 (2020).

[83] USITC calculation based on sales and production data from Wards Intelligence. Wards Intelligence, “U.S. Light Vehicle Sales, December 2024,” January 3, 2025; Wards Intelligence, “North America Production, December 2024,” January 21, 2025.
[84] USMCA Automotive Committee, information from alternative staging petitions submitted to the Automotive Committee, July 2020, aggregated by the USITC, February 15, 2023.
[85] USMCA Automotive Committee, information from alternative staging petitions submitted to the Automotive Committee, July 2020, aggregated by the USITC, February 15, 2023.

The ROOs for heavy trucks allow more time for staging and have a slightly lower RVC requirement because of some key industry differences between heavy trucks and light vehicles. For example, heavy trucks are produced in relatively low volumes, are targeted for commercial customers, have a multistage production process, require extreme customization, and have long production cycles. Heavy truck production volumes are much lower than those of light vehicles, reducing the quantity of parts needed, which limits the heavy truck manufacturers' ability to negotiate changes in their suppliers' supply chains.[86] Customization is much more prevalent in heavy truck manufacturing than light vehicle manufacturing, which tends to have limited customization grouped into trim levels.[87] When a customer purchases a heavy truck, nearly every part is customized to their specifications, from the color to the suspension to the air intake, which further limits units of each specific part needed from each supplier and makes it more difficult to localize supply chains.[88]

Although a light vehicle supplier may be able to expect parts orders of hundreds of thousands of units for a single vehicle model, the largest orders from heavy truck manufacturers are no more than tens of thousands of units. In many cases this low volume reduces the dependence of the supplier on the heavy truck manufacturer, thus making it harder for a heavy truck manufacturer to dictate supply chain changes to the supplier that would help the vehicle manufacturer meet its rules of origin needs. Another key difference between heavy trucks and light vehicles is the frequency of model changes. A heavy truck manufacturer might produce the same model for 15 or even 25 years; but light vehicle models are typically produced for only three to five years before being refreshed with a new model every six to ten years.[89]

# Other Reported Differences Between the USMCA and NAFTA

Certain industry participants have highlighted differences between the USMCA and NAFTA regarding used vehicles and "recovered materials" (used parts that will be used in remanufacturing) that pertain to the current operation of the USMCA ROOs. These stakeholders have reported that used vehicles are treated the same as new vehicles, which means it is not possible for most used vehicles produced before the USMCA entered into force, and for many used vehicles produced after the USMCA entered into force, to receive duty-free treatment under the USMCA. They also report limitations under the USMCA on the duty-free treatment available to imported materials used in remanufacturing.

[86] Industry representative, interview by USITC staff, September 19, 2024.

[87] Trim levels are different packages of features for a car model. Typically, trim levels have different types of features which can affect the performance, technology, and safety of a vehicle. Industry representative, interview by USITC staff, September 19, 2024.

[88] Industry representative, interview by USITC staff, September 19, 2024.

[89] Industry representative, interview by USITC staff, September 19, 2024; Kaufman, "A Year Can Make a Big Difference," November 21, 2023.

## Used Vehicles in the USMCA vs. NAFTA

For a used vehicle to qualify for duty-free treatment, the requirements under the USMCA differ from those under NAFTA. Under the USMCA, used vehicle importers must provide the same certificate of origin as a new vehicle in order to qualify for duty-free treatment; but there is no process by which the original vehicle manufacturer can transfer possession of this certificate to the used vehicle importer.[90] Under NAFTA, used vehicles were defined and granted an exception to allow for vehicles manufactured in 1996 or later to qualify for beneficial tariff treatment based on their vehicle identification number.[91] From 2019 to 2024, the share of used vehicles paying duties increased from less than 1 percent in 2019 to roughly 75 percent in 2024, with duty payments increasing from nearly $41,000 in 2019 to nearly $6.4 million in 2024.[92] According to the International Motor Vehicle Trade Association's (IMVTA's) testimony to USTR, the import cost of used vehicles has increased significantly as a result of this change in qualification rules, which affects 300,000 vehicles annually.[93] Distinct from NAFTA and the USMCA, the CBP has an allowance for returned goods produced in the United States in the past three years.[94] However, this allowance captures only a small share of the used vehicle market.

## Treatment of Recovered Materials in the USMCA vs. NAFTA

For recovered materials to qualify for duty-free treatment, requirements under the USMCA differ from those under NAFTA. Under section 4(1) of the USMCA Uniform Regulations, recovered materials (including used vehicle parts intended for remanufacturing) only qualify for duty-free treatment if (among other requirements) they are "used in the production of, and incorporated into, a remanufactured good."

A difficulty that importers of recovered materials reported is that they are often unable to assess whether a part can be remanufactured from those materials in time to benefit from duty-free

[90] NAVTA, written submission to USTR, January 11, 2024, 2.

[91] The definition of a used vehicle under NAFTA was a vehicle that has been sold, leased, or loaned; has been driven for more than 1,000 kilometers if the vehicle has a gross weight of less than 5 metric tons, or 5,000 kilometers if the vehicle has a gross weight of 5 metric tons or more; or was manufactured prior to the current year and at least 90 days have elapsed since the date of manufacture. Annex 300-A, NAFTA; NAVTA, written submission to USTR, January 11, 2024, 2; USTR, hearing transcript, February 7, 2024, 78–80.

[92] USITC DataWeb/Census, "DataWeb," accessed June 11, 2025, imports for consumptions, light vehicles with used-specific statistical codes.

[93] IMVTA, written submission to USTR, February 7, 2024, 3–4.

[94] HTS subheading 9801.00.10 provides duty-free treatment for "products of the United States when returned after having been exported—or any other products when returned within three years after having been exported—without having been advanced in value or improved in condition by any process of manufacture or other means while abroad." This allowance, however, would only allow for U.S. imports of vehicles that qualify as "products of the United States" to reenter duty free. It does not allow for used vehicles originating from Canada or Mexico (or U.S. vehicles that were exported more than three years ago) to be imported into the U.S. duty free, nor does it reduce duties on imports into Canada or Mexico. CBP, "HQ Ruling Letter H314176," March 18, 2021; CBP, *Used Vehicles*, October 2021; NAVTA, written submission to USTR, January 11, 2024, 1–2.

treatment.[95] Furthermore, one importer indicated that it is often unclear whether subcomponents of recovered material will qualify as originating if the whole is not.[96] Under NAFTA, components of a disassembled part were considered originating.[97]

U.S. remanufacturing revenue in 2024 totaled $7.1 billion, with the largest share of remanufacturing occurring in transmissions and related parts.[98] Remanufacturing is more important for the heavy truck industry, where commercial fleets have many of their parts or entire vehicles remanufactured in lieu of purchasing new ones.[99] However, light vehicles also use remanufactured parts as replacement parts.

# Other Factors Impacting the U.S. Automotive Industry

Several factors other than the USMCA automotive ROOs also affected automotive production, trade, and the supply chain in the period examined. These included other USMCA-related factors (the forthcoming joint review of the USMCA, the core parts dispute, and the Rapid Response Labor Mechanism), recent laws and policies (Inflation Reduction Act, section 232 tariffs, section 301 tariffs, state policies, EV charging infrastructure, and other free trade agreements), other automotive industry factors (the electrification of the automotive industry, labor union actions, labor/skills shortage, and increased Chinese investment in Mexico), and macroeconomic conditions. This section provides overviews of these complex factors and their individual effects on the U.S. automotive industry. Some factors discussed in the Commission's previous report, such as the COVID-19 pandemic and the semiconductor shortage, are no longer significant factors impacting the automotive industry and thus not discussed here.[100]

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[95] Disassembly usually occurs at the remanufacturing plant after importation. Thus, often the importer does not know how the recovered material is used or transformed until after a good crosses the border, which is too late to benefit from duty-free treatment. DTNA, written submission to USTR, January 17, 2024, 22, 25–26; industry representative, interview by USITC staff, February 28, 2025; 19 C.F.R. 181.132.

[96] For example, if an engine is not remanufacturable but some of its components are, an importer may be unclear about how much duty must be paid for that engine. DTNA, written submission to USTR, January 17, 2024, 26.

[97] 19 C.F.R. 181.132. ". . . disassembly is considered to be production, and a component recovered from a good disassembled in the territory of a Party will be considered to be originating as the result of such disassembly provided that the recovered component satisfies all applicable requirements of Annex 401 and this part." DTNA, written submission to USTR, January 17, 2024, 25.

[98] IBISWorld, *Auto Parts Remanufacturing in the US,* August 2024, 9 and 15.

[99] Schaeffer, "Remanufacturing Is a Big Part of the Heavy-Duty Engine Plan," April 11, 2023; Morgan, "Remanufacturing and the Circularity of Trucking Sustainably," February 29, 2024; industry representative, interview by USITC staff, September 17, 2024; industry representative, interview by USITC staff, September 19, 2024.

[100] USITC, "*USMCA Automotive Rules of Origin 2023 Report*," July 2023, 38–45. Other factors not discussed in detail below that were included in the previous report include the Russian invasion of Ukraine and the CHIPS Act.

# USMCA-Related Factors

## USMCA Joint Review

Industry representatives indicated that the upcoming joint review of the USMCA in 2026 may provide an opportunity to update the agreement's automotive ROOs.[101] The USMCA contains a termination date for the agreement 16 years after entry into force unless extended.[102] To facilitate a possible extension, Article 34.7 of the USMCA requires parties to the agreement to hold a "joint review" six years after its entry into force. This review serves as the first opportunity for parties to indicate whether they wish to extend the termination date for the agreement.[103] Parties may also provide "recommendations for action" as part of the joint review, with any amendments to the USMCA requiring the approval of all parties.[104]

The USMCA Implementation Act requires that the President, acting through the U.S. Trade Representative, engage both stakeholders and appropriate congressional committees before any joint review with Canada and Mexico.[105] The U.S. Trade Representative "shall consult" with congressional committees and stakeholders regarding any action to be proposed in a review, as well as communicate the position of the United States on extending the USMCA.[106] The statute also requires that the U.S. Trade Representative seek public input, including through submission of comments and a public hearing.[107] In 2026, the U.S. Trade Representative is required to provide a report to congressional committees concerning the operation of the USMCA since enactment, recommendations for amendments, and the position of the United States on whether to extend the agreement.[108]

Industry representatives have expressed a variety of views on the joint review. Several parties proposed that the ROOs be updated to account for additional technologies related to electric vehicles (EVs),

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[101] USITC, hearing transcript, October 8, 2024, 8–12 (testimony of Matt Blunt, AAPC); AISI, written submission to the USITC, September 26, 2024, 4.

[102] USMCA, art. 34.7(1) (2020). Given that the USMCA entered into force on July 1, 2020, the agreement will terminate in 2036 unless extended.

[103] USMCA, art. 34.7(3) (2020). If each party indicates a desire to extend the agreement in the joint review, then the USMCA will automatically be extended for another 16-year term. If any party indicates it does not wish for the agreement to continue, then the parties will continue to hold annual joint reviews until either (i) the agreement terminates, or (ii) the parties agree to a new 16-year term. USMCA, art. 34.7(4) (2020).

[104] USMCA, art. 34.3 and 34.7(2) (2020).

[105] USMCA Implementation Act, 19 U.S.C. § 4611(a) (2020). U.S. House of Representatives, Committee on Ways and Means, *Report on United States-Mexico-Canada Agreement Implementation Act*, H.R. Rep. No. 116-358 at 35, December 19, 2019. The President has delegated to the U.S. Trade Representative functions regarding joint reviews of the USMCA. EOP, Proclamation 10053, 85 Fed. Reg. 39821, 39826-27 (July 1, 2020).

[106] USMCA Implementation Act, 19 U.S.C. § 4611(a) (2020).

[107] USMCA Implementation Act, 19 U.S.C. § 4611(b)(1) (2020). The President directed the U.S. Trade Representative to commence public consultation for the joint review in a memorandum dated January 20, 2025. EOP, America First Trade Policy, 90 Fed. Reg. 8471, January 30, 2025.

[108] USMCA Implementation Act, 19 U.S.C. § 4611(b)(2) (2020). If the USMCA parties do not extend the agreement after the joint review, the U.S. Trade Representative must provide reports to congressional committees on efforts to extend the agreement and proposed actions at least 70 days prior to subsequent reviews between USMCA parties. USMCA Implementation Act, 19 U.S.C. § 4611(c) (2020).

including autonomous driving systems, traction motors, motor cores, and non-oriented electrical steel.[109] Representatives of the steel industry supported that "strongest possible ROOs" be maintained in the agreement, although representatives of vehicle manufacturers advocated that the ROOs not be so strict that compliance with the USMCA would be more expensive than paying normal trade relations (NTR) tariff rates.[110] A vehicle manufacturer also noted that the six-year time frame for joint reviews and potential changes to the USMCA may be less than the production cycle for some vehicle models. The firm expressed concern that prior investments made according to USMCA requirements could become noncompliant if changes were to be stipulated in a joint review.[111] As a consequence, representatives of vehicle manufacturers suggested that any changes to the ROOs through the joint review allow for flexibilities or a phase-in period for stakeholders to adjust.[112] Vehicle manufacturers have also suggested that the joint review could allow for a resolution of the core parts dispute, as discussed further below, to be implemented.[113]

Labor representatives also support changes to the rules. The International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) supports a full rewrite of the USMCA including transformation of the labor value content requirement into a "durable goods manufacturing minimum wage," no alternative staging for new changes, and no preferential duty rates for heavy trucks.[114] United Steelworkers also support improving the labor value content requirement, incorporating detailed electric vehicle standards, and improving product categorization.[115]

## USMCA Core Parts Dispute

On December 14, 2022, a USMCA dispute panel finalized a report concerning a dispute brought by Mexico and Canada against the United States on the interpretation of the USMCA automotive ROOs.[116] The dispute centered on the amount of vehicle content that must originate from USMCA parties to qualify for preferential treatment, specifically regarding whether the full value of core parts that meet the core parts requirement always count toward the RVC of the vehicle as a whole.[117] The panel ruled in favor of Mexico and Canada's interpretation.[118] The USTR has indicated that the parties are in discussions to reach a resolution to the dispute but have not yet reached an agreement.[119] USTR has indicated that a

[109] USITC, hearing transcript, October 8, 2024, 10 (testimony of Matt Blunt, AAPC); AISI, written submission to the USITC, September 26, 2024, 4.

[110] U.S. Steel, written submission to the USITC, October 16, 2024, 11–12; USITC, hearing transcript, October 8, 2024, 8-9 (testimony of Matt Blunt, AAPC).

[111] Industry representative, interview by USITC staff, Oct. 24, 2024.

[112] USITC, hearing transcript, October 8, 2024, 12 (testimony of Matt Blunt AAPC) and 72 (testimony of Rory Heslington, Autos Drive America).

[113] USITC, hearing transcript, October 8, 2024, 11–12 (testimony of Matt Blunt, AAPC).

[114] USITC, hearing transcript, October 8, 2024, 149–151 (testimony of Jason Wade, UAW).

[115] USITC, hearing transcript, October 8, 2024, 141–142 (testimony of Roy Houseman, USW).

[116] The text of the panel report provides further details on the dispute's procedural history. Arbitral Panel Report, "United States - Automotive Rules of Origin," December 14, 2022, paras. 10–48.

[117] Arbitral Panel Report, "United States - Automotive Rules of Origin," December 14, 2022, paras. 2 and 49–68. USMCA (July 1, 2020), chaps. 4, annex 4-B, Table A-2. (identifying "core parts" for purposes of the USMCA).

[118] Arbitral Panel Report, "United States - Automotive Rules of Origin," December 14, 2022, paras. 203–209.

[119] USTR, *Report to Congress on USMCA Trade in Automotive Goods*, July 1, 2024, 14. *See also* USTR, *2025 Trade Policy Agenda and 2024 Annual Report*, 63.

resolution “should benefit all USMCA parties and their shared goal to enhance North American production and employment,” while cautioning that adoption of Mexico and Canada’s interpretation could result in 10–20 percent less regional content per vehicle.[120]

Industry representatives have taken varying positions on the dispute before the Commission. U. S. Steel “firmly agrees” with USTR’s position and advocates that any resolution of the dispute should continue to require strong ROOs with an emphasis on USMCA party content, and one vehicle manufacturer similarly has long had the same interpretation of the agreement as USTR.[121] Other vehicle manufacturers emphasized the uncertainty caused by the dispute. In particular, manufacturers noted that the meaning of the ROOs remain unclear when different interpretations continue to be applied between countries.[122] Firms also indicated that the prolonged period without a resolution of the panel decision called into question the effectiveness of the USMCA’s dispute settlement mechanisms.[123] One industry representative stated that the core parts dispute had diverted resources away from new investments and led some manufacturers to stop production of certain models.[124] Additionally, manufacturers indicated that the dispute could impact where production is located in the future for new vehicle models.[125] Parties generally advocated for a resolution of the dispute, with some suggesting that the USMCA joint review provides an opportunity to implement a resolution.[126]

## USMCA Rapid Response Labor Mechanism

The USMCA’s Rapid Response Labor Mechanism (RRM) is a facility-specific enforcement tool within the USMCA that allows the United States and Canada to take expedited action against factories in priority sectors in Mexico if credible evidence shows workers being denied their rights to freedom of association and collective bargaining. Essentially, the RRM allows for investigations and potential penalties against

[120] USTR, *Report to Congress on USMCA Trade in Automotive Goods*, July 1, 2024, 14.
[121] U.S. Steel, written submission to the USITC, October 16, 2024, 11–12; Industry representative, interview by USITC staff, September 11, 2024.
[122] *See, e.g.,* USITC, hearing transcript, October 8, 2024, 16 (testimony of Rory Heslington, Autos Drive), 35 (testimony of David Adams, Global Automakers of Canada), 41–42 (testimony of Anna Schneider, VW), 62 (testimony of Odracir Barquera, AMIA); Industry representative, interview by USITC staff, Oct. 24, 2024.
[123] USITC, hearing transcript, October 8, 2024, 42 (testimony of Anna Schneider, VW), 62 (testimony of Odracir Barquera, AMIA).
[124] USITC, hearing transcript, October 8, 2024, 16 (testimony of Rory Heslington, Autos Drive).
[125] USITC, hearing transcript, October 8, 2024, 75–76 (testimony of Rory Heslington, Autos Drive); VW, written submission to the USITC, October 30, 2024, 6–7 (indicating that the uncertainty about the USMCA ROOs had caused the firm to “think twice” about increasing North American production).
[126] USITC, hearing transcript, October 8, 2024, 11–12 (testimony of Matt Blunt, AAPC).

companies that violate labor rights at specific facilities within the region.[127] The mechanism aims to address workplace conditions that violate workers' rights, ensuring that employers adhere to the labor requirements agreed upon under the USMCA, with the intention of preventing a "race to the bottom" in labor standards.[128] This aspect of the mechanism is especially relevant for Mexico, where labor union activities and worker representation were historically undermined by anti-labor practices, such as "protection contracts" and employer-backed unions.[129]

Since 2021, under the RRM the United States has sought a review of a production facility in Mexico 35 times and Canada has sought a review one time.[130] The majority of facilities for which the RRM was used were in the automotive industry (22 instances).[131] Indeed, until June 2023, the automotive industry was the sole focus of review under the RRM; however, since then, it has been used with respect to several facilities in other industries, including mining, services, and apparel.[132]

The majority of RRM cases resulted in remediation plans or were resolved during the RRM review process. Remediation plans have included back pay and benefits to workers, reinstatement of employment, supporting the right of workers to determine their own independent union representation, higher wages, and workers' rights trainings on freedom of association and collective action.[133] The RRM was designed to provide a process for workers to petition for review of unfair labor practices and has resulted in comprehensive plans at impacted facilities. A recent report noted that, in practice, few employees in Mexico have been trained on the RRM process or their organizational rights.[134]

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[127] USMCA Implementation Act, 19 U.S.C. §§ 4641–4649; Executive Order 13918, 85 Fed. Reg. 26315 (May 1, 2020) (establishing Interagency Labor Committee for Monitoring and Enforcement of USMCA labor provisions). Priority sectors under the RRM mean sectors that produce manufacturing goods, supply services, or involve mining. Annex 31-A, USMCA (July 1, 2020). Mexico's use of the RRM with respect to the facilities in Canada and the United States is restricted to facilities in the United States and Canada where extensive domestic administrative review has occurred (in the case of the United States, this would include a covered facility under an enforced order of the National Labor Relations Board). Additionally, the RRM is not executed jointly among parties. There is a bilateral RRM between Mexico and the United States (Annex 31-A) and a bilateral RRM between Mexico and Canada (Annex 31-B). There is no bilateral RRM between the United States and Canada. Annex 31-A, USMCA (July 1, 2020); Claussen, "The Track Record of the USMCA Rapid Response Mechanism," March 6, 2024.

[128] USTR, "Fact Sheet," September 2024; LeClercq, Covarrubias-V, and Quintero Ramírez, "Enforcement of the USMCA," November 7, 2024, 18.

[129] USTR, "Fact Sheet," September 2024; LeClercq, Covarrubias-V, and Quintero Ramírez, "Enforcement of the USMCA," November 7, 2024, 3, 11–12. "Protection contracts" are bargaining agreements that have been negotiated without the consent of workers. See Annex 31-A, USMCA (July 1, 2020) for details on the RRM process.

[130] Although the Canadian government accepted one petition for review, the issue was resolved before formal steps under the RRM were undertaken. The facility agreed to uphold workers' freedom of association and collective action and reinstate three workers with back pay, and a union election was held. USTR, "Chapter 31 Annex A," accessed December 4, 2024, 31; Claussen, "The Track Record of the USMCA Rapid Response Mechanism," March 6, 2024; Brookings Institution, "USMCA Tracker," accessed December 4, 2024.

[131] USTR, "Chapter 31 Annex A," accessed December 4, 2024; Brookings Institution, "USMCA Tracker," accessed December 4, 2024.

[132] USTR, "Chapter 31 Annex A," accessed December 4, 2024.

[133] USTR, "Fact Sheet," September 2024; USTR, "Chapter 31 Annex A," accessed December 4, 2024.

[134] LeClercq, written submission to the USITC, September 24, 2024, 3; LeClercq, Covarrubias-V, and Quintero Ramírez, "Enforcement of the USMCA," November 7, 2024.

# Trade Actions and Laws Affecting the U.S. Automotive Industry

## Inflation Reduction Act

The Inflation Reduction Act (IRA) of 2022 took effect on January 1, 2023, and modified certain existing tax credits and established new tax credits incentivizing battery-electric vehicle (BEV) and battery supply chain production and sales. The $7,500 consumer tax credit was limited to vehicles assembled in North America with battery components sourced from the United States and critical minerals primarily sourced from the United States or countries with which it has a free trade agreement.[135] The IRA also provides tax credits to firms that participate in the following activities: mining battery critical minerals, processing battery materials, producing battery components, producing battery cells, and assembling battery modules.[136] Generally, industry representatives feel the IRA tax credits have contributed to increased automotive investment within North America.[137] Specifically, the IRA extended and amended the 30C Alternative Fuel Vehicle Refueling Property Credit, which provides an income tax credit for qualified charging infrastructure.[138] Of the sourcing changes that only partially attributed the USMCA as the reason, 42 percent listed the IRA as another reason for the sourcing change.[139]

## Section 232 Tariffs

In 2017, the U.S. Secretary of Commerce initiated investigations under section 232 of the Trade Expansion Act of 1962 to determine the effects on national security of imports of steel and aluminum.[140] As a result of the investigations and at the Secretary's recommendation, the United States imposed

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[135] *See, e.g.,* Pub. L. No. 117-169, §§ 13401, 13502, 136 Stat. 1818, 1954 (2022) (codified at 26 U.S.C. §§ 30D and 45X). On January 20, 2025, the President issued an executive order that the new administration would consider "the elimination of unfair subsidies and other ill-conceived government-imposed market distortions that favor EVs over other technologies and effectively mandate their purchase by individuals, private businesses, and government entities alike by rendering other types of vehicles unaffordable." EOP, Unleashing American Energy, 90 Fed. Reg. 8353, January 20, 2025.

[136] 26 U.S.C. § 45X.

[137] Industry representative, interview by USITC staff, October 21, 2024; industry representative, interview by USITC staff, November 21, 2024; USITC, hearing transcript, October 8, 2024, 105 (testimony of Anna Schneider, VW)

[138] Under the 30C Alternative Fuel Vehicle Refueling Property Credit (30C credit), individuals qualified for a 30 percent tax credit, up to $1,000, for installing a qualifying charger at home. Businesses and tax-exempt entities qualified for a 6 percent credit on the cost of qualified charging equipment, up to $100,000 per piece of equipment, with a higher 30 percent credit available if prevailing wage and apprenticeship requirements are met. 26 U.S.C. § 30C; see also Energy, "Tax Credits for Electric Vehicles and Charging Infrastructure," accessed June 13, 2025.

[139] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 2.2.1 through 2.2.11.

[140] Notice Request for Public Comments and Public Hearing on Section 232 National Security Investigation of Imports of Steel, 82 Fed. Reg. 19205 (April 26, 2017); Notice of Request for Public Comments and Public Hearing on Section 232 National Security Investigation of Imports of Aluminum, 82 Fed. Reg. 21509 (May 9, 2017). See section 232 of the Trade Expansion Act of 1962, 19 U.S.C. § 1862.

additional tariffs on imports of certain steel and aluminum products.[141] A previous Commission model estimated that the section 232 tariffs led to an increase in domestic sourcing of steel and aluminum for the motor vehicle metal stamping and other motor vehicle parts subsectors of the automotive industry and an increase in the price of steel and aluminum in the U.S. market by 2.47 and 1.27 percent, respectively.[142] According to U.S. vehicle manufacturers, these increases in domestic raw material prices weakened the competitiveness of U.S. vehicle manufacturing, reducing profits.[143]

## Section 301 Tariffs

In 2017, USTR initiated an investigation under section 301 of the Trade Act of 1974 to determine whether acts, policies, and practices of the government of China related to technology transfers, intellectual property, and innovation were actionable under the law.[144] As a result of the investigation, the United States imposed additional duties on products made in China, as outlined in a series of lists.[145] China was the third-largest supplier of vehicle parts to the United States in 2021, particularly electronics and inputs into larger parts, as well as replacement parts.[146] Higher tariffs on automotive inputs have increased the cost of inputs from China for vehicle manufacturers and created additional supply chain uncertainties.[147] A previous Commission model estimated increases of 3.1 percent in prices for semiconductors and 1.5 percent for other motor vehicle parts as a result of the section 301 tariffs.[148]

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[141] EOP, 83 Fed. Reg. 11625, March 15, 2018; EOP, 90 Fed. Reg. 9817, February 18, 2025; EOP, 83 Fed. Reg. 11619, March 15, 2018; EOP, 90 Fed. Reg. 9807, February 18, 2025.

[142] In 2021, domestic sourcing of steel and aluminum was estimated to have increased by $93.3 million and $68.0 million, respectively, in the motor vehicle metal stamping subsector, and by $54.4 million and $39.6 million, respectively, in the other motor vehicle parts subsector. The estimated increase in prices of domestically sourced steel and aluminum in 2021 was 0.75 percent and 0.71 percent, respectively. The estimated increase in average U.S. prices of steel and aluminum in 2021 was 2.47 percent and 1.27 percent, respectively. USITC, *Economic Impact of Section 232 and 301 Tariffs on U.S. Industries*, 2023, 124–129.

[143] Carey and Shepardson, "Ford CEO Says Trump's Metal Tariffs Cost Auto Maker $1-Billion," September 26, 2018; Bomey, "Trump's Steel, Auto Tariffs Damage GM, Fiat Chrysler, Ford," July 25, 2018; Hsu, "G.M. Says New Wave of Trump Tariffs Could Force U.S. Job Cuts," June 29, 2018; Martin, "German Car Industry Reacts to Trump Tax Threat," March 5, 2018.

[144] Section 301 refers to sections 301–10 of the Trade Act of 1974, as amended, which is codified at 19 U.S.C. §§ 2411–20. 82 Fed. Reg. 40213 (August 24, 2017).

[145] USTR, 83 Fed. Reg. 14906, April 6, 2018; USTR, 83 Fed. Reg. 28710, June 20, 2018; USTR, 83 Fed. Reg. 40823, August 16, 2018; USTR, 83 Fed. Reg. 47974, September 21, 2018; USTR, 84 Fed. Reg. 20459, May 9, 2019; USTR, 89 Fed. Reg. 76581, September 18, 2024. See USTR, "Findings of the Investigation into China's Acts," March 22, 2018, for findings of the investigation. See USITC, *The Year in Trade 2021*, August 2022, 65–67 for further background on the investigation.

[146] The second-largest HTS statistical reporting number for imports from China was Other Automotive Parts (8708.99.8180), which is a basket category covering some miscellaneous vehicle parts not classified elsewhere in the HTS. U.S. imports from China under this category totaled $1.1 billion in 2021.

[147] USITC, hearing transcript, October 8, 2024, 72 (testimony of Matt Blunt, AAPC), 85 (testimony of Rory Heslington, Autos Drive); USITC, hearing transcript, November 3, 2022, 30–31 (testimony of Ann Wilson, MEMA).

[148] The estimated effect of section 301 tariffs on U.S. producer prices (difference between actual and counterfactual as percentage of counterfactual) in 2021 was 3.1 percent for semiconductors and other electronic components and 1.5 percent for other motor vehicle parts. The estimated effect on prices of imports from China in 2021 was 25.0

## California's Advanced Clean Cars II Regulations

Industry representatives identified compliance with California's Advanced Clean Cars (ACC) II regulations as a factor that will impact production of EVs in the United States.[149] As explained below, firms have indicated that the regulations' requirement that increasing percentages of new vehicles be zero emission vehicles could spur investments in EV production. However, they also expressed the view that uncertainty around the feasibility of the regulations' timeline and the possible reversal of the U.S. Environmental Protection Agency's (EPA) Clean Air Act (CAA) waiver could temper such investments, as discussed below.

The CAA authorizes the EPA to create national emissions standards for new motor vehicles.[150] The EPA also "shall waive" application of federal standards in favor of those promulgated by California subject to several requirements, including that California's standards are "at least as protective of public health and welfare" as federal standards.[151] Other states may elect to follow either federal or such a separate standard.[152] California sought the latest waiver regarding zero emission vehicles in 2023 with its ACC II regulations.[153] The ACC II regulations include, in part, requirements that manufacturers sell increasing percentages of zero emission vehicles each year, starting at 35 percent in 2026 and increasing annually until reaching 100 percent in 2035.[154] The EPA granted a waiver for the ACC II regulations in December 2024.[155] As of 2024, 11 states and the District of Columbia had elected to follow California's ACC II standards.[156]

percent and 24.5 percent for semiconductors and other vehicle parts, respectively. USITC, *Economic Impact of Section 232 and 301 Tariffs on U.S. Industries*, 2023, 152–153, 158–160.

[149] *See, e.g.*, USITC, hearing transcript, October 8, 2024, 105 (testimony of Anna Schneider, VW). AAI, *It's Gonna Take a Miracle: California and States with EV Sales Requirements*, December 11, 2024.

[150] Clean Air Act, 42 U.S.C. § 7521. The EPA issued the most recent federal standards in April 2024. EPA, "*Multi-Pollutant Emissions Standards for Model Years 2027 and Later Light-Duty and Medium-Duty Vehicles*, 89 Fed. Reg. 27842," April 18, 2024. (final rule promulgated at 40 C.F.R. Parts 85, 86, 600, 1036, 1037, 1066, and 1068).

[151] Clean Air Act, 42 U.S.C. § 7521(a) (outlining requirements for federal emissions standards) and 7543(b) (requirements for California waiver). Other requirements for the EPA to issue a waiver include that California continue to have "compelling and extraordinary conditions" regarding air quality that necessitate more stringent standards, and that California's standards balance protecting public health with cost and technical feasibility consistent with federal standards.

[152] Clean Air Act, 42 U.S.C. § 7507. States that elect to follow California's standards are often referred to as "Section 177 states," which refers to the provision of the Clean Air Act with this authority. *See, e.g.,* USITC, hearing transcript, October 8, 2024, 105–106 (testimony of Anna Schneider, VW); Clean Air Act Amendments, Pub. L. No. 101-549, § 232, 104 Stat. 2399, 2529 (1990).

[153] CARB, "Request for Waiver Action Pursuant to Clean Air Act Section 209(b) for California's Clean Cars II Regulations," May 22, 2023.

[154] ACC II, 13 Cal. C.R. § 1962.4(c) (2022). The ACC II regulations also include various requirements for zero emission vehicles, including with respect to minimum range, durability, and warranty. ACC II, 13 Cal. C.R. § 1962.4(d) (2022).

[155] EPA, *California State Motor Vehicle and Engine Pollution Control Standards; Advanced Clear Cars II; Waiver of Preemption; Notice of Decision*, 90 Fed. Reg. 642 (January 6, 2025).

[156] States following California's ACC II standards are Colorado, Delaware, Maryland, Massachusetts, New Jersey, New Mexico, New York, Oregon, Rhode Island, Vermont, and Washington. CARB, "States That Have Adopted California's Vehicle Regulations," June 2024.

Several industry representatives for vehicle manufacturers indicated that the ACC II regulations were a factor in spurring investment in EV production.[157] Producers have also, however, indicated concerns regarding the regulations' 10-year time frame for shifting to 100 percent zero emission vehicles. For example, an industry representative noted that this shift would require significant increases in production of raw materials for batteries, yet permitting for new mines in the United States may take 10 years.[158] Another industry representative noted that while California has heavily invested in charging infrastructure to support EV adoption, other states that may follow ACC II have made fewer investments and lack the infrastructure to support such a transition.[159]

Developments in Congress and the previous withdrawals of California waivers nonetheless created uncertainty over the EPA waiver for the ACC II standards.[160] In 2023, a bill passed in the House (but not Senate) that would have prohibited the EPA from issuing CAA waivers for standards that limit the sales of vehicles with internal combustion engines.[161] The EPA withdrew a waiver once before, in 2019, finding that California's standards regarding greenhouse gas emissions for light-duty vehicles had been based on outdated information and were overly stringent based on available technology.[162]

## Charging Infrastructure and National Electric Vehicle Infrastructure (NEVI) Funding

Multiple industry representatives described the implementation of charging infrastructure as "huge" in underpinning investments for EV production in the United States.[163] To support the build-out of charging stations for EVs, the Infrastructure Investment and Jobs Act (IIJA) in 2021 created numerous programs, including the National Electric Vehicle Infrastructure (NEVI) program that is administered by the U.S. Department of Transportation (USDOT).[164] NEVI provides funding to states and local entities for the

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[157] Industry representative, interview by USITC staff, October 18, 2024; industry representative, interview by USITC staff, April 18, 2023.
[158] Industry representative, interview by USITC staff, April 18, 2023.
[159] Industry representative, interview by USITC staff, October 24, 2024.
[160] On January 20, 2025, the President issued an executive order stating that policy in the new administration would be to terminate, where appropriate, "state emissions waivers that function to limit sales of gasoline-powered automobiles." EOP, Unleashing American Energy, 90 Fed. Reg. 8353, January 20, 2025.
[161] Preserving Choice in Vehicle Purchases Act, H.R. 1435, 118th Cong. § 2 (2023).
[162] EPA, *The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule Part One: One National Program*, 84 Fed. Reg. 51310 (September 27, 2019). In another reversal, however, the EPA reissued this waiver in March 2022. EPA, *California State Motor Vehicle Pollution Control Standards; Advanced Clean Car Program; Reconsideration of Previous Withdrawal of a Waiver of Preemption; Notice of Decision*, 87 Fed. Reg. 14,332 (March 14, 2022). "Light duty vehicle" is a term used in EPA regulations for emissions standards and refers to vehicles weighing less than 8,500 pounds. 40 C.F.R. § 86.1803–01.
[163] Industry representative, interview by USITC staff, September 11, 2024; USITC, hearing transcript, October 8, 2024, 105 (testimony of Anna Schneider, VW) (stating: "{a}n increase in infrastructure, particularly charging infrastructure, would certainly help . . . it has a direct impact on our production and we're hoping that over time it will once again increase as people have confidence" in buying an EV as a primary vehicle).
[164] IIJA, 23 U.S.C. § 151. In addition to NEVI, IIJA provided funding for a grant program for states and local entities to build charging infrastructure. IIJA, 23 U.S.C. § 151(f). The USDOT announced $635 million of grants issued under this program in January 2025. USDOT, "Investing in America: Biden-Harris Administration Announces $635 Million in Awards to Continue Expanding Zero-Emission EV Charging and Refueling Infrastructure," accessed January 30, 2025.

building of electric vehicle charging stations.[165] The program primarily supports charging stations along alternative fuel corridors.[166] Congress appropriated $5 billion to NEVI, with $1 billion to be distributed each fiscal year between 2022 and 2026.[167]

Between 2022 and 2024, the USDOT worked in conjunction with states to disburse NEVI funds under the requirements of the IIJA. The law requires that funds be disbursed after states have "provide{d} a plan …describing how each state intends to use the funds" for each fiscal year.[168] The USDOT instituted an annual process of receiving and approving state plans over this period.[169] In two cycles, the first combining FY 2022 and FY 2023, and the second for FY 2024, each state (and the District of Columbia and Puerto Rico) submitted a plan and received approval.[170] Across FY 2022–24, the USDOT allocated $2.4 billion to states and states in turn awarded $510 million of this funding for the building of chargers.[171] As of January 2025, 12 states had operational charging stations built with NEVI funds.[172]

While acknowledging that expanded charging networks is key to supporting EV production, Volkswagen also indicated it hopes to see more distribution of funds under NEVI to spur faster growth of the EV charging infrastructure.[173] Other industry representatives criticized the focus of NEVI on building out EV charging infrastructure along highways, arguing that charging EVs will primarily take place in homes, cities, and commercial fleet depots rather than along highways.[174]

[165] IIJA, 23 U.S.C. § 151(a)-(e). The IIJA also required that the USDOT establish standards for charging stations funded by NEVI, including that stations use nonproprietary charging standards and open payment systems, and the USDOT issued these regulations in 2023. NEVI Standards and Requirements, 23 C.F.R. § 680.100-680.118 (2023); USDOT, *National Electric Vehicle Infrastructure Standards and Requirements*, 88 Fed. Reg. 12724 (February 28, 2023).
[166] IIJA, 23 U.S.C. § 151(a); USDOT, FHWA, "NEVI Formula Program Guidance (Update)," June 11, 2024, 24. The USDOT defines alternative fuel corridors as highways with electric charging stations at least every 50 miles. The IIJA also requires the USDOT to solicit applications from states for additional alternative fuel corridors, and the USDOT issues new designations annually. IIJA, 23 U.S.C. § 151(b). USDOT, FHWA, "Designation of Alternative Fuel Corridors," October 1, 2024.
[167] IIJA, Pub. L. No. 117-58, title VIII of division J, 135 Stat. 429, 1421 (2021).
[168] IIJA, Pub. L. No. 117-58, title VIII of division J, 135 Stat. 429, 1421 (2021).
[169] USDOT, FHWA, "NEVI Formula Program Guidance (Update)," June 11, 2024, 1-11. The USDOT has issued guidance concerning the required content for state plans, which it has updated annually based on feedback from states.
[170] Joint Office, "State Plans for Electric Vehicle Charging," accessed January 30, 2025.
[171] NASEO, "EV States Clearinghouse: NEVI Awards Dashboard," accessed January 30, 2025.
[172] NASEO, "EV States Clearinghouse: NEVI Awards Dashboard," accessed January 30, 2025.
[173] VW, written submission to the USITC, October 30, 2024, 21.
[174] Industry representative, interview by USITC staff, September 9, 2024; USITC, hearing transcript, October 8, 2024, 105 (testimony of Anna Schneider, VW) (stating: "{w}e need housing codes to change. We need apartment buildings to have electric vehicle charging"). On January 20, 2025, the President issued an executive order directing agencies to "immediately pause" disbursement of funds for the building of charging stations under NEVI pending a review of the program for consistency with the new administration's energy policy. EOP, Unleashing American Energy, 90 Fed. Reg. 8353, January 20, 2025.

## Other Free Trade Agreements

Multiple industry representatives have indicated that the lack of harmonization in automotive ROOs across free trade agreements to which USMCA members are parties can disincentivize compliance with the USMCA automotive ROOs. For instance, the U.S.-Korea Free Trade Agreement (KORUS), which went into effect on March 15, 2012, allows vehicles to be imported into the United States from South Korea duty free if they meet an RVC threshold of between 35 and 55 percent.[175] KORUS also does not have provisions regarding core parts or high-wage content requirements, which the USMCA does.[176] During the 2023 investigation on the USMCA automotive ROOs, a representative of the Mexican automotive industry argued that these differences between KORUS and the USMCA leave North American manufacturers at a disadvantage to South Korean manufacturers, which may incorporate a high percentage of content from China and qualify for duty-free entry into the United States in a manner not possible under the USMCA.[177] Additionally, Canada and Mexico are both parties to the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which has an RVC threshold of 45–55 percent for imports of vehicles to qualify for duty-free treatment and does not have any of the labor requirements present in the USMCA.[178] U.S. industry representatives indicated that these lower RVC requirements for vehicles allow Canada and Mexico to continue duty-free trade between themselves without complying with the USMCA.[179] Two industry representatives who testified at the Commission's hearing said that incorporating labor elements into the CPTPP, similar to those in the USMCA, could help to counter unfair labor practices in China.[180]

# Industry-Specific and Macroeconomic Factors

## Electrification of the Automotive Industry

The ongoing technological transition from internal combustion engine vehicles to battery-electric vehicles (BEVs) and hybrids (collectively electric vehicles or EVs) continues to be a major factor affecting

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[175] KORUS Implementation Act, Pub. L. No. 112-41, § 202(c)(4), 125 Stat. 428, 435 (2011) (codified at 19 U.S.C. § 3805 note) (describing methodologies to calculate regional value content for automotive goods). Under KORUS, an imported vehicle under chapter 87 of the HTS may enter the United States duty free with regional value content of 35 percent under the build-up method, 55 percent under the build-down method, and 35 percent under the net cost method. USITC, *HTS (2025) (Basic Edition),* General Note of Interpretation 33, 59, January 2025.
[176] AMIA, written submission to the USITC, October 12, 2022, 4.
[177] AMIA, written submission to the USITC, October 12, 2022, 4. Representatives of U.S. automotive producers have also noted that while these less stringent ROOs were intended to help spur exports of U.S.-manufactured vehicles to South Korea, the South Korean market remains challenging for exports due to "unique regulatory requirements" and "technical barriers to trade." USITC, hearing transcript, October 8, 2024, 68 (testimony of Matt Blunt, AAPC).
[178] CPTPP (February 4, 2016), art. 3.5 (methodologies for calculating RVC) and annex 3-D (product specific ROO). Under the CPTPP, a vehicle of headings 8702 through 8705 qualifies for duty-free treatment provided there is a regional value content of 45 percent under the net cost method or 55 percent under the build-down method.
[179] USITC, hearing transcript, October 8, 2024, 17 (testimony of Rory Heslington, Autos Drive) (arguing trade between Canada and Mexico under CPTPP is "less costly" than under the USMCA); industry representative, interview by USITC staff, October 24, 2024 (describing CPTPP as a "fallback" to get Mexican production into Canada if USMCA compliance is too expensive).
[180] USITC, hearing transcript, October 8, 2024, 236-237 (testimony of Jeffrey Schott, PIIE, and Roy Houseman, USW).

automotive investment and production and a major source of uncertainty about future sales and competitiveness. As mentioned in the Commission's previous report, this shift is a long-term trend that requires manufacturers to restructure their supply chains with the addition of various values and quantities of new parts.[181] As a result, manufacturers in the USMCA region continue to invest heavily in EV production.[182] EV inputs are more globally sourced, so manufacturers tend to face more complexities and challenges when trying to meet the USMCA automotive ROOs.[183] Although manufacturers continue to invest in new and existing EV technology, the current challenges facing the automotive industry have given rise to uncertainty about the future of electrification.

Though many expected a more rapid increase, U.S. sales and trade of EVs increased significantly from 2019 to 2024. U.S. EV sales increased from 724,600 units in 2019 (4.4 percent of U.S. light vehicle sales) to 1.6 million (10.2 percent).[184] U.S. EV exports increased from 341,861 units in 2019 (11.8 percent of U.S. light vehicle exports) to 404,037 (15.7 percent).[185] U.S. EV imports increased from 550,360 units (5.2 percent of U.S. light vehicle imports) to nearly 2 million units (18.9 percent).[186]

Uncertainty about the demand for BEVs has caused some vehicle manufacturers to revise their investment decisions.[187] Decreases in the rate of growth of consumer demand have been attributed to higher costs of BEVs, unavailability of charging infrastructure, and "range anxiety" (a person's concern that their BEV will run out of power before reaching their destination or having an opportunity to recharge the battery).[188] Because electric battery technology is still fairly new within the automotive industry, vehicle manufacturers must scale up production to bring down the price of BEVs. However, the failure of demand to meet manufacturers' expectations has constrained their ability to scale production, thereby keeping prices high and putting downward pressure on quantity demanded.[189] Lower-than-expected consumer demand has led BEVs to miss sales targets.[190] Because sales have not met

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[181] USITC, "*USMCA Automotive Rules of Origin, 2023 Report*," July 2023, 42–43.
[182] For more information on EV investments, please see chapter 4 of this report.
[183] Industry representative, interview by USITC staff, September 11, 2024.
[184] Although hybrid production data are not easily separated from ICE production data, U.S. BEV production increased from 221,000 units in 2019 to 884,000 in 2024 (8.4 percent of total production). AAI, *Get Connected*, March 26, 2025; Wards Intelligence, "% Factory Installed Equipment on U.S. Cars and Light Trucks," January 2, 2020; Wards Intelligence, "North America Production, December 2024," January 21, 2025; Coffin and Walling, "Electrifying the Global BEV Landscape: Top Suppliers and Consumers of BEVs and BEV Batteries," June 2024; Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024.
[185] USITC DataWeb/Census, "DataWeb," accessed February 26, 2025, domestic exports, electric vehicles and light vehicles.
[186] USITC DataWeb/Census, "DataWeb," accessed February 26, 2025, imports for consumption, electric vehicles and light vehicles.
[187] USITC, hearing transcript, October 8, 2024, 78 (testimony of Rory Heslington, Autos Drive) and 104 (testimony of Matt Blunt, AAPC).
[188] Brooks, "Electric Vehicle Prices Are Tumbling," June 26, 2024.
[189] USITC, hearing transcript, October 8, 2024, 106 (testimony of David Adams, GAC).
[190] USITC, hearing transcript, October 8, 2024, 105–6, 108 (testimony of Anna Schneider, VW); Brinley and Urguhart, "EV Sales Slowdown Leads to Cost Cuts and Job Losses," December 5, 2024.

expectations, vehicle manufacturers have delayed or canceled some investments in new BEV plants and production.[191]

Another factor that concerns vehicle manufacturers is uncertainty about the continued support for electrification. Laws such as the IRA and the IIJA have played a large part in vehicle manufacturers' decisions to build new production plants.[192] Manufacturers have expressed concern about their ability to meet current or new federal and state regulatory standards described earlier in this chapter.[193] U.S. vehicle manufacturers are hoping for continued support to expand battery production capacity and critical resource mining within the USMCA region.[194]

## Labor Union Actions

On September 15, 2023, the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) initiated a series of high-profile strikes against three U.S. vehicle manufacturers—GM, Ford, and Stellantis (the "Big Three"). The strikes were driven by the UAW's concerns about the growing disparity between the profits of the manufacturers and the stagnant wages of UAW members.[195] Key demands in contract negotiations before the strike included a 40 percent pay increase (eventually lowered to 36 percent), improved job security, the abolishment of tiered wages, and the restoration of benefits.[196]

The effects of the strike on Big Three production were smaller than previous strikes because the UAW opted for a more targeted approach. Instead of a full-scale walkout, the UAW coordinated "stand-up" strikes, where workers at specific plants and facilities would strike while others continued working. Worksites were also targeted for profitability to ensure greater leverage.[197] As a result, only 36 percent of the Big Three's production was affected in October 2023, which is much less than earlier strikes.[198] This allowed the UAW to apply pressure on vehicle manufacturers without a complete work stoppage, maximizing the economic impact while minimizing the financial burden on workers. Nevertheless, the

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[191] Eckert, "Ford Slows EV Plans," August 21, 2024.

[192] USITC, hearing transcript, October 8, 2024, 38, 59-60 (testimony of David Adams, GAC); 70–71 (testimony of Anna Schneider, VW); 90–91 (testimony of Odracir Barquera, AMIA).

[193] USITC, hearing transcript, October 8, 2024, 105–6, 108 (testimony of Anna Schneider, VW); AAI, "Statement on EPA Approval of California's Advanced Clean Cars II Waiver," December 18, 2024.

[194] USITC, hearing transcript, October 8, 2024, 92 (testimony of Anna Schneider, VW); AAI, "Tax Teams Letter," October 15, 2025.

[195] James and Wilkinson, "UAW Strike against the Big Three," November 1, 2023.

[196] James and Wilkinson, "UAW Strike against the Big Three," November 1, 2023; Freyre, "Current State of United Auto Workers Strike and Demands," October 25, 2023; Whalen, "Here's What the UAW Is Demanding and What Each Automaker Is Offering," October 4, 2023. In the tiered-wage system, new hires are paid about half as much as longer-term employees for doing the same job. Before the contract renegotiation, it took up to eight years for newly hired workers to reach parity with older workers. The new contracts reduced this time to three years. Stabley, "What the United Auto Workers Will Gain in Their Historic Contracts," November 9, 2023.

[197] ABA, "UAW Wins Big Contract After Bold Strike Approach," January 31, 2024.

[198] Smaller declines in production also occurred in September (11.3 percent) as the strike ramped up, and November (15.9 percent) as production came back online. In contrast, a UAW strike in 2019 focused only on GM, but the effects were much more significant, with GM production dropping almost to zero in the United States in the middle of the strike. Rua and Tito, "Tapping the Brakes," April 16, 2024.

Big Three manufacturers reported lost profits of nearly $3.6 billion as a result of the strike, primarily due to lost production.[199] Big Three manufacturers claim to have long-term plans to offset increased labor costs through higher productivity and increased efficiency.[200]

The UAW strike ended on October 30, 2023; new contracts with the Big Three included a 25 percent increase in wages over the life of the four-and-a-half-year contract and other concessions such as enhanced retirement benefits.[201] The wage increases resulted in changes in the rest of the industry, with several nonunionized companies—including Hyundai, Toyota, and Honda—increasing wages in response.[202]

## Labor/Skills Supply

The vehicle and parts manufacturing industry employed an average of 1.02 million workers in both 2023 and 2024, a 1.6 percent increase from 1.0 million in 2022.[203] Despite slight employment increases over the pre-COVID-19 pandemic peak in 2018 (following a significant plunge in employment in 2020 due to pandemic-related production shutdowns), the automotive industry is confronting challenges with hiring and retaining a skilled workforce. In October 2024, the U.S. manufacturing sector had an estimated 471,000 job openings, of which 52,000 are estimated to be in vehicle and vehicle parts manufacturing.[204]

Labor supply constraints are widespread across a variety of positions in the automotive industry, including manufacturing line workers, managers, engineers, and data experts.[205] The reasons for the lack of supply are varied. First, manufacturing has failed overall to attract a younger generation of workers because they may find similar pay in other industries and manufacturing has otherwise declined in popularity among workers.[206] Additionally, competition is increasing between manufacturing industries

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[199] Ziady and Isidore, "UAW Strike Cost Stellantis $3 Billion in Lost Revenue," October 31, 2023; GM, "GM Reinstates 2023 Earnings Guidance," November 29, 2023; Ford, "Ford Provides Guidance for Full-Year 2023 Operating Results," November 30, 2023.

[200] GM, "GM Reinstates 2023 Earnings Guidance," November 29, 2023; Ford, "Ford Provides Guidance for Full-Year 2023 Operating Results," November 30, 2023; Hsu, "Union Autoworkers Won Big after Striking September 13, 2024.

[201] Rua and Tito, "Tapping the Brakes," April 16, 2024; James and Wilkinson, "UAW Strike against the Big Three," November 1, 2023; Jay, "UAW Members Approve 4½-Year Contract with Detroit's Big Three," November 16, 2023. The UAW reached tentative agreements with Ford on October 25, with Stellantis on October 28, and with GM on October 30.

[202] Rua and Tito, "Tapping the Brakes," April 16, 2024.

[203] USDOL, BLS, "Automotive Industry," February 19, 2025.

[204] USITC calculation. USDOL, BLS, "Job Openings and Labor Turnover Survey," accessed January 31, 2025.

[205] Opsahl, "The Automotive Shortage That Won't Go Away," July 15, 2022; de Prez, "Shocking' Automotive Skills Shortage Affects All Levels of Seniority," August 3, 2022.

[206] Nagl, "U.S. Suppliers Hit Big Hurdle in Quest to Move Production Closer to Home," June 23, 2023. Industry representative, interview by USITC staff, September 11, 2024.

for the same high-skilled workers.[207] Of particular concern to manufacturers and suppliers is the lack of skilled labor. This is exacerbated by the shift to BEVs, which are more technologically complex.[208]

These labor market dynamics have prompted vehicle manufacturers and suppliers to adjust their workforce strategies and led some companies to invest more in automation. For example, Forvia, a French-owned automotive supply company, recently invested in automated manufacturing lines in its plants in Michigan and Tennessee.[209] Other suppliers are looking to move production to Mexico, where the labor supply is greater.[210] U.S. vehicle manufacturers, however, are investing in skills training and workforce development to counter the shortage of skilled workers. Autos Drive America, a U.S. trade association for international vehicle manufacturers producing in the United States, reported that 75 percent of its members are focused on upskilling and educating their current and future workforce and 91 percent have internal programs in place to address current workforce needs.[211]

## Chinese Investment in Mexico

Chinese foreign direct investment in Mexico's automotive industry has significantly expanded in recent years. Multiple and overlapping factors—economic, political, and geopolitical—have driven the expansion. These include preferential tariffs under the USMCA, rising labor costs in China, tensions between the United States and China, and the tariffs and other restrictions that the two countries have imposed on goods imported from each other.[212] The COVID-19 pandemic, although a disruptor, has also been a driver, accelerating these trends. The pandemic-induced disruptions to trade have heightened governments' awareness of their dependence on China and of the increasing vulnerability of global supply chains to shocks.[213] This awareness has further prompted consideration of certain vehicle parts (e.g., semiconductors and batteries) as strategic.[214]

Chinese automotive investment in Mexico has increased considerably. According to foreign direct investment markets data, from 2019 to 2023, Chinese automotive firms announced 32 greenfield investments—i.e., new investments, not acquisitions or mergers—in Mexico, placing Mexico fourth

[207] Industry representative, interview by USITC staff, September 11, 2024; industry representative, interview by USITC staff, September 10, 2024; Irwin, "Auto Suppliers Continue to Face Worker Shortage and High Costs," August 1, 2024; de Prez, "'Shocking' Automotive Skills Shortage Affects All Levels of Seniority," August 3, 2022.
[208] AMS, "Rising Labour Costs Become Biggest Concern for Automotive Manufacturing," January 30, 2024.
[209] Irwin, "Auto Suppliers Continue to Face Worker Shortage and High Costs," August 1, 2024.
[210] Nagl, "U.S. Suppliers Hit Big Hurdle in Quest to Move Production Closer to Home," June 23, 2023.
[211] Autos Drive America, *International Automakers and Dealers in America: Economic Impact Report 2024*, July 2024, 19.
[212] Coates, "Global Labor Rates," January 5, 2023; Swanson, "Trump's Trade War with China Is Officially Underway," July 5, 2018; Zhong, "China Strikes Back at Trump's Tariffs, but Its Consumers Worry," July 6, 2018; Hersh, testimony prepared for the U.S. International Trade Commission report on the USMCA Automotive Rules of Origin, October 16, 2024.
[213] Shih, "Global Supply Chains in a Post-Pandemic World," October 2020; Zou, "COVID-19 Showed How Fragile Supply Chains Can Be," January 2, 2024; Hersh, testimony prepared for the U.S. International Trade Commission report on the USMCA Automotive Rules of Origin, October 16, 2024.
[214] Heath, America's New Security Strategy, December 27, 2017; Mohammad et al., "The Global Semiconductor Chip Shortage," January 1, 2022, 480; Kim, "U.S.-China Electric Vehicle Battery Competition and the Role of South Korea," December 6, 2023.

behind the United States, Germany, and Japan.[215] Of those investments, 11 (34 percent) occurred in 2023.[216] According to a separate estimate, China's share of global foreign direct investment in Mexican motor vehicles and parts manufacturing by value more than doubled from 5.1 percent during 2013–17 to 10.5 percent during 2018–22.[217] Chinese firms have increased investments in Mexico and other countries that provide access to new markets. China's investments in Mexico have been concentrated in vehicle and parts production, accounting for slightly less than half of all Chinese corporate investments in Mexico ($7.06 billion) in 2022 and 2023.[218] From January 2023 to May 2024, 35 percent of China's announced investments in Mexico supported EV production.[219] These investments may have been subsidized by the Chinese government, which reportedly heavily supports China's EV industry.[220]

According to multiple sources, the increasing investments suggest that Chinese companies plan to use Mexico to access the U.S. market and avoid U.S. tariffs and economic sanctions.[221] Indeed, Chinese investment in Mexico's automotive industry correlates positively with Chinese parts exports to Mexico, and Mexican vehicle and parts exports to the United States. From 2019 to 2024, Mexican parts imports from China rose from $11.4 billion to $13.2 billion, and Mexican vehicle and parts exports to the United States rose from $99 billion to almost $183 billion.[222] One labor representative asserted that the rising share of U.S. imports of vehicles from Mexico that are not claiming the USMCA preference is evidence that Chinese companies are taking advantage of low labor costs in Mexico but not increasing content to meet the ROOs.[223] That same labor representative also stated that China could establish vehicle assembly or parts production in Mexico, pay the 2.5 percent most-favored-nation tariff, and access the U.S. market free of the section 232 and section 301 tariffs.[224]

Mexico offers advantages to Chinese investment beyond avoiding tariffs. It shares a border with the United States, a significant market for motor vehicles and parts. Mexico is also the world's seventh-largest vehicle producer and an important global parts supplier.[225] It exports the majority of the vehicles

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[215] FDI Markets (accessed February 2024).
[216] The Center for Automotive Research recorded 14 new Chinese investments in Mexico totaling $5.6 billion in 2023, almost all for automotive parts. CAR, "Book of Deals," 2024.
[217] Ray, testimony before the US-China Economic and Security Review Commission, March 1, 2024, 6, 118–20.
[218] Rapoza, "China's Auto Sector Is Moving to Mexico," July 11, 2024; Meyer, Goh, and Hanemann, "A Closing Back Door?," October 10, 2024; Ray, testimony before the US-China Economic and Security Review Commission, March 1, 2024, 6.
[219] CAR, ACP, 2024.
[220] Liu et al., "Foul Play?," April 1, 2024; Yang, "How Did China Come to Dominate the World of Electric Cars?," February 21, 2023; Chen, "A Review of China's Automotive Industry Policy," September 30, 2024.
[221] Alfaro and Chor, *Global Supply Chains*, September 2023; Coffin, Ford, and Petronzio, *Chinese Automotive and Electronics Trade*, November 2024, 1–6; Hersh, "EPI Comments to the Office of the United States Trade Representative," January 22, 2024; USTR, hearing transcript, February 7, 2024, 55–56 (testimony of Ann Wilson, MEMA).
[222] S&P Global, GTAS database, accessed March 1, 2025, automotive parts and on-road vehicles see appendix F tables F.1, F.2, and F.3 for list of subheadings.
[223] USTR, hearing transcript, February 7, 2024, 52–53 (testimony of Jason Wade, UAW). See chapter 4 for an analysis of this trend.
[224] USTR, hearing transcript, February 7, 2024, 52–53 (testimony of Jason Wade, UAW).
[225] See "Trade in Vehicles and Vehicle Parts" section above for more on Mexican vehicle and parts production.

it produces annually, with most (76 percent) destined for the United States.[226] Mexico's 13 trade agreements with 50 countries make it a potentially valuable export platform.[227] The country also has low labor costs; in 2020, manufacturing labor costs per hour in Mexico ($4.82) were lower than China's hourly labor costs ($6.50).[228]

## Macroeconomic Conditions

Inflation, rising interest rates, and the appreciation of the dollar have negatively affected the U.S. automotive industry since 2019. Inflation in the United States significantly affected the consumer purchasing power, with a 23 percent increase in consumer prices between January 2019 and January 2024. As a result, a consumer would need $1.23 in January 2024 to purchase the same amount of goods that one could have purchased for $1 in January 2019.[229] This inflation raised vehicle prices and the value of imports and exports significantly, making analysis of trends during this time challenging. The average price of light vehicles sold in the United States in December 2024 was $49,740, outpacing inflation with a 34 percent increase since January 2019, when the average price was $37,149.[230] Rising interest rates decrease the purchasing power of U.S. buyers, negatively affecting U.S. vehicle sales.[231] At the same time, as interest rates rise, the strengthening U.S. dollar has increased the cost of U.S.-denominated expenses (particularly labor) relative to costs in other major vehicle- and parts-producing countries.

Interest rates rose significantly from 2019 to 2024, negatively affecting U.S. vehicle demand.[232] The monthly average federal funds effective rate rose from 1.55 percent in December 2019 to 4.48 percent in December 2024, peaking at 5.33 percent between August 2023 and September 2024, because the Federal Reserve Bank raised rates to combat inflation.[233] Automotive loan interest rates generally move in tandem with the federal funds rate and affect consumer affordability.[234] In 2024, 55 million new and used vehicles were sold in the United States, compared to 59.1 million in 2019.[235] U.S. sales of new vehicles fell from 17.1 million units in 2019 to 15.9 million units in 2024, a 7 percent decline since 2019.[236] Combined with the higher prices associated with COVID-19 pandemic-related supply chain

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[226] As of 2022, Mexico exported 88 percent of the 3.5 million vehicles it annually produces, with 76 percent destined for the United States. USDOC, ITA, "Mexico - Automotive Industry," September 23, 2022.
[227] USDOC, ITA, "Mexico Country Commercial Guide - Trade Agreements," November 5, 2023.
[228] Dyvik, "Manufacturing Labor Costs per Hour," August 29, 2024.
[229] USDOL, BLS, "CPI Inflation Calculator," accessed March 18, 2025.
[230] At least some of the increase in prices was due to vehicles sold containing pricier options or being higher-end vehicles. KBB, "Average New-Car Prices Up More Than 4 Percent," February 1, 2019; Tucker, "Average New Car Price Flirting With Record," January 15, 2025.
[231] Federal Reserve Board, "Auto Sales and Credit Supply," October 1, 2014, 15–17.
[232] Copeland et al., *Interest Rates and the Market*, 2015.
[233] The Federal Reserve Bank targets a long run inflation rate of 2 percent. New York Fed, "Effective Federal Funds Rate," February 10, 2025.
[234] Betterton, "How Does the Fed Interest Rate Affect Car Loans?," January 29, 2025; FRED, "Finance Rate on Consumer Installment," January 8, 2025; Copeland et al., *Interest Rates and the Market*, 2015.
[235] Experian, *Changes in US Vehicles in Operation: Light Duty Vehicles, Q4 2024*, March 2025; Experian, *Experian Automotive Quarterly Briefing-Q4 2019*, March 2020.
[236] Wards Intelligence, "U.S. Light Vehicle Sales, December 2024," January 3, 2025; Wards Intelligence "U.S. Light Vehicle Sales, December 2020," January 5, 2021.

disruptions and semiconductor shortages between 2021 and 2023, the rising federal funds effective rate narrowed the pool of consumers who could afford to purchase a new light vehicle.[237] The challenging environment for light vehicle sales (new and used) contributed to consumers deciding to keep their current vehicles.[238]

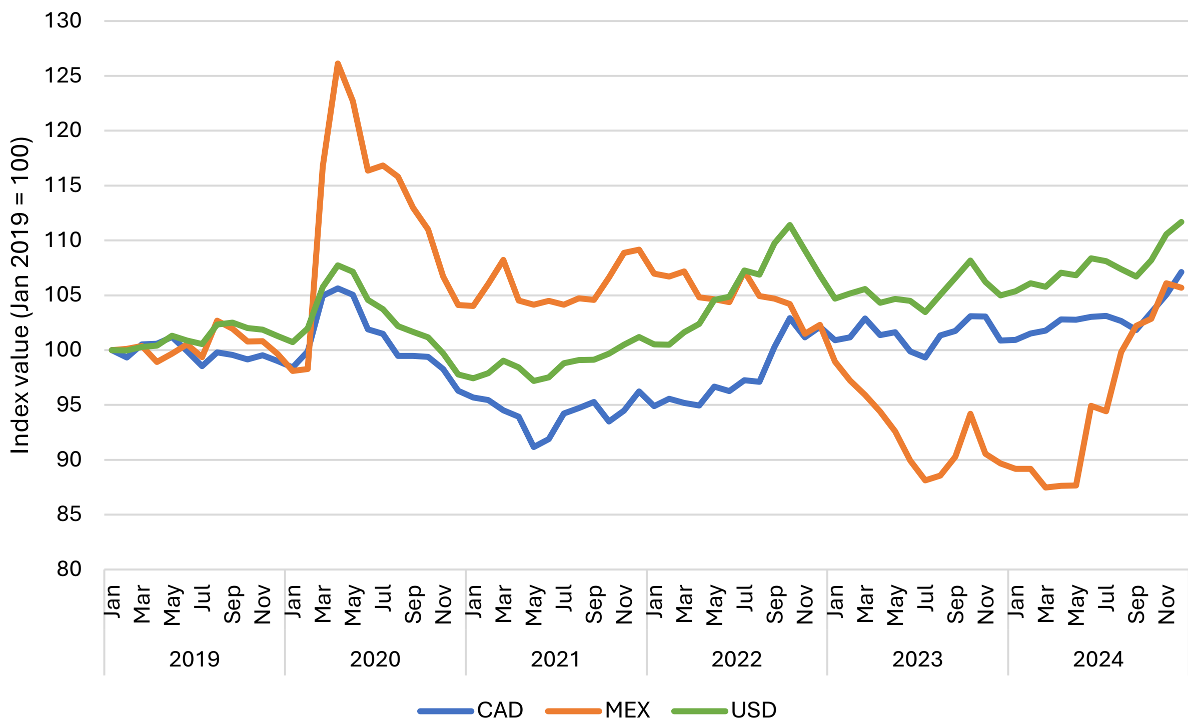
The increasing value of the dollar relative to the currencies of other significant vehicle-producing countries may have affected U.S. automotive competitiveness in export markets. Since entry into force, the value of the Canadian dollar declined relative to the U.S. dollar, increasing Canadian competitiveness, while the Mexican peso first increased in value, then declined significantly (figure 2.3). This depreciation relative to the dollar lowered relative costs in Canada and Mexico, which may have decreased U.S. global competitiveness.[239] The lower U.S. competitiveness occurs because depreciation of foreign currencies lowers the cost of imported vehicles and parts in the United States relative to domestically produced vehicles and increases the relative cost of U.S. exports in those markets.

Exchange rates can also indirectly affect the ability of producers to meet the LVC requirements, because the ROOs are specifically written in terms of U.S. dollars. Since the USMCA's entry into force, the value of the peso has experienced significant volatility (figure 2.3). For most vehicle and parts producers in Mexico, the depreciation of the peso relative to the dollar lowers relative labor costs, increasing the competitiveness of production in Mexico versus U.S. production. At the same time, these fluctuations in the exchange rate could theoretically reduce the ability of vehicle manufacturers and parts suppliers to meet the LVC requirement for products made with Mexican labor.[240] The peso appreciated in value from 22.82 pesos per dollar (July 1, 2020) to 17.01 pesos per dollar (January 1, 2024), decreasing the LVC requirement of $16 per hour in exchange rate adjusted terms from 365 pesos per hour to 272 pesos per hour.[241] Since the beginning of 2024, however, the Mexican peso's decline against the dollar has likely made it more difficult for Mexican motor vehicle producers to meet the LVC requirement (figure 2.3).[242]

[237] Industry representative, interview by USITC staff, October 29, 2024; industry representative, interview by USITC staff, September 10, 2024; Mullin, "Supply Chain Disruptions, Inflation, and the Fed," Third Quarter 2022.
[238] Wayland, "How Inflation and Higher Interest," June 1, 2023; Chinander and Luna, "Despite Easing Inflation, Vehicle Repair Costs Soar," October 6, 2023.
[239] Alderman et al., "How Currency Appreciation Can Impact Prices," accessed April 24, 2025.
[240] Attempting to meet LVC requirements using Mexican labor is relatively rare. USITC, hearing transcript, October 8, 2024, 77 (testimony of Rory Heslington, Autos Drive); USITC, hearing transcript, October 8, 2024, 78 (testimony of David Adams, GAC); USITC, hearing transcript, October 8, 2024, 78 and 95 (testimony of Anna Schneider, VW); USITC, *USMCA Automotive Rules of Origin 2023 Report*, July 2023, 70.
[241] Federal Reserve Board, "Foreign Exchange Rates," accessed February 10, 2025.
[242] PIIE, written testimony to submitted to the USITC (Jeffrey Schott), October 4, 2024, 2; and industry representative, interview by USITC staff, October 18, 2024.

**Figure 2.3** Indexes of currency exchange rates for Canada and Mexico relative to the U.S. dollar (USD) Index, January 2019–December 2024

CAD = Canadian dollar; MEX = Mexican peso. Underlying data can be found in appendix J, table J.2.




Source: Federal Reserve Board.
Notes: The U.S. dollar (USD) Index is based on the U.S. Dollar Nominal Broad Index. The U.S. Dollar Nominal Broad Index is a trade weighted index that measures the value of the U.S. dollar relative several foreign currencies. Each currency is measured relative to the U.S. dollar. Therefore, if the graph increases for any currency, the U.S. dollar is relatively stronger and the foreign currency relatively weaker. For more information on the Broad Index and the countries that are used to calculate the trade weights, see https://www.federalreserve.gov/releases/h10/weights/default.htm.

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# Chapter 3
# Economic Impact of the USMCA Automotive ROOs

This chapter uses a sector-specific economic simulation model and detailed data from the automotive industries in United States-Mexico-Canada Agreement (USMCA) countries to estimate the economic impact of the USMCA automotive rules of origin (ROOs). The model estimates the impact on consumer prices, production, revenue, employment, wages, capital expenditures, profits, sales, inventories, patterns of consumption, diversification of production, use of production facilities, trade, and gross domestic product (GDP) in the United States.[243] The model focuses on the impact of the ROOs on individual passenger vehicles and light trucks (light vehicles) in the first four and a half years after the USMCA entered into force.

This estimation is a challenging task because the ROOs address the sourcing of parts, labor, and materials, often at the level of individual passenger vehicle and light truck models. Quantifying the economic effects of the ROOs requires analysis of finely disaggregated data, which are often limited or not available from public or proprietary data sources. To address these challenges, this analysis uses an economic model at the disaggregated manufacturer and vehicle-model level. The model incorporates key model inputs from responses to the Commission's *USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire* to accurately estimate the effect of the ROOs on the United States.[244] This chapter discusses the approach, results, and key limitations.

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[243] These specific economic effects are enumerated in the statutory request for this series of investigations and reports. USMCA Implementation Act, 19 U.S.C. § 4532(g)(2) (2020). Consumer interests are measured by analyzing effects on prices, and investment is measured by analyzing changes in capital expenditures. Obsolescence of equipment and employment opportunities were additional factors listed but not quantified in this analysis.
[244] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024.

# Key Findings

The modeling analysis indicates that since the USMCA entered into force, the ROOs have

- Reduced imports of core parts from non-USMCA countries;
- Increased employment, production, revenue, capital expenditures, and profits for U.S. parts producers;
- Reduced imports of steel from non-USMCA countries, and negligibly impacted imports of aluminum from non-USMCA countries;
- Increased employment and production for U.S. producers of steel, and negligibly impacted employment and production for U.S. producers of aluminum;
- Reduced imports of light vehicles from Canada and Mexico and increased imports of light vehicles from the rest of the world;
- Reduced employment, production, revenue, capital expenditures, inventories, and profits for U.S. producers of light vehicles while slightly increasing the average price of light vehicles in the U.S. market;
- Increased net employment across vehicle and parts production, because the positive employment effect from the increase in demand for U.S. parts is greater than the negative employment effect from the loss in vehicle production estimated in the model; and
- Negligibly affected GDP and aggregate employment in the U.S. economy.

# Potential Economic Effects Associated with the USMCA Automotive ROOs

The supply chains for light vehicles in USMCA countries vary across manufacturers, even across vehicle models within the same manufacturer. Some vehicle models are assembled in the United States, Mexico, Canada, or some combination; others are imported from Europe or Asia. Manufacturers also vary in where they source parts. Foreign-owned companies that build light vehicles in USMCA countries are more likely to import their engines and transmissions from their home countries in Europe or Asia.[245]

These differences in supply chains across vehicle models and manufacturers lead to different responses to the ROOs. Manufacturers that already had met the ROOs for their vehicle models would not have needed to adjust their supply chains to comply; thus, the ROOs would not have been likely to prompt a change in their sourcing and associated trade flows.[246] Other manufacturers with vehicle models that had not already met the ROOs would have needed to adjust their input sourcing to meet the ROOs. Some manufacturers may have chosen to make these adjustments, and if so, the ROOs would have had the effect of shifting input sourcing to USMCA countries. If others chose not to adjust, the ROOs would not have had the effect of shifting import sourcing and imports of vehicles produced by these manufacturers may be subject to tariffs. Within the category of manufacturers that chose to adjust their

[245] NHTSA, “2024 AALA Listed Alphabetically,” accessed January 15, 2025.

[246] The ROOs may have also prevented U.S. automotive manufactures from offshoring production that would have occurred absent the ROOs, but this was not reported as a significant effect in the survey of vehicle manufacturers and was not assessed by the model.

sourcing to meet the ROOs, the timing of any shift in sourcing may vary depending on whether the manufacturer is subject to an alternative staging regime.[247] Finally, for vehicle manufacturers that produce their vehicles outside the USMCA region, the ROOs would not prompt changes in sourcing because their vehicles would not benefit from USMCA tariff preferences even if manufacturers shifted their sourcing of core parts.

To the extent that the ROOs lead to more costly sourcing of core parts or reduce the use of tariff preferences, these additional costs could be partly passed on to consumers, partly subtracted from the profits of vehicle manufacturers, or some combination of both. In a market with a small number of firms, even manufacturers that have not experienced a direct increase in their costs could respond to any increase in their competitors' prices by raising their own prices.

The ROOs could have a positive effect on U.S. employment in the production of core parts by shifting sourcing to the United States. The effect of the ROOs on U.S. employment in vehicle production is unclear and would depend on multiple offsetting effects. For example, the demand for workers in U.S. vehicle production would increase if vehicles imported from Canada and Mexico were to fail to meet the ROOs and thus fail to qualify for USMCA tariff preferences. The subsequent tariffs these vehicles would face would increase their prices and shift demand to U.S. vehicle production. On the other hand, the demand for U.S. workers would decrease if U.S. production were to decline because of a shift in sourcing to the United States that increases a vehicle producer's cost of parts and materials. The economic model employed in this chapter incorporates these offsetting effects to estimate the overall impact on vehicle and parts employment in the United States, discussed in more detail below.

At the economy-wide level, the ROOs might have a positive or negative effect on aggregate employment, average wages, and GDP as a result of the direct and indirect effects at the industry levels. However, the economic effects on U.S. GDP and employment are likely to be small or negligible, as evidenced by the magnitude of the direct effects estimated at the industry level.

# Description of the Analytical Approach

The sector-specific economic simulation model includes 341 individual light vehicle models produced by 21 vehicle manufacturers in North America and sold to consumers in North America. The 21 vehicle manufacturers are Audi, BMW, Daimler, Ford, General Motors, Honda, Hyundai, Jaguar Land Rover, Kia, Lucid, Mazda, Mitsubishi, Nissan, Porsche, Rivian, Stellantis, Subaru, Tesla, Toyota, Volkswagen, and Volvo.[248] The model simulation estimates the impact that can be attributed to the ROOs. Specifically, the analysis estimates the impact of two types of changes: payment of automotive tariffs on USMCA trade due to not meeting the ROOs, and changes in costs from shifts in sourcing of core parts and steel and aluminum materials to meet the ROOs. The model estimates these impacts on various outcomes for the

[247] For more information about alternative staging, see chapter 2.
[248] There are differences between the 21 vehicle manufacturers included in the model and the 22 vehicle manufacturers in the survey population. The economic model focuses on manufacturers who sell passenger vehicles and light trucks in North America, including those without production operations in North America, and does not include heavy trucks manufacturers. Meanwhile, the survey population covers all manufacturers with production operations in the United States, including heavy truck manufacturers, but does not include those who supply the North American market through imports only.

automotive industry: trade, production, employment, wages, capital expenditures, revenue, profits, prices, and inventories. The seven core parts, all included in this analysis, are engines, transmissions, bodies and chassis, axles, suspension systems, steering systems, and advanced batteries.[249] The impact of non-ROOs-related factors are reflected in the baseline of the model.[250]

The estimation of economic impact proceeds in three steps, moving from bottom-up analysis at the vehicle-model level to the industry level to the aggregate economy.[251] The first step at the vehicle-model level examines the Commission's questionnaire responses by vehicle manufacturers for two types of adjustments attributed to the ROOs. The first type is changes in the tariffs collected on trade in vehicles between USMCA countries, examining whether U.S. imports of light vehicles from Canada or Mexico used the USMCA tariff preferences in 2024. The other type of adjustments are variable cost changes resulting from changes in sourcing of core parts and materials to meet the ROOs between 2018 and 2024.[252]

The second step produces industry-level economic impacts of the cost shocks identified in the first step. It uses an economic simulation model to translate the changes in tariffs paid on vehicle imports from other USMCA countries and changes in costs of parts and materials due to changes in sourcing, that were collected in the first step, into changes in vehicle prices within eight industry segments of the light vehicle markets.[253] The industry-specific partial equilibrium model simulates the decisions of vehicle manufacturers about the pricing, production, sales, employment, wages, revenues, profits, and inventories for each of the vehicle models that they sold in the United States or Canada in 2024.[254] The model takes into account that the industry has a small number of vehicle manufacturers, each of which responds to the changes in the tariffs and costs that it faces and reacts to price changes by its competitors. Model simulations estimate the magnitudes of price adjustments and accompanying changes in trade and production in the United States and Canada that reflect several factors, including the manufacturers' market shares and sourcing of core parts.

The model simulates what the 2024 market would have looked like, counterfactually, if the changes in tariffs and shifts in sourcing due to the change in ROO requirements in the USMCA agreement had not occurred. The estimates of economic impact compare counterfactual values of prices, production, revenue, employment, wages, capital expenditures, inventories, profits, sales, and imports to the observed values of these economic variables in 2024. In this way, the model provides an estimate of the

[249] The seven core parts are listed in Table A.2 of the agreement. 19 C.F.R. Appendix A to Part 182, § 14(4–12) (2020).
[250] For more information about non-ROO factors affecting the automotive industry, see chapter 2.
[251] Appendix I provides a technical description of the methodology.
[252] As noted above, the ROOs may have theoretically also prevented offshoring of production. To attempt to capture this potential effect of the ROOs, questions on the curtailment of offshoring were included in the USITC's manufacturer questionnaire (questions 2.1.1 and 2.1.2). Based on responses received to these questions, curtailment of offshoring does not appear to be a significant effect of the ROOs.
[253] The eight segments are small cars, midsize to large cars, luxury cars, small crossover utility vehicles (CUVs), midsize to large CUVs, sport utility vehicles (SUVs), vans, and pickup trucks.
[254] The industry-specific economic simulation model does not quantify the effects on U.S. exports of vehicles to Mexico or the rest of the world, which account for only a small share of total shipments of U.S.-produced light vehicles.

incremental effect of the ROOs, through the shifts in sourcing and changes in tariffs, holding other factors constant.

The third and final step in the analysis of economic impact is to assess the impact on GDP and aggregate employment in the United States. The automotive industry saw direct effects, and upstream industries (e.g., steel and aluminum producers) and downstream industries (e.g., retail automotive dealers) saw indirect effects. Based on the magnitude of the estimated effects within the automotive industry and the size of the industry relative to the entire U.S. economy, the impact on GDP and aggregate employment in the United States is likely to be negligible and for this reason has been assessed without the use of a model for the purposes of this report.

This 2025 report is the second report in the series that addresses the economic impact of the ROOs on the U.S. automotive industry and economy. The model used in this analysis is based on the model developed for the Commission's *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report* (the Commission's 2023 report or the 2023 report), with several improvements to the previous methodology. First, the 2023 report analyzed only sourcing changes made for engines, transmissions, steel, and aluminum to meet the ROOs. Because of the enhanced data available from the Commission's questionnaire, this report covers cost, sourcing, and attribution information at the vehicle-model level for all seven core parts and steel and aluminum directly from the manufacturers. Second, the 2023 report relied on simple rules for attributing sourcing changes to the ROOs. In this report, the Commission's questionnaire allows for more informed attribution: it provides information directly from the automotive manufacturers on which changes were made to meet the ROOs. Third, the linear demand structure used in the 2023 report was replaced with a nested logit demand structure. This demand structure better aligns with the academic literature on estimating automotive demand and allows for better calibration of parameters.[255] Additional information about these changes can be found in appendix I.

[255] Berry et al., "Automobile Prices in Market Equilibrium," 1995; Goldberg, "Product Differentiation and Oligopoly in International Markets," 1995; Berry et al., "Voluntary Export Restraints on Automobiles," June 1999; Grieco et al., "The Evolution of Market Power," May 2024.

# Data Inputs

The analysis of individual light vehicle models in the first step of this three-step approach and the economic model in the second step use the following combination of confidential, proprietary, and public data:

- Location and quantity of vehicle sales and production in 2024 from Wards Intelligence[256]
- Manufacturer-suggested retail prices of each individual vehicle model from Edmunds[257]
- Changes in sourcing of core parts and materials from the Commission's questionnaire[258]
- Changes in location of vehicle assembly from the Commission's questionnaire[259]
- Tariffs paid on USMCA trade from the Commission's questionnaire[260]
- U.S. import trade data from USITC DataWeb/Census[261]
- Capital expenditures, employment, and wages in vehicle and parts manufacturing in the United States in 2022 from the U.S. Census Bureau's 2022 Economic Census[262]
- Price-cost markup data from Grieco et al. (2023)[263]

The assessment of economy-wide effects in the third step combines the industry-level estimates from the second step with the following additional macroeconomic data:

- Industry and aggregate employment from the U.S. Bureau of Labor Statistics (BLS) 2024 Current Employment Survey[264]
- U.S. GDP from the U.S. Bureau of Economic Analysis (BEA) 2024 GDP Report[265]

[256] Wards Intelligence, "North America Production, December 2024," January 21, 2025; Wards Intelligence, "U.S. Light Vehicle Sales by Model, 2020–2024," February 19, 2025; Wards Intelligence, "Canada Car and Light Truck Sales by Model by Month, 2024," February 20, 2025.

[257] Edmunds, "Edmunds New Car Pricing by Make and Model," accessed January 15, 2025.

[258] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in section 2.2 and 2.3.

[259] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 2.2.1.

[260] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.6.2.

[261] USITC DataWeb/Census, U.S. Imports for Consumption for HS subheadings for light vehicles and parts, accessed various dates.

[262] Census, "Manufacturing: Summary Statistics for the U.S., States, and Selected Geographies: 2022 (EC2231BASIC)," accessed December 17, 2024.

[263] Grieco et al., "The Evolution of Market Power," May 2024.

[264] USDOL, BLS, Employment and Earnings Table B-1a, accessed January 15, 2025.

[265] USDOC, BEA, "Gross Domestic Product," accessed January 15, 2025.

# Responses to the USITC Questionnaire on Sourcing Changes Made to Meet the USMCA Automotive ROOs

As described in chapter 1, through its questionnaire, the Commission conducted a survey of all motor vehicle manufacturers with production operations in the United States. One of the purposes of the survey was to collect information from vehicle manufacturers on how the ROOs affected their decision-making and costs since the USMCA entered into force. Responses to the questionnaire indicated that some manufacturers shifted sourcing of core parts and materials of certain model lines to meet the ROOs, and those sourcing changes affected their cost of production.[266] The sourcing changes by manufacturer and vehicle-model line were used as inputs into the economic model as changes in variable costs. Aggregated questionnaire responses that describe the sourcing changes used in the model are summarized below.[267]

For vehicle-model lines that were sold in the United States before the USMCA entered into force, 68 sourcing changes have been made across 31 vehicle-model lines that manufacturers attributed to changes in the ROOs.[268] The core parts with the largest number of these sourcing changes were engines (19), followed by transmissions (8) (table 3.1). The average increase in costs from engine sourcing changes is $35 and the average increase in costs from transmission sourcing changes is $212. The 31 vehicle-model lines with these sourcing changes accounted for 17 percent of total U.S. sales of light vehicles in 2024. By automotive segment, the midsize and large crossover utility vehicles (CUV) segment and small car segment had the greatest number of sourcing changes, and the luxury car segment had the least number of sourcing changes.

**Table 3.1** Number of sourcing changes and average variable cost changes reported by vehicle manufacturers, by core part and material, since the United States-Mexico-Canada Agreement entered into force

In number of sourcing changes and dollars per vehicle.

| Core part or material | Count of sourcing changes | Average variable cost increase |
|---|---|---|
| Steel | 21 | 166.38 |
| Engines | 19 | 35.34 |
| Transmissions | 8 | 212.38 |
| All core parts and materials | 68 | 199.63 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024 and USITC calculations.

Note: The count of sourcing changes includes changes that occurred between 2020 and 2024 and were reported in section 2.2 of the Commission's questionnaire. Variable cost changes include changes reported in section 2.2 of the questionnaire and are weighted by 2024 sales values. The remaining core parts and aluminum were omitted to maintain confidentiality.

[266] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in sections 2.2 and 2.3.

[267] Questionnaire responses are aggregated in this section to protect confidentiality of manufacturer responses.

[268] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in sections 2.2 and 2.3.

A majority (68 percent) of the 31 vehicle-model lines with sourcing changes had a steel sourcing change.[269] Most of the changes to steel sourcing were shifts in sourcing from outside the USMCA region to the United States, Mexico, or both. The weighted average change in variable costs of production for model lines with steel sourcing changes was $166 per vehicle.

The Commission's questionnaire asked manufacturers whether a sourcing change was fully or partially attributed to the ROOs.[270] It also asked manufacturers to list other factors that contributed to their decision-making. For vehicle-model lines that existed before the USMCA entered into force, the majority of sourcing changes were fully attributed to the ROOs, because the ROOs were the only reason for the change in sourcing to the USMCA region. For vehicle-model lines that entered the U.S. market after the USMCA entered into force, a majority of the sourcing changes were partially attributed to the ROOs.[271] Other factors listed included costs, quality, and proximity to vehicle assembly.

# Estimated Economic Impact of the USMCA Automotive ROOs

The ROOs shifted some sourcing of parts and materials for U.S. vehicles from the rest of the world to USMCA countries. This reduced U.S. imports of parts from non-USMCA countries and increased U.S. revenues from parts production, as well as employment, wage payments, and capital expenditures on parts production, and also increased the cost of producing light vehicles in the United States.[272] The higher costs of U.S. vehicle production led to slightly higher prices of U.S. vehicle production, lowering demand for U.S.-produced vehicles and increasing U.S. sales of imported light vehicles from the rest of the world. Decisions not to comply with the ROOs reduced U.S. imports of light vehicles from Canada and Mexico and increased U.S. employment, wage payments, and capital expenditure in vehicle production. These economic effects in the first four and a half years were concentrated in the automotive industry and had a negligible economy-wide impact.

The model estimates that the ROOs reduced USMCA imports of core parts from non-USMCA countries in 2024, because sourcing these core parts from USMCA producers helped light vehicle manufacturers meet the ROOs (table 3.2). Most of the sourcing changes reported in the Commission's questionnaire were movements from non-USMCA countries to USMCA countries. A small number of engine-sourcing changes were intra-USMCA changes, made to meet labor value content requirements. The model estimates that 436,640 fewer engines were imported into USMCA countries from outside the USMCA region in 2024 and 210,977 fewer engines were imported to the United States from other USMCA

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[269] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in sections 2.2 and 2.3.

[270] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to questions in sections 2.2 and 2.3.

[271] See appendix I for more information about the partial attribution shares. The appendix includes additional simulations with different partial attribution shares to test the sensitivity of results, noting that the shares do not significantly change model results or conclusions.

[272] The model only incorporates information on the sourcing patterns for specific vehicle models that adjusted their sourcing as a result of the ROOs because this is the only information needed to calculate the change in the different economic outcomes modeled because of the ROOs.

countries in 2024. Imports of advanced batteries from non-USMCA countries were not affected by the ROOs in 2024 because the advanced battery-sourcing changes reported in the survey were for vehicle-model lines not yet sold in the 2024 North American market.

**Table 3.2** Estimated impact on USMCA imports of core parts from non-USMCA countries, 2024
In number of parts.

| Economic outcome | Change |
|---|---|
| Engines | −436,640 |
| Transmissions | −607,478 |
| Bodies and chassis | −246,719 |
| Axles | −398,852 |
| Suspension systems | −91,124 |
| Steering systems | −258,699 |
| Advanced batteries | 0 |

Source: USITC estimates.

The ROOs also reduced imports of steel from non-USMCA countries because more USMCA steel was demanded to meet the ROO requirements (table 3.3). Imports of aluminum from non-USMCA countries were not affected by the ROOs because the aluminum-sourcing changes included in this analysis were small intra-USMCA changes.

**Table 3.3** Estimated impact on USMCA imports of steel and aluminum from non-USMCA countries, 2024
In metric tons.

| Economic outcome | Change |
|---|---|
| Steel | −978,279 |
| Aluminum | 0 |

Source: USITC estimates.

The model estimates that the ROOs reduced U.S. imports of light vehicles from USMCA countries by about 38,000 vehicles in 2024, a 1 percent decrease in these imports (table 3.4). Some light vehicles produced in Canada and Mexico faced higher production costs as a result of shifting their sourcing of parts from non-USMCA suppliers to USMCA suppliers, or faced non-preferential NTR duty rates, which would make imports from Canada and Mexico relatively more expensive and less competitive. On the other hand, the model estimates that the ROOs increased U.S. imports of light vehicles from non-USMCA countries by about 14,000 vehicles, an increase of 0.4 percent. These imports faced no change in tariff treatment and did not have a ROO-based incentive to shift their sourcing of parts. Thus, the price of light vehicles imported from outside the USMCA increased less than the price of USMCA-produced vehicles, making the non-USMCA vehicles slightly more price competitive.

**Table 3.4** Estimated impact on U.S. imports of light vehicles, 2024
In number of vehicles.

| Economic outcome | Change |
|---|---|
| U.S. imports from Mexico | −30,234 |
| U.S. imports from Canada | −7,356 |
| U.S. imports from non-USMCA countries | 14,314 |

Source: USITC estimates.

The model estimates that the ROOs increased employment in U.S. parts production by 5,387 workers (table 3.5). Parts production in the United States expanded because more U.S. parts were used in vehicle production to meet the ROOs, leading to an increase in employment. The model estimates that the ROOs decreased employment in U.S. vehicle production by 302 workers. The net employment effect across vehicle and parts production is positive because the employment effect from the increase in demand for U.S. parts is greater than the employment effect from the loss in vehicle production. The effect is small relative to total U.S. vehicle and parts manufacturing employment (0.5 percent).[273]

**Table 3.5** Estimated impact on employment in the U.S. industry, 2024
In number of workers.

| Economic outcome | Change |
|---|---|
| Parts: employment in U.S. production | 5,387 |
| Vehicles: employment in U.S. production | −302 |

Source: USITC estimates.

Similar to the estimated effect on employment in U.S. parts production, the ROOs are estimated to have increased employment in U.S. steel production because companies are increasing direct purchases of U.S.-produced steel to meet the ROO requirements. Employment in U.S. steel production is estimated to have increased by 2,463 workers because of the ROOs (table 3.6). The effect of the aluminum-sourcing changes, on the other hand, is estimated to be negligible.

**Table 3.6** Estimated upstream impact on employment in the U.S. steel and aluminum industries, 2024
In number of workers.

| Economic outcome | Change |
|---|---|
| Steel: employment in U.S. steel production | 2,463 |
| Aluminum: employment in U.S. aluminum production | 0 |

Source: USITC estimates.

The model estimates that effects on wage payments and capital expenditures in U.S. parts production were positive, reflecting the expansion of U.S. parts production because automotive manufacturers are shifting some core parts sourcing to U.S. sources (table 3.7). The effects on wage payments and capital expenditures in U.S. vehicle production were negative in 2024, as a result of the slight estimated decline in U.S. vehicle production. The net impact on wages and capital expenditures was positive across parts and vehicle production.

[273] The percentage change in U.S. vehicle and parts manufacturing employment was calculated as the modeled change in employment divided by total U.S. vehicle and parts manufacturing employment. Total U.S. vehicle and parts manufacturing employment was obtained from the BLS. USDOL, BLS, Employment and Earnings Table B-1a, accessed January 15, 2025.

**Table 3.7** Estimated impact on wages and capital expenditures in the United States, 2024
In millions of dollars.

| Economic outcome | Change |
|---|---|
| Parts: wage payments in U.S. production | 335.8 |
| Parts: capital expenditures on U.S. production | 94.2 |
| Vehicles: wage payments in U.S. production | −23.8 |
| Vehicles: capital expenditures on U.S. production | −15.7 |

Source: USITC estimates.

The model estimates that the ROOs decreased the revenue from U.S. production of light vehicles by $251 million in 2024 (table 3.8). In addition, it estimates that the ROOs increased revenue from U.S. production of core parts by $3.42 billion in 2024 because the ROOs shifted parts production to the United States.

**Table 3.8** Estimated impact on revenue from U.S. vehicle and parts production, 2024
In millions of dollars.

| Economic outcome | Change |
|---|---|
| Revenue from U.S. parts production | 3,419.1 |
| Revenue from U.S. vehicle production | −250.8 |

Source: USITC estimates.

The model estimates that the ROOs had a negligible effect on average vehicle prices in the United States (table 3.9). Producers of most vehicle models did not make adjustments to meet the ROOs and so experienced no direct cost increase.[274] For vehicle models that changed sourcing, the average change in per vehicle costs was an increase of about $200. This cost increase is estimated to have raised the sales prices of these vehicles by $207 on average. On the other hand, sales prices on vehicles trading within USMCA countries on which duties were assessed for not meeting the ROOs are estimated to have increased by an average of $726. At the industry level, including vehicles with sourcing changes, vehicles on which duties were assessed, and vehicles with no direct impact of the ROOs, the average prices of light vehicles in the United States increased by about $33 per vehicle, about 0.1 percent of the average vehicle price in the United States.[275]

[274] Most vehicle models available in the United States either (i) already satisfied the ROOs or (ii) are produced outside USMCA countries and had no incentive to change sourcing or production.
[275] According to the model, the weighted average price change for vehicles imported from non-USMCA countries is negative and less than one dollar. Some manufacturers, in response to a positive demand shift, increase the price of their vehicles produced outside the USMCA. Other manufacturers produce both inside the USMCA and outside the USMCA, with vehicle-model lines that face USMCA compliance costs and vehicle-model lines imported from non-USMCA countries. These manufacturers, maximizing profits across all their product offerings, reduce the price of their vehicles from non-USMCA countries to increase overall profits.

**Table 3.9** Estimated impact on the prices and production of light vehicles in the United States, 2024
In dollars and number of vehicles.

| Economic outcome | Change |
|---|---|
| Average vehicle prices | 33 |
| Vehicle production | −15,037 |

Source: USITC estimates.

The model estimates that the ROOs decreased vehicle production in the United States by 15,037 vehicles in 2024 (table 3.9). This is due to several new sourcing changes reported in the questionnaire responses and attributed to the ROOs by manufacturers, for vehicles that are produced in the United States.[276] The higher production costs led to higher prices and lower demand, which in turn resulted in declining production in the model. Manufacturers may have made sourcing changes on their U.S.-produced vehicle lines to qualify for the tariff preference on their exports to Canada and Mexico. The effect on U.S. production was small relative to the size of the industry (0.1 percent).

The model estimates that the ROOs resulted in decreased total sales of light vehicles in the United States of 38,314 vehicles in 2024. This was a combination of a decrease in domestically produced vehicles (table 3.9) and a net decrease of 23,277 imported vehicles, reflecting that the decline in vehicle imports from other USMCA countries exceeded the increase in vehicle imports from non-USMCA countries (table 3.4).

Additionally, the model estimates increases in U.S. parts production for core parts that had sourcing changes to a United States location (table 3.10). Production of U.S. engines and transmissions is estimated to have experienced the largest increases in number of parts produced because of the ROOs. The model also estimates an 800,993-metric-ton increase in U.S. steel production due to the ROOs because vehicle manufacturers are shifting some steel sourcing to U.S.-based companies.

**Table 3.10** Estimated impact on parts production in the United States, 2024
In number of parts and metric tons.

| Economic outcome | Change |
|---|---|
| Engines | 451,764 |
| Transmissions | 392,023 |
| Bodies and chassis | 0 |
| Axles (pairs) | 288,648 |
| Suspension systems | 0 |
| Steering systems | 0 |
| Advanced batteries | 0 |
| Steel (metric tons) | 800,993 |
| Aluminum (metric tons) | 22 |

Source: USITC estimates.

276 In the main chapter results in the USITC's 2023 report, the sourcing changes identified for U.S.-produced vehicles were deemed not to be attributed to the ROOs. In this report, the responses to the Commission's questionnaire improved the data available for this modeling analysis by generating attribution information directly from the manufacturers. The 2023 report included a sensitivity analysis with less restrictive attribution rules and, like this analysis, also estimated a negative impact on U.S. vehicle production. USITC*, USMCA Automotive Rules of Origin: Economic Impact*, July 2023, appendix I.

The model estimates a decrease in the profits of U.S. vehicle manufacturers in 2024, reflecting the decrease in sales of domestically produced light vehicles (table 3.11).

**Table 3.11** Estimated impact on profits of U.S. vehicle manufacturers, 2024
In millions of dollars.

| Economic outcome | Change |
|---|---|
| Profits of U.S. vehicle manufacturers | −99.5 |

Source: USITC estimates.

Finally, the model estimates that the ROOs reduced average vehicle inventories in the United States by 2,833 vehicles in 2024 to support the reduced volume of vehicles sold in the U.S. market estimated by the model (table 3.12).

**Table 3.12** Estimated impact on average vehicle inventories for sales in the U.S. market, 2024
In number of vehicles.

| Economic outcome | Change |
|---|---|
| Average vehicle inventories in the United States | −2,833 |

Source: USITC estimates.

The estimated industry-level effects indicate no significant changes in the diversification of production or the use of production facilities due to the ROOs. The ROOs increased parts production in the United States and slightly decreased vehicle production. They also slightly reduced the supply of light vehicles from Canada and Mexico and increased the supply of light vehicles from the rest of the world. The model does not consider the obsolescence of equipment because it does not appear to have been a relevant factor in the four and a half years after the USMCA entered into force, though this factor may become more relevant over time.

The estimated industry-level effects also indicate only a small adjustment in the pattern of demand in the United States due to the ROOs. The effect on the overall demand for light vehicles was very small, with a slight reduction in demand for midsize and large cross-over vehicles and small cars, as they became more costly to supply to the U.S. market.

These estimated effects of the ROOs four and a half years after the USMCA entered into force were smaller than the longer-run effects reported in the Commission's prospective modeling analysis of these ROOs in 2019 for a number of reasons.[277] The modeling approach in this report builds on the modeling approach in the 2019 and 2023 reports with data from the Commission's questionnaire and the change to a nested logit demand structure.[278] Another important difference is that the earlier analysis assumed the completion of staging and full use of tariff preferences. In contrast, the model in this report focuses only on adjustments that have occurred in the four and a half years after the USMCA entered into force that are attributed to the ROOs and recognizes that a portion of the trade between USMCA countries is currently not using the USMCA tariff preferences. The economic impact of the ROOs will likely increase in future years as manufacturers further adjust their sourcing patterns.

[277] USITC, *U.S.-Mexico-Canada Trade Agreement: Likely Impact*, April 2019, 83–88.
[278] For more information about the demand structure and other technical details about the model, see appendix I.

The estimated effects on the automotive industry imply that the changes in GDP and aggregate employment in the United States due to the ROOs were less than 0.01 percent. These negligible economy-wide effects occurred in the first four and a half years after the USMCA entered into force, regardless of assumptions about the flexibility of adjustment in labor markets. The estimated effects within the automotive industry were very small relative to the size of the overall U.S. economy. For example, the estimated net increase in employment of 5,085 jobs in the U.S. automotive industry represents 0.0032 percent of total non-farm employment in the United States in 2024.[279] The estimated effects within the steel industry were also small relative to the size of the economy, representing only 0.0016 percent of employment in the United States in 2024. The estimated $3.2 billion increase in revenues from U.S. vehicle and parts production represented 0.0107 percent of U.S. GDP in 2024.[280] The increase in value added from U.S. vehicle and parts production, which is the industry's estimated additional contribution to GDP, was even smaller than these increases in revenue.

# Model Limitations

These model-based estimates of economic impact have several important limitations.

- Although the model incorporates many industry features and detailed industry data, beyond what is typical in partial equilibrium modeling of trade policy, the calculations are approximations based on a simulation model and limited data. The estimates do not capture many intricacies of the industry. For example, the analysis captures only the effect of changes in direct steel purchases by automotive manufacturers but does not capture indirect change to the sourcing of steel used in core part production.
- The model assumes that the ROOs do not affect the set of vehicle-model lines sold in the U.S. and Canadian markets, only the number of vehicles of each model sold. Since the USMCA entered into force in 2020, some changes to the set of vehicle-model lines in the U.S. and Canadian markets may have been due to the ROOs. Those potential effects are not quantified in this chapter. See "Product Differentiation" in chapter 4 for a discussion of the potential effects of the ROOs on the number of vehicle-model lines available to consumers since the USMCA entered into force.

[279] USDOL, BLS, Employment and Earnings Table B-1a for NAICS codes 3361, 3362, and 3363, accessed January 15, 2025.
[280] USDOC, BEA, "Gross Domestic Product," accessed January 15, 2025.

- The model quantifies the effects of the ROOs on U.S. exports to Canada; but it does not quantify the effects on U.S. exports of vehicles to Mexico or the rest of the world, because these exports account for only a small share of total shipments of U.S.-produced light vehicles.
- The model assumes that each manufacturer's marginal cost of production does not change with its scale of vehicle production.
- The model focuses on the impact of observed shifts in sourcing to USMCA parties since 2018 and does not include the effects of any curtailment of offshoring of production among Canada, Mexico, and the United States. However, the Commission's questionnaire asked automotive producers whether the ROOs led their firms to continue assembly in North America instead of moving outside of North America. Based on responses, curtailment of offshoring does not appear to be a significant effect of the ROOs.[281]

[281] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in section 2.1.

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# Chapter 4
# Effects of the ROOs on the Competitiveness of the U.S. Automotive Industry

## Introduction

The United States-Mexico-Canada Agreement (USMCA) Implementation Act (the Act) requests that the USITC report on the effects of the rules of origin (ROOs) on U.S. competitiveness with respect to production and trade in automotive goods. In response to this request, this chapter first identifies the factors of competitiveness in the automotive industry most likely to be impacted by the ROOs and describes how the ROOs may have affected these factors. The chapter then examines observable changes in relevant indicators of the competitiveness of the U.S. automotive industry in the U.S. market, other USMCA markets, and non-USMCA markets since the USMCA automotive ROOs entered into force in 2020, and analyzes the extent to which these changes appear to be attributable to the ROOs.[282] Finally the chapter includes an analysis of the impact of the ROOs on the competitiveness of U.S. labor.

For purposes of this analysis, competitiveness is defined as the ability of U.S. producers to meet the demand for U.S.-produced vehicles and parts in USMCA countries and non-USMCA countries at a price and quality that is accepted in the market. Relevant indicators of competitiveness include the U.S. market share of automotive sales in various markets, as well as production and trade, as requested in the Act. In order to assess the extent to which the ROOs may have contributed to changes in observable data, analysis in this chapter is supplemented with a range of public and private sources that provide context for changes in the industry since the ROOs entered into force. These sources include the Commission's modeling and survey results, testimony from the Commission's hearing in connection with this investigation, interviews with industry representatives, public data, and other information. In some instances, results from the Commission's survey or estimates produced by the Commission's economic model can be used to quantify the impact of the ROOs specifically on a particular indicator.[283] However, for other indicators the ability to attribute a portion of the change in observable data to the ROOs is limited.

[282] The U.S. automotive industry is defined as vehicle manufacturers and parts suppliers with production operations in the United States. For more information on the U.S. automotive industry, see chapter 2 of this report.
[283] As noted in various places within this chapter, there may be additional impacts of the ROOs not measured by the model, which focuses on the impacts of cost increases due to the ROOs and not, for example, on certain benefits of the ROOs such as industry agglomeration. See chapter 3 for a description of the model and its limitations.

# Key Findings

- Three competitiveness factors for the automotive industry—cost, investment, and product differentiation—are the most likely to be affected by the ROOs, with cost being most affected by the ROOs.
- The Commission survey found that most sourcing changes associated with meeting the ROOs resulted in an increase in production costs, but some resulted in a decrease or no change to cost.
- Total investment in U.S. automotive manufacturing increased from $27.9 billion in 2019 to $87.8 billion in 2023, before declining to $34.1 billion in 2024. This change in investment is only partially attributable to the ROOs, though investments in parts manufacturing specifically are more likely to be ROOs-related.
- Trends in the U.S. automotive industry's production and exports since entry into force are directionally similar to the Commission's modeling estimates. However, the magnitudes of these trends are larger than those of the modeling estimates, indicating that these trends are only partially attributable to the ROOs.
- Using market share as an indicator of competitiveness, it suggests that the competitiveness of U.S. vehicles and parts in the domestic market has seen little change as a result of the ROOs. The U.S. market share of vehicle and parts in the domestic market remained relatively constant. However, there are indications that the ROOs have led to increased U.S. investment and sourcing of U.S. parts, which may suggest that the ROOs have had a positive effect on competitiveness.
- There is mixed evidence of the effects on competitiveness in USMCA partner markets. The ROOs do not seem to have affected U.S. vehicle market share in Mexico or Canada. Meanwhile, the import share of U.S. parts has increased in Canada but decreased in Mexico.
- There has been little change in U.S. automotive competitiveness in non-USMCA markets due to the ROOs. The United States remains a large global producer and significant exporter to non-USMCA countries. The U.S. share of exports of parts to non-USMCA countries has also remained constant.
- Although U.S. automotive employment increased by 2.5 percent and outpaced global growth in the industry, this is likely only partially due to the ROOs. Automotive wages have remained flat under the USMCA after accounting for inflation.

# How the USMCA Automotive ROOs Affect Competitiveness

As discussed in chapter 2, the USMCA automotive ROOs, relative to their North American Free Trade Agreement (NAFTA) counterparts, put in place heightened or new requirements for goods to qualify for duty-free treatment.[284] For producers that choose to make the necessary sourcing changes to comply with the ROOs, these changes would likely impact the competitiveness of U.S. production and trade through the effect on cost, investment, and product differentiation, with costs most directly affected by the ROOs. For vehicle manufacturers that produce vehicles outside the USMCA region, the ROOs would

[284] For a detailed explanation of the operation of the USMCA automotive ROOs, see chapter 2.

not prompt changes in sourcing because their vehicles would not benefit from the USMCA tariff preferences, even if they shifted their sourcing of core parts.

# Factors Affecting U.S. Automotive Competitiveness

The change in the ROOs from NAFTA to the USMCA is expected to affect certain factors of industry competitiveness more than others, due to both the details of the ROOs and the nature of any industry changes that result from them. The factors of automotive industry competitiveness most likely to be affected by the ROOs are costs,[285] investment, and product differentiation.[286] For example, as discussed in chapter 2, the regional value content (RVC) requirements component of the ROOs increases the share of content that needs to be produced in USMCA countries, while the labor value content (LVC) requirement component establishes the share of content that must be created by workers who were paid at least $16 per hour (which is generally uncommon in Mexico). Both of these components would affect production and labor costs, to the extent firms make changes in sources of inputs or labor that are associated with increased or decreased costs. Additionally, to the extent that the ROOs incentivize new production in USMCA countries, the expected effect would be an increase in investment in USMCA countries. Finally, compliance with the new ROOs may require significant changes to supply chains for vehicles that are traded across borders to other USMCA members, which would affect the product differentiation of vehicle models offered in certain markets to the extent that manufacturers retire models because of compliance costs or simplify supply chains by offering fewer models to offset potential increased production costs. The subsequent sections use Commission survey and modeling results, trade and investment data, and industry insights to assess how these factors of competitiveness—cost, investment, and product differentiation—may be affected by the ROOs and how these effects may impact production, sales, and trade.

## Costs

The Commission survey found that a majority of sourcing changes associated with meeting the ROOs resulted in increased in production costs, though some resulted in decreased costs or no change to costs. When the USMCA first entered into force, industry representatives noted that localizing vehicle production in the United States would increase costs because parts and materials sourced from USMCA countries are more expensive, thus making USMCA-compliant vehicles less competitive compared to noncompliant vehicles.[287] The Commission's survey results did indicate that a majority of sourcing changes (37) led to increased costs. However, this was not the case in all instances; nine sourcing changes led to decreased variable costs and 22 had no reported change in variable costs.[288] The average

[285] Costs likely affected by the ROOS include production costs, labor costs, other delivered costs (e.g., tariffs paid on goods that no longer qualify for duty-free treatment).

[286] Other important factors of competitiveness for the automotive industry include vehicle quality and style, production efficiency, and technological advancement and features. These factors, while important for the competitiveness of the industry, are not reportedly directly affected by the ROOs.

[287] USITC, *USMCA Automotive Rules of Origin, 2023 Report*, July 2023, 68.

[288] USITC, *USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 2.2.2–2.2.11. The total number of sourcing changes is the aggregation of changes across all firms' model lines, parts (e.g., engines and transmissions) and materials (steel and aluminum), and dates these changes have

change in variable costs due to the sourcing change, for motor vehicles models that changed sourcing to meet the ROOs, was about $200 per vehicle.[289]

Vehicle manufacturers consider the upper bound on the per-vehicle costs they are willing to incur to comply with the ROOs as the applicable tariff rate, and hearing participants provided a range of responses on the types of costs associated with compliance with the ROOs. One industry representative indicated a significant amount of initial investment was required to ensure companies could meet the ROOs.[290] Furthermore, some hearing participants highlighted that the localization of production and sourcing to USMCA countries has increased costs in some cases, though this is often offset by the benefits of duty-free treatment.[291] One instance where costs increased was for changes in steel sourcing; according to the Commission's survey results, variable cost increased by $166.38 per vehicle on average for vehicles where steel sourcing changes, at least partially attributable to the ROOs, were made.[292] Costs were not always offset by duty-free treatment for all vehicle manufacturers, however, with some deciding to not comply with the ROOs and choosing to pay the normal trade relations (NTR) rate instead.[293]

Industry representatives also stated that there are increased administrative costs associated with compliance with the ROOs. Vehicle manufacturers and parts manufacturers both have highlighted the increased expense associated with certifying that vehicles and parts comply with the ROOs, noting that suppliers have borne much of the administrative burden required by the ROOs.[294] This increased cost is associated with hiring additional staff, creating teams, and building systems to track compliance. Manufacturers report that this has increased pressure on many parts suppliers whose smaller teams must ensure compliance not only for the USMCA but increasingly for other government regulations—often, requiring similar information in different formats.[295] The compliance burden reportedly requires many additional hours of employee time.[296] Some vehicle manufacturers, whose compliance teams tend to be larger, have endeavored to assist their suppliers by providing information and training.[297] They

occurred. Variable cost is a cost that changes depending on the number of vehicles produced. No reported change includes U.S. motor vehicle producers that either responded that they saw no change in variable cost or did not disclose variable cost information.

[289] For more information on modeling estimates of changes in vehicle prices, see chapter 3.

[290] USITC, hearing transcript, October 8, 2024, 66 (testimony of Matt Blunt, AAPC).

[291] USITC, hearing transcript, October 8, 2024, 67 (testimony of Anna Schneider, VW); USITC, hearing transcript, October 8, 2024, 168 (testimony of Jeffrey Schott, PIIE).

[292] USITC, *USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 2.2.10. See chapter 3, table 3.1 for more information on specific effects of the ROOs on variable cost changes.

[293] USITC, hearing transcript, October 8, 2024, 16 (testimony of Rory Heslington, Autos Drive).

[294] USITC, hearing transcript, October 8, 2024, 46 (testimony of Ana Meuwissen, MEMA).

[295] U.S. industry representative, interview by USITC staff, October 27, 2024; U.S. industry representative, interview by USITC staff, November 21, 2024.

[296] USITC, hearing transcript, October 8, 2024, 64 (testimony of Jennifer Baker Reid, IFI); U.S. industry representative, interview by USITC staff, October 17, 2024.

[297] U.S. industry representative, interview by USITC staff, September 17, 2024; U.S. industry representative, interview by USITC staff, October 27, 2024; U.S. industry representative, interview by USITC staff, November 21, 2024.

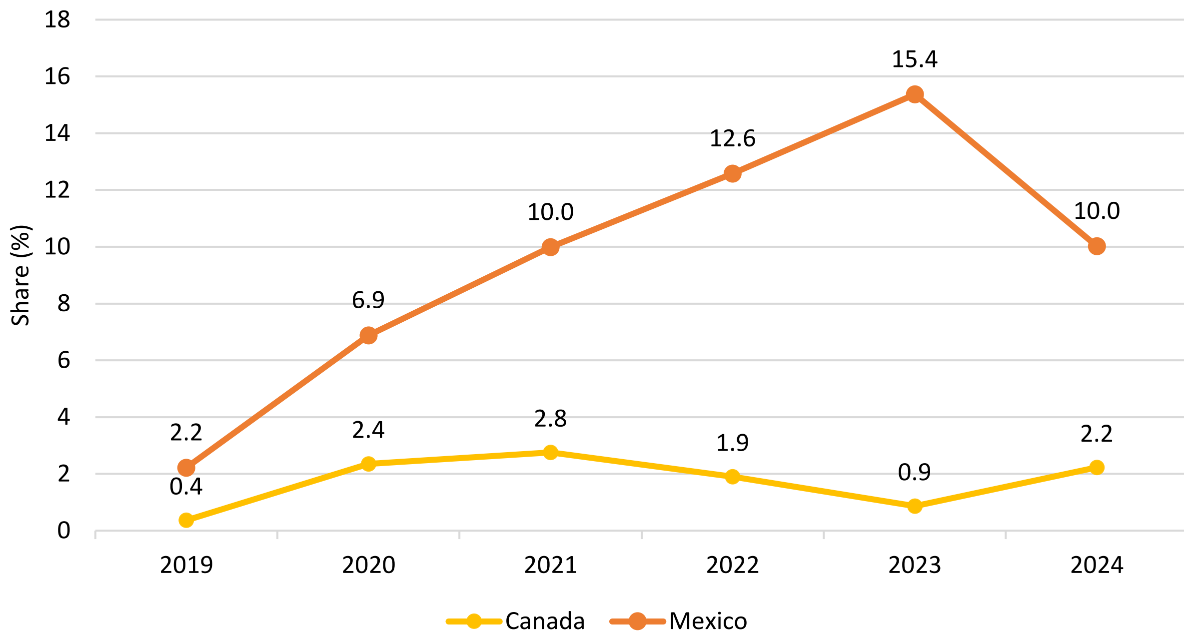
have further tried to alleviate this burden by supporting efforts to standardize certification requests, but the extent of progress is unclear.[298]

Whether there is an increase in duties paid because manufacturers chose not to modify their supply chain in order to meet the ROOs affects the competitiveness of U.S.-manufactured vehicles. In 2023, 456,938 (11 percent) of U.S. imports of light vehicles from Canada and Mexico were dutiable—or not imported under the USMCA—compared to 72,004 (2 percent) in 2019, a 535 percent increase in the number of vehicles.[299] This increase in dutiable imports appears to be primarily driven by an increase in dutiable imports from Mexico (figure 4.1). This could potentially affect U.S. producers' competitiveness within the domestic market in two ways. If the difference in cost to produce a vehicle that is compliant with the ROOs compared to a noncompliant vehicle is higher than the NTR duty (2.5 percent for passenger vehicles and 25 percent for light trucks), that would disincentivize compliance with the ROOs. The impact on U.S. competitiveness depends on a number of factors, including the relative cost of producing a vehicle in Canada and Mexico and whether a 2.5 percent duty (or 25 percent duty) would make an appreciable difference in the cost competitiveness of a U.S. or imported vehicle. Commission modeling results estimate that the impact of not qualifying for duty-free treatment on vehicle sales price was higher than the per unit cost of sourcing changes made to comply with the ROOs. According to the Commission's modeling results in chapter 3, U.S. sales prices for vehicles traded within USMCA countries for which duties were assessed are estimated to have increased by an average of $726. In contrast, the average estimated price increase for all vehicles that made sourcing changes to meet the ROOs was $207 per vehicle.[300] This suggests foreign producers paying new tariffs have not been able to offset those costs to prevent price increases, likely signifying an increase in the competitiveness of U.S. producers.

[298] USITC, hearing transcript, October 8, 2024, 63 (testimony of Rory Heslington, Autos Drive); U.S. industry representative, interview with USITC staff, September 11 and September 17–19, 2024. The Automotive Industry Action Group (AIAG) formed a working group to identify synergies in the standardization of roles, responsibilities, and clear understanding of the USMCA Automotive ROOs. AIAG, "Active Projects," accessed February 24, 2025.
[299] USITC calculations based on imports for consumption of HS subheadings related to light vehicles as defined in appendix F, table F.1. USITC DataWeb/Census, accessed February 19, 2025.
[300] See chapter 3, table 3.9 for more information on the specific effects of the ROOs on vehicle prices.

**Figure 4.1** Share of U.S. light vehicle imports that are dutiable, from Canada and Mexico, 2019–24

In percentages of vehicles. Underlying data for this figure can be found in appendix J, table J.3.




Source: USITC DataWeb/Census, U.S. Imports for Consumption for HS subheadings for light vehicles, accessed February 12, 2025.
Note: *Harmonized Commodity Description and Coding System* (HS) subheadings for light vehicles are defined in appendix F, table F.1. The share of dutiable vehicles imported into the United States is largely passenger vehicles.

Similar to vehicle manufacturers, the cost for parts manufacturers to deliver parts to customers can increase for those that chose not to modify their supply chains to meet the ROOs. Since the USMCA entered into force, there has been an increase in the value of U.S. imports of parts from Canada and Mexico that do not qualify for duty-free treatment under the USMCA. These parts are likely a mix of existing parts that were previously traded under NAFTA, but where manufacturers chose not to make changes in their supply chains to comply with the USMCA ROOs, and of new parts produced by manufacturers that have opted to not comply. Imports of parts that do not qualify for duty-free treatment increased nearly threefold from $7.0 billion in 2019 to $20.8 billion in 2024. Although the increase was not as large as the comparable percentage increase in dutiable vehicle imports discussed previously, the share of U.S. imports of parts from Mexico that are dutiable increased from 9.7 percent in 2019 to 22.0 percent in 2024. The share of U.S. imports of parts from Canada that were dutiable also increased from 7.8 percent in 2019 to 16.5 percent in 2024, peaking at 20.2 percent in 2022.[301] As mentioned above in the discussion of motor vehicles, the competitiveness of U.S. parts production could be affected in two ways. First, if the cost difference between producing a compliant part in the United States and producing a noncompliant part is greater than the NTR duty, then the producer may choose not to comply with the ROOs (e.g., by producing the part in a non-USMCA country or in a USMCA country but without sufficient qualifying content) and pay the NTR duty. Alternatively, if the additional

[301] USITC DataWeb/Census, imports for consumption, list of HTS statistical reporting numbers corresponding to vehicle parts in appendix F, table F.3, accessed February 25, 2025.

cost to produce a compliant part in the United States were less than the NTR duty, then the producer may choose to comply by using sufficient U.S. or other USMCA-country content to meet the ROOs.

## Investment

The ROOs have reportedly factored into investment and supply chain decisions of vehicle manufacturers, though the rules may not be the largest motivator for new investment in U.S. vehicle production. Investments in automotive manufacturing within the USMCA countries have increased significantly since entry into force. From 2019 to 2023, annual announced investments in vehicle manufacturing in the United States increased by 164.1 percent, from $21.4 billion to $56.6 billion, and the United States accounted for the largest share of investment among USMCA countries (80.0 percent of USMCA investment from 2019 to 2023) (figure 4.2). Mexico and Canada have also seen notable increases in investment since 2019. Announced investment in Mexico increased from no announced investment in 2019 to $11.7 billion in investment in 2023. Investment in Canada increased from $0.5 billion in 2019 to $9.0 billion in 2023. However, announced investment in U.S. vehicle manufacturing totaled only $9.1 billion in 2024, driven by a decline of 92 percent in announced investments by the Big Three from 2023 to 2024.[302] Although it remains to be seen if investment will continue to plateau, uncertainty about the Inflation Reduction Act (IRA) as well as the future of electrification and U.S. trade policy may be contributing factors in the 2024 decline.[303] These overall investment trends since 2019 were likely driven by a number of factors beyond the USMCA. Indeed, the Commission's model estimates that the ROOs had a small negative impact on capital expenditures in U.S. vehicle production.[304] At the same time, the USMCA may have been among the developments in recent years prompting investors to consider greater domestic vehicle production.

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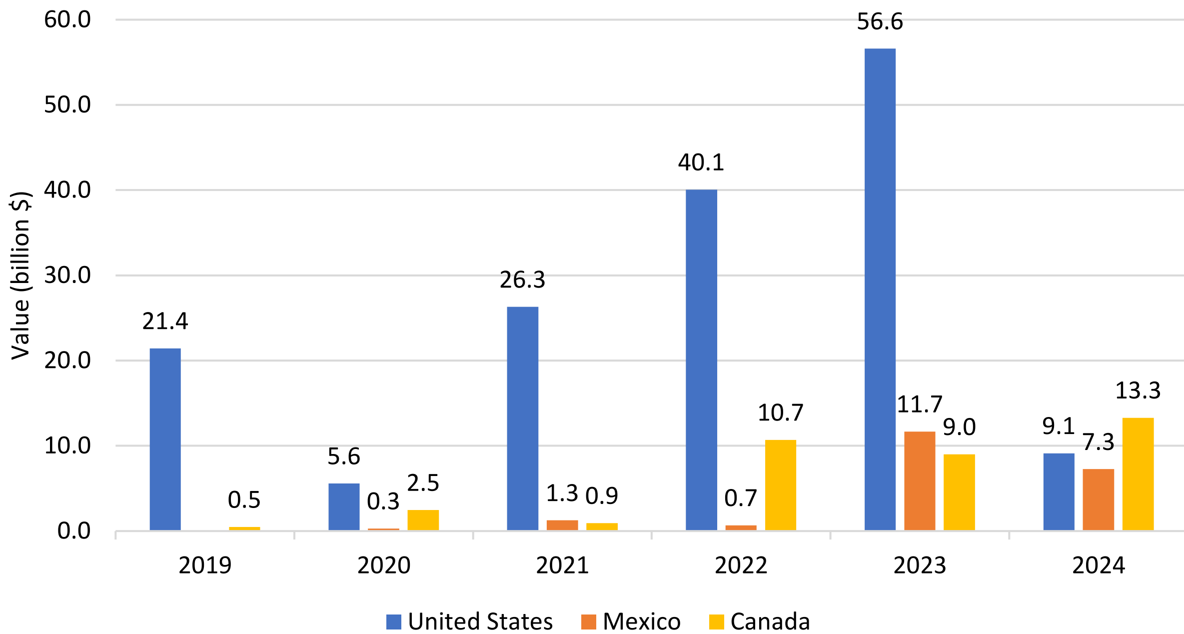
[302] CAR, "Automotive Communities Partnership," accessed January 14, 2025. The Big Three refers to the traditional three largest vehicle manufacturers in the United States: General Motors, Ford Motor Company, and Chrysler (now Stellantis). The exact reason for this decline is unclear, but it's worth noting that labor negotiations between the Big Three and the United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) in 2023, as well as other factors, may have created some uncertainty for these firms that temporarily stalled investments. See chapter 2 for more information on the recent labor negotiations.

[303] USITC, hearing transcript, October 8, 2024, 41–42 & 104–5 (testimony of Anna Schneider, VW); USITC, hearing transcript, October 8, 2024, 75–76 (testimony of Rory Heslington, Autos Drive); USITC, hearing transcript, October 8, 2024, 104 (testimony of Matt Blunt, AAPC); USITC, hearing transcript, October 8, 2024, 106 (testimony of David Adams, GAC). See chapter 2 for more discussion on uncertainty regarding the IRA, as well as other sources of federal and state support for EVs. Electrification is the transition from internal combustion engine vehicles to battery-electric vehicles and hybrids.

[304] See chapter 3, table 3.7 for more information on the specific effects of the ROOs on capital expenditures.

**Figure 4.2** Vehicle manufacturer announced USMCA investments, by country, 2019–24

In billions of dollars. Underlying data for this figure can be found in appendix J, table J.4.

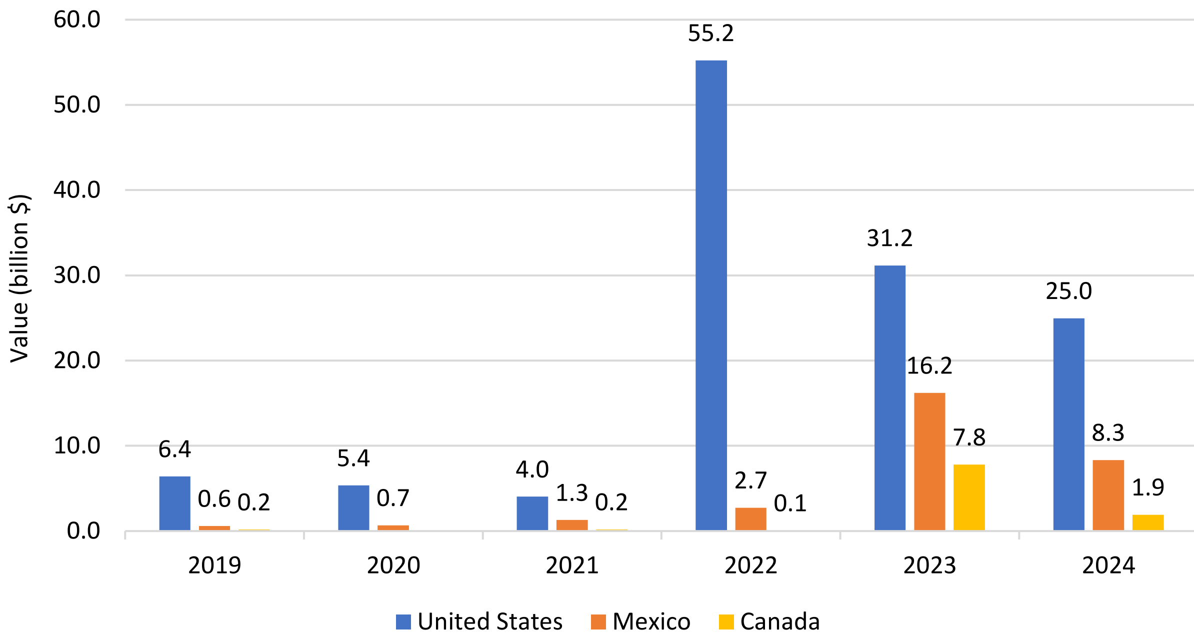



Source: CAR, "Automotive Communities Partnership," accessed January 14, 2025.
Note: No announced investment in Mexico in 2019.

Likewise, investment in motor vehicle parts manufacturing in USMCA countries has increased substantially; however, total investment in parts manufacturing lagged somewhat behind total investment in vehicle manufacturing starting in 2022. Investment in USMCA-region motor vehicle parts manufacturing increased from a combined $18.7 billion in 2019–21 to $58.0 billion in 2022. Investment decreased slightly to $55.2 billion in 2023 before declining further to $35.2 billion in 2024 (figure 4.3). The overall increase in investment is likely only partially attributable to the ROOs, as the Commission's model estimates a small increase in capital expenditure due to the ROOs. As with investments in motor vehicle manufacturing, the United States received the largest share of investment in parts manufacturing (76.1 percent of USMCA investment for 2019–24), though Mexico and Canada have also seen increases. Announced investment increased from $0.6 to $8.3 billion in Mexico and from $0.2 billion to $1.9 billion in Canada from 2019 to 2024.

**Figure 4.3** Parts supplier announced USMCA investments, by country, 2019–24

In billions of dollars. Underlying data for this figure can be found in appendix J, table J.5.




Source: CAR, "Automotive Communities Partnership," accessed January 14, 2025.
Note: No announced investment in Canada in 2020.

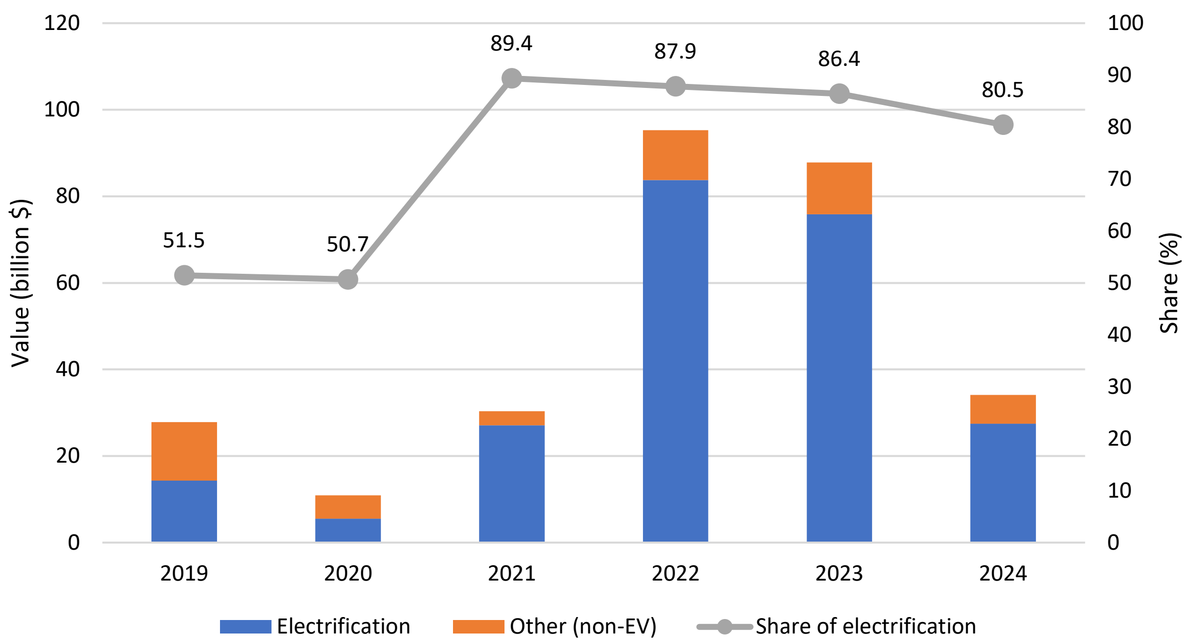
Electrification of the automotive industry makes up a large portion of total investment in vehicle and vehicle parts manufacturing in USMCA countries and made up a majority of the investment in the United States over the 2019–24 period (figure 4.4).[305] As the industry introduced electric and hybrid powertrains, over $220 billion out of the total of $276 billion in combined announced USMCA automotive investment from 2021 to 2023 was linked to electrification of vehicles.[306] Over 80 percent of this combined investment was for the United States.[307] This corresponds to an increase in U.S. battery-electric vehicle production from about 400,000 in 2019 to 1 million in 2023, though U.S. production contracted slightly in 2024.[308] U.S. hybrid vehicle production likewise increased from about 165,000 in 2019 to 1 million in 2024.[309] Investment not linked to electrification also increased from 2020 to 2023, though not at the same rate as that linked to electrification. This, coupled with indication from Commission modeling that only a portion of parts manufacturing investment and an even smaller share of the vehicle manufacturing investment is attributable to the ROOs, suggests that a substantial portion

[305] For more information on electrification of the automotive industry, see chapter 2.
[306] CAR, ACP, *Annual Book of Deals 2023*, December 2023.
[307] CAR, "Automotive Communities Partnership," accessed January 14, 2025.
[308] Wards Intelligence, "North America Vehicle Production by Model, 2019–2023," November 8, 2024; Wards Intelligence, "North American Production, December 2024," accessed January 30, 2025; USITC DataWeb/Census, domestic exports for HS subheading 8503.80, accessed February 14, 2025.
[309] Wards Intelligence, "North America Vehicle Production by Model, 2019–2023," November 8, 2024; Wards Intelligence, "North American Production, December 2024," accessed January 30, 2025; USITC DataWeb/Census, domestic exports for HS subheading 8703.40, 8703.50, 8703.60, and 8703.70, accessed February 14, 2025.

of investment is related to initiatives focused on electrification specifically, such as the IRA and California's Advanced Clean Cars II (ACC II) regulations, rather than the ROOs.[310]

**Figure 4.4** Automotive manufacturer announced U.S. investments, by powertrain, 2019–24

In billions of dollars and percentages. Underlying data for this figure can be found in appendix J, table J.6.




Source: CAR, "Automotive Communities Partnership," accessed January 14, 2025.
Note: Automotive manufacturing includes both vehicle manufacturing and parts manufacturing.

As noted above, while the ROOs continue to factor into investment decisions, other considerations exist. The Commission's survey results showed that 52.6 percent of firms considered the ROOs in their sourcing decisions for new model lines.[311] Of respondents who cited that the ROOs affected sourcing decisions for new model lines, 91.4 percent said that the decision was only partially attributable to the rules.[312] Many hearing participants point to the ROOs as having a positive impact on investment in U.S. automotive manufacturing.[313] Hearing participants noted that the USMCA strengthened the long-term competitiveness of the regional automotive industry, and created an enabling environment for increased industry investment, employment, and new localization of sourcing and production, all of which

[310] See chapter 2 for more information on the IRA, as well as California's ACC II regulations and the states following these rules under section 177.
[311] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 2.3.2.a.
[312] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to 2.3.2.b.
[313] USITC, hearing transcript, October 8, 2024, 80–81 (testimony of Ana Meuwissen, MEMA); USITC, hearing transcript, October 8, 2024, 39–41 (testimony of Anna Schneider, VW); AAPC, written submission to the USITC, November 18, 2024, 3.

strengthen the three member economies.[314] However, one hearing participant cautioned that the willingness of firms to invest in U.S. manufacturing may be tied to how burdensome the ROOs are compared to the cost of paying the NTR duty rate.[315]

Furthermore, vehicle manufacturers report that localization due to the ROOs does not appear to have had a significant impact on firm innovation or supply chain resilience. The Commission's survey results show that the ROOs led to minimal or no change in innovation for most motor vehicle producers.[316] For at least half of the motor vehicle producers, the changes made to their supply chains in response to the ROOs have had no impact on their ability to maintain motor vehicle production operations in the face of some unexpected disruption.[317] Only a limited number of motor vehicle producers report that they are better able to maintain production regardless of the location of the disruption because of supply chain changes due to the ROOs.[318] Some of these producers were better able to address supply chain disruptions because they put enhanced supply chain management teams in place to meet the ROOs and to work with suppliers to enhance capacity to meet needed volumes.[319] Some vehicle manufacturers (9.1 percent) indicated that shifting toward sourcing from North America to meet the ROOs made them more vulnerable to North American supply chain disruptions due to concentrations of the supply chain within the region.[320] At times, North American production has been insufficient, requiring producers to seek suppliers outside the region to keep production running.[321]

## Product Differentiation

Product differentiation is among the key competitive factors of the U.S. automotive industry that may have been affected by the ROOs. Although the ROOs may not have a direct bearing on product offerings, the ROOs may have led vehicle manufacturers to limit the number of USMCA-compliant models offered within the USMCA region. This could impact the competitiveness of U.S. production vis-à-vis non-USMCA imports, as consumers could shift to non-USMCA-compliant vehicles if their preferred vehicle styles are not available. Indeed, some firms have reportedly opted to retire certain models because of the cost associated with complying with the ROOs.[322] The number of vehicle models produced within the USMCA

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[314] USITC, hearing transcript, October 8, 2024, 8, 66 (testimony of Matt Blunt, AAPC); USITC, hearing transcript, October 8, 2024, 32 (testimony of David Adams, GAC); USITC, hearing transcript, October 8, 2024, 29 (testimony of Manuel Montoya, CLAUT).

[315] USITC, hearing transcript, October 8, 2024, 9 (testimony of Matt Blunt, AAPC).

[316] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024 responses to question 3.4.a.

[317] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 3.5.1.a and 3.5.2.a.

[318] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 3.5.1.a and 3.5.2.a.

[319] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, narrative responses to questions 3.5.1.b. and 3.5.2.b.

[320] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, narrative responses to questions 3.5.2.a.

[321] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, narrative responses to questions 3.5.1.b. and 3.5.2.b.

[322] USITC, hearing transcript, October 8, 2024, 18 (testimony of Rory Heslington, Autos Drive); USITC, *USMCA Automotive Rules of Origin, 2023 Report*, July 2023, 42.

region and available in the United States declined following entry into force of the ROOs from 174 in 2019 to 163 in 2024.[323] Although it is hard to determine the extent to which this decline was due to the ROOs, non-USMCA-produced models have not experienced the same rate of decline. The number of vehicle models available in the United States that were produced in non-USMCA countries increased from 180 in 2019 to 187 in 2024.[324] After a small decline from 2021 to 2022, the number of non-USMCA models available remained relatively flat but increased overall since 2019.[325] By reducing the number of models, manufacturers can simplify supply chains, thus offsetting the increased cost of compliance. It is possible that the ROOs incentivized the early retirement of models that existed before the USMCA's entry into force if both the cost of complying with the ROOs and cost of paying the NTR duty resulted in diminished profitability of these older models.

# Effects on Competitiveness in Different Markets

Changes in indicators such as market share, production, and trade for U.S.-manufactured vehicles and parts may inform the extent to which the ROOs have affected the competitiveness of the U.S. auto industry. Increased market share, production, trade, employment, and wages,[326] particularly in vehicle parts manufacturing in the United States, would be signs that the ROOs may have increased competitiveness. Conversely, declines in market share, production, and employment, could be signs that the ROOs may have decreased competitiveness. However, given that a number of factors affect these indicators, and as discussed above, at most the ROOs are only partially responsible for changes in costs, investment, and product differentiation, trends in these indicators are not necessarily indicative of the ROOs' effect on competitiveness.

The subsequent sections of this chapter assess how U.S. competitiveness in different markets—the domestic market, USMCA partner markets, and non-USMCA markets—has changed by examining trends in specific indicators since the agreement entered into force. [327] A key indicator used to assess U.S. competitiveness, when available, is the change in U.S. market share between 2019 and 2024. This approach allows for an examination of how the competitive position of the U.S. automotive industry has changed in different markets. For example, an increase in production in the United States that is matched or exceeded by an increase in imports from non-USMCA countries would not increase the

[323] USITC calculations based on Wards Intelligence, "U.S. Light Vehicle Sales" for December for years 2019–2024. Number of models calculated by number of models available for sale in a given year.
[324] USITC calculations based on Wards Intelligence, "U.S. Light Vehicle Sales" for December for years 2019–2024. Number of models calculated by number of models available for sale in a given year.
[325] USITC calculations based on Wards Intelligence, "U.S. Light Vehicle Sales" for December for years 2019–2024. Number of models calculated by number of models available for sale in a given year.
[326] Wages can be viewed both as a component of production cost to the vehicle manufacturer and as an indicator of automotive employment competitiveness. As a cost, increased wages can lead to reductions in market share, production, and employment if productivity does not increase to the same extent. As a benefit, increased wages can make a firm or industry more competitive when attracting employees and potentially raise the productivity of workers.
[327] The size of these markets varies significantly, with the United States being the largest market within the USMCA region. As mentioned in table 2.1, vehicles sales in the United States totaled 16.3 million vehicles in 2024, compared to 1.9 million in Canada and 1.6 million in Mexico. For more information on the USMCA automotive industry, see chapter 2.

relative competitive position of the U.S. automotive industry, though may have other benefits. Increases in the market share of U.S.-produced vehicles and parts could be interpreted as increases to U.S. competitiveness within a market, while decreases in market share could be interpreted as decreases to U.S. competitiveness.

For vehicles, U.S. market share is determined by calculating the share of vehicles sold in the United States, Mexico, and Canada that were produced in the United States.[328] For vehicle parts in the U.S. market, market share is calculated by taking U.S. shipments less U.S. exports and dividing by total U.S. consumption. For vehicle parts in the Canadian and Mexican markets, U.S. market share is calculated as the share of consumption that is imports from the United States.[329] For non-USMCA markets, sales and consumption data are not available, so the U.S. share of global exports to non-USMCA countries is used as a proxy for both vehicles and vehicle parts.

Although changes in market share or other indicators may suggest changes in competitiveness since the ROOs took effect, as discussed above, a number of factors influence the factors that drive competitiveness of the U.S. industry. As such, caution should be exercised in necessarily attributing any changes to the effect of the ROOs. Moreover, it is possible for the ROOs to have a positive effect on market share that is overshadowed by negative effects on competitiveness of other factors and vice versa. Therefore, in addition to market share, other indicators (e.g., import share, production) are used where relevant. The remainder of this chapter provides additional detail on trends in indicators of competitiveness.

# U.S. Competitiveness in the Domestic Market

This section analyzes the effect of the ROOs on the competitiveness of U.S. producers within the U.S. market and primarily finds little change in market share but does find signs of other changes in competitiveness. It examines trends in U.S. producers' market share within the domestic market, providing U.S. production and sales data for context and assesses the extent to which these could be attributable to the USMCA automotive ROOs. Within the domestic market, it examines competitiveness from the standpoint of both U.S. vehicle producers and U.S. parts producers. U.S. motor vehicle production generally shows few signs of changes in competitiveness based on U.S. market share since the USMCA entered into force. U.S. producers' share of U.S. vehicle consumption has remained steady, though there have been increases in both production and sales. The competitiveness of the U.S. vehicle

[328] For the Canadian and Mexican markets, U.S. market share for vehicles is determined by the share of total sales in the market of vehicles that are produced in the United States. As the sales data used does not differentiate between vehicles produced in the United States, Canada, and Mexico for its reporting of origin in sales data, the Commission estimated origin using production data. The underlying assumption of the methodology used is that if a model were produced in two USMCA countries, that domestic production would be used first to fulfill domestic sales. The remainder would then be exported. For example, if a vehicle manufacturer produces 200 units of a vehicle in the USMCA region— 100 in the United States and 100 in Mexico —with sales in the United States of 100 units, sales in Mexico of 75 units, and sales in Canada of 25 units, then the Commission assumed that the United States and Mexico would have 100 percent share in their respective markets and the remaining 25 Mexican units would fulfill the demand in Canada.

[329] For the Canadian and Mexican markets, the share of parts imports that originate from the United States is used because sales data are not available for vehicle parts.

parts production generally remained constant since the USMCA entered into force based on U.S. producers' share of parts consumption. At the same time, there have been increases in the sourcing of U.S.-produced parts and the production of U.S. parts, potentially bolstered by investment sparked by the ROOs, despite the increased cost associated with compliance. This increased sourcing and investment could suggest that the ROOs are having a positive impact on competitiveness despite the relatively unchanged market shares of U.S. vehicles and parts. The U.S. steel industry has particularly benefited from increased purchases since entry into force, at least in part due to increased sourcing spurred by the ROOs.

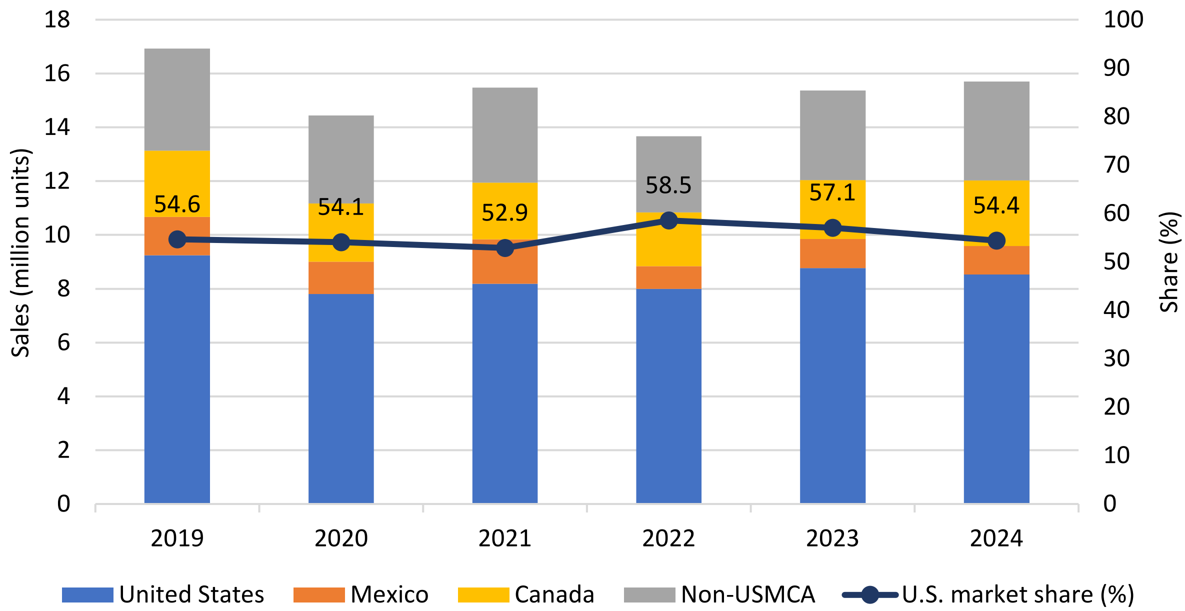
## U.S. Motor Vehicle Industry Competitiveness

The share of U.S.-produced vehicles sold in the domestic market remained constant, indicating the competitiveness of U.S. vehicles in the domestic market may be relatively unchanged. U.S. production's share of U.S. sales in 2024 was 54.4 percent, slightly below the share in 2019 (54.6 percent) (figure 4.5).[330] Overall U.S. light vehicle production has increased since entry into force of the USMCA, but still trails 2019 levels. After declining from 10.5 million vehicles in 2019 to 8.6 million in 2020, U.S. light vehicle production increased to 10.3 million in 2023, before declining slightly in 2024 to 10.1 million.[331] Although some of this decline in production may be attributable to the increased production costs associated with the ROOs, a majority of the decline appears to be from other factors. The Commission's model estimated that the ROOs lowered production by about 15,000 vehicles in 2024.[332]

[330] Different segments of light vehicles appear to see different market share trends. U.S. producers' share of U.S. consumption for passenger vehicles increased from 47.5 percent in 2019 to 49.2 percent in 2024. Conversely, U.S. producers' share of U.S. consumption for light trucks—consistently higher than passenger vehicles—has declined from 82.8 percent in 2019 to 75.8 percent in 2024. Wards Intelligence, "Light Vehicle Sales" for years 2019–24, accessed January 13, 2025; Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024; Wards Intelligence, "North American Production, December 2024," accessed January 21, 2025.
[331] Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024; Wards Intelligence, "North American Production, December 2024," January 21, 2025.
[332] See chapter 3, table 3.9 for more information on the specific effects of the ROOs on U.S. vehicle production.

**Figure 4.5** U.S. light vehicle sales, by origin, and U.S. market share, 2019–24

In millions of units and percentages. Underlying data for this figure can be found in appendix J, table J.7.




Source: Wards Intelligence, "Light Vehicle Sales" for years 2019–24, accessed January 13, 2025; Wards Intelligence, "North America Vehicle Production by State and Plant, 2019–2023," March 29, 2024; Wards Intelligence, "North American Production, December 2024," accessed January 21, 2025.

Note: Source country of vehicles was determined using production data.

# U.S. Motor Vehicle Parts Industry Competitiveness

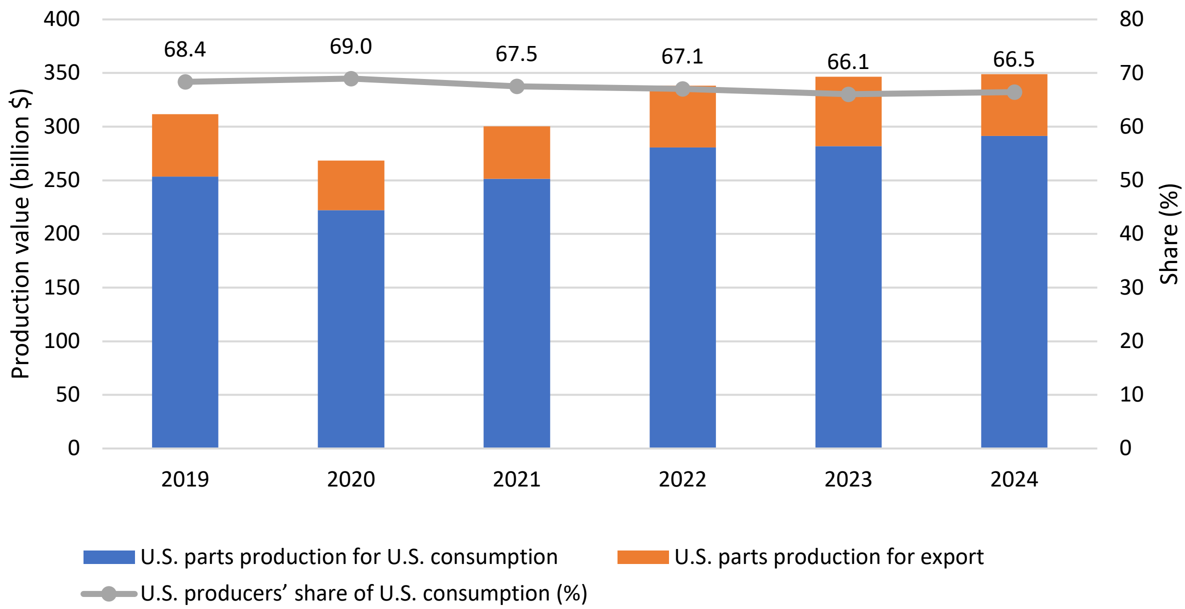
The competitiveness of U.S. parts in the domestic market seems to have remained relatively constant based on market share. U.S. production's share of U.S. parts consumption remained relatively stable between 2019 and 2024 (figure 4.6).[333] The ROOs reportedly incentivize supply chain localization in USMCA countries by increasing demand for USMCA-produced parts. The increase in U.S. parts production, especially for certain core parts, is at least partially attributable to the ROOs according to Commission modeling.[334] Commission modeling estimated increases in U.S. engine, transmission, and axle production among others.

[333] U.S. parts production has increased since the USMCA entry into force—from $311.8 billion in 2019 to $349.0 billion in 2024.

[334] See chapter 3, tables 3.8 and 3.10 for the specific impact of the ROOs on parts production revenue and the production of core parts in the United States.

**Figure 4.6** U.S. vehicle parts production and share of U.S. consumption, 2019–24

In billions of dollars and percentages. Underlying data for this figure can be found in appendix J, table J.8.



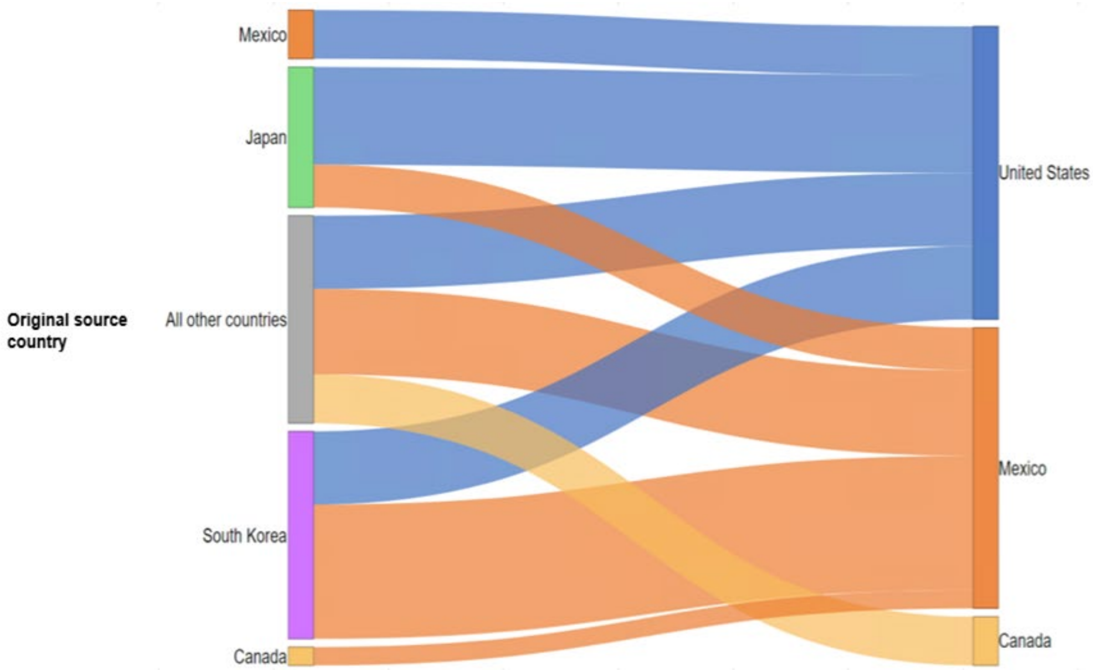

Source: Census, "Manufacturers' Shipments, Inventory, and Orders (M3) Survey," February 4, 2025; USITC DataWeb/Census, U.S. Imports for consumption and U.S. Domestic exports, NAICS codes 3362 and 3363, accessed February 4, 2025.
Note: Data for U.S. parts production represent parts classified under North American Industry Classification System (NAICS) codes 3362 (Motor vehicle body and trailer manufacturing) and 3363 (Motor vehicle part manufacturing). The presented share is based on U.S. parts production for U.S. consumption, which is derived by subtracting domestic exports from U.S. production.

The increase in U.S. parts production seems to be bolstered by sourcing requirements of the ROOs. The Commission's survey results show that the USMCA has incentivized the sourcing of core parts, steel, and aluminum from USMCA countries, particularly the United States, which may have a positive effect on competitiveness of U.S. production over time. The Commission's survey indicated that the United States and Mexico were the largest destinations for sourcing changes attributable to the ROOs (figure 4.7).[335] The Commission's survey also shows that the ROOs continue to be a consideration in the sourcing decisions of U.S. vehicle manufacturers. Of the sourcing changes to core parts for models that existed prior to the USMCA's entry into force which were driven at least in part by the ROOs, 82.4 percent were fully attributable to the ROOs and the other 17.6 percent were only partially attributable to the ROOs.[336]

[335] Sourcing changes attributed at least in part to the ROOs have been made for every category of core parts, as well as steel and aluminum. Nearly one-third of all sourcing changes to the USMCA region were for sourcing of steel, and one-quarter of sourcing changes were for engines. However, changes in which new sourcing occurred in the United States were for engines, transmissions, axles, steel, and aluminum. USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 2.2. See chapter 3, table 3.10, for more information on the economic impact of the ROOs on parts production in the United States.
[336] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 2.2.2–2.2.11.

**Figure 4.7** Changes in the source of motor vehicle parts and materials attributable to the rules of origin

The width of bands reflects the number of sourcing change flows from the original source to the new source. Underlying data for this figure can be found in appendix J, table J.9.




Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 2.2.2–2.2.11.
Note: The Commission's survey identified 68 motor vehicle part sourcing changes. The 68 sourcing changes had a total of 102 sourcing change flows (sourcing change of core part from original source country to new source country), as several sourcing change descriptions had multiple original source countries and new source countries. Sourcing change flows are based on production of existing models. For each sourcing change, respondents either fully or partially attributed the change to the rules of origin.

Localization of sourcing to the United States has potential benefits in economies of scale and could lead to production cost reductions. For example, a recent consolidation of engine production has taken place within the United States, which could allow for economies of scale.[337] The number of unique engine models produced in North America has decreased, and increasingly U.S.-produced vehicles use engines from the United States.[338] As localization continues for other core parts, such as advanced batteries, this may also lead to production cost reduction.[339]

[337] Klier and Rubenstein, "De-ICEing and the Geography of Engine Sourcing in North America," February 6, 2025.
[338] The number of unique engine models sourced by North American assembly plants decreased from 60 to 35. Klier and Rubenstein, "De-ICEing and the Geography of Engine Sourcing in North America," February 6, 2025.
[339] Benchmark Mineral Intelligence, an independent price reporting agency and information provider on the battery and critical mineral supply chains and forecasting, indicates the support of IRA investments could make production costs of U.S.-produced batteries less than those of China. Benchmark Source, "US Battery Production Could Beat China on Cost," October 22, 2024.

## U.S. Steel and Aluminum Industries

The increased sourcing of U.S. steel and aluminum in the automotive industry since entry into force suggests the competitiveness of U.S. steel and aluminum producers has increased.[340] The steel and aluminum requirements incentivize the sourcing of USMCA-made steel and aluminum, which is expected to continue when the melted and poured requirement for steel used in light vehicles enters into effect in 2027.[341] The steel and aluminum requirement likely had a positive effect on purchases of USMCA-made steel and aluminum.[342] As discussed earlier in this chapter, steel represents the largest share of sourcing changes made as a result of the ROOs. As alternative staging regimes expire, evidence of vehicle manufacturers achieving compliance with the steel and aluminum purchasing requirements is increasing. The number of manufacturers meeting the steel requirement increased from 10 to 15 and the number of manufacturers achieving the aluminum requirement increased from 11 to 13 between 2020 and 2023.[343] According to the Commission's survey results, among vehicle manufacturers that opted to comply with the ROOs, the percentage of U.S. motor vehicle producers' steel purchases that were sourced from USMCA countries increased, on average, from 74.4 percent in 2020 to 84.8 percent in 2023.[344] The percentage of U.S. motor vehicle producers' aluminum purchases that were sourced from USMCA countries, however, stayed relatively constant, on average, changing from 80.5 percent in 2020 to 80.4 percent in 2023.[345]

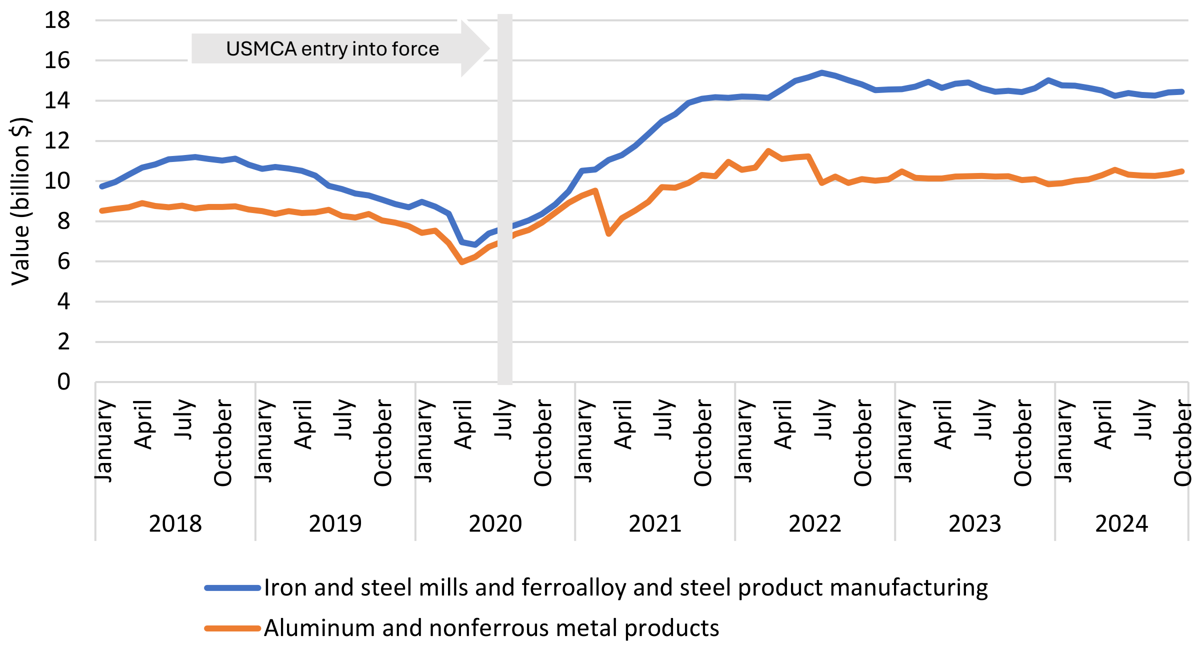
Although the steel and aluminum purchasing requirements can be fulfilled with purchases from any USMCA country, the U.S. steel and aluminum industries may have benefited significantly from this sourcing requirement. Statements from U.S. steel industry representatives support the Commission's survey finding of increased demand for U.S. steel and aluminum and evidence of increased U.S. production. Industry representatives have indicated—in addition to the more immediate benefit of sourcing changes made by vehicle producers—the steel and aluminum sourcing requirements promote long-term benefits to U.S. steel and aluminum industries as they factor into future sourcing plans.[346] Other industry representatives report increases in purchase requests, including from Mexico, but the extent to which this was motivated by the ROOs or other factors is not clear.[347] One automotive industry

[340] Market share is not used to analyze competitiveness in this section due to limitations in the availability of data regarding steel and aluminum purchase decisions. In lieu of this, this section discusses reported changes by automotive manufacturers with regard to steel and aluminum purchases and changes in prices.
[341] For more information on the melted and poured requirement, see steel and aluminum purchasing requirement section in chapter 2.
[342] See chapter 3, table 3.3 for more information on the estimated impact on USMCA imports of steel and aluminum from non-USMCA countries, which shows a reduction of USMCA steel imports from non-USMCA countries.
[343] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.1.g.
[344] This is the average for companies opting to comply with the ROOs. USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.1.g.
[345] This is the average for companies opting to comply with the ROOs. USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.1.g.
[346] USITC, hearing transcript, October 8, 2024, 174–75 (testimony of Kevin Dempsey, AISI); USITC, hearing transcript, October 8, 2024, 175 (testimony of Kaitlin Wojnar, U.S. Steel).
[347] U.S. industry representative, interview with USITC staff, September 9, 2024.

representative, however, noted instances where U.S. steel producers were unable to supply the necessary quantity and quality of steel, especially directly following entry into force.[348] The values of shipments and of new orders of steel and aluminum have increased since entry into force (figure 4.8).[349] At the same time, other factors have boosted domestic steel and aluminum shipments—including a non-residential construction boom in 2022 and 2023 generated by funding from the CHIPS Act of 2022 and the IRA and continued protection from certain steel and aluminum imports due to section 232 tariffs introduced in 2018.[350]

**Figure 4.8** New orders of U.S. producers of iron and steel and of aluminum and nonferrous metal products, by month, January 2018–October 2024

In billions of dollars, monthly, seasonally adjusted. Underlying data for this figure can be found in appendix J, table J.10.




Source: Census, "Manufacturers' Shipments, Inventory, and Orders (M3) Survey," New orders, seasonally adjusted for 31A and ANM, November 5, 2024.
Note: A new order is a communication of an intention to buy for immediate or future delivery. The survey combines manufacturers related to iron and steel mills and ferroalloy and steel product manufacturing under a survey-specific code (31A) and combines manufacturers of aluminum and nonferrous metal products under a different code (ANM). Thus, the figure above depicts new orders of these other categories.

Even though U.S. steel and aluminum producers have likely benefited from the steel and aluminum purchasing requirements, some producers have raised concerns regarding potential "increased efforts by some market participants to get around the ROOs."[351] Specifically, steel industry representatives and others cited instances of Chinese companies investing in and building factories in Mexico allowing parts

[348] USITC, hearing transcript, October 8, 2024, 80 (testimony of Rory Heslington, Autos Drive).
[349] Census, "Manufacturers' Shipments, Inventories, & Orders (M3) Survey Data," accessed November 6, 2024.
[350] CHIPS Act of 2022, Pub. L. No. 117-167, 136 Stat. 1366; Gerber Group, "US Construction Boom Continues," December 7, 2023; Moors and Coyne, "US Steel Industry Sees Boost," February 29, 2024. See chapter 2 for more information on the IRA and section 232 tariffs.
[351] USITC, hearing transcript, October 8, 2024, 127 (testimony of Kevin Dempsey, AISI).

made with Chinese labor and content to enter the United States as regional content.[352] Other vehicle parts industry representatives cited cases in which Chinese steel was transformed into parts in Mexico and was able to come into the United States as USMCA content.[353]

# U.S. Competitiveness in USMCA Partner Markets

This section analyzes the competitiveness of U.S. producers within USMCA partner markets and finds mixed evidence of changes to competitiveness based on market share since entry into force. It examines trends in U.S. competitiveness in the Canadian and Mexican markets primarily by analyzing changes in market share in U.S. motor vehicles and U.S. vehicle parts in Canada and Mexico and discusses the extent to which these trends could be attributable to the USMCA automotive ROOs. [354] Within these markets, competitiveness is examined from both the standpoint of U.S. vehicle producers and U.S. parts producers. The U.S. producers' share of vehicle consumption in Canada and Mexico has remained relatively flat since entry into force, suggesting little change in competitiveness within these markets despite increased production costs associated with the ROOs. Meanwhile, the U.S. share of Canadian parts imports has increased, and the U.S. share of Mexican parts imports has decreased. This suggests sourcing requirements may have benefited the use of U.S. parts in Canada but not necessarily in Mexico.

## U.S. Motor Vehicles in USMCA Partner Markets

The U.S. market share in the Canadian and Mexican vehicle markets have remained relatively unchanged since entry into force, suggesting little change to competitiveness. As outlined in chapter 2, USMCA partners remain each other's largest trading partners. However, some U.S. vehicle manufacturers report a negative impact on their exports to Canada and Mexico as a result of the ROOs.[355] Official trade statistics also show that the share of USMCA imports (i.e., total U.S., Canadian, and Mexican imports) that are imported from other USMCA countries declined, from 54.5 percent of vehicles in 2019 to 49.3 percent in 2024.[356] One hearing participant noted that this decline may be at least partially due to Canada and Mexico relying more heavily on imports from other automotive-producing countries with which they have existing trade agreements.[357]

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[352] USITC, hearing transcript, October 8, 2024, 138–39 (testimony of Jim Warren, IFA); USITC, hearing transcript, October 8, 2024, 162–63 (testimony of Adam Hersh, EPI). See chapter 2 for more information on Chinese investment in Mexico.
[353] USITC, hearing transcript, October 8, 2024, 50–51 (testimony of Genevieve Gurnick-Long, Seaway Bolt & Specials).
[354] For more information on how the U.S. market share was calculated in the Canadian and Mexican markets, see the "effects on competitiveness in different markets" section above.
[355] While most vehicle manufacturers reported no change in their exports to Canada and Mexico, some reported decreases. USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.6.1.a and 3.6.1.b.
[356] Light vehicles are defined in appendix F, table F.1. S&P Global, GTAS database, accessed March 1, 2025.
[357] USITC, hearing transcript, October 8, 2024, 17 (testimony of Rory Heslington, Autos Drive).

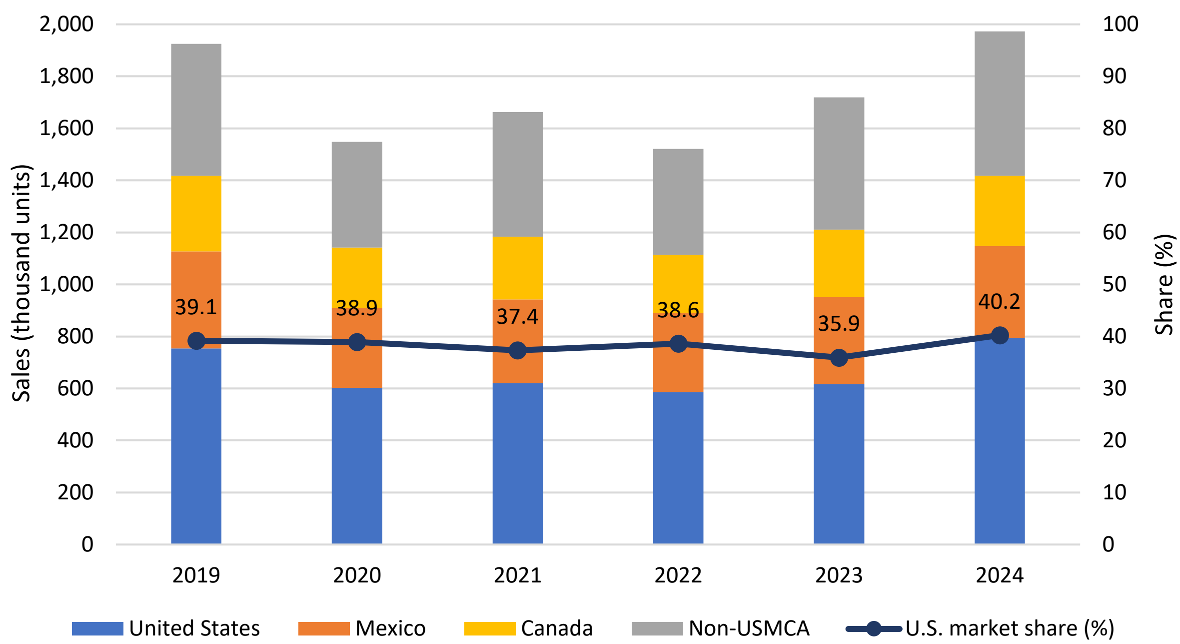
As mentioned earlier in this chapter, official trade statistics reflect an increase in dutiable imports from USMCA partners. In particular, an increasing share of vehicles imported from Mexico to the United States has had duties assessed through 2023 (see figure 4.1). These non-USMCA-compliant vehicles produced in Mexico and Canada may be offered in their respective domestic markets. Thus, U.S. exports to those markets may face increased competition from these noncompliant vehicles, competition that is not mitigated by the NTR duty that these vehicles face in the U.S. market.

## Canadian Market

The United States remains the largest source of light vehicles sold in Canada. The share of light vehicles sold in Canada that were produced in the United States increased slightly from 2019 to 2024, declining in the years immediately following the USMCA entry into force from 39.1 percent (about 753,000 vehicles) in 2019 to 35.9 percent (about 618,000 vehicles) in 2023 before rebounding to 40.2 percent (about 794,000 vehicles) in 2024 (figure 4.9). The slight increase indicates some improvement in competitiveness. Mexican and Canadian shares of light vehicle sales in Canada remained relatively flat through 2023 before declining in 2024. Meanwhile, non-USMCA countries appear to have gained market share in Canada during 2019–24.

**Figure 4.9** Canadian light vehicle sales, by origin, and U.S. market share, 2019–24

In thousands of units and percentages. Underlying data for this figure can be found in appendix J, table J.11.



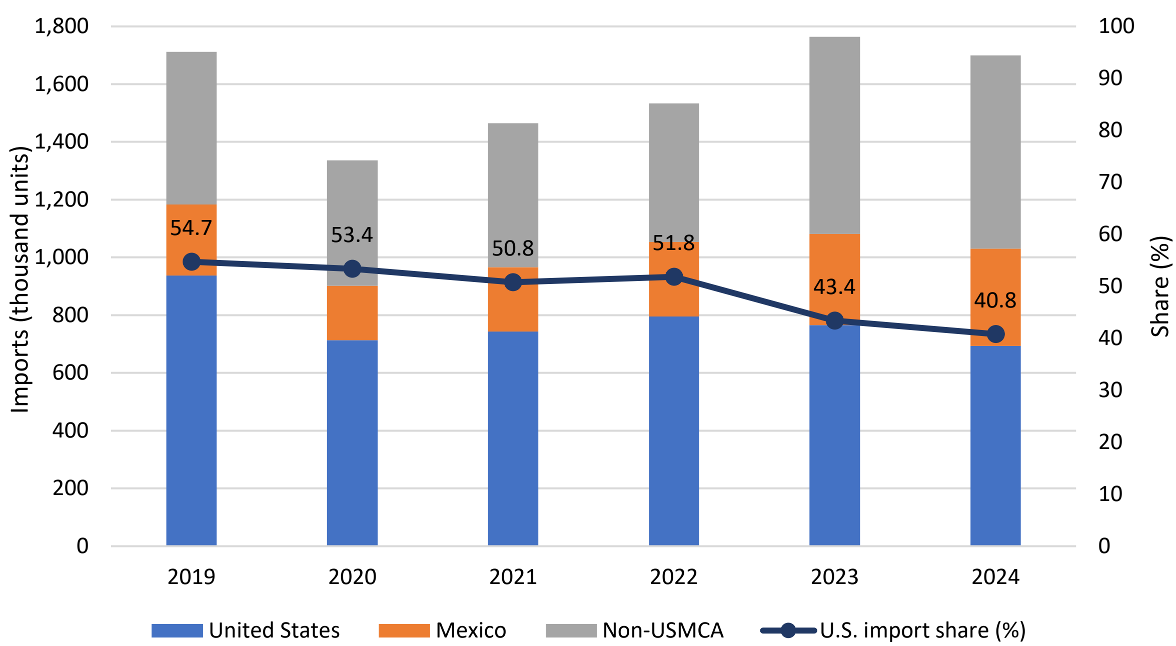

Source: Wards Intelligence, "North American Vehicle Production by State and Plant, 2019–2023," March 29, 2024; Wards Intelligence, "North American Production by State and Plant 2017–2021," accessed August 1, 2024; Wards Intelligence, "Canada Vehicle Sales by Model 2019–2023," accessed August 1, 2024; Wards Intelligence, "Canada Light Vehicle Sales by Brand and Company December 2024," accessed January 2, 2024.

Note: This chart assumes that if a model were produced in two USMCA countries, that domestic production would be used first to fulfill domestic sales. The remainder would then be for export.

The United States also remains the largest source of Canada's imports of light vehicles. However, since entry into force, the United States has lost import share in Canada to non-USMCA imports (figure 4.10). This figure differs from market share discussed above in two ways: the sales figures include Canada's own production, and the timeline for when a vehicle is imported can differ from when it is sold.[358] Because there is sometimes a lag between the year in which a vehicle is imported compared to the year in which it is sold due to inventorying, lower import volumes may be a signal of lower sales in future years. For example, a U.S. vehicle sold in Canada could be existing inventory that was imported in a previous year. Furthermore, as sales of Canada's own production decreased, overall imports increased, which allowed the U.S. market share to remain consistent while U.S. import share declined. Canada's imports from the United States declined from 54.7 percent (936,800 vehicles) in 2019 to 40.8 percent (694,700 vehicles) in 2024. While the share of light vehicle imports from the United States decreased, the share of light vehicles from non-USMCA countries and from Mexico increased. The share of light vehicle imports from non-USMCA countries increased from 30.9 percent in 2019 to 39.4 percent in 2024, and the share from Mexico increased from 14.4 percent in 2019 to 19.8 percent in 2024.

**Figure 4.10** Canada's imports of light vehicles, by source, and U.S. import share, 2019–24

In thousand units and percentages. Underlying data for this figure can be found in appendix J, table J.12.




Source: S&P Global, GTAS database, Imports of HS subheadings for light vehicles, accessed March 24, 2025.
Note: HS subheadings for light vehicles are defined in appendix F, table F.1.

The decrease in U.S. share of Canada's imports was largely driven by a decline in imports of passenger vehicles, which accounted for 63 percent of Canada's imports of light vehicles from the United States

[358] While figure 4.9 above shows the share of light vehicle sales by country of origin, figure 4.10 below shows the share of light vehicle imports by origin. Given the difference described in the text, the two figures are not directly comparable. To better understand the underlying data for these two figures, see appendix J, tables J.11 and J.12. This is similarly the case for the corresponding graphs for Mexico (figures 4.11 and 4.12). The underlying data for those figures can be found in appendix J, tables J.13 and J.14.

between 2019 and 2024. The U.S. share of Canada's imports of those vehicles decreased from 44 percent in 2019 to 34 percent in 2024 by volume. Meanwhile, Canada's imports of passenger vehicles from non-USMCA countries increased, suggesting that the United States may have lost some competitiveness compared to non-USMCA vehicle manufacturers after entry into force, especially since 2023. As U.S.-produced passenger vehicles lost market share to non-USMCA-produced passenger vehicles in Canada, U.S. light trucks lost market share to Mexican light trucks in Canada. Canadian imports of U.S. light trucks declined 40 percent by volume, while Canada's imports of light trucks from Mexico increased by 150 percent by volume.[359] In 2019, the United States represented 90 percent of Canada's light truck imports. Since then, the U.S. share has declined to 73 percent of Canadian light truck imports as of 2024.

## Mexican Market

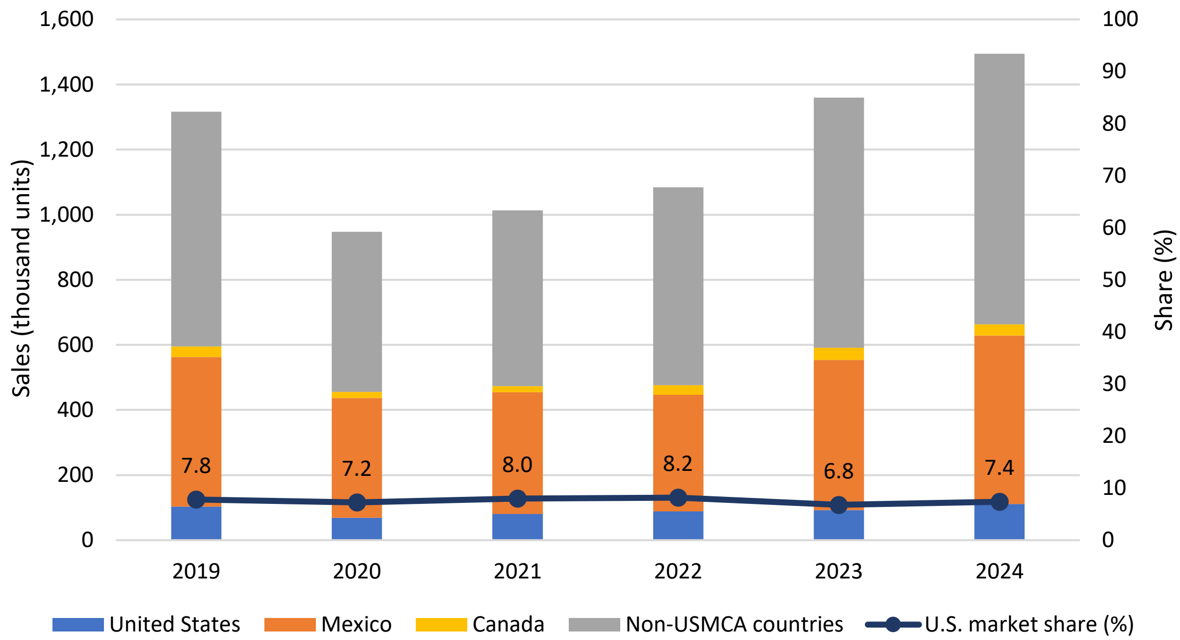
The share of light vehicles sold in Mexico that were produced in the United States remained somewhat steady between 2019 and 2024, with a slight decrease in 2023, indicating little change in competitiveness since entry into force (figure 4.11). The United States has typically held a smaller share of light vehicle sales in Mexico compared to Mexico's own production and non-USMCA imports. The U.S. market share has remained at about 7–8 percent, while the share of light vehicle sales in Mexico produced in both Mexico and non-USMCA countries remained consistently higher. The Mexican share was 35.0 percent in 2019 and 34.7 percent in 2024, while the non-USMCA share was 54.7 percent in 2019 and 55.6 percent in 2024.[360]

[359] HS subheadings for light trucks are defined in appendix F, table F.1. S&P Global, GTAS database, accessed February 18, 2025.

[360] Wards Intelligence, "North American Production by State and Plant 2019–2023", accessed August 1, 2024; Wards Intelligence, "North American Production by State and Plant 2017–2021", accessed August 1, 2024; Wards Intelligence, "Mexico Vehicle Sales by Segment 2019–2023", accessed August 1, 2024; Wards Intelligence, "Mexico Light Vehicle Sales, December 2024," accessed January 2, 2024.

**Figure 4.11** Mexican light vehicle sales, by origin, and U.S. market share, 2019–24

In thousand units and percentages. Underlying data for this figure can be found in appendix J, table J.13.



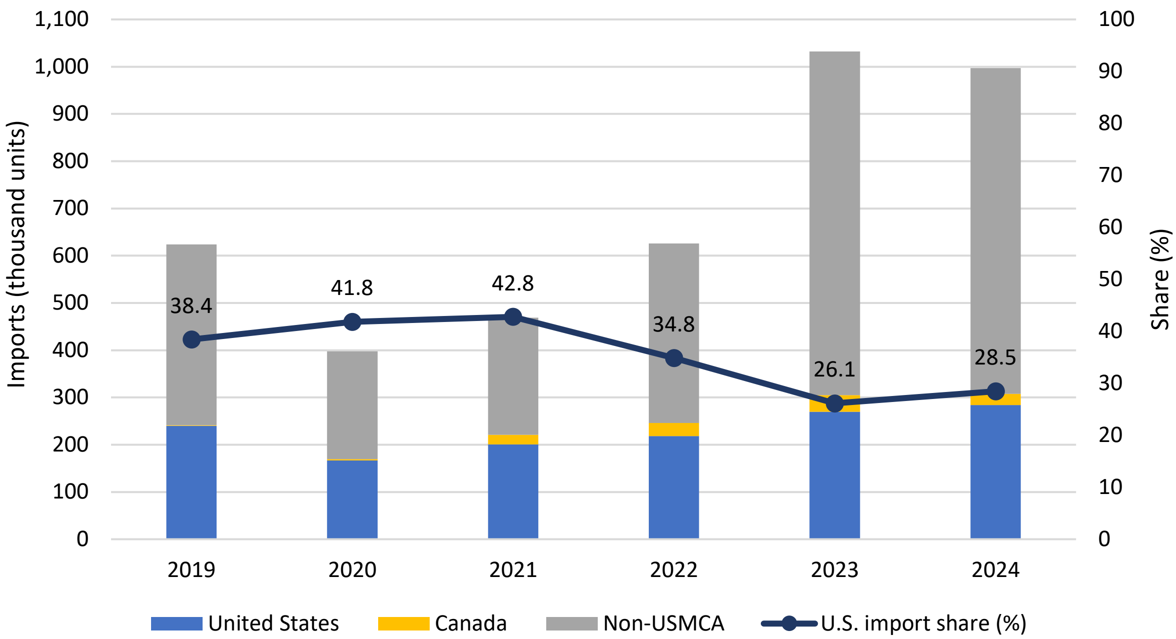

Source: Wards Intelligence, “North American Production by State and Plant 2019–2023,” accessed August 1, 2024; Wards Intelligence, “North American Production by State and Plant 2017–2021,” accessed August 1, 2024; Wards Intelligence, “Mexico Vehicle Sales by Segment 2019–2023,” accessed August 1, 2024; Wards Intelligence, “Mexico Light Vehicle Sales, December 2024,” accessed January 2, 2024.
Note: This chart assumes that if a model were produced in two USMCA countries, that domestic production would be used first to fulfill domestic sales. The remainder would then be exported.

Analysis of Mexico’s imports suggests that the U.S. light vehicles may have lost some competitiveness compared to imports of such vehicles from non-USMCA countries since 2021. The U.S. share of Mexico’s imports of light vehicles has generally declined since 2022 (figure 4.12). The U.S. share of Mexico’s light vehicle imports decreased from 38.4 percent in 2019 to 28.5 percent in 2024. Meanwhile, the share of Mexican imports from non-USMCA countries increased from 61.4 percent in 2019 to 69.1 percent in 2024. As indicated in the above discussion for the Canadian market, sales and imports differ in timeline, and sales includes Mexico’s own production. The import trend, combined with the sales trends discussed above, suggests that there may have been a continued preference for Mexican-produced vehicles and an increasing preference for imports from outside of the USMCA region.[361]

[361] S&P Global, GTAS database, HS subheadings for light vehicles, accessed March 24, 2025. HS subheadings for light vehicles are defined in appendix F, table F.1.

**Figure 4.12** Mexico's imports of light vehicles, by source, and U.S. import share, 2019–24

In thousands of units and percentages. Underlying data for this figure can be found in appendix J, table J.14.




Source: S&P Global, GTAS database, HS subheadings for light vehicles, accessed March 24, 2025.
Note: HS subheadings for light vehicles are defined in appendix F, table F.1.

The increased reliance on non-USMCA vehicle imports in Mexico is also apparent in different segments of the light vehicle market. For passenger vehicles, China replaced the United States as the largest source of Mexico's imports of light vehicles, by quantity, in 2022. Similar to market share, the U.S. share of Mexico's passenger vehicle imports has declined compared to 2019.[362] Meanwhile, Mexico's imports of passenger vehicles from non-USMCA countries have increased since entry into force and accounted for 71 percent of passenger vehicle imports in 2024. For light trucks, the decline in Mexico's reliance on U.S. imports is even more pronounced. The U.S. share of Mexico's light truck imports declined significantly in recent years, from nearly 90 percent historically—and in the early years after entry into force of the USMCA—to 43 percent in 2023 and further to 38 percent in 2024.[363] At the same time, the non-USMCA share of Mexico's light truck imports increased from 11 percent in 2019 to 61 percent in 2024. The increase in non-USMCA-produced vehicles imported to Mexico seems to have been prompted by the introduction of many new models of vehicles in 2023 that were assembled in China and Brazil.[364] These

[362] The U.S. share of Mexican imports of passenger vehicles increased from 24 percent in 2023 to 27 percent in 2024 but trailed behind the 35 percent share in 2019. HS subheadings for passenger vehicles are defined in appendix F, table F.1. S&P Global, GTAS database, access March 5, 2025.
[363] HS subheadings for light trucks are defined in appendix F, table F.1. S&P Global, GTAS database, accessed March 5, 2025.
[364] Wards Intelligence, "Mexico Light Vehicle Sales by Segment," accessed August 1, 2024; "Mexico Light Vehicle Sales, December 2024," January 9, 2025; *Automotive World*, "Global Vehicle Assembly Plant Database," May 15, 2024.

trends imply a decline in the competitiveness of U.S. vehicles in Mexico compared to vehicles produced in Mexico and non-USMCA countries.

# U.S. Motor Vehicle Parts in USMCA Partner Markets

The U.S. share of parts imported into Canada has increased but has decreased in Mexico. This indicates that while U.S. parts may have become more competitive in Canada, they may have become less competitive in Mexico. At the same time, the United States and Mexico were the largest destinations for sourcing changes made to comply with the ROOs.[365] USMCA partners serve as important destination markets for the export of each country's vehicle parts, with most exports going to other USMCA partners. As with vehicles, compliance with the ROOs to receive duty-free treatment promotes the flow of vehicle parts among the three parties. USMCA countries collectively exported $190.5 billion in vehicle parts in 2024, compared to $162.0 billion in 2019.[366] USMCA exports to other USMCA partners accounted for 87 percent of total USMCA exports in 2024, an increase from 85 percent in 2019.[367] While the export share has increased, the import share between USMCA countries has remained steady. Collectively, USMCA countries imported $278.3 billion in vehicle parts in 2024, compared to $231.2 billion in 2019. The share of these imports that originated in USMCA partner countries declined from 57 percent in 2019 to 53 percent in 2021, before returning to 57 percent in 2024.[368] This implies that the importance of USMCA partner markets, as an export destination, is increasing for parts produced in USMCA markets, even while those same destination markets are also increasingly sourcing from outside of the USMCA region as well.

As discussed above, the value and share of U.S. imports of dutiable vehicle parts from Canada and Mexico have increased. If these non-USMCA-compliant parts produced in Mexico and Canada are also offered within the Canadian and Mexican markets, U.S. exports may face increased competition. These noncompliant parts may be less expensive, and U.S. exports would not benefit from the mitigation of the NTR duty that these noncompliant parts would face within the U.S. market.

## Canadian Market

The United States remains Canada's top source for imports of vehicle parts. The U.S. share of Canada's imports of vehicle parts increased from 61.9 percent in 2019 to 64.4 percent in 2024 (figure 4.13). Canada's imports of U.S. vehicle parts remained relatively unchanged, increasing only slightly from $23.5 billion in 2019 to $23.8 billion in 2024.[369] After a slight decline in the U.S. import share through 2021, which could have been caused by COVID-19 pandemic disruptions, the U.S. share of Canada's parts

[365] See figure 4.7.

[366] S&P Global, GTAS database, HS subheadings that are exclusively or primarily vehicle parts as defined in appendix F, table F.5, accessed February 26, 2025.

[367] S&P Global, GTAS database, HS subheadings that are exclusively or primarily vehicle parts as defined in appendix F, table F.5, accessed February 26, 2025.

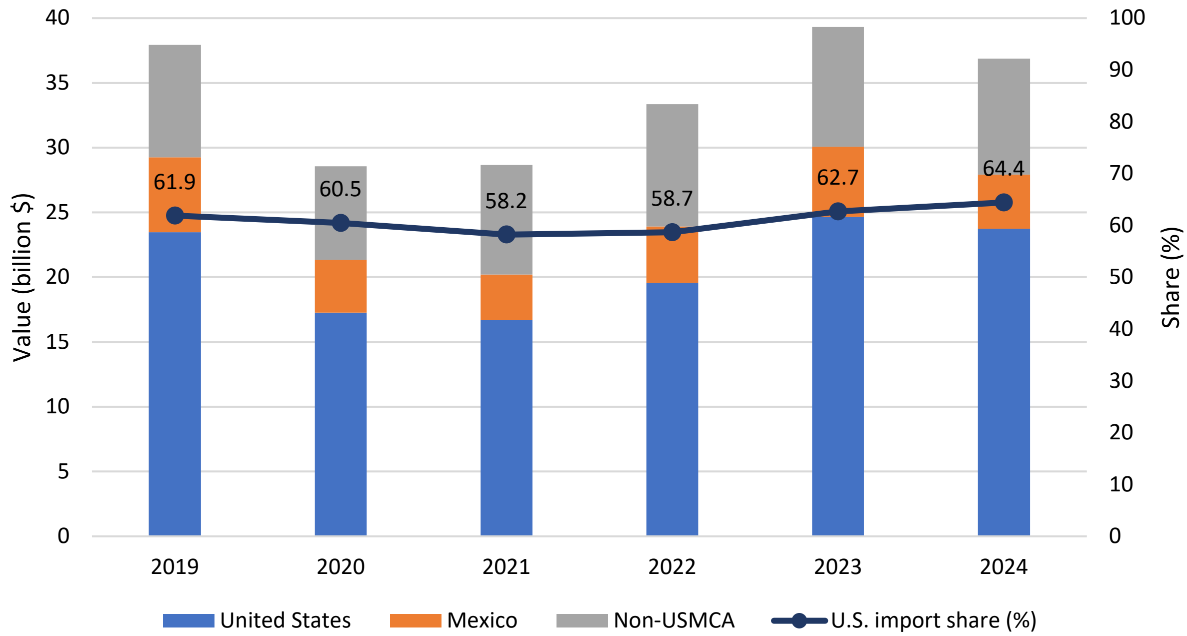
[368] S&P Global, GTAS database, HS subheadings that are exclusively or primarily vehicle parts as defined in appendix F, table F.5, accessed February 26, 2025.

[369] S&P Global, GTAS database, HS subheadings for which a majority of imports under most of the corresponding HTS statistical reporting numbers are specifically automotive related as defined in appendix F, table F.5, accessed February 26, 2025.

imports returned to 2019 levels by 2023. One Commission hearing participant indicated that the ROOs have improved the competitiveness of U.S. parts within Canada, with nearly 50 percent of the value of Canadian-produced vehicles being U.S.-sourced content.[370]

**Figure 4.13** Canada's imports of motor vehicle parts, by source, and U.S. import share, 2019–24

In billions of dollars and percentages. Underlying data for this figure can be found in appendix J, table J.15.




Source: S&P Global, GTAS database, accessed February 26, 2025.
Note: HS subheadings for vehicle parts are defined in appendix F, table F.5, which constitute HS subheadings for which a majority of imports under the corresponding HTS statistical reporting numbers are specifically automotive related.

In terms of the composition of U.S. exports to Canada, U.S. exports of engines and parts and exports of electrical and electric components have increased while U.S. exports of bodies and parts and exports of chassis and drivetrain parts have decreased. U.S. exports of electrical and electric components to Canada increased by 31 percent between 2019 and 2024 from $2.8 billion to $3.7 billion. Within this category, lithium-ion batteries saw an increase of 890 percent from $90 million to $890 million, the highest within the category. U.S. exports of engines and related parts increased by 22 percent, from $5.3 billion in 2019 to $6.4 billion in 2024. U.S. exports of chassis and drivetrain parts and exports of bodies and parts to Canada decreased between 2019 and 2024 by 15 percent and 18 percent, respectively.[371]

## Mexican Market

The United States is Mexico's top source for parts imports, though the U.S. share of Mexico's imports of vehicle parts has decreased since entry into force. Mexico's imports of U.S. vehicle parts have increased 17 percent since entry into force, from $27.1 billion in 2019 to $31.6 billion in 2024. Despite this

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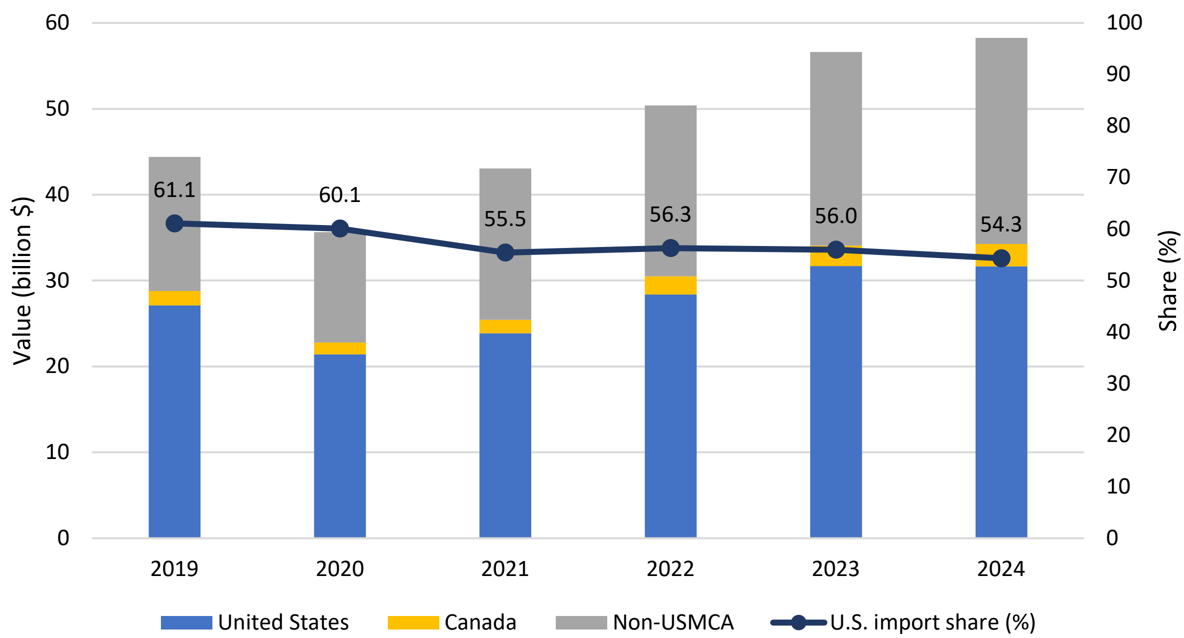
[370] USITC, hearing transcript, October 8, 2024, 33 (testimony of David Adams, GAC).

[371] U.S. exports of vehicle bodies and parts decreased from $6.1 billion in 2019 to $4.3 billion in 2024. U.S. exports of chassis and drivetrain parts decreased by $7.2 billion to $5.7 billion. USITC DataWeb/Census, domestic exports for Schedule B statistical codes for vehicle parts as defined in appendix F, table F.4, accessed February 5, 2025.

increase, the U.S. share of Mexico's imports of vehicle parts declined from 61.1 percent in 2019 to 54.3 percent in 2024 (figure 4.14). At the same time, the share of Mexico's imports from non-USMCA countries increased from 35.2 percent in 2019 to 41.2 percent in 2024. The decrease in U.S. share suggests a slight decline in U.S. competitiveness compared to non-USMCA countries in Mexico's vehicle parts market.

**Figure 4.14** Mexico's imports of motor vehicle parts, by source, and U.S. import share, 2019–24

In billions of dollars and percentages. Underlying data for this figure can be found in appendix J, table J.16.




Source: S&P Global, GTAS, accessed March 4, 2025.
Note: HS subheadings for vehicle parts are defined in appendix F, table F.5, which constitute HS subheadings for which a majority of imports under the corresponding HTS statistical reporting numbers are specifically automotive related.

In terms of the composition of U.S. exports to Mexico, U.S. exports of engines and related parts to Mexico have seen a 16 percent decrease overall, while U.S. exports of smaller spark ignition engines have seen a significant increase. In 2019, the United States exported $23.2 million worth of 1 liter to 2 liter spark ignition engines to Mexico compared to $504.8 million in 2023, though the value decreased to $226.2 million in 2024.[372] The increase could have been due to the consolidation of North American engine production since entry into force.[373] This consolidation may have benefited the United States more than Mexico because information on factory locations indicates that the reduction in engine production in the United States was small compared to that in Mexico.[374] U.S. exports of bodies and

[372] USITC DataWeb/Census, domestic exports for Schedule B statistical codes for vehicle parts as defined in appendix F, table F.4, accessed February 5, 2025. Spark-ignition engines of a cylinder capacity exceeding 1,000 cc but not exceeding 2,000 cc are exported under Schedule B statistical code 8407.34.2030. 1 liter equals 1,000 cc.

[373] Klier and Rubenstein, "De-ICEing and the Geography of Engine Sourcing in North America," February 6, 2025.

[374] *Automotive World*, "Global Vehicle Engine Plant Database–2024 Edition," May 23, 2024; "Global Vehicle Engine Plant Database–2023 Edition," May 25, 2023; "Global Vehicle Engine Plant Database–2022 Edition," May 26, 2022; "Global Vehicle Engine Plant Database–2021 Edition," May 27, 2021.

related parts to Mexico also decreased between 2019 and 2024 by 21.3 percent. U.S. exports of automotive tires and tubes to Mexico increased by 6.2 percent between 2019 and 2024.[375]

# U.S. Competitiveness in Non-USMCA Markets

This section analyzes the competitiveness of U.S. producers within non-USMCA markets and finds no significant change in competitiveness of U.S. vehicles or U.S. parts since entry into force based on trade and global production data. Within non-USMCA markets, competitiveness is examined from both the standpoint of U.S. vehicle producers and U.S. parts producers. Although the U.S. share of global exports to non-USMCA markets has decreased for light vehicles, the U.S. share of global exports to non-USMCA countries has remained largely unchanged for vehicle parts.

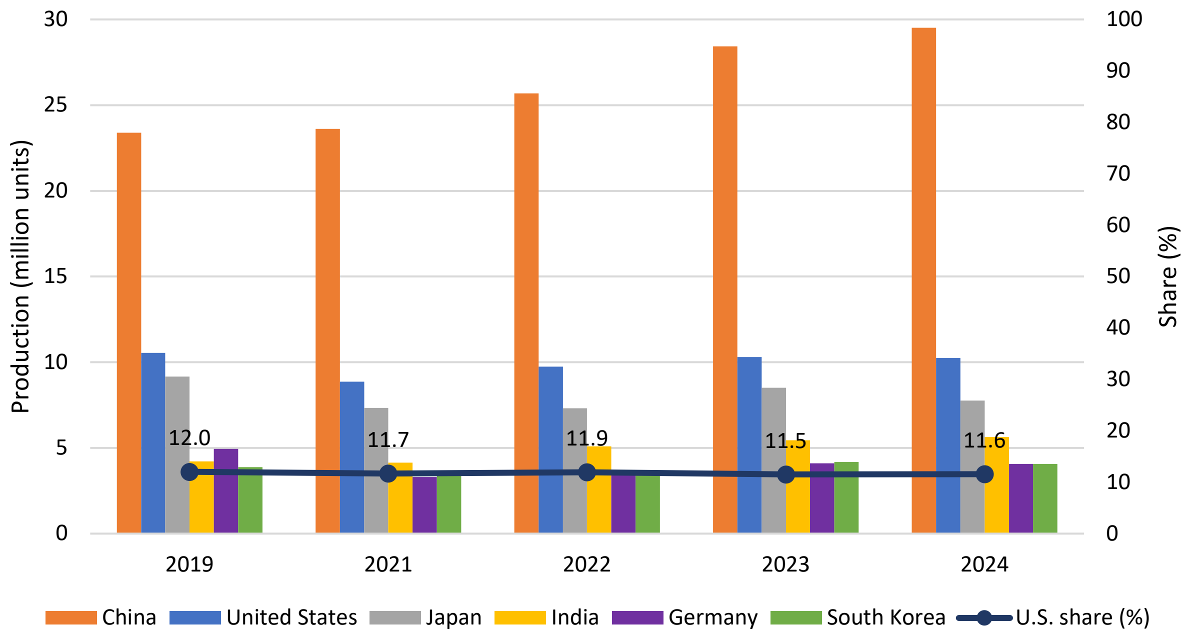
## U.S. Motor Vehicles in Non-USMCA Markets

The United States remains one of the top global vehicle-producing countries. The United States has ranked second in global production of light vehicles every year since 2019. Additionally, U.S. production remained relatively constant over that period, decreasing from 10.5 million in 2019 to 10.2 million in 2024 (figure 4.15).[376] Similarly, the U.S. share of global car and light commercial vehicle production remained relatively constant, changing slightly from 12.0 percent in 2019 to 11.6 percent in 2024. This suggests that the competitiveness of producing vehicles in the United States vis-à-vis other countries has remained relatively unchanged since 2019.

[375] USITC DataWeb/Census, domestic exports for Schedule B statistical codes for vehicles as defined in appendix F, table F.4, accessed February 5, 2025.
[376] The slight reduction in production is consistent with Commission modeling that estimates light vehicle production decreased by 15,037 vehicles, indicating that the overall reduction is only minimally attributable to the ROOs. See chapter 3, table 3.9 for more information.

**Figure 4.15** Top 6 light vehicle producers, by country, and U.S. share of global production, 2019–24

In millions of units and percentages. Underlying data for this figure can be found in appendix J, table J.17.




Source: International Organization of Motor Vehicle Manufacturers (OICA), World motor vehicle production by country/region, accessed May 31, 2025.

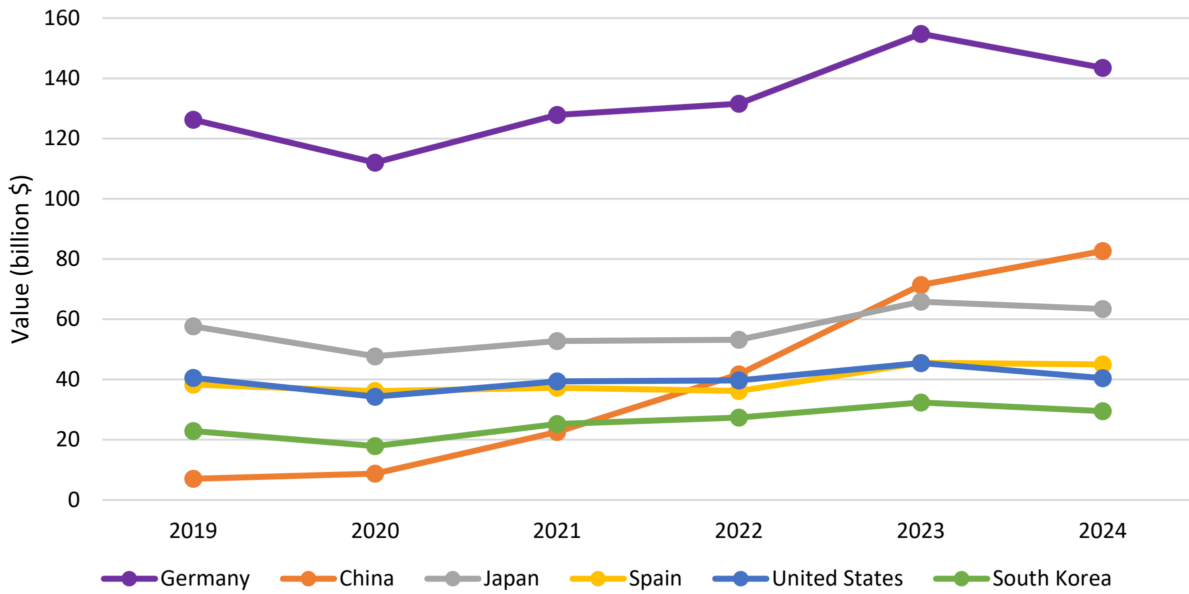
Note: Data were unavailable for 2020. Aggregate production is cars + light commercial vehicles. Many countries do not publicly report their production of light commercial vehicles to OICA. Due to data availability, the U.S. share may be overstated. When looking at only cars, the U.S. ranks 8th, instead of 2nd.

Similar to production, the value of U.S. light vehicle exports to non-USMCA countries remained relatively constant since entry into force of the USMCA. In 2024, U.S. exports to non-USMCA markets totaled $40.4 billion, nearly identical to the $40.5 billion total of 2019 (figure 4.16).[377] However, the United States dropped from being the third-largest global exporter to non-USMCA markets to the fifth largest during this time, a decrease in the U.S. share from 6.4 percent to 5.6 percent, falling behind China and Spain.

[377] U.S. exports to non-USMCA markets increased to $45.5 billion in 2023, before returning to levels in line with recent years in 2024.

**Figure 4.16** Global light vehicle exports to non-USMCA countries, by selected countries, 2019–24

In billions of dollars. Underlying data for this figure can be found in appendix J, table J.18.




Source: S&P Global, GTAS database, HS subheading 8704.21, 8704.31, and all HS subheadings under 8703, accessed March 4, 2025.
Note: This graph shows exports to destination markets outside the USMCA region by the country of origin. The USMCA region is defined as Canada, Mexico, the United States, and U.S. territories.

# U.S. Motor Vehicle Parts in Non-USMCA Markets

The value of U.S. exports of motor vehicle parts (parts) to non-USMCA countries changed little since entry into force. The value remained relatively constant, changing from $22.0 billion in 2019 (26 percent of U.S. parts exports) to $21.7 billion in 2024 (25 percent of U.S. parts exports).[378] The U.S. share of global parts exports to non-USMCA countries also remained relatively constant, about 4 percent. The United States was consistently the eighth-largest vehicle parts exporter to non-USMCA markets between 2019 and 2024.[379] This consistency in share and export rankings could indicate that U.S. competitiveness in non-USMCA markets has not been affected.

Chassis and drivetrain parts composed the largest proportion of U.S. exports to non-USMCA countries by value between 2019 and 2024, but electrical and electric components experienced a large increase over the period. U.S. exports of chassis and drivetrain parts have remained somewhat constant at $5.4 billion in 2019 and $5.6 billion in 2024.[380] U.S. exports of electrical and electric components increased by 19 percent over the period from $3.6 billion in 2019 to $4.3 billion in 2024. Over the same period, U.S.

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[378] S&P Global, GTAS database, HS subheadings for vehicle parts, accessed February 24, 2025. HS subheadings for vehicle parts are defined in appendix F, table F.5.
[379] The United States ranked eighth for global exports to non-USMCA countries in 2024 behind Germany, China, Poland, Czechia, Japan, Italy, and France.
[380] USITC DataWeb/Census, Domestic Exports for Schedule B statistical reporting numbers related to automotive parts as outlined in appendix F, table F.4, accessed March 4, 2025. Classifications for automotive parts categories are derived from the USDOC Automotive Parts List.

exports of automotive bodies and parts, automotive tires and tubes, and engines and parts decreased by 15 percent, 17 percent, and 6 percent, respectively.

# Competitiveness of U.S. Automotive Labor

This section covers the competitiveness of U.S. labor since entry into force of the USMCA. Among other things, the ROOs introduced a Labor Value Content (LVC) requirement that 40 percent or 45 percent of content be produced by high-wage labor for the vehicles produced to be eligible for duty-free treatment.[381] Industry representatives anticipated that this would encourage the use of Canadian or U.S. automotive labor, because average wages in Mexico remain below this level.[382] This section analyzes the competitiveness of U.S. labor, or signs that U.S. labor is in demand by vehicle and parts manufacturers, under the ROOs.

Since USMCA entry into force, U.S. automotive employment has increased, outperforming global growth in the industry. The investments in the automotive industry discussed earlier in this chapter have supported job creation within the industry. Although automotive wages have increased in nominal terms, they have remained somewhat flat in real terms.

## U.S. Automotive Manufacturing Employment

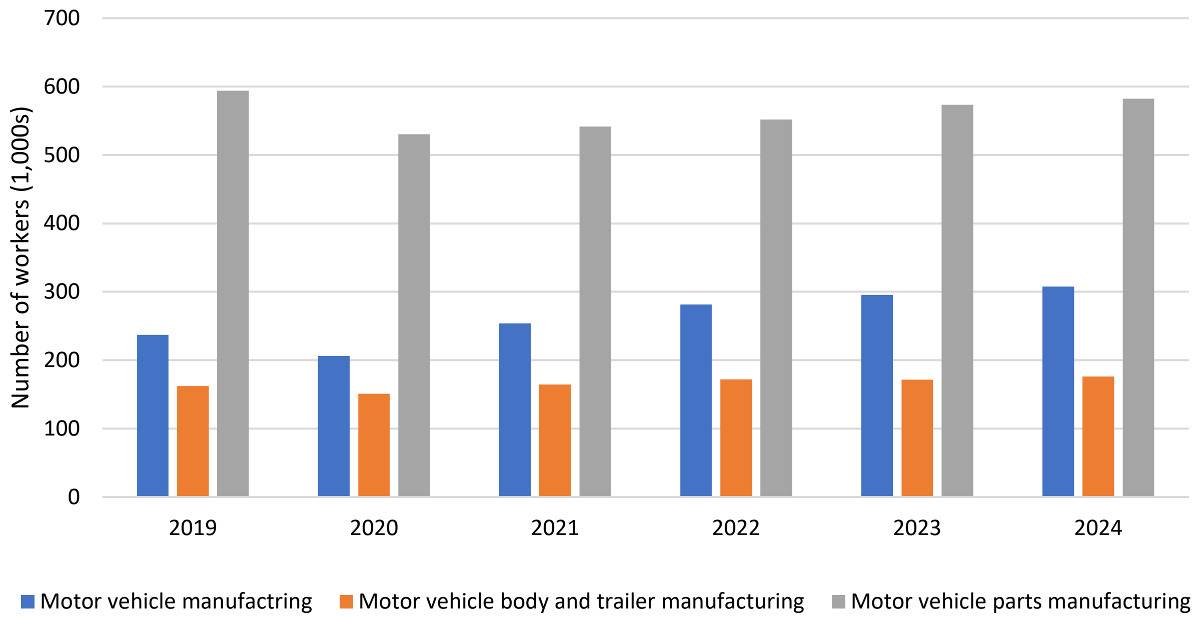
The U.S. automotive industry employed over 1 million people as of 2024, a majority of whom were in vehicle parts manufacturing (54.3 percent) and almost one-third of whom were in motor vehicle manufacturing (29.6 percent) (figure 4.17). Since 2019, overall automotive employment increased by 2.5 percent. However, the Commission's modeling estimates that the net employment effect of the ROOs across vehicle and parts production was an increase of 0.5 percent, suggesting that the overall increase was largely attributable to other factors.[383] Most of this increase in overall industry employment occurred in production and nonsupervisory employment. Employment in motor vehicle manufacturing increased by 27.3 percent from 2019 to 2024, but the Commission's modeling estimates suggest that this is likely due to factors other than the ROOs as well.[384] Employment in motor vehicle body and trailer

[381] The ROOs define facilities as "high-wage" if the labor employed in those facilities is paid an average of $16 per hour or more. For more information on the LVC requirement, see chapter 2.
[382] Although there are a few instances of automotive manufacturing facilitates in Mexico raising their wages to meet the $16 per hour requirement, this is not indicative of the entire industry. USITC, hearing transcript, October 8, 2024, 77 (testimony of Rory Heslington, Autos Drive); USITC, hearing transcript, October 8, 2024, 78 (testimony of David Adams, GAC); USITC, hearing transcript, October 8, 2024, 78 & 95 (testimony of Anna Schneider, VW); USITC, *USMCA Automotive Rules of Origin, 2023 Report*, July 2023, 70.
[383] See chapter 3, table 3.5 for the estimated impact on employment in the U.S. automotive industry. The actual effect of the ROOs including effects not measured by the modeling are unlikely to be sufficiently large to change the finding that the overall increase in employment was largely attributable to other factors.
[384] Commission modeling estimates that vehicle manufacturing employment would have been even higher absent the ROOs. See chapter 3, table 3.5 for the estimated impact of the ROOs on employment in the U.S. automotive industry.

manufacturing remained roughly the same from 2019 to 2024. Employment in vehicle parts manufacturing declined during the COVID-19 pandemic and has been rebounding.[385]

**Figure 4.17** Automotive employment in the United States, by segment, 2019–24

In thousands of workers. Underlying data for this figure can be found in appendix J, table J.19.




Source: USDOL, BLS, Current Employment Statistics for NAICS codes 3361, 3362, and 3363, accessed February 11, 2025.
Note: North American Industry Classification System (NAICS) code 3361 refers to vehicle manufacturing, code 3362 refers to body and chassis manufacturing, and code 3363 refers to vehicle parts manufacturing. Core parts under the United States-Mexico-Canada Agreement include body and chassis, which would be included in body and trailer manufacturing in the NAICS; vehicle parts manufacturing refers to other vehicle parts. Employment includes supervisory and nonsupervisory workers.

Growth in automotive employment has outpaced global averages. The compound annual growth rates from 2019 to 2024 for employment in light vehicle manufacturing (1.6 percent) and for vehicle parts manufacturing (−0.9 percent) in the United States outperformed the global annual average rates in industry employment (0.0 and −1.9 percent, respectively).[386] Growth in the industry is constrained by the availability of workers skilled in the technical aspects of manufacturing.[387] Industry representatives have highlighted the importance of technicians and skilled trades within the industry. Industry

[385] Despite employment still being slightly below 2019 levels, evidence from the modeling analysis suggests that the ROOs have had a positive impact on employment in parts manufacturing, with an estimated increase of 5,387 workers. See chapter 3, table 3.5 for the estimated impact on employment in the U.S. automotive industry.
[386] Jozkowski, *Global Car & Automobile Manufacturing*, March 2024, 16; *Automobile Light Duty Motor Vehicle Manufacturing in the US*, September 2024, 16; *Global Auto Parts and Accessory Manufacturing*, September 2024, 6; *Auto Parts Manufacturing in the U.S.*, November 2024, 17.
[387] For more information about labor supply constraints, see chapter 2.

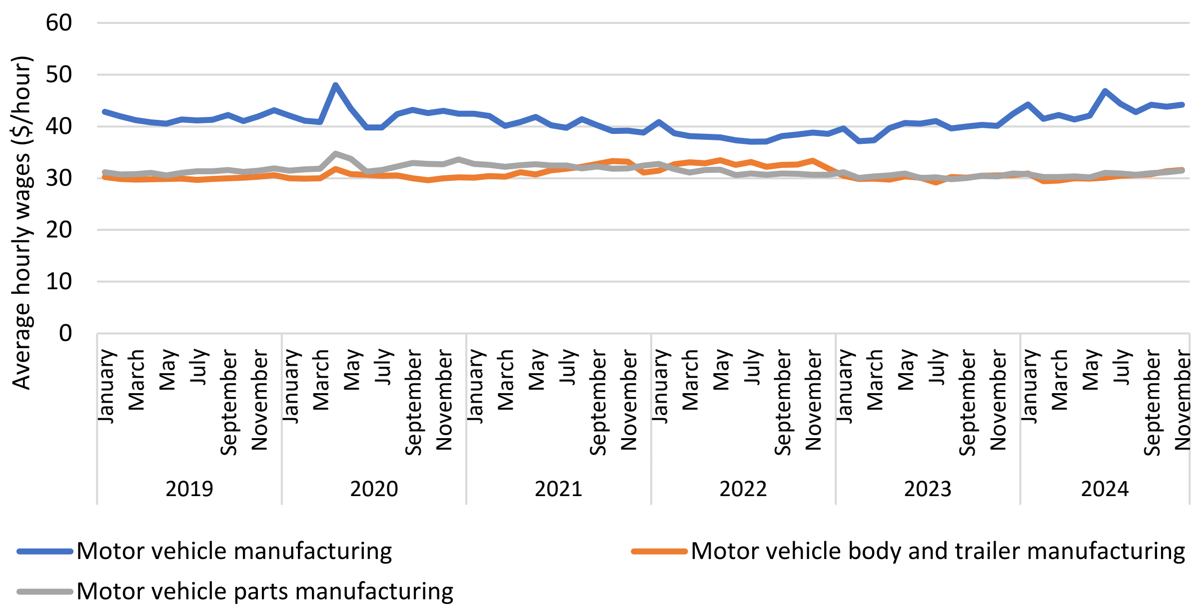
representatives have also noted that they are facing challenges with developing the necessary skills in the available workforce and attracting a new generation of workers to automotive manufacturing jobs.[388]

# U.S. Automotive Manufacturing Wages

Wages have increased for all automotive manufacturing market segments in the United States. Hourly earnings for vehicle manufacturing employees (production and nonsupervisory) increased by 27 percent between 2019 and 2024. Parts and body manufacturers' wages increased by 21.4 percent and 24.5 percent, respectively. Wages also increased in real (adjusted for inflation) terms for all types of automotive manufacturing (figure 4.18). Vehicle manufacturing hourly wages increased by 4 percent in real terms from 2019 to 2024. Body and parts manufacturing hourly wages increased by 1 percent and 7 percent, respectively.[389] One industry representative noted that wage increases have led to a decrease in overall industry competitiveness relative to producers in other countries—especially outside the USMCA region—that are not experiencing wage increases.[390] The increased wages have reportedly shrunk their margins and, in some cases, have forced companies to stop production because they were operating at a loss.

**Figure 4.18** U.S. automotive wages for all employees, by market segment, January 2019–November 2024

In December 2024 inflation-adjusted dollars per hour. Underlying data for this figure can be found in appendix J, table J.20.




Sources: USDOL, BLS, Current Employment Statistics, Average hourly earnings, accessed February 11, 2025; USDOL, BLS, Consumer Price Index for All Urban Consumers, accessed February 11, 2025.
Note: U.S. automotive wages have been adjusted for inflation using the consumer price index.

[388] U.S. industry representative, interview by USITC staff, September 11, 2024; U.S. industry representative, interview by USITC staff, September 17, 2024.
[389] Percent change in real hourly wage is based on data from January 2019 to November 2024.
[390] Industry representative interview by USITC staff, September 10, 2024.

However, the extent to which increases in U.S. automotive manufacturing wages have decreased U.S. competitiveness relative to Mexico is limited, as Mexican wages have likewise increased. For vehicle manufacturing, wages in Mexico increased by 36 percent in real terms. Body manufacturing and parts manufacturing wages increased by 96 percent and 85 percent in real terms, respectively.[391] The increase appears to have largely occurred following entry into force, suggesting the ROOs may have incentivized some increase of average wages in Mexico, though the increase may also have been related to a number of other factors including the USMCA Rapid Response Labor Mechanism.[392] One hearing participant indicated that vehicle manufacturers increased their profit margins by using low-wage Mexican labor, who earned roughly a tenth of what American autoworkers earn.[393] To the extent that low wages in Mexico historically represented cost savings compared to labor costs in the United States, these increases in Mexican wages increase the relative competitiveness of U.S. labor. However, despite these increases in recent years, the average automotive wages in Mexico remain significantly below the LVC requirements in the USMCA or average automotive wages in the United States. The average hourly wage of automotive workers in Mexico in 2024 was $5.66, compared to $30.86 in the United States.[394]

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[391] Vehicle manufacturing is classified under NAICS code 3361, body manufacturing is classified under NAICS 3362, and parts manufacturing is classified under NAICS code 3363. Hourly wage is calculated by dividing salaries paid to workers and production technicians (J114A) by hours worked by workers and production technicians (H114D). Hourly wage is then converted from pesos to U.S. dollars and adjusted for inflation. Percent change in real hourly wage is based on data from 2018 to September 2024. Government of Mexico, INEGI, “Encuesta Mensual de la Industria Manufacturera (EMIM) (Monthly Survey of the Manufacturing Industry),” February 17, 2025; IMF, “Exchange Rate Report,” accessed January 21, 2025; USDOL, BLS, “Consumer Price Index,” accessed February 11, 2025.

[392] The Rapid Response Labor Mechanism offers a platform through which Mexican workers can have greater agency in their working conditions, including to collectively bargain for higher wages. LeClerq, written submission to the U.S. International Trade Commission in connection with Inv. No. 332-600, *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report*, September 24, 2024, 1. See chapter 2 for more information on the Rapid Response Labor Mechanism.

[393] USITC, hearing transcript, October 8, 2024, 148 (testimony of Jason Wade, UAW).

[394] Wage is the average of hourly wages for workers classified in NAICS 3361, 3362, and 3363. Hourly wage is calculated by dividing salaries paid to workers and production technicians (J114A) by hours worked by workers and production technicians (H114D). Hourly wage is then converted from pesos to U.S. dollars and adjusted for inflation. Government of Mexico, INEGI, “Encuesta Mensual de la Industria Manufacturera (EMIM) (Monthly Survey of the Manufacturing Industry),” February 17, 2025; IMF, “Exchange Rate Report,” accessed January 21, 2025. USDOL, BLS, “CPI Inflation Calculator,” accessed March 18, 2025; USDOL, BLS, Current Employment Statistics, Average hourly earnings, accessed February 11, 2025.

# Productivity of U.S. Automotive Labor

The U.S. automotive industry has experienced a decline in labor productivity since 2019 based on two common productivity measures.[395] Looking at revenue per employee, U.S. vehicle and parts manufacturers saw a decline between 2019 and 2024 (table 4.1). These declines have been greater than the decline in productivity growth globally, suggesting that the United States may be decreasing in competitiveness compared to other vehicle- and parts-producing countries.

Growth in revenue per employee for the automotive industry is projected to improve through 2029, especially for U.S. parts manufacturers. Although growth in U.S. revenue per employee is still below global growth rates, the margin between the two is decreasing, which suggests a positive outlook for the competitiveness of the industry going forward, particularly given the capital investments outlined earlier in the chapter.

**Table 4.11** Automotive industry growth rates for revenue per worker, by manufacturer type and period
In percentages. CAGR = compound annual growth rate.

| Manufacturer type | Revenue per employee CAGR 2019–24 | Projected revenue per employee CAGR 2024–29 |
|---|---|---|
| U.S. light vehicle | −2.1 | −0.1 |
| Global light vehicle | −1.9 | 0.5 |
| U.S. vehicle parts | −1.0 | 0.8 |
| Global vehicle parts | −0.3 | 0.9 |

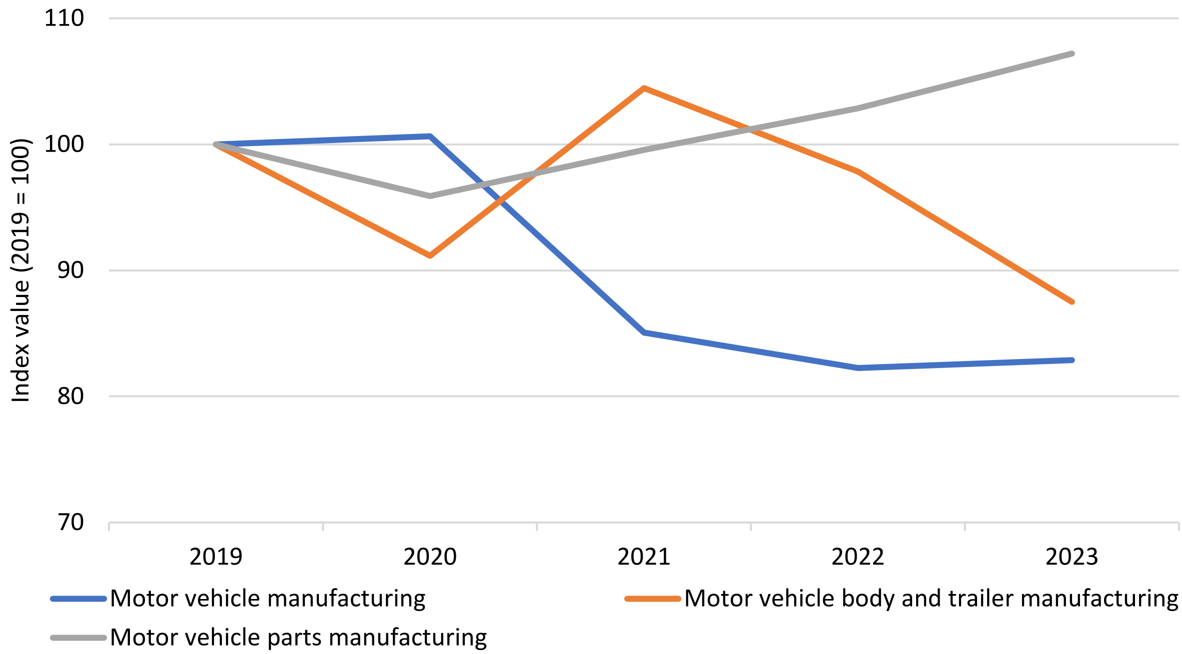
Source: Jozkowski, *Global Car & Automotive Manufacturing*, March 2024, 16; Jozkowski, *Global Auto Parts and Accessory Manufacturing*, September 2024, 6; Jozkowski, *Automobile Light Duty Motor Vehicle Manufacturing in the U.S.*, September 2024, 16; Jozkowski, *Auto Parts Manufacturing in the U.S.*, November 2024, 17.

When measured in terms of output per worker, U.S. motor vehicle manufacturing labor productivity has also declined. Between 2019 and 2023, output per worker in motor vehicle manufacturing declined by 17.1 percent (figure 4.19). Although some of the initial decline can be attributed to disruptions caused by the COVID-19 pandemic, output per worker for motor vehicle manufacturing has yet to rebound to 2019 levels. Similarly, the productivity of workers in body and trailer manufacturing declined 12.5 percent from 2019 to 2023. The output per worker of motor vehicle parts manufacturing, however, improved 7.2 percent over the same period.

[395] The two metrics used are revenue per employee as calculated in an IBISWorld Industry Report and output per worker, as calculated by the U.S. Bureau of Labor Statistics (BLS). Revenue per employee is calculated as industry revenue divided by employment in the industry. Output per worker is defined as sectoral output, or deliveries to consumers outside the sector, divided by employment in the sector. More information on the BLS calculation for output per worker and the data sources used in the calculation can be found at: https://www.bls.gov/opub/hom/msp/home.htm. USDOL, BLS, "Handbook of Methods: Productivity Measures," September 23, 2020.

**Figure 4.19** Output per worker in the U.S. automotive industry, by industry segment, 2019–23

In index values (2019 = 100.0). Underlying data for this figure can be found in appendix J, table J.21.




Source: USDOL, BLS, OPT, accessed November 7, 2024.
Note: Data for this figure was reindexed to 2019 from 2017, which is how BLS originally releases the data.

# Labor Impact of Investment in U.S. Automotive Industry

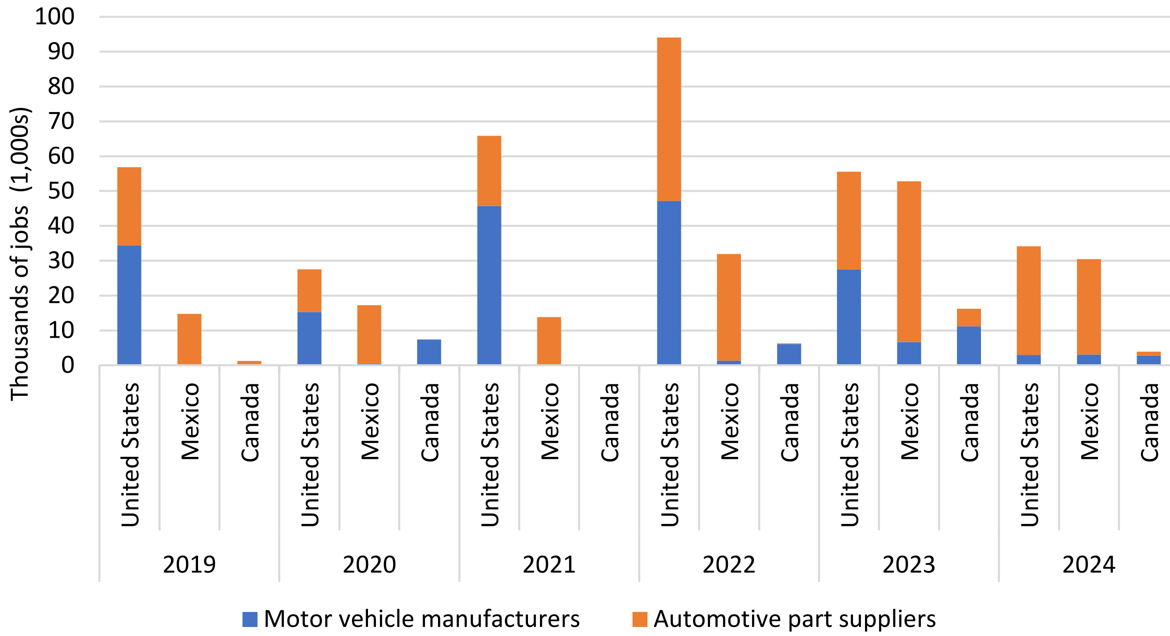
Employment in the U.S. automotive industry is expected to continue to grow in future years. Some industry projections show employment in U.S. light vehicle manufacturing industry growing by 1.7 percent from 2024 to 2029, on par with global growth.[396] Similarly, the U.S. vehicle parts industry is expected to grow by 1.6 percent over the same period.[397]

As covered earlier in this chapter, the USMCA—along with other factors—has incentivized investment in North American automotive manufacturing. Since 2021, (the first full year where the USMCA was in effect), announced investments in U.S. automotive manufacturing were associated with the retention and creation of a combined 249,549 U.S. jobs, 49 percent of which are for vehicle manufacturing and 51 percent for parts manufacturing, according to the Center for Automotive Research (figure 4.20).

[396] Jozkowski, *Automobile Light Duty Motor Vehicle Manufacturing in the US*, September 2024, 16; *Global Car & Automobile Manufacturing*, March 2024, 16.
[397] Jozkowski, *Auto Parts Manufacturing in the U.S.*, November 2024, 17.

**Figure 4.20** New and retained jobs associated with automotive investment, by segment and country, 2019–24

In thousands of jobs. Underlying data for this figure can be found in appendix J, table J.22.




Source: CAR, Automotive Communities Partnership, accessed January 14, 2025.
Note: The figures represent reported new and retained jobs associated with announced investments. Classification of a job as new or retained is determined by how the job is characterized in the announcement. New jobs are jobs that are created due to the investment, while retained jobs are jobs that would have been eliminated without the announced investment.

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# Chapter 5
# Relevancy of the ROOs in Light of Technological Change and Classification of New Technologies

## Introduction

This chapter describes technological changes occurring in the U.S. automotive industry since entry into force of the United States-Mexico-Canada Agreement (USMCA) on July 1, 2020, and examines the impact of those changes on the relevancy of the USMCA automotive rules of origin (ROOs). For the purposes of this report, "relevancy" refers to the application of the ROOs to the automotive industry in light of technological changes that have occurred, or are in the process of occurring, since enactment of the USMCA.[398] The technological changes examined include new technologies, technological advancements, and new production processes. Because the ROOs are often drafted with certain assumptions about a specific supply chain, a new technology or manufacturing process may result in diverging treatment of similar products under the ROOs, which may affect the ROOs' relevancy. For example, a new technology or parts made with a new manufacturing process may have ROOs that are more restrictive or less restrictive than those made with the old manufacturing process. The overall impact of technological changes has increased in scope in recent years but is still limited to a small percentage of vehicles. Impacts may be more significant in future years, as advances in technology occur. Future reports will continue to examine technological changes and relevancy of the ROOs.

This chapter has three main sections. The first section uses statements from the hearing the U.S. International Trade Commission (USITC or Commission) held on October 8, 2024, and results of the Commission's survey to convey stakeholders' views of the relevancy of the ROOs. The second section describes instances in which technological changes have created divergences in tariff classification or treatment of similar products in the ROOs. The third section discusses other ongoing technological changes that may affect the relevancy of the ROOs in future reports.

## Key Findings

- Technological change leads to divergences between tariff classifications and the ROOs. Divergences between tariff classifications and the ROOs tend to occur when technology and the *Harmonized Commodity Description and Coding System* (HS) change but the ROOs remain static.

[398] Section 202A(g)(2)(C) of the USMCA Implementation Act (the Act) directs the Commission in its report to examine "whether the automotive rules of origin are relevant in light of technological changes in the United States." USMCA Implementation Act, 19 U.S.C. § 4532(g)(2)(C) (2020). Although the Act does not define "relevant," the definition above is consistent with that adopted in the Commission's first report, *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*. USITC, *USMCA Automotive Rules of Origin, 2023 Report*, July 2023, 87.

- Technological changes have affected only a small percentage of vehicles. The majority of U.S. motor vehicle producers indicate the ROOs continue to be relevant to their vehicles, and most of the technological changes included in this chapter affect only a small percentage of vehicles in the United States.[399]
- More technological changes are likely over time. This chapter examines two technological changes and two technological trends that may affect the relevancy of the ROOs that were not covered by the Commission's 2023 report.
- Increased electric vehicle (EV) sales may affect relevancy. [400] Many of the technological changes examined in this chapter are related to electric vehicles, particularly battery-electric vehicles (BEVs). The importance of many of these relevancy issues may increase as EVs in general—and BEVs specifically—gain market share.

# Industry Views on the Relevancy of the USMCA Automotive ROOs

This section summarizes public input provided on the continued relevancy of the ROOs. This input is drawn from the Commission's survey results; the Commission's October 8, 2024 hearing; written submissions; and public input to the Office of the U.S. Trade Representative's (USTR's) 2024 *Report to Congress on the Operation of the United States-Mexico-Canada Agreement with Respect to Automotive Goods* (USTR's 2024 report).[401] The Commission did not attempt to assess, analyze, or draw conclusions from the industry views provided in this section.[402]

A number of industry stakeholders focused on the relevancy of the ROOs parts lists in light of the shift to EVs; some indicated that the ROOs were already responsive to technological developments. For example, Volkswagen Group of America, Inc. (Volkswagen) and Ford Motor Company (Ford) indicated the ROOs were negotiated and written with the transition to EVs in mind.[403] The American Automotive Policy

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[399] U.S. motor vehicle producers refer to motor vehicle manufacturers with production operations in the United States.

[400] This chapter uses the phrase "electric vehicle" or "EV" to encompass battery-electric vehicles (BEVs) and hybrids. This phrase may be used when describing parts that can be used in BEVs and hybrids, or when the source did not clearly distinguish. When the discussion refers solely to vehicles without an internal combustion engine, this section uses "battery-electric vehicle" or "BEV," even if the language differs from the original source.

[401] The Commission's hearing included testimony from 16 participants, representing automobile manufacturers, trade associations, and labor organizations. The Commission also received 7 prehearing briefs, 4 posthearing briefs, and 12 other written submissions. This section also includes input provided in conjunction to USTR's 2024 report, including witness testimony provided during USTR's February 7, 2024, public hearing and public submissions. USTR, *Report to Congress on USMCA Trade in Automotive Goods*, July 1, 2024. See appendixes G and H of this report for a description of the Commission's survey methodology and a copy of the Commission's questionnaire (*The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire),* respectively.

[402] This section consists of information compiled by the USITC to discuss the varying industry views on the relevancy of the ROOs. Appendix D contains unedited versions of the optional 500-word written summaries provided on the record by some participants in this investigation.

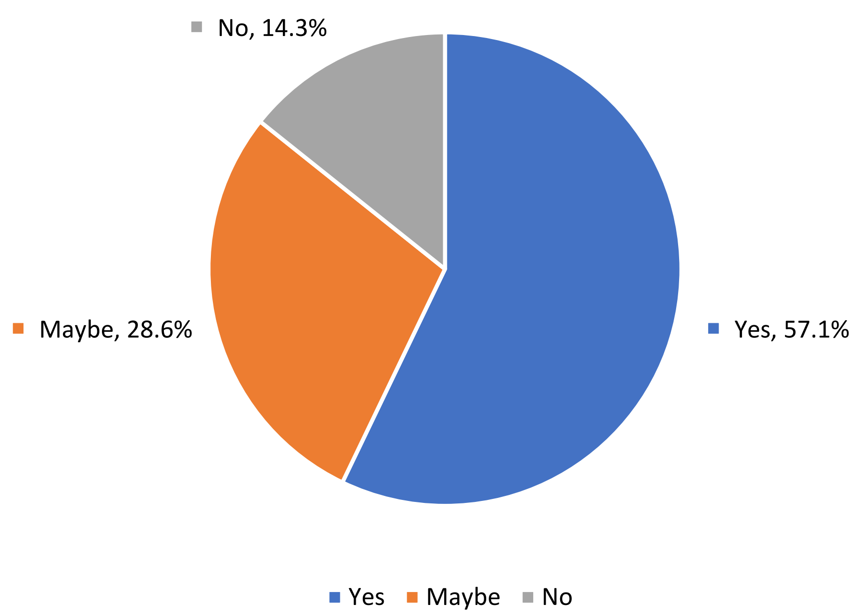
[403] USITC, hearing transcript, October 8, 2024, 43 (testimony of Anna Schneider, VW); Ford, written submission to the USITC, November 18, 2024, 7.

Council (AAPC) also wrote in its submission to the Commission that EV parts had already been considered and were incorporated into the ROOs.[404]

Additionally, according to firms' responses to the Commission survey, 57.1 percent of motor vehicle producers view the USMCA motor vehicle parts lists as still relevant in light of the shift to EVs.[405] By comparison, 14.3 percent indicated they are no longer relevant (figure 5.1). Although most motor vehicle producers indicated that the ROOs continue to be relevant, several indicated that some of the ROOs may be less—or no longer—relevant in the future. In particular, several producers pointed to the increased use of nontraditional automotive components—such as e-axles, semiconductors, cameras, and touchscreens—and the development of new technologies, such as advanced batteries, that may not have been considered in the ROOs.[406]

**Figure 5.1** Motor vehicle manufacturers' responses to whether the USMCA motor vehicle parts lists are still maintaining relevancy in light of industry shifts

In percentages. Underlying data for this figure can be found in appendix J, table J.23.




Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.a.
Note: The USMCA motor vehicle parts lists include the core, principal, and complementary lists. Industry shifts refer to the shift to EVs, as well as any other industry shifts since the USMCA entry into force.

[404] AAPC, written submission to the USITC, November 18, 2024, 4.
[405] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.a.
[406] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.b.

When asked about the effect of the shift to EVs on the continued relevancy of the ROOs, however, over 80 percent of motor vehicle producers indicated it was impactful.[407] In particular, more than half of motor vehicle producers raised concerns about the cost or availability of lithium-ion batteries produced in USMCA countries. Lithium-ion batteries are included in the core parts list for passenger vehicles and light trucks, as well as in the complementary parts list for heavy trucks.[408] Several producers expressed concern about the impact that the cost or lack of availability of lithium-ion batteries produced in USMCA countries would have on a firm's ability to produce EVs that meet the ROOs.[409] This concern was also included in USTR's 2024 report.[410] Several BEV manufacturers indicated that, although lithium-ion battery production investment is coming online in USMCA countries, currently firms are unable to meet the ROOs because of a lack of availability of batteries and battery inputs produced in the USMCA countries.[411]

Other industry representatives stated that the transition to BEVs may require the ROOs to be adjusted. The Aluminum Extruders Council and Century Aluminum Company suggested the list of vehicle parts in Table A.2 of the USMCA Automotive Appendix, which lists core parts and their major components, be amended to add additional parts and components relevant to EVs. They also suggested separating Table B (principal parts) into two lists: one for internal combustion engine (ICE) vehicles and one for EVs.[412] Additionally, the American Iron and Steel Institute indicated that, although the USMCA negotiators listed advanced batteries as a core part, the treatment of other automotive components, such as EV traction motors, motor cores, and non-oriented electrical steel, should be reviewed for inclusion before the joint review of the USMCA by all parties in July 2026.[413]

Furthermore, at the USTR hearing in February 2024, a representative from the International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW) suggested adding parts to the core parts list to protect existing U.S. production or to add key BEV, hybrid, and autonomous vehicle technologies that may be produced in the United States in the future.[414] Daimler Truck North America, in its submission to USTR, indicated the ROOs for BEV trucks have limited its goods' ability to qualify for the USMCA and asked the signatories to "develop specific rules applicable to these new product streams that recognize the uniqueness of the bills of materials, available sourcing, costing, and classifications involved."[415]

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[407] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.c.
[408] 19 C.F.R. Appendix A to Part 182, Tables A.1 and E (2020); USMCA Implementation Act, 19 U.S.C. §4532 (b)(4)(B) (2020).
[409] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.d.
[410] USTR, *Report to Congress on USMCA Trade in Automotive Goods*, July 1, 2024, 13.
[411] USTR, *Report to Congress on USMCA Trade in Automotive Goods*, July 1, 2024, 13.
[412] AEC, written submission to the USITC, November 18, 2024, 9–10; Century Aluminum Company, written submission to the USITC, November 18, 2024, 8–9.
[413] See chapter 2 for more information on the 2026 review of the USMCA. USITC, hearing transcript, October 8, 2024, 128 (testimony of Kevin Dempsey, AISI).
[414] USTR, hearing transcript, February 7, 2024, 83 (testimony of Jason Wade, UAW).
[415] DTNA, written submission to USTR, January 17, 2024, 12.

The Commission also asked firms whether the ROOs affect innovation. Nearly 70 percent of motor vehicle producers indicated “not applicable,” meaning the ROOs had no impact on their firms’ innovation, and 27.3 percent noted that the ROOs resulted in a minimal change in innovation.[416] Some producers indicated that the market changes and customer expectations drive innovation, not the ROOs.[417]

Opinions differ on when the USMCA should start to develop ROOs for the components in autonomous vehicles. The UAW recommended adding autonomous technologies to the core parts list to influence the development of a domestic autonomous supply chain.[418] The Alliance for American Manufacturing also urged the inclusion of autonomous vehicles and connected vehicles in the ROOs.[419] The American Automotive Policy Council indicated that, even though autonomous vehicles should be considered in the future, they are still in development and it would be premature to include their components in the ROOs.[420]

At the Commission’s hearing, several industry associations and a vehicle manufacturer also discussed the importance of stability in the ROOs for the automotive industry. Vehicle manufacturers plan multiple years ahead, and they may need years to validate new suppliers.[421] A representative from Autos Drive America indicated additional time is needed to ensure localization of the new technologies because the shift to EVs has led to changes in supply chains.[422] Several associations expressed a desire for stability in the ROOs and—if any changes are to be made—for the industry to be given years to adjust to any such changes.[423]

# Technological Changes and the USMCA Automotive ROOs

This section identifies three technological changes that may be affecting the relevancy of the ROOs, all of which are related to the electrification of the industry. These divergences involve the classification of EV pickup light trucks, differences in certain tariff flexibilities for cast and stamped aluminum vehicle bodies, and the difference in regional value content (RVC) requirements for some e-axles compared to traditional axles. Differing treatment under the ROOs between BEV light trucks and ICE light trucks—and between cast and stamped aluminum body parts—were originally introduced in the Commission’s 2023

[416] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.4.a.
[417] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 3.4.b.
[418] USTR, hearing transcript, February 7, 2024, 83–85 (testimony of Jason Wade, UAW).
[419] AAM, written submission to the USITC, November 18, 2024, 6–7.
[420] AAPC, written submission to the USITC, November 18, 2024, 3–4.
[421] USITC, hearing transcript, October 8, 2024, 72 (testimony of Anna Schneider, VW); USITC, hearing transcript, October 8, 2024, 175–76 (testimony of Kaitlin Wojnar, U. S. Steel); USITC, hearing transcript, October 8, 2024, 14, 19 (testimony of Rory Heslington, Autos Drive America).
[422] USITC, hearing transcript, October 8, 2024, 19 (testimony of Rory Heslington, Autos Drive).
[423] USITC, hearing transcript, October 8, 2024, 14, 19 (testimony of Rory Heslington, Autos Drive); USITC, hearing transcript, October 8, 2024, 35, 37 (testimony of David Adams, GAC); USITC, hearing transcript, October 8, 2024, 71–72 (testimony of Matt Blunt, AAPC).

report and are discussed in this report as well.[424] This report uses Commission questionnaire data and publicly available information to examine the extent to which these technological changes affect the U.S. market. This section introduces a third technological change related to e-axles. The e-axle is a combination of the electric motor and transmission built into the axle, which may face less restrictive ROOs than the parts it replaces.

Technological changes in the automotive industry regularly outpace the frequency of updates to the *Harmonized Commodity Description and Coding System* (HS), which occur every five to six years.[425] A commonly cited criticism of the HS is that the length of its review cycle prevents a nimble adaptation to new technologies entering international commerce.[426] However, updates to ROOs in trade agreements often lag even further behind updates to the HS.[427] For instance, the USMCA automotive ROOs use the 2012 nomenclature even though the HS has been updated during two subsequent review cycles (i.e., 2017 and 2022).[428] If these changes and updates are not reflected in trade agreements, they can lead to divergences that may not have been anticipated when the rules were originally negotiated.

Although the ROOs are generally still relevant, some divergences, such as BEV pickup trucks and work vans being subject to different ROOs than other pickup trucks, have emerged that may reduce their relevancy. These divergences generally affect a relatively small share of U.S. automotive trade, and most vehicle manufacturers continue to view the ROOs as relevant.[429] For example, BEV pickup trucks and work vans made up only 3.3 percent of all U.S. pickup truck and work van sales in 2024.[430] Furthermore, only a small number of vehicle manufacturers reported that the differential treatment between BEV pickup trucks and ICE pickup trucks more than minimally affects the relevancy of the ROOs.[431] The new divergence discussed later in this report also likely has only a relatively small effect on relevancy, though its relevancy may increase as BEV sales increase.

Technological changes may result in diverging treatment of similar products under the ROOs, which may affect the ROOs' relevancy. Such technological changes can be broken up into three types: new technologies, technological advancements, and improvements in manufacturing processes (table 5.1). New technologies and technological advancements tend to be classified in *Harmonized Tariff Schedule of the United States* (HTS) residual subheadings related to the products they are replacing (see appendix

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[424] See USITC, *USMCA Automotive Rules of Origin, 2023 Report,* July 2023, 88–93 for more information.
[425] Since its establishment in 1988, the HS has been amended six times, with the current version entering into force in 2022 and the next version entering into force in 2028.
[426] Ravi, "Semiconductors & the Future of the Harmonized System," May 6, 2019, 7.
[427] Given the length of trade agreement negotiations and trade agreement negotiators' need to choose a fixed period for trade data, it is not uncommon for the ROOs to use prior versions of HS nomenclature. Additionally, any update to existing trade agreement ROOs would require agreement among the members of the trade agreement, as well as adoption of the latest HS nomenclature by all parties to the trade agreement. For instance, Mexico did not fully implement HS 2017 nomenclature until January 2020, which was well after USMCA negotiations began.
[428] WCO, "HS Nomenclature 2012 Edition," accessed April 23, 2025.
[429] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 4.1.5.a.
[430] Wards Intelligence, "U.S. Light Vehicle Sales, December 2024," January 3, 2025.
[431] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 4.1.1.d. Response options were "no impact," "minimal impact," "some impact," or "large impact."

E).[432] Improvements in manufacturing processes that don't affect the classification of a product may still change the supply chain.

**Table 5.1** Three types of technological change and their treatment within the HTS and the USMCA ROOs
HTS = *Harmonized Tariff Schedule of the United States*; ROOs = rules of origin.

| Type | Examples | How the HTS incorporates the technological change | How trade agreements incorporate the technological change |
|---|---|---|---|
| New technologies | Sodium-ion batteries, fuel cells | Often classified in a residual HTS subheading for the type of product until broken out by national or international nomenclature | ROOs covering products in residual HTS subheadings may be different than the ROOs for the new technologies that are classified in a different HTS subheading |
| Technological advancements | Combining electric vehicle motor and transmission into an e-axle | Often classified in a residual HTS subheading for the type of product until broken out by national or international nomenclature | ROOs in residual HTS subheadings may be different than the ROOs for the substitutable products that are classified in a different HTS subheading |
| Improvements in manufacturing process | Gigacasting, battery recycling | No change | ROOs written for an older manufacturing process may differ for a new production process |

Source: Compiled by USITC.

When the ROOs for the residual HTS subheading differ from the product-specific rules of origin (PSROs) for the product that is being replaced or improved, the divergence may affect the relevancy of the ROOs for those parts.[433] The divergences listed below include two examples: BEV light trucks and e-axles. Following HS 2012 nomenclature, BEV light trucks would be classified in a residual HTS subheading that also included heavy trucks, causing BEV light trucks to be defined as heavy trucks and all non-BEV light pickup trucks to be defined as light trucks. Additionally, e-axles, used in many electric vehicles, replace several core and principal parts but have an RVC requirement that is less than the requirement for core parts because e-axles are classified in either a residual subheading for electric motors or other powertrain parts.[434]

[432] For more information on residual subheadings and the amendment process for new HS codes, see appendix E and figure E.3 of this report.
[433] The USMCA provides a list of PSROs in Annex 4-B, 19 C.F.R. Appendix A to Part 182, Article 2.
[434] CBP, CROSS database, "NY Ruling Letter N329048, The Tariff Classification of Electric Motors from Germany," November 16, 2022; CBP, CROSS database, "NY Ruling Letter N329827, The Tariff Classification of an e-Axle from Germany," December 27, 2022; CBP, CROSS database, "NY Ruling Letter N332712, The Tariff Classification of a Carrier Housing Assembly from Germany," May 17, 2023.

# BEV Light Trucks[435]

As discussed in the Commission's 2023 report, the ROOs categorize all BEV trucks as heavy trucks, despite most BEV trucks sold in the United States being what consumers and manufacturers would consider to be light trucks.[436] Classifying BEV trucks in such a way means that the ROOs for a BEV pickup truck are different from those for a comparable ICE pickup truck. Although few vehicle manufacturers currently consider this divergence to have a significant impact on the relevancy of the ROOs,[437] the impact may increase as BEV trucks account for an increasing share of U.S. light truck sales.

This categorization of all BEV trucks as heavy trucks decreases some restrictions but increases others for producers of BEV light trucks. The ROOs for heavy trucks allow for a longer staging period, have an RVC requirement that is 5 percentage points lower, and have no core parts requirement (table 5.2). However, the ROOs for heavy trucks limit principal and complementary parts to qualify via RVC.[438] Light trucks can qualify principal and complementary parts using a change in tariff classification, or a "tariff shift."[439] A tariff shift occurs when the inputs used to produce the part were classified under a different heading—or subheading, depending on the rule—than the final good. Manufacturers may prefer tariff shift rules regardless of their ability to meet an RVC requirement because they are simpler, require less paperwork, and likely lower compliance costs. Light and heavy trucks have the same 40 percent labor value content (LVC) requirement under the ROOs.

[435] This section focuses on BEV pickup trucks because hybrid pickup trucks may not be affected by this divergence. Since the publication of the Commission's 2023 report, which also discussed hybrid pickup trucks in this section, the CBP issued a ruling in February 2024 classifying a hybrid Toyota Tacoma pickup truck as a light truck under the USMCA automotive ROOs. The CBP's ruling was specific to the information provided in Toyota's request for the ruling and should not necessarily classify all hybrid pickup trucks as light pickup trucks. If all hybrid pickup trucks were similarly classified, then the universe of pickup trucks and work vans classified as heavy trucks would be restricted to battery-electric pickup trucks and work vans. CBP, CROSS database, "NY Ruling Letter N337574," February 2, 2024.
[436] "Heavy trucks" are defined in the USMCA automotive ROOs as "a vehicle of subheading 8701.20, 8704.22, 8704.23, 8704.32, 8704.90, or 8706, except for a vehicle that is solely or principally for off-road use." Before HS 2022 was published, subheading 8704.90 provided for "motor vehicles for transport of goods, other than with compression ignition or spark ignition reciprocating piston engine, not elsewhere specified or included." For more information, see USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 1, 4-B-1-1 (2020).
[437] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 4.1.1.d
[438] USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 4.2 and 4.3, 4-B-1-23 (2020); 19 C.F.R. Appendix A to Part 182, §15. See change in cell classification in the next section for an example of how this lack of a tariff shift can make the ROOs more challenging for heavy trucks.
[439] USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 3.4 and 3.5, 4-B-1-20 to 4-B-1-21 (2020); 19 C.F.R. Appendix A to Part 182, §§14 and 16 (2020).

**Table 5.2** Differences between the rules of origin for light trucks and heavy trucks
RVC = regional value content; LVC = labor value content.

| Type | Core parts requirement | Tariff shift for principal and complementary parts | Staging ends | RVC percentage | LVC percentage |
|---|---|---|---|---|---|
| Light trucks | Yes | Yes | 2023 | 75% | 40% |
| Heavy trucks | No | No | 2027 | 70% | 40% |
| Difference for heavy trucks | Increased flexibility to meet RVC and LVC with different parts | All qualifying parts must meet RVC requirements | More years to meet ROOs | Lower RVC | No difference |

Source: USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 3.4, 3.5, 4.2, and 4.3 (2020) or 19 C.F.R. Appendix A to Part 182 §§ 14-15.

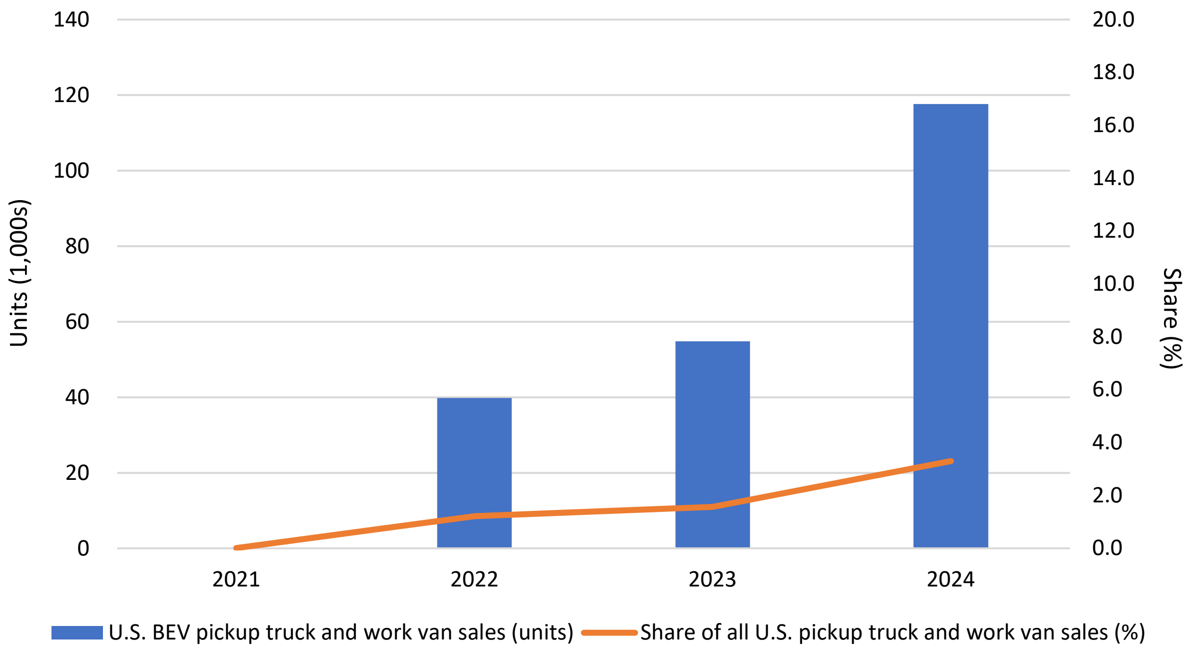
The effect of this divergence on vehicle manufacturers varies by the product mix of the vehicle manufacturer. Among vehicle manufacturers that produce or plan to produce EV light trucks, 60 percent reported that this divergence has minimal impact on the relevancy of the ROOs.[440] Some vehicle manufacturers that produce BEVs noted that the divergence had minimal to some impact.[441] The ROOs also allow producers to average the RVC across engine types, which has minimized the issue for some producers.[442]

BEV light trucks make up a small but increasing share of the U.S. light truck market. U.S. sales of BEV light trucks increased from 332 units in 2021 to over 100,000 in 2024 (figure 5.2). The number of BEV light truck models for sale in the United States increased from four models in 2021 to nine in 2024. More than 20 percent of vehicle manufacturers produce or have plans to produce BEV light trucks.[443] Despite these increases, BEV light trucks make up only 3.3 percent of all U.S. light truck sales.

[440] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 4.1.1.d.
[441] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 4.1.1.d.
[442] 19 C.F.R. Appendix A to Part 182, §16(1) (2020); USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to question 4.1.1.e.
[443] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to questions 4.1.1.a and 4.1.1.b.

**Figure 5.2** U.S. BEV light truck sales, 2021–24

In thousands of units and percentages. BEV = battery-electric vehicle. Underlying data for this figure can be found in appendix J, table J.24.




Sources: Wards Intelligence, "U.S. Light Vehicle Sales, December 2024", accessed January 13, 2025; Wards Intelligence, "U.S. Light Vehicle Sales, December 2023," January 3, 2024; Wards Intelligence, "U.S. Light Vehicle Sales, December 2022," January 4, 2023; Wards Intelligence, "U.S. Light Vehicle Sales, December 2021," January 4, 2022.
Note: BEV pickup trucks and work vans were not sold in the United States until 2021.

# Stamped and Cast Aluminum Parts

The ROOs treat cast and stamped aluminum bodies differently. A stamped aluminum automotive body part can qualify as originating when made with non-originating aluminum ingots, but a cast aluminum body part cannot.[444] The majority of vehicle manufacturers use stamped aluminum bodies, which are made by pressing flat metal sheets into a desired shape then welding them together. In contrast, cast aluminum body parts are made by pressing molten aluminum into a mold to shape the cooling aluminum into the desired body part. Only 18 percent of vehicle manufacturers in the USMCA region use cast aluminum body parts.[445] This divergence, however, is becoming increasingly important as a growing number of vehicle manufacturers consider the use of "megacasted" or "gigacasted" aluminum body parts (collectively referred to as large-casts). At least two participants in this investigation suggested

[444] See USITC, *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, July 2023, 91–93 for more information.
[445] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire,* 2024, responses to 4.1.2.a and 4.1.2.b.

adding a “smelt and cast” provision that would eliminate this divergence by requiring both stamped and cast aluminum parts to use originating aluminum.[446]

Gigacasting is the casting of an entire vehicle body using a giant press (called a “Gigapress”). This process reduces the number of automotive body parts, increasing the strength and reducing the weight and cost of the body.[447] Megacasting is a similar press process that reduces the number of cast body parts down to two.[448] A Gigapress can cover a larger surface area compared to megacasting machines and thus can reduce the number of cast body parts down to one.[449]

As of 2024, two Tesla vehicle models (Model Y and Cybertruck) were the only models produced in the United States with gigacasted aluminum body parts.[450] Consumers purchased more than 300,000 Model Ys and 30,000 Cybertrucks in 2024.[451] According to public reports, however, many vehicle manufacturers plan to use or are considering using large-cast aluminum body parts in future production. General Motors, Honda, Mercedes-Benz, Rivian, Toyota, Volkswagen, and Volvo all reportedly plan to use large-cast aluminum body parts.[452] Ford and Hyundai are reportedly exploring using Gigapresses, and Subaru has also expressed interest.[453]

Starting in 2027, the ROOs will include a “melt and pour” provision that requires steel be melted and poured in a USMCA partner country to be considered originating.[454] Such a provision would eliminate the ability of stamped aluminum automotive body parts to originate using non-USMCA aluminum via the tariff shift process provided by stamping. This eliminates the difference in the ROOs between stamped and cast aluminum body parts.

# E-Axles

BEVs use an electric motor rather than an ICE to propel the vehicle. Many of these electric motors have been integrated, along with the transmission, into an e-axle. This e-axle replaces several core (engine, transmission, and axle) and principal (electric motor) parts for BEVs but has, at most, an RVC requirement of 70 percent (5 percentage points less than a core part) and at some stages of assembly only has a 50 percent RVC requirement.[455] E-axles are an increasingly important part of BEVs, which

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[446] AEC, written submission to the USITC, November 18, 2024, 7; Century Aluminum Company, written submission to the USITC, November 18, 2024, 1.
[447] Idra, “Gigapress,” accessed March 24, 2025.
[448] Priddle, “Megacasting and More,” October 8, 2024.
[449] Piovaccari, “Focus: Gigapresses - the Giant Die Casts Reshaping Car Manufacturing,” February 10, 2023.
[450] Reid, “This Is the 9,000-Ton Giga Press That Will Make Tesla Cybertruck Parts,” June 2, 2022
[451] Wards Intelligence, “U.S. Light Vehicle Sales, December 2024,” January 3, 2025.
[452] Shirouzu, “Exclusive: GM Snatches Key Tesla Gigacasting Supplier,” November 15, 2023; Ruffo, “Mercedes-Benz Vision EQXX Will Use Body Castings Like Tesla,” July 22, 2021; Shimizu, “Toyota to Test Tesla-Style EV Gigacasting Machine at Japan Plant,” August 21, 2024; Waldersee et al., “Focus: Giga-Casting and Robots,” March 31, 2022; Light Metal Age, “Volvo Installs Two Giga-Casting Presses at Its Plant in Slovakia,” December 18, 2023; Krolicki, “Why Are Other Automakers Chasing Tesla’s ‘Gigacasting’?,” June 14, 2023.
[453] Piovaccari, “Ford, Hyundai Turn to Italian Casting Machine Maker IDRA,” October 11, 2023; Takahashi and Inajima, “Tesla’s Latest Disruption in Carmaking Draws Followers in Japan,” October 30, 2023.
[454] USMCA, Automotive Appendix Article 6.1 Footnote 74, 4-B-1-25 (2020).
[455] 19 C.F.R. Appendix A to Part 182, Tables B and D (2020).

make up a growing share of the U.S. vehicle market, raising the importance of rules related to the duty-free treatment of such products.

An e-axle is a drive unit integrating the main components necessary to propel a BEV into an axle structure, replacing the function of an engine.[456] Instead of a separate gearbox, electric motor, and inverter, all three are integrated in the e-axle. Depending on which parts are attached to the e-axle, the RVC requirement would be either 50 percent or 70 percent.[457] The difference depends on whether the e-axle is classified as an electric motor in HS subheading 8501.53 or a part of a motor vehicle in HS subheading 8708.99. U.S. Customs and Border Protection (CBP) has thus far classified e-axles in different HS subheadings, depending on the components attached to the unit. In November 2022, the CBP issued a ruling classifying two e-axle assemblies (including a motor, gearbox, and generator) as "other multi-phase AC motors" (HTS statistical reporting number 8501.53.8040 or 8501.53.8060, depending on the size of the electric motor).[458] In December 2022, the CBP issued a separate ruling classifying an e-axle assembly as "other powertrain parts" (HTS statistical reporting number 8708.99.6890).[459] This e-axle assembly included an axle housing and a carrier housing, each containing a number of automotive-specific components (e.g., drive-axle differential, speed sensors, axle spindles). CBP issued a third ruling in May 2023 that also classifies a carrier housing assembly, described as components of an e-axle as other powertrain parts.[460] This housing assembly contained similar parts to the e-axle as described in the December 2022 ruling.[461]

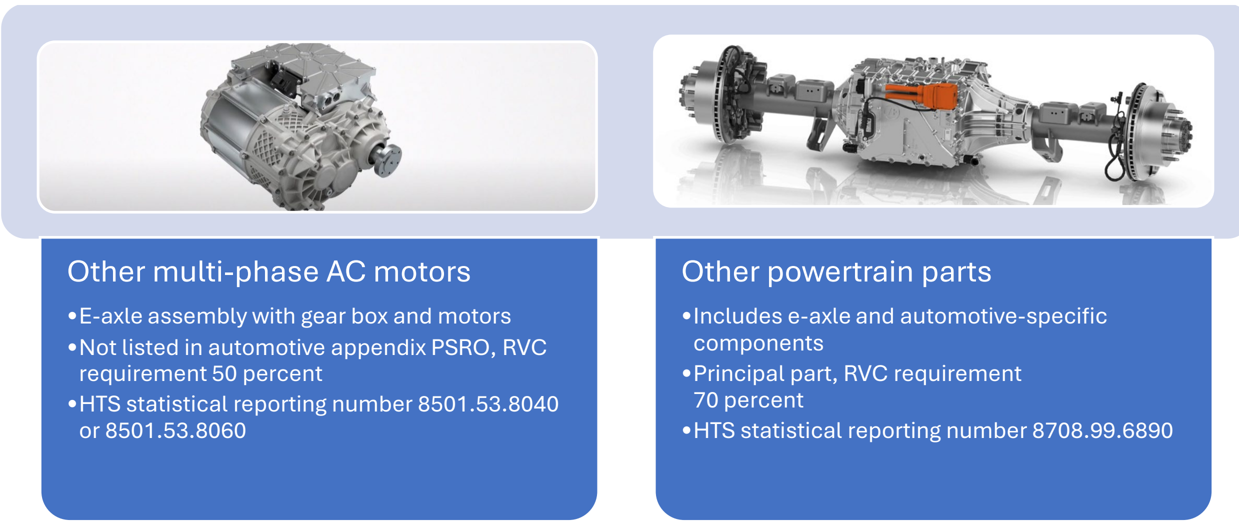
Figure 5.3 below shows e-axles at two stages of assembly. Based on the CBP rulings, the e-axle on the left would be classified as an electric motor in HS heading 8501.[462] Based on prior rulings, the e-axle on the right, because it includes wheel hubs (visible on the left and right) and other automotive-specific

[456] AISIN, "The eAxle, a Core Component of Electric Vehicles," January 20, 2023.
[457] 19 C.F.R. Appendix A to Part 182, Tables B and D (2020).
[458] CBP, CROSS database, "NY Ruling Letter N329048, The Tariff Classification of Electric Motors from Germany," November 16, 2022. It is important to note that individual rulings are specific to the transaction described in the Customs ruling letter. 19 C.F.R. § 177.9 cautions against assuming the "principles of that ruling will be applied in connection with any transaction other than the one described in the letter." 19 C.F.R. § 177.9.
[459] CBP, CROSS database, "NY Ruling Letter N329827, The Tariff Classification of an e-Axle from Germany," December 27, 2022.
[460] CBP, CROSS database, "NY Ruling Letter N332712, The Tariff Classification of a Carrier Housing Assembly from Germany," May 17, 2023.
[461] In the latter two instances (December 2022 and May 2023), the CBP determined that the presence of additional components exceeded the scope of HS heading 8501, noting "a good consisting of a motor and the actual mechanism or a part of the mechanism the motor serves to power is beyond the scope of HS heading 8501, and is classified with the machine, apparatus or device with which it is solely or principally used," i.e., as parts of motor vehicles in heading 8708. CBP, CROSS database, "NY Ruling Letter N329827, The Tariff Classification of an e-Axle from Germany," December 27, 2022; CBP, CROSS database, "NY Ruling Letter N332712, The Tariff Classification of a Carrier Housing Assembly from Germany," May 17, 2023.
[462] Bosch Global, "New Impulse for Electromobility," accessed November 25, 2024; CBP, CROSS database, "NY Ruling Letter N329048, The Tariff Classification of Electric Motors from Germany," November 16, 2022.

components, would likely be provided for as a powertrain part in HTS subheading 8708.99.68.[463] When imported under HTS subheading 8501.53.80, e-axles have a 2.8 percent normal trade relations (NTR) rate and are not included in the ROOs. The PSRO for HTS subheading 8501.53 is a change to HS heading 8501 from any other heading, except from tariff item 8503.00.aa, or a 50 percent RVC requirement.[464] If listed in HTS subheading 8708.99.68, however, they have a 2.5 percent NTR rate and are considered principal parts with a 70 percent RVC requirement in the ROOs.[465]

**Figure 5.3** Comparison of e-axle tariff treatment by assembly stage

AC = alternating current; RVC = regional value content; PSRO = product-specific rule of origin




Sources: Bosch Global, "New Impulse for Electromobility," accessed November 25, 2024; Cousineau, "ZF's New e-Axle for Pickup Trucks Features 800 V SiC Inverters," November 7, 2022.

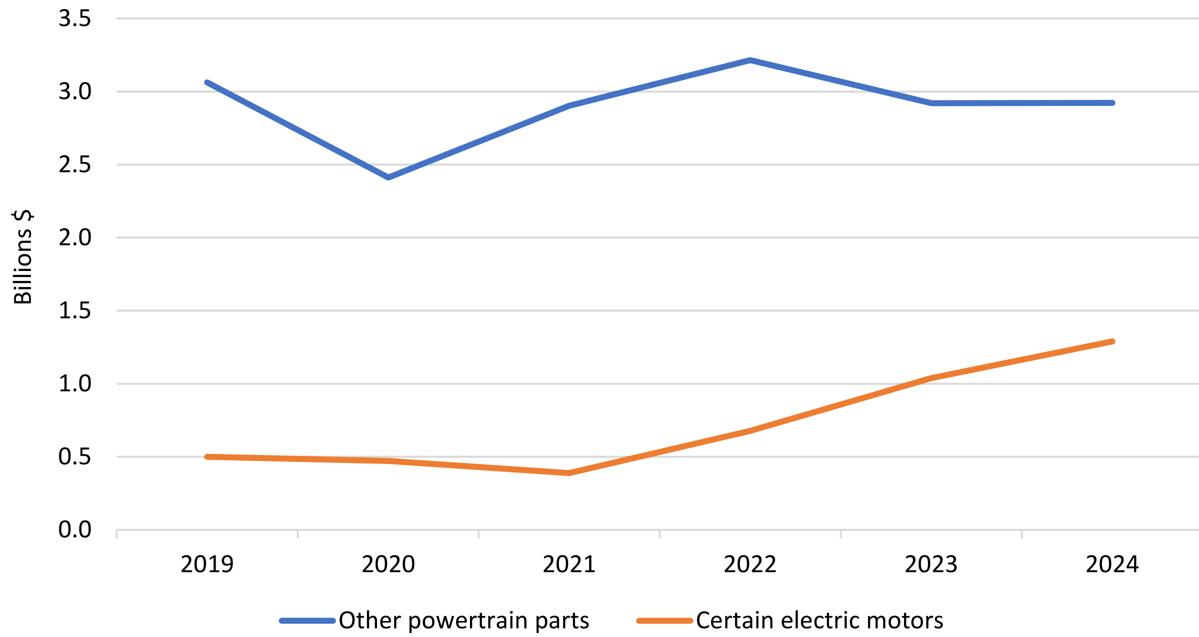
As EVs' share of the U.S. automotive market increases, the use of e-axles will likely increase as well. Although U.S. imports of "other powertrain parts" (HTS statistical reporting number 8708.99.6890) did not vary significantly from 2019 to 2024, U.S. imports of motors in the sizes that include e-axles (HTS statistical reporting numbers 8501.53.8040 and 8501.53.8060) increased by 157.8 percent (figure 5.4). Mexico, Brazil, and China were major sources of certain electric motors imports in 2024.[466] Mexico, Japan, and South Korea were major sources of other powertrain parts imports.[467] However, it is difficult to know the extent to which these imports included e-axles, because the HTS classification of other

[463] Cousineau, "ZF's New e-Axle for Pickup Trucks Features 800 V SiC Inverters," November 7, 2022; CBP, CROSS database, "NY Ruling Letter N329827, The Tariff Classification of an e-Axle from Germany," December 27, 2022; CBP, CROSS database, "NY Ruling Letter N332712, The Tariff Classification of a Carrier Housing Assembly from Germany," May 17, 2023.
[464] USITC, HTS (2025), General Rules of Interpretation, General Note 11, January 2025, 97.
[465] 19 C.F.R. Appendix A to Part 182, Tables B and D (2020).
[466] USITC/DataWeb, imports for consumption, HTS statistical reporting numbers 8501.53.8040 and 8501.53.8060, accessed March 24, 2025.
[467] USITC/DataWeb, imports for consumption, HTS statistical reporting number 8708.99.6890, accessed March 24, 2025.

powertrain parts is a residual HTS subheading that includes nonelectric drive components such as manual transmission parts and casting hub assemblies.[468]

**Figure 5.4** U.S. imports of electric motors and other powertrain parts, 2019–24

In billions of dollars. Underlying data for this figure can be found in appendix J, table J.25.




Source: USITC/DataWeb, imports for consumption, HTS statistical reporting numbers 8501.53.8040, 8501.53.8060, and 8708.99.6890, accessed March 21, 2025.
Note: For complete U.S. trade data on vehicles and automotive parts, please refer to the USMCA Automotive ROOs Interactive Trade Data Dashboard.

# The Potential Impact of Other Technological Changes on the Relevancy of the USMCA Automotive ROOs

This section discusses ongoing technological changes that may affect the relevancy of the ROOs. First, the increased value of nontraditional automotive inputs relative to the value of the final vehicle has a potential impact on the RVC calculations for the larger vehicle components. Second, there are no PSROs for recycled battery materials. Finally, two technological changes are introduced that were not discussed in the Commission’s 2023 report and may have an impact on the relevancy of the ROOs: new battery technologies and fuel cell electric vehicles.

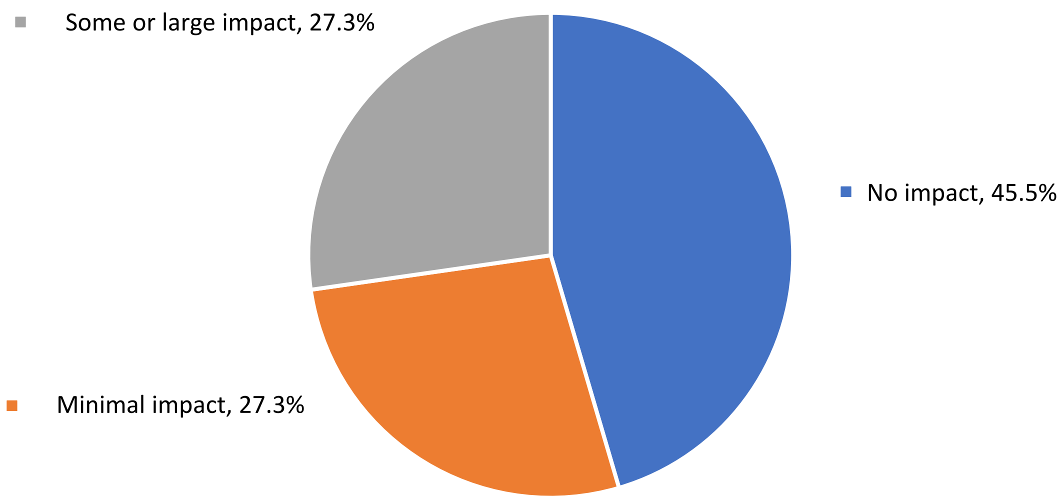
[468] CBP, CROSS database, “NY Ruling Letter N276944, The Tariff Classification of a Casting Hub Assembly from South Korea,” July 15, 2016; CBP, CROSS database, “NY Ruling Letter N247574, The Tariff Classification of Manual Transmission Part from Japan,” December 3, 2013.

# Increasing Importance of Nontraditional Automotive Inputs

The growing importance of nontraditional automotive inputs may impact the relevancy of the ROOs in the future. Newer vehicles include more technologies used for vehicle safety and communication, such as semiautonomous and autonomous navigation systems and onboard entertainment, which require components such as advanced semiconductors, sensors, cameras, and touch screens.[469] The value of electronic components in vehicles is expected to continue to increase. The share of automotive electronics in a vehicle's total cost increased from 27 percent in 2010 to 40 percent in 2020 and is expected to reach about 50 percent in 2030.[470] Multiple industry representatives noted that the rising value of nontraditional automotive inputs may merit changes to the ROOs because electronic components generally originate in Asia.[471] However, in the Commission's survey, nearly 75 percent of motor vehicle producers indicated that nontraditional motor vehicle inputs had no or minimal impact on the relevancy of the ROOs (figure 5.5).

**Figure 5.5** Impact of the increased importance of nontraditional motor vehicle inputs on the continued relevancy of the USMCA automotive rules of origin

In percentages. Underlying data for this figure can be found in appendix J, table J.26.




Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, response to question 4.1.3.a.

[469] Many of the nontraditional automotive inputs are not included in the automotive ROOs, but they may have PSROs under the USMCA. See USITC, HTS (2025), General Rules of Interpretation, General Note 11, January 2025, 99.

[470] Placek, "Automotive Electronics Worldwide," December 18, 2023; Tingwall, "Electronics Account for 40 Percent of the Cost of a New Car," May 2, 2020.

[471] VW, written submission to the USITC, October 30, 2024, 23; USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.3.a.

Nontraditional automotive inputs are often sourced only from Asia as parts of modules or assemblies, and many electronics are not produced in the United States.[472] Some vehicle manufacturers and associations indicated electronics from Asia are less expensive and easier to source.[473] Additionally, some industry experts stated that the shift to EVs is leading them to import more parts from non-USMCA countries.[474]

EVs have more electronic components and semiconductors than ICE vehicles, partially driving increased automotive electronic consumption. For example, EVs may contain up to 3,000 semiconductors but ICE vehicles only have between 300 and 1,000 semiconductors.[475] This is due to the powertrain inverter requiring more semiconductors in EVs than in ICE vehicles.[476] Many semiconductors are also embedded in vehicle parts, such as engine control units or power steering.[477] The drivetrain cost for EVs was about $16,000 in 2024, including the battery cost, while for ICE vehicles, the drivetrain was about $9,000.[478] The increased value of electronic components causes the cost of the vehicle to rise, which may affect the applicability of these components as they relate to the USMCA automotive RVC calculations.

Additionally, the share of software-defined vehicles (SDVs) in the market is growing.[479] SDVs, first popularized by Tesla, are vehicles whose operation is software- rather than hardware-focused, meaning software updates could add features or upgrade the vehicle.[480] They accounted for 3 percent of all new vehicles sold globally in 2023, but are expected to account for at least 90 percent of the new-vehicle market by 2029.[481] SDVs have thousands of semiconductors and more electronic control units than vehicles made in the past because they include many new safety features and driver assistance systems.[482]

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472 VW, written submission to the USITC, October 30, 2024, 23; industry representative, interview by USITC staff, September 9, 2024; industry representative, interview by USITC staff, September 19, 2024; Lauly Li and Ting-Fang, “Tesla Pushes Suppliers,” May 28, 2024; Brodzicki, “The Role of East and Southeast Asia,” November 2, 2021.
473 USITC, hearing transcript, October 8, 2024, 111–12 (testimony of Manuel Montoya, CLAUT); AMIA, written submission to USTR, January 17, 2024, 6.
474 Industry representative, interview by USITC staff, September 11, 2024; industry representative, interview by USITC staff, September 9, 2024; industry representative, interview by USITC staff, November 6, 2024.
475 Rho Motion, “Semiconductors in EVs, What You Need to Know,” April 30, 2024; Manthey, “How the Semiconductor Crisis Really Affects Electric Cars,” July 3, 2022.
476 Manthey, “How the Semiconductor Crisis Really Affects Electric Cars,” July 3, 2022.
477 AZO Materials, “How Are Semiconductors Used in Cars?,” April 26, 2021.
478 Thunder Said Energy, “Electric Vehicle Cost Breakdown by Component?,” 2024.
479 Keysight Technologies, “What Is a Software-Defined Vehicle?,” accessed December 19, 2024; Bezerra, “SDV Market Tracker,” December 18, 2024.
480 Weber, “WTF Is a ‘Software-Defined Vehicle?’,” January 11, 2024.
481 Bezerra, “SDV Market Tracker,” December 18, 2024; Deloitte, *Software-Defined Vehicles*, September 2023.
482 Herreria, “Software-Defined Vehicles Are Revving Up,” April 17, 2024; Charette, “How Software Is Eating the Car,” June 7, 2021; Meghal, “Harnessing the Full Potential,” December 23, 2023.

# Lack of Battery Recycling-Specific USMCA Automotive ROOs

Unlike the Inflation Reduction Act of 2022, which has provisions to incentivize the use of recycled materials, the ROOs, as currently written, do not provide specific provisions for recycled materials.[483] Instead, origin is determined by the manufacturing location of the product made of recycled materials. To reduce carbon emissions, vehicle manufacturers often source recycled plastics, textiles, and battery materials for their vehicles. For example, Ford uses 1.2 billion recycled plastic bottles per year in its underbody shields and Honda recycles its worker uniforms into insulation.[484]

Because the ROOs do not address recycled materials directly, the lack of specific provisions in the ROOs for the materials in recycled batteries may pose challenges to emerging supply chains as more batteries are recycled.[485] This would indicate that a battery made with recycled materials is treated the same way in the ROOs as batteries made with virgin materials. Batteries made with recycled materials may qualify for duty-free treatment under the ROOs only if the cells made with recycled materials were created within USMCA countries. These recycled materials could even include materials from a non-originating battery.

At the Commission's hearing, when asked about the role of recycling in the industry and its impact on the relevancy of the ROOs, several witnesses pointed to the growing use of recycled battery materials.[486] According to the Commission's survey, nearly 20 percent of motor vehicle producers currently use advanced batteries with recycled inputs in their USMCA supply chain; an additional 9 percent are planning on using advanced batteries with recycled inputs by the end of 2025.[487] Of those who currently use or plan to use advanced batteries with recycled inputs, half indicated that the lack of recycling-specific provisions for advanced batteries has no impact on the relevancy of the ROOs.[488] In its written submission to the Commission, Volkswagen indicated that recycling-specific ROOs are not needed at this time, as recycled content from scrap or waste generally already meets the ROOs.[489]

[483] The Inflation Reduction Act of 2022 has a critical minerals requirement that increases the percentage year over year. By 2027, 80 percent of a battery's critical minerals must be extracted, processed, or recycled in the United States or a U.S. free trade agreement partner country to qualify. 26 U.S.C. § 30D(e)(1)(A)(ii); 26 U.S.C. § 30D(e)(1)(B)(i-v).

[484] Ford, "Recycling Plastic Water Bottles," accessed December 12, 2024; Honda, "From Shirts to Insulators," August 10, 2023.

[485] The ROOs for battery cells only prevent the use of spent cells. USITC, HTS (2025), General Rules of Interpretation, General Note 11, January 2025, 99.

[486] USITC, hearing transcript, October 8, 2024, 101–2 (testimony of Rory Heslington, Autos Drive); USITC, hearing transcript, October 8, 2024, 102 (testimony of David Adams, GAC); USITC, hearing transcript, October 8, 2024, 102–3 (testimony of Anna Schneider, VW); USITC, hearing transcript, October 8, 2024, 103 (testimony of Ana Meuwissen, MEMA).

[487] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.4.a. and 4.1.4.b.

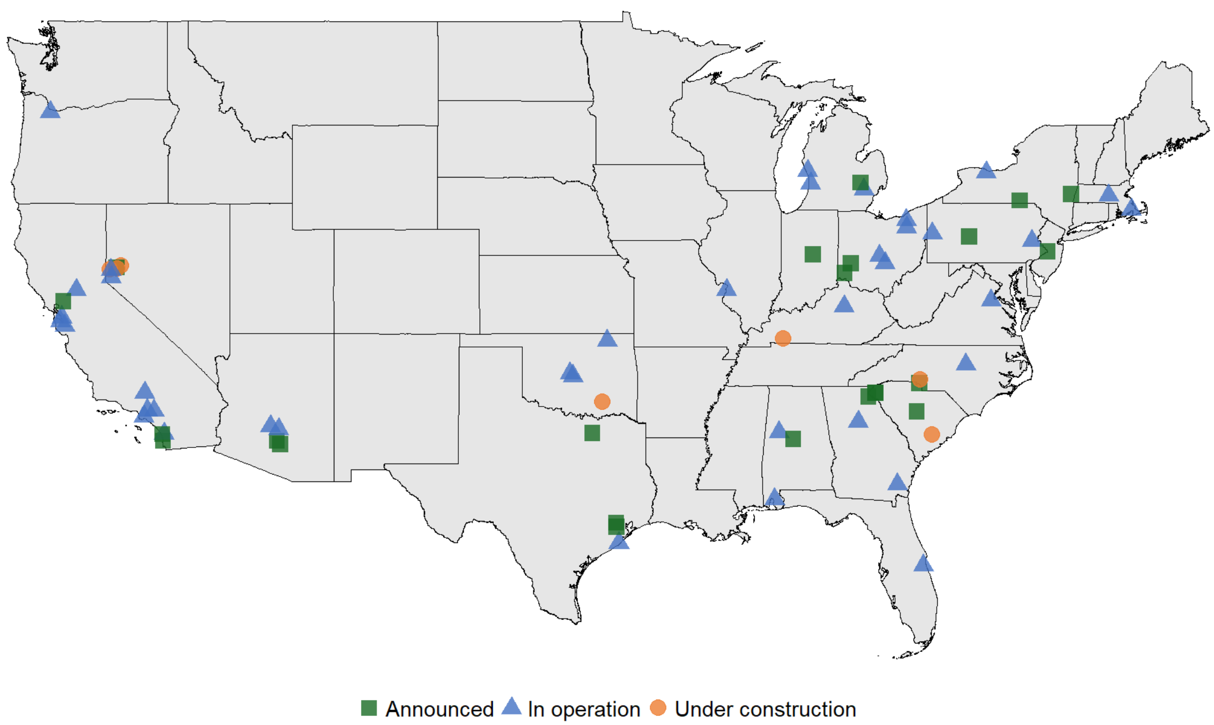
[488] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.4.d.

[489] VW, written submission to the USITC, October 30, 2024, 20.

According to the U.S. Department of Energy's National Renewable Energy Laboratory, the United States currently has 39 lithium-ion battery recycling plants (figure 5.6).[490] Motor vehicle producers that conduct battery recycling in the United States have recycling operations primarily in the West and Midwest.[491] A number of new recycling plants, however, have been announced as the supply of used batteries will increase over the next few years.[492] The estimated global market for battery recycling is expected to increase 361.7 percent (from over $5 billion to nearly $24 billion) between 2025 and 2033.[493] The estimated global feedstock for recycled batteries will be between 250 and 350 gigawatt-hours (GWh) in 2030, and about 45 percent are expected to come from end-of-life EV batteries rather than from manufacturing scrap after 2035.[494]

**Figure 5.6** Locations of current, under construction, and announced lithium-ion battery recycling plants in the United States

Underlying data can be found in appendix J, table J.27.




Source: Energy, NREL, "Online NAATBatt Lithium-Ion Battery Supply Chain Database," February 17, 2025.
Note: Hawaii and Alaska currently have no lithium-ion battery recycling plants.

[490] Energy, NREL, "Online NAATBatt Lithium-Ion Battery Supply Chain Database," February 17, 2025.
[491] USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.4.c.
[492] Energy, NREL, "Online NAATBatt Lithium-Ion Battery Supply Chain Database," February 17, 2025.
[493] BIS Research, "Lithium-Ion Battery Recycling," May 27, 2024.
[494] IEA, *Recycling of Critical Minerals*, November 2024, 64.

# Other Battery Chemistries

Although most EVs (both BEVs and hybrids) use lithium-ion batteries, a few other battery chemistries are treated differently by the ROOs. The core parts listed in Table A.1 of the Automotive Appendix only include lithium-ion batteries (HS subheading 8507.60). Other batteries (HS subheadings 8507.20, 8507.30, 8507.40, and 8507.80) are listed as complementary parts, meaning they have a lower RVC requirement (65 percent) and no core parts requirement.[495] This treatment differs from the Uniform Regulations, which include HS subheading 8507.80 (other batteries) in the core parts list.[496] Many of the batteries not included on the core parts list, such as nickel-cadmium and nickel-iron batteries, are still in the development process or are no longer in use commercially.[497] Some battery types that are still in use and not included in the Automotive Appendix include lead-acid storage batteries and nickel-metal hydride batteries (used in some hybrid vehicles).[498]

Nickel-metal hydride (NiMH) batteries are used in many hybrid vehicles, particularly Toyota hybrids.[499] NiMH batteries are classified under HS subheading 8507.50 and are not included in the Automotive Appendix; however, they do have a PSRO with a 50 percent RVC requirement by net cost.[500] Conversely, lithium-ion batteries, which are also in a number of hybrid vehicles, are included in the automotive appendix and have an RVC requirement of 75 percent under the net cost method.[501]

Stellantis announced in May 2023 that it was investing in the development of lithium-sulfur batteries, a new battery technology.[502] These batteries would likely be classified under the residual subheading for other storage batteries (HS subheading 8507.80). Thus, they would be either a complementary part with a lower RVC requirement and no core parts requirement or a core part, depending on whether they are the primary source of propulsion. If classified as a core part, the RVC requirement would be 75 percent when calculated using the net cost method.[503]

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[495] 19 C.F.R. Appendix A to Part 182, §14, Section 20, Tables A.1 and C (2020).

[496] The Uniform Regulations reflect the three parties' consensus regarding the interpretation, application, and administration of the agreement's rules of origin. 19 C.F.R. Appendix A to Part 182, § 20, Tables A.1 and C (2020); USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Table A.1, 4-B-1-34 (2020).

[497] Nickel-cadmium storage batteries, classified under subheading 8507.30, have been largely phased out as a result of environmental and safety concerns and are no longer in use in commercial vehicles. Nickel-iron storage batteries, formerly classified under 8507.40 and currently classified under 8507.80 (other storage batteries), are also no longer used in commercial vehicles because of poor charge retention and temperature performance. TVA, "Batteries for Electric Vehicles," accessed November 26, 2024; Skill-Lync, "Different Types of Batteries Used in EV Vehicles," September 16, 2022; EOP, Proclamation 10326, 86 Fed. Reg. 73593 (December 28, 2021); *Electric Vehicles News*, "Nickel Iron Battery," accessed November 26, 2024.

[498] 19 C.F.R. Appendix A to Part 182, §20 (2020).

[499] Buchholz, "Toyota Still Favors Nickel-Metal Hydride Batteries for HEVs," September 26, 2023; TVA, "Batteries for Electric Vehicles," accessed November 26, 2024.

[500] USITC, HTS (2025), General Rules of Interpretation, General Note 11, January 2025, 99; 19 C.F.R. Appendix A to Part 182, §20 (2020).

[501] 19 C.F.R. Appendix A to Part 182, §20, Table A.1 (2020).

[502] Stellantis, "Stellantis Invests in Lyten's," May 25, 2023.

[503] 19 C.F.R. Appendix A to Part 182, §20, Table A.1 (2020).

## Sodium-Ion Batteries

Sodium-ion batteries are a battery chemistry that has been developed to create lower-cost EVs. Because these batteries use sodium, a more common mineral, in place of lithium, they are significantly less expensive to produce.[504] Sodium-ion batteries are also able to charge at low temperatures.[505] One drawback of these batteries is that they are significantly heavier than lithium-ion batteries, leading to reduced range. This limitation makes them more likely to be used in urban settings.[506]

Sodium-ion batteries currently have no specific automotive ROO, and they do not have a specific breakout in the HS. Instead, they likely would fall under a residual HTS subheading for other storage batteries (HS subheading 8507.80), similar to lithium-sulfur batteries. Thus, a battery would be either a complementary part with a lower RVC and no core parts requirement or a core part, depending on whether the battery is used as a primary source of propulsion.

Interest and investment in sodium-ion batteries is significant globally. Several Chinese battery makers and electric vehicle manufacturers have announced plans in recent years to sell EVs with sodium-ion batteries.[507] Although the USMCA region currently produces no vehicles with sodium-ion batteries, the United States has several new producers of the batteries. Natron Energy started production of sodium-ion batteries in Holland, Michigan, in April 2024.[508] Natron Energy's batteries are currently serving mostly data centers, but the company plans to move into additional markets, such as vehicles.[509] Additionally, LG Technology Ventures has invested in UNIGRID Inc., a California-based startup, to develop sodium-ion batteries.[510]

# Fuel Cell Vehicles

Hydrogen fuel cell electric vehicles (FCEVs) make up a very small share of U.S. light vehicle sales because of a lack of hydrogen fueling stations.[511] Like BEVs, FCEVs use an electric motor rather than an ICE. In an FCEV, a fuel cell converts hydrogen fuel into electricity, which is used by the motor to drive the vehicle.[512] FCEVs are currently classified under HS 8703.80 but are classified as a passenger vehicle in the residual

[504] Industry representative, interview by USITC staff, November 6, 2024; Crownhart, "How Sodium Could Change the Game for Batteries," May 11, 2023.
[505] Peiyuan Li et al., "Recent Progress and Perspective," October 9, 2022.
[506] Harmon, "Cathode Innovation," January 8, 2024.
[507] In December 2023, Chinese automotive manufacturers Anhui Jianghuai Automobile Group (JAC) and Jiangling Motors both began producing EVs with sodium-ion batteries. In April 2023, Contemporary Amperex Technology Company Ltd. (CATL), a Chinese battery manufacturer, announced that its sodium-ion battery would be used in a Chery EV; and in January 2024, BYD, a Chinese conglomerate, broke ground on a new sodium-ion battery facility in China. Akella, "BYD Breaks Ground on New Sodium-Ion Battery Facility in China," January 8, 2024; Opletal, "BYD Starts Construction," January 5, 2024.
[508] Casey, "Buh-Bye, Conflict Minerals," April 30, 2024.
[509] Casey, "Buh-Bye, Conflict Minerals," April 30, 2024.
[510] UNIGRID Battery, "U.S. Sodium-Ion Battery Startup," October 23, 2024.
[511] Voelcker, "Hydrogen Fuel-Cell Vehicles," April 29, 2024.
[512] Energy, AFDC, "How Do Fuel Cell Electric Vehicles Work Using Hydrogen?," accessed September 17, 2024.

category in HS subheading 8703.90 in the ROOs.[513] Similar to other EVs, FCEVs include an electric motor used in the propulsion of the vehicle and an auxiliary battery; however, they also include a fuel cell stack.[514]

The classification for fuel cells is HTS subheading 8501.33.61 (table 5.3) which are classified as principal parts in the ROOs.[515] FCEVs have an auxiliary lithium-ion battery to store energy from the fuel cells and regenerative braking, but only “lithium-ion batteries that are used as the primary source of electrical power” are in the core parts list.[516] The auxiliary lithium-ion battery is thus subject to a 50 percent RVC requirement instead of the 75 percent RVC the battery would be subject to if it had been included in the core part list.[517] FCEV electric motors are provided under HTS statistical reporting number 8501.53.4080.[518] Although some electric motors are listed as principal parts, these electric motors are not included in the Automotive Appendix and would thus face a lower RVC.[519]

**Table 5.3** Fuel cell parts and their classifications under the ROOs
HS = *Harmonized Commodity Description and Coding System,* FCEV = fuel cell electric vehicle, ROOs = rules of origin, RVC = regional value content, PSRO = product-specific rule of origin.

| HS subheading | Description | Automotive classification under the ROOs | RVC (net cost) |
|---|---|---|---|
| 8703.90 | FCEV | Passenger vehicle | 75 percent |
| 8501.33 | Fuel cells | Principal parts | 70 percent |
| 8501.53 | Electric motor | Not listed (PSRO only) | 50 percent |
| 8507.60 | Auxiliary lithium-ion batteries | Not listed (PSRO-only) | 50 percent |

Sources: 19 C.F.R. Appendix A to Part 182, §§14 and 20, Tables A.1, A.2, B, C, D, and E (2020); USITC, *HTS (2025), General Rules of Interpretation, General Note 11*, January 2025.
Note: FCEVs are currently classified under HS subheading 8703.80, however, in 2012 they were classified under 8703.90. The USMCA ROOs are based on 2012 classifications.

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[513] CBP, CROSS database, “NY Ruling Letter N299331: The Tariff Classification of a New Motor Vehicle from South Korea,” July 31, 2018.
[514] Energy, AFDC, “How Do Fuel Cell Electric Vehicles Work Using Hydrogen?,” accessed September 17, 2024.
[515] Fuel cells are typically classified under HS subheading 8703.80, for electrical DC generators of an output exceeding 75 kilowatts (kW) but not exceeding 375 kW, however, in 2012, they were classified under 8703.90. The USMCA ROOs are based on 2012 classifications. USITC DataWeb/Census, *“Harmonized Tariff Schedule of the United States* (HTS) subheading 8501.33.61, electrical motors and generators (excluding generating sets), other DC motors; DC generators, other than photovoltaic generators, of an output exceeding 75 kW but not exceeding 375 kW, generators,” accessed September 19, 2024; U.S. Customs and Border Protection (CBP), CROSS database, “NY Letter Ruling N313807, The Tariff Classification of an Electric Generator from China,” August 31, 2020; 19 C.F.R. Appendix A to Part 182, §20, Table B (2020).
[516] Energy, AFDC, “How Do Fuel Cell Electric Vehicles Work Using Hydrogen?,” accessed September 17, 2024; Shusheng et al., “Research and Development of On-Board Hydrogen-Producing Fuel Cell Vehicles,” July 10, 2020; 19 C.F.R. Appendix A to Part 182, § 20, Tables A.1, A.2, B, C, D, and E (2020).
[517] Based on the net cost method. 19 C.F.R. Appendix A to Part 182, §13 and Section 14 (2020).
[518] HTS statistical reporting number 8501.53.4080 covers AC electrical motors exceeding 75 kW but under 149.2 kW, not for use in civil aircraft. Toyota Motor Corporation, “2024 Mirai Specifications,” accessed September 18, 2024; USITC DataWeb/Census, HTS statistical reporting number 8501.53.40.80, electric motors and generators (excluding generating sets), other AC motors, multi-phase, of an output exceeding 75 kW, exceeding 75 kW but under 149.2 kW, other, accessed September 19, 2024.
[519] 19 C.F.R. Appendix A to Part 182, §20, Table B (2020).

Although FCEVs have been sold in the U.S. market for more than a decade, annual sales are low due to a lack of fueling stations.[520] FCEVs entered the U.S. market in 2015, but sales did not reach 1,000 units annually until 2016, peaking in 2021, with 3,300 units in sales.[521] In 2024, only three fuel cell models were for sale in the United States.[522] Two of the three models are imported from outside the USMCA countries; Honda started production on the first FCEV manufactured in the United States in June 2024.[523] The Honda CR-V e:FCEV is also a plug-in electric vehicle, meaning it can be charged as a BEV as well as use hydrogen fuel.[524]

[520] Voelcker, "Hydrogen Fuel-Cell Vehicles," April 29, 2024.
[521] H2FCP, "By The Numbers," January 30, 2025; Voelcker, "Hydrogen Fuel-Cell Vehicles," April 29, 2024.
[522] Voelcker, "Hydrogen Fuel-Cell Vehicles," April 29, 2024.
[523] Honda, "Honda Reveals 2025 Honda CR-V e:FCEV," February 27, 2024; Fuel Cell Works, "Honda Launches Fuel Cell Vehicle Production in the U.S.," June 5, 2024; Voelcker, "Hydrogen Fuel-Cell Vehicles," April 29, 2024.
[524] Fuel Cell Works, "Honda Launches Fuel Cell Vehicle Production in the U.S.," June 5, 2024.

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# Appendix A
# USMCA Implementation Act

(B) NO ACCELERATED DISPOSITION.—An importer may not request the accelerated disposition under section 515(b) of the Tariff Act of 1930 (19 U.S.C. 1515(b)) of a protest against a decision of the Commissioner described in subparagraph (A).

(f) ADMINISTRATION BY DEPARTMENT OF LABOR.—The Secretary of Labor is authorized to establish or designate an office within the Department of Labor to carry out the provisions of this section for which the Department is responsible.

(g) REVIEW AND REPORTS.—

(1) PERIODIC REVIEW ON AUTOMOTIVE RULES OF ORIGIN.—

Consultation.

(A) IN GENERAL.—The Trade Representative, in consultation with the interagency committee, shall conduct a biennial review of the operation of the USMCA with respect to trade in automotive goods, including—

Summary.

(i) to the extent practicable, a summary of actions taken by producers to demonstrate compliance with the automotive rules of origin, use of the alternative staging regime, enforcement of such rules of origin, and other relevant matters; and

(ii) whether the automotive rules of origin are effective and relevant in light of new technology and changes in the content, production processes, and character of automotive goods.

(B) REPORT.—

(i) IN GENERAL.—The Trade Representative shall submit to the appropriate congressional committees a report on each review conducted under subparagraph (A).

(ii) INITIAL REPORT.—The first report required under clause (i) shall be submitted not later than 2 years after the date on which the USMCA enters into force.

(iii) TERMINATION OF REPORTING REQUIREMENT.—The requirement to submit reports under clause (i) shall terminate on the date that is 10 years after the date on which the USMCA enters into force.

Termination date.

(2) REPORT BY INTERNATIONAL TRADE COMMISSION.—Not later than 1 year after the submission of the first report required by paragraph (1)(B), and every 2 years thereafter until the date that is 12 years after the date on which the USMCA enters into force, the International Trade Commission shall submit to the appropriate congressional committees and the President a report on—

(A) the economic impact of the automotive rules of origin on—

(i) the gross domestic product of the United States;

(ii) exports from and imports into the United States;

(iii) aggregate employment and employment opportunities in the United States;

(iv) production, investment, use of productive facilities, and profit levels in the automotive industries and other pertinent industries in the United States affected by the automotive rules of origin;

(v) wages and employment of workers in the automotive sector in the United States; and

(vi) the interests of consumers in the United States;

(B) the operation of the automotive rules of origin and their effects on the competitiveness of the United States with respect to production and trade in automotive goods, taking into account developments in technology, production processes, or other related matters;

(C) whether the automotive rules of origin are relevant in light of technological changes in the United States; and

(D) such other matters as the International Trade Commission considers relevant to the economic impact of the automotive rules of origin, including prices, sales, inventories, patterns of demand, capital investment, obsolescence of equipment, and diversification of production in the United States.

(3) REPORT BY COMPTROLLER GENERAL.—Not later than 4 years after the date on which the USMCA enters into force, the Comptroller General of the United States shall submit to the Committee on Appropriations and the Committee on Ways and Means of the House of Representatives and the Committee on Appropriations and the Committee on Finance of the Senate a report assessing the effectiveness of United States Government interagency coordination on implementation, enforcement, and verification of the automotive rules of origin and the customs procedures of the USMCA with respect to automotive goods.

(4) PUBLIC PARTICIPATION.—Before submitting a report under paragraph (1)(B) or (2), the agency responsible for the report shall—

(A) solicit information relating to matters that will be addressed in the report from producers of automotive goods, labor organizations, and other interested parties;

(B) provide for an opportunity for the submission of comments, orally or in writing, from members of the public relating to such matters; and

(C) after submitting the report, post a version of the report appropriate for public viewing on a publicly available internet website for the agency.

Public information. Web posting.

(h) EFFECTIVE DATE.—This section shall—

(1) take effect on the date of the enactment of this Act; and

(2) apply with respect to goods entered, or withdrawn from warehouse for consumption, on or after the date on which the USMCA enters into force.

**SEC. 203. MERCHANDISE PROCESSING FEE.**

(a) IN GENERAL.—Section 13031(b)(10) of the Consolidated Omnibus Budget Reconciliation Act of 1985 (19 U.S.C. 58c(b)(10)) is amended by striking subparagraph (B) and inserting the following:

"(B) No fee may be charged under paragraph (9) or (10) of subsection (a) with respect to goods that qualify as originating goods under section 202 of the United States-Mexico-Canada Agreement Implementation Act or qualify for duty-free treatment under Annex 6–A of the USMCA (as defined in section 3 of that Act). Any service for which an exemption from such fee is provided

# Appendix B
# *Federal Register* Notices

section 207.7(a) of the Commission's rules, the Secretary will make BPI gathered in these reviews available to authorized applicants under the APO issued in the reviews, provided that the application is made by 45 days after publication of this notice. Authorized applicants must represent interested parties, as defined by 19 U.S.C. 1677(9), who are parties to the reviews. A party granted access to BPI following publication of the Commission's notice of institution of the reviews need not reapply for such access. A separate service list will be maintained by the Secretary for those parties authorized to receive BPI under the APO.

*Staff report.*—The prehearing staff report in the reviews will be placed in the nonpublic record on April 25, 2024, and a public version will be issued thereafter, pursuant to section 207.64 of the Commission's rules.

*Hearing.*—The Commission will hold an in-person hearing in connection with the reviews beginning at 9:30 a.m. on Thursday, May 16, 2024. Requests to appear at the hearing should be filed in writing with the Secretary to the Commission on or before Wednesday, May 8, 2024. Any requests to appear as a witness via videoconference must be included with your request to appear. Requests to appear via videoconference must include a statement explaining why the witness cannot appear in person; the Chairman, or other person designated to conduct the reviews, may in their discretion for good cause shown, grant such a request. Requests to appear as remote witness due to illness or a positive COVID–19 test result may be submitted by 3 p.m. the business day prior to the hearing. Further information about participation in the hearing will be posted on the Commission's website at *https://www.usitc.gov/calendarpad/calendar.html.*

A nonparty who has testimony that may aid the Commission's deliberations may request permission to present a short statement at the hearing. All parties and nonparties desiring to appear at the hearing and make oral presentations should attend a prehearing conference, if deemed necessary, to be held at 9:30 a.m. on Friday, May 10, 2024. Parties shall file and serve written testimony and presentation slides in connection with their presentation at the hearing by no later than 4 p.m. on Wednesday, May 15, 2024. Oral testimony and written materials to be submitted at the public hearing are governed by sections 201.6(b)(2), 201.13(f), and 207.24 of the Commission's rules. Parties must submit any request to present a portion of their hearing testimony *in camera* no later than 7 business days prior to the date of the hearing.

*Written submissions.*—Each party to the reviews may submit a prehearing brief to the Commission. Prehearing briefs must conform with the provisions of section 207.65 of the Commission's rules; the deadline for filing is May 6, 2024. Parties shall also file written testimony in connection with their presentation at the hearing, and posthearing briefs, which must conform with the provisions of section 207.67 of the Commission's rules. The deadline for filing posthearing briefs is May 28, 2024. In addition, any person who has not entered an appearance as a party to the reviews may submit a written statement of information pertinent to the subject of the reviews on or before 5:15 p.m. on May 28, 2024. On June 20, 2024, the Commission will make available to parties all information on which they have not had an opportunity to comment. Parties may submit final comments on this information on or before June 24, 2024, but such final comments must not contain new factual information and must otherwise comply with section 207.68 of the Commission's rules. All written submissions must conform with the provisions of section 201.8 of the Commission's rules; any submissions that contain BPI must also conform with the requirements of sections 201.6, 207.3, and 207.7 of the Commission's rules. The Commission's *Handbook on Filing Procedures,* available on the Commission's website at *https://www.usitc.gov/documents/handbook_on_filing_procedures.pdf,* elaborates upon the Commission's procedures with respect to filings.

Additional written submissions to the Commission, including requests pursuant to section 201.12 of the Commission's rules, shall not be accepted unless good cause is shown for accepting such submissions, or unless the submission is pursuant to a specific request by a Commissioner or Commission staff.

In accordance with sections 201.16(c) and 207.3 of the Commission's rules, each document filed by a party to the reviews must be served on all other parties to the reviews (as identified by either the public or BPI service list), and a certificate of service must be timely filed. The Secretary will not accept a document for filing without a certificate of service.

The Commission has determined that these reviews are extraordinarily complicated and therefore has determined to exercise its authority to extend the review period by up to 90 days pursuant to 19 U.S.C.1675(c)(5)(B).

*Authority:* These reviews are being conducted under authority of title VII of the Tariff Act of 1930; this notice is published pursuant to section 207.62 of the Commission's rules.

By order of the Commission.

Issued: November 15, 2023.

**Lisa Barton,**

*Secretary to the Commission.*

[FR Doc. 2023–25679 Filed 11–20–23; 8:45 am]

**BILLING CODE 7020–02–P**

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## INTERNATIONAL TRADE COMMISSION

**[Investigation No. 332–600]**

## USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report

**ACTION:** Notice of investigation.

**SUMMARY:** In accordance with section 202A(g)(2) of the United States-Mexico-Canada Agreement Implementation Act (''USMCA Implementation Act''), the U.S. International Trade Commission (Commission) has instituted Investigation No. 332–600, *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report,* for the purpose of preparing the 2025 report.

**DATES:** July 1, 2025: Transmittal of Commission report to the President and Congress.

**ADDRESSES:** All Commission offices, including the Commission's hearing rooms, are located in the U.S. International Trade Commission Building, 500 E Street SW, Washington, DC 20436. All written submissions should be addressed to the Secretary, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436. The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *https://edis.usitc.gov.*

**FOR FURTHER INFORMATION CONTACT:** Project Leader Mitch Semanik (*mitchell.semanik@usitc.gov* or 202–205–2034), or Deputy Project Leaders Nathan Lotze (202–205–3231 or *nathan.lotze@usitc.gov*) and Aaron Woodward (202–205–2663 or *aaron.woodward@usitc.gov*) for information specific to this investigation. For information on the legal aspects of this investigation, contact Brian Allen (202–205–3034 or *brian.allen@usitc.gov*) or William Gearhart (202–205–3091 or *william.gearhart@usitc.gov*) of the Commission's Office of the General Counsel. The media should contact

Jennifer Andberg, Office of External Relations (202–205–3404 or *jennifer.andberg@usitc.gov*). Hearing-impaired individuals may obtain information on this matter by contacting the Commission's TDD terminal at 202–205–1810. General information concerning the Commission may also be obtained by accessing its website (*https://www.usitc.gov*). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

**SUPPLEMENTARY INFORMATION:**

*Background:* The 2025 report will be the second of five reports that section 202A(g)(2) of the USMCA Implementation Act (19 U.S.C. 4532(g)(2)) requires that the Commission provide on the USMCA automotive rules of origin (ROOs) and their impact on the U.S. economy, effect on U.S. competitiveness, and relevancy considering recent technology changes. In particular, the USMCA Implementation Act requires that the Commission report on the following:

(1) The economic impact of the USMCA automotive ROOs on U.S. gross domestic product (GDP); U.S. exports and imports; U.S. aggregate employment and employment opportunities; production, investment, use of productive facilities, and profit levels in the U.S. automotive industries and other pertinent industries; wages and employment of workers in the U.S. automotive sector; and the interests of U.S. consumers.

(2) The operation of the ROOs and their effects on the competitiveness of the United States with respect to production and trade in automotive goods, taking into account developments in technology, production processes, or other related matters.

(3) Whether the ROOs are relevant in light of technological changes in the United States.

(4) Such other matters as the Commission considers relevant to the economic impact of the ROOs, including prices, sales, inventories, patterns of demand, capital investment, obsolescence of equipment, and diversification of production in the United States.

As part of this investigation, the Commission intends to conduct a survey, and will post the associated questionnaire on its website at a later date. The Commission also intends to hold a public hearing in connection with this investigation and will announce the hearing details at a later date.

The USMCA Implementation Act requires that the Commission transmit its report on July 1, 2025, two years following submission of its previous report, *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report.* The Commission is required to submit reports on the USMCA automotive ROOs every two years until 2031, for a total of five reports.

By order of the Commission.

Issued: November 15, 2023.

**Lisa Barton,**

*Secretary to the Commission.*

[FR Doc. 2023–25680 Filed 11–20–23; 8:45 am]

**BILLING CODE 7020–02–P**

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## DEPARTMENT OF JUSTICE

### Foreign Claims Settlement Commission

**[F.C.S.C. Meeting and Hearing Notice No. 02–23]**

### Sunshine Act Meeting

The Foreign Claims Settlement Commission, pursuant to its regulations (45 CFR part 503.25) and the Government in the Sunshine Act (5 U.S.C. 552b), hereby gives notice in regard to the scheduling of open meetings as follows:

**TIME AND DATE:** Friday, December 1, 2023, at 10:00 a.m. EST.

**PLACE:** This meeting will be held by teleconference. There will be no physical meeting place.

**STATUS:** Open. Members of the public who wish to observe the meeting via teleconference should contact Patricia M. Hall, Foreign Claims Settlement Commission, Tele: (202) 616–6975, two business days in advance of the meeting. Individuals will be given call-in information upon notice of attendance to the Commission.

**MATTERS TO BE CONSIDERED:** 10:00 a.m.—Issuance of Proposed Decisions in claims against Albania.

**CONTACT PERSON FOR MORE INFORMATION:** Requests for information, advance notices of intention to observe an open meeting, and requests for teleconference dial-in information may be directed to: Patricia M. Hall, Foreign Claims Settlement Commission, 441 G St. NW, Room 6234, Washington, DC 20579. Telephone: (202) 616–6975.

**Brian M. Simkin,**

*Chief Counsel.*

[FR Doc. 2023–25810 Filed 11–17–23; 4:15 pm]

**BILLING CODE 4410–BA–P**

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## DEPARTMENT OF JUSTICE

**[OMB Number 1110–0009]**

### Agency Information Collection Activities; Proposed eCollection eComments Requested; Revision of a Previously Approved Collection; Law Enforcement Officers Killed and Assaulted Data Collection, LEOKA Collection Tool 701 for Feloniously Killed; and LEOKA Collection Tool 701a for Accidentally Killed

**AGENCY:** Federal Bureau of Investigation, Department of Justice.

**ACTION:** 60-Day notice.

**SUMMARY:** The Federal Bureau of Investigation (FBI), Criminal Justice Information Services Division, Department of Justice (DOJ), will be submitting the following information collection request to the Office of Management and Budget (OMB) for review and approval in accordance with the Paperwork Reduction Act of 1995.

**DATES:** Comments are encouraged and will be accepted for 60 days until January 22, 2024.

**FOR FURTHER INFORMATION CONTACT:** If you have additional comments especially on the estimated public burden or associated response time, suggestions, or need a copy of the proposed information collection instrument with instructions or additional information, please contact Mr. Edward Abraham, Unit Chief, Federal Bureau of Investigation, Criminal Justice Information Services Division, Module D–1, 1000 Custer Hollow Road, Clarksburg, West Virginia 26306, 304–625–4830, *elabraham@fbi.gov* or *LEOKA.STATISTICS@fbi.gov.*

**SUPPLEMENTARY INFORMATION:** Written comments and suggestions from the public and affected agencies concerning the proposed collection of information are encouraged. Your comments should address one or more of the following four points:

—Evaluate whether the proposed collection of information is necessary for the proper performance of the functions of the Bureau of Justice Statistics, including whether the information will have practical utility;

—Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

—Evaluate whether and if so how the quality, utility, and clarity of the information to be collected can be enhanced; and

—Minimize the burden of the collection of information on those who are to

Procedure, 19 CFR 210.10(b)(1), the plain language description of the accused products or category of accused products, which defines the scope of the investigation, is ''cellular base station communication equipment, specifically 5G NR radio units and baseband units, components thereof, and products containing same'';

(3) Pursuant to Commission Rule 210.50(b)(1), 19 CFR 210.50(b)(1), the presiding administrative law judge shall take evidence or other information and hear arguments from the parties or other interested persons with respect to the public interest in this investigation, as appropriate, and provide the Commission with findings of fact and a recommended determination on this issue, which shall be limited to the statutory public interest factors set forth in 19 U.S.C. 1337(d)(1), (f)(1), (g)(1);

(4) For the purpose of the investigation so instituted, the following are hereby named as parties upon which this notice of investigation shall be served:

(a) The complainant is: Motorola Mobility LLC, 222 W. Merchandise Mart Plaza, Suite 1800, Chicago, Illinois 60654.

(b) The respondents are the following entities alleged to be in violation of section 337, and are the parties upon which the complaint is to be served: Ericsson AB, Torshamnsgatan 23, Kista, 16480 Stockholm, Sweden; Telefonaktiebolaget LM Ericsson, Torshamnsgatan 21, Kista, SE–164 83, Stockholm, Sweden; Ericsson Inc., 6300 Legacy Drive, Plano, TX 75024.

(c) The Office of Unfair Import Investigations, U.S. International Trade Commission, 500 E Street SW, Suite 401, Washington, DC 20436; and

(5) For the investigation so instituted, the Chief Administrative Law Judge, U.S. International Trade Commission, shall designate the presiding Administrative Law Judge.

Responses to the complaint and the notice of investigation must be submitted by the named respondents in accordance with section 210.13 of the Commission's Rules of Practice and Procedure, 19 CFR 210.13. Pursuant to 19 CFR 201.16(e) and 210.13(a), as amended in 85 FR 15798 (March 19, 2020), such responses will be considered by the Commission if received not later than 20 days after the date of service by the complainant of the complaint and the notice of investigation. Extensions of time for submitting responses to the complaint and the notice of investigation will not be granted unless good cause therefor is shown.

Failure of a respondent to file a timely response to each allegation in the complaint and in this notice may be deemed to constitute a waiver of the right to appear and contest the allegations of the complaint and this notice, and to authorize the administrative law judge and the Commission, without further notice to the respondent, to find the facts to be as alleged in the complaint and this notice and to enter an initial determination and a final determination containing such findings, and may result in the issuance of an exclusion order or a cease and desist order or both directed against the respondent.

By order of the Commission.

Issued: April 10, 2024.

**Lisa Barton,**

*Secretary to the Commission.*

[FR Doc. 2024–07991 Filed 4–15–24; 8:45 am]

**BILLING CODE 7020–02–P**

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## INTERNATIONAL TRADE COMMISSION

**[Investigation No. 332–600]**

## USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report

**AGENCY:** United States International Trade Commission.

**ACTION:** Scheduling of a public hearing.

**SUMMARY:** The U.S. International Trade Commission (Commission) has scheduled a public hearing for Investigation No. 332–600, *USMCA Automotive Rules of Origin: Economic Impact and Operations, 2025 Report,* for October 8, 2024.

**DATES:**

*September 24, 2024:* Deadline for filing requests to appear at the public hearing.

*September 26, 2024:* Deadline for filing prehearing briefs and statements.

*October 1, 2024:* Deadline for filing electronic copies of oral hearing statements (testimony).

*October 8, 2024:* Public hearing.

*October 16, 2024:* Deadline for filing posthearing briefs.

*November 18, 2024:* Deadline for filing all other written submissions.

*July 1, 2025:* Transmittal of Commission report to the President, the House Committee on Ways and Means, and the Senate Committee on Finance.

**ADDRESSES:** All Commission offices, including the Commission's hearing rooms, are located in the U.S. International Trade Commission Building, 500 E Street SW, Washington, DC. All written submissions should be addressed to the Secretary, U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436. The public record for this investigation may be viewed on the Commission's electronic docket (EDIS) at *https://edis.usitc.gov.*

**FOR FURTHER INFORMATION CONTACT:** Project Leader Mitch Semanik (202–205–2034 or *mitchell.semanik@usitc.gov*), or Deputy Project Leaders Nathan Lotze (202–205–3231 or *nathan.lotze@usitc.gov* or 202–205–3231) and Aaron Woodward (202–205–2663 or *aaron.woodward@usitc.gov*) for information specific to these investigations. For information on the legal aspects of this investigation, contact Brian Allen (202–205–3034 or *brian.allen@usitc.gov*) or William Gearhart (202–205–3091 or *william.gearthart@usitc.gov*) of the Commission's Office of the General Counsel. The media should contact Jennifer Andberg, Office of External Relations (202–205–3404 or *jennifer.andberg@usitc.gov*). Hearing-impaired individuals are advised that information on this matter can be obtained by contacting the Commission's TDD terminal at 202–205–1810. General information concerning the Commission may be obtained by accessing its internet address (*https://www.usitc.gov*). Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000.

**SUPPLEMENTARY INFORMATION:**

*Background:* The 2025 report will be the second of five reports that section 202A(g)(2) of the United States-Mexico-Canada Agreement Implementation Act (19 U.S.C. 4532(g)(2)) (''USMCA Implementation Act'') requires that the Commission provide on the USMCA automotive rules of origin (ROOs) and their impact on the U.S. economy, effect on U.S. competitiveness, and relevancy considering recent technology changes. In particular, the USMCA Implementation Act requires that the Commission report on the following:

(1) The economic impact of the USMCA automotive ROOs on U.S. gross domestic product; U.S. exports and imports; U.S. aggregate employment and employment opportunities; production, investment, use of productive facilities, and profit levels in the U.S. automotive industries and other pertinent industries; wages and employment of workers in the U.S. automotive sector; and the interests of U.S. consumers.

(2) The operation of the ROOs and their effects on the competitiveness of the United States with respect to

production and trade in automotive goods, taking into account developments in technology, production processes, or other related matters.

(3) Whether the ROOs are relevant in light of technological changes in the United States.

(4) Such other matters as the Commission considers relevant to the economic impact of the ROOs, including prices, sales, inventories, patterns of demand, capital investment, obsolescence of equipment, and diversification of production in the United States.

The USMCA Implementation Act requires that the Commission transmit its report on July 1, 2025. The Commission is directed to submit additional reports on USMCA automotive ROOs every two years thereafter until 2031.

*Public hearing:* A public hearing in connection with this investigation will be held beginning at 9:30 a.m., October 8, 2024, in the Main Hearing Room of the U.S. International Trade Commission, 500 E Street SW, Washington, DC 20436. The hearing can also be accessed remotely using the WebEx videoconference platform. A link to the hearing will be posted on the Commission's website at *https://www.usitc.gov/calendarpad/calendar.html.*

Requests to appear at the hearing should be filed with the Secretary to the Commission no later than 5:15 p.m., September 24, 2024, in accordance with the requirements in the ''Written Submissions'' section below. Any requests to appear as a witness via videoconference must be included with your request to appear. Requests to appear as a witness via videoconference must include a statement explaining why the witness cannot appear in person; the Chairman, or other person designated to conduct the investigation, may at their discretion for good cause shown, grant such requests. Requests to appear as a witness via videoconference due to illness or a positive COVID–19 test result may be submitted by 3 p.m. the business day prior to the hearing.

All prehearing briefs and statements should be filed no later than 5:15 p.m., September 26, 2024. To facilitate the hearing, including the preparation of an accurate written public transcript of the hearing, oral testimony to be presented at the hearing should be submitted to the Commission electronically no later than 5:15 p.m., October 1, 2024. All posthearing briefs and statements should be filed no later than 5:15 p.m., October 16, 2024. Posthearing briefs and statements should address matters raised at the hearing. For a description of the different types of written briefs and statements, see the ''Definitions of types of documents that may be filed'' section below.

In the event that, as of the close of business on September 24, 2024, no witnesses are scheduled to appear at the hearing, the hearing will be canceled. Any person interested in attending the hearing as an observer or nonparticipant should check the Commission's website as indicated above for information concerning whether the hearing will be held.

*Written submissions:* In lieu of or in addition to participating in the hearing, interested parties are invited to file written submissions concerning this investigation. All written submissions should be addressed to the Secretary, and should be received no later than 5:15 p.m., November 18, 2024. All written submissions must conform to the provisions of section 201.8 of the Commission's *Rules of Practice and Procedure* (19 CFR 201.8), as temporarily amended by 85 FR 15798 (March 19, 2020). Under that rule waiver, the Office of the Secretary will accept only electronic filings at this time. Filings must be made through the Commission's Electronic Document Information System (EDIS, *https://edis.usitc.gov*). No in-person paper-based filings or paper copies of any electronic filings will be accepted until further notice. Persons with questions regarding electronic filing should contact the Office of the Secretary, Docket Services Division (202–205–1802), or consult the Commission's Handbook on Filing Procedures.

*Definitions of types of documents that may be filed; Requirements:* In addition to requests to appear at the hearing, this notice provides for the possible filing of four types of documents: prehearing briefs, oral hearing statements, posthearing briefs, and other written submissions.

(1) *Prehearing briefs* refers to written materials relevant to the investigation and submitted in advance of the hearing, and includes written views on matters that are the subject of the investigation, supporting materials, and any other written materials that you consider will help the Commission in understanding your views. You should file a prehearing brief particularly if you plan to testify at the hearing on behalf of an industry group, company, or other organization, and wish to provide detailed views or information that will support or supplement your testimony.

(2) *Oral hearing statements (testimony)* refers to the actual oral statement that you intend to present at the hearing. Do not include any confidential business information (CBI) in that statement. If you plan to testify, you must file a copy of your oral statement by the date specified in this notice. This statement will allow Commissioners to understand your position in advance of the hearing and will also assist the court reporter in preparing an accurate transcript of the hearing (*e.g.,* names spelled correctly).

(3) *Posthearing briefs* refers to submissions filed after the hearing by persons who appeared at the hearing. Such briefs: (a) should be limited to matters that arose during the hearing; (b) should respond to any Commissioner and staff questions addressed to you at the hearing; (c) should clarify, amplify, or correct any statements you made at the hearing; and (d) may, at your option, address or rebut statements made by other participants in the hearing.

(4) *Other written submissions* refers to any other written submissions relevant to the investigation that interested persons wish to make, regardless of whether they appeared at the hearing or filed a prehearing or posthearing brief, and may include new information or updates of information previously provided.

In accordance with the provisions of section 201.8 of the Commission's Rules of Practice and Procedure (19 CFR 201.8), the document must identify on its cover (1) the investigation number and title and the type of document filed (*i.e.,* prehearing brief, oral statement of (name), posthearing brief, or written submission), (2) the name and signature of the person filing it, (3) the name of the organization that the submission is filed on behalf of, and (4) whether it contains CBI. If it contains CBI, it must comply with the marking and other requirements set out below in this notice relating to CBI. Submitters of written documents (other than oral hearing statements) are encouraged to include a short summary of their position or interest at the beginning of the document, and a table of contents when the document addresses multiple issues.

*Confidential business information:* Any submissions that contain CBI must also comply with the requirements and procedures in section 201.6 of the Commission's *Rules of Practice and Procedure* (19 CFR 201.6). Among other things, section 201.6 of the rules requires that the cover of the document and the individual pages be clearly marked as to whether they are the ''confidential'' or ''nonconfidential'' version, and that the CBI is clearly identified by means of brackets. All written submissions, except for CBI, will be made available for inspection by interested persons.

The Commission will not include any CBI in its report. However, all information, including CBI, submitted in this investigation may be disclosed to and used: (i) by the Commission, its employees and Offices, and contract personnel (a) for developing or maintaining the records of this or a related proceeding, or (b) in internal investigations, audits, reviews, and evaluations relating to the programs, personnel, and operations of the Commission, including under 5 U.S.C. appendix 3; or (ii) by U.S. Government employees and contract personnel for cybersecurity purposes. The Commission will not otherwise disclose any CBI in a way that would reveal the operations of the firm supplying the information.

*Summaries of views of interested persons:* Interested persons wishing to have a summary of their views included in the report should include a summary with a written submission no later than November 18, 2024, and must use the Commission template, which can be downloaded from *https://www.usitc.gov/docket_services/documents/firm_or_organization_summary_word_limit.pdf.* The Commission template must be uploaded as a separate attachment to the written submission filing in EDIS. The summary may not exceed 500 words and should not include any CBI. The summary will be published as provided only if it utilizes the Commission-provided template, meets these requirements, and is germane to the subject matter of the investigation. The Commission will list the name of the organization furnishing the summary and will include a link where the written submission can be found.

By order of the Commission.

Issued: April 11, 2024.

**Lisa Barton,**

*Secretary to the Commission.*

[FR Doc. 2024–08027 Filed 4–15–24; 8:45 am]

BILLING CODE 7020–02–P

## DEPARTMENT OF JUSTICE

### Antitrust Division

### Notice Pursuant to the National Cooperative Research and Production Act of 1993—Training & Readiness Accelerator II

Notice is hereby given that, on January 15, 2024, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (''the Act''), Training & Readiness Accelerator II (''TReX II'') has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Highlight Technologies, Inc., Fairfax, VA; Viasat, Inc., Tempe, AZ; Inspired Engineering Solutions LLC, Niceville, FL; E.O. Solutions LLC, Kula, HI; Vega Technology Group LLC, North Canton, OH; DESE Research, Inc., Huntsville, AL; Waltonen Engineering, Inc., Warren, MI; Origami Software Solutions, Inc., Norfolk, VA; Radius Method, Boca Raton, FL; Scientific Applications & Research Associates, Inc., Cypress, CA; Raven Defense Corp., Albuquerque, NM; Technology and Communications Systems, Inc., Safety Harbor, FL; Expedition Technology, Inc., Herndon, VA; DTCUBED LLC, Sewell, NJ; Skaion Corp., North Chelmsford, MA; Laser Shot, Inc., Stafford, VA; Laulima Systems LLC, Charlottesville, VA; II–VI Aerospace & Defense, Murrieta, CA; Torrey Pines Logic, Inc., San Diego, CA; Theissen Training Systems, Inc., Gainesville, FL; Aunautic Technologies, National City, CA; Advanced Fiber Systems, Inc., Ann Arbor, MI; Corps Solutions LLC, Stafford, VA; The Boeing Company, St. Louis, MO; Aderas, Inc., Reston, VA; Immobileyes, Inc., Kent, OH; MSI Defense Solutions, LLC, Mooresville, NC; Riverside Research, Arlington, VA; L3 Technologies, Simi Valley, CA; F3EA, Inc., Savannah, GA; Engeniusmicro, Huntsville, AL; VK Integrated Systems, Clarksville, TN; Defense Industry Advisors LLC, Dayton, OH; Technovative Applications, Brea, CA; National Technical Systems, Belcamp, MD; Virginia Tech Applied Research Corporation, Arlington, VA; Planned Systems International, Inc., Columbia, MD; SciTec, Inc., Princeton, NJ; Applied Training Solutions LLC, Greensburg, PA; Hermeus Corporation, Atlanta, GA; BlackOhm LLC, Tempe, AZ; Tybram LLC Jacksonville, FL; Spectral Sciences, Inc., Burlington, MA; Orolia Government Systems, Inc., Rochester, NY; nLIGHT DEFENSE Systems, Inc., Longmont, CO; Mass Virtual, Inc., Orlando, FL; Applied Physical Electronics LLC, Spicewood, TX; Setter Research, Inc., Greensboro, NC; and Blackrock Strategy, LLC, Huntsville, AL, have been added as parties to this venture.

Also, NAL Research Corp., Manassas, VA; Action Engineering, Golden, CO; BrainSim Technologies, Inc., Pennsylvania Furnace, PA; FactualVR, Inc., Jersey City, NJ; Design Interactive, Inc. Orlando, FL; Rise8, Inc., Tampa, FL; Vega Technology Group LLC, North Canton, OH; SparkCognition Government Services, Austin, TX; Metateq, Eugene, OR; Netrist Solutions LLC, Charleston, SC; Next Earth LLC, Ashburn, VA; CMA Technologies, Inc., Orlando, FL; W R Systems, Ltd., Fairfax, VA; and NTELX, Inc., Asheville, NC, have withdrawn as parties to this venture.

No other changes have been made in either the membership or planned activity of the group research project. Membership in this group research project remains open, and TReX II intends to file additional written notifications disclosing all changes in membership.

On February 17, 2023, TReX II filed its original notification pursuant to section 6(a) of the Act. The Department of Justice published a notice in the **Federal Register** pursuant to section 6(b) of the Act on June 13, 2023 (88 FR 38536).

The last notification was filed with the Department on October 20, 2023. A notice was published in the **Federal Register** pursuant to section 6(b) of the Act on December 15, 2023 (88 FR 86938).

**Suzanne Morris,**

*Deputy Director Civil Enforcement Operations, Antitrust Division.*

[FR Doc. 2024–07940 Filed 4–15–24; 8:45 am]

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## DEPARTMENT OF JUSTICE

### Antitrust Division

### Notice Pursuant to the National Cooperative Research and Production Act of 1993—Clean Highly Efficient Decarbonized Engines

Notice is hereby given that, on February 14, 2024, pursuant to section 6(a) of the National Cooperative Research and Production Act of 1993, 15 U.S.C. 4301 *et seq.* (''the Act''), Clean Highly Efficient Decarbonized Engines (''CHEDE–9'') has filed written notifications simultaneously with the Attorney General and the Federal Trade Commission disclosing changes in its membership. The notifications were filed for the purpose of extending the Act's provisions limiting the recovery of antitrust plaintiffs to actual damages under specified circumstances. Specifically, Cummins, Columbus, IN;

# Appendix C
# Hearing Witnesses

**CALENDAR OF PUBLIC HEARING**

Those listed below appeared in the U.S. International Trade Commission's hearing:

**Subject:** *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2025 Report*

**Inv. No.:** 332-600

**Dates and Times:** Tuesday, October 8, 2024–9:30 a.m. EST

## ***PANEL 1:***

**ORGANIZATION AND WITNESSES:**

American Automotive Policy Council (AAPC)
Washington, DC

**Matt Blunt**, President

Autos Drive America
Washington, DC

**Rory Heslington**, Vice President, Government Affairs

Mexican Association of the Automotive Industry (AMIA)
Mexico City, Mexico

**Odracir Barquera (remote)**, Chief Executive Officer

Automotive Cluster of Nuevo Leon (CLAUT)
Monterrey, Nuevo León, Mexico

**Manuel Montoya**, Chief Executive Officer

Global Automakers of Canada
Markham, Ontario, Canada

**David C. Adams**, President and Chief Executive Officer

Volkswagen Group of America, Inc.
Reston, Virginia

**Anna Schneider**, Senior Vice President, Industry and Government Relations

MEMA, The Vehicle Suppliers Association
Washington, DC

**Ana Meuwissen**, Vice President of Government Affairs

Industrial Fasteners Institute (IFI)
Independence, Ohio

**Genevieve Gurnick-Long**, Innovation Manager,
Seaway Bolt & Specials, IFI Member

**Joseph Bennett**, Vice President Sales and Marketing,
Seaway Bolt & Specials, IFI Member

**Jennifer Baker Reid**, IFI Washington Representative

## ***PANEL 2:***

**ORGANIZATION AND WITNESSES:**

American Iron and Steel Institute (AISI)
Washington, DC

**Kevin M. Dempsey**, President and Chief Executive Officer

United States Steel Corporation
Washington, DC

**Kaitlin McHugh Wojnar**, Corporate Counsel–International Trade & Public Policy

Forging Industry Association
Independence, Ohio

**James R. Warren**, President and Chief Executive Officer

**Omar S. Nashashibi**, Representative

United Steelworkers (USW)
Washington, DC

**Roy Houseman Jr.**, Legislative Director

International Union, United Automobile, Aerospace
and Agricultural Implement Workers of America (UAW)
Detroit, Michigan

**Jason Wade**, Top Administrative Assistant to UAW President Shawn Fain

University of Georgia School of Law
Athens, Georgia

**Desirée LeClercq**, Assistant Professor of Law,
Faculty Co-Director, Dean Rusk International Law Center

Economic Policy Institute
Washington, DC

**Adam S. Hersh**, Ph.D., Senior Economist

Peterson Institute for International Economics
Washington, DC

**Jeffrey J. Schott**, Senior Fellow

# Appendix D
# Summary of Views of Interested Persons

Interested persons had the opportunity to file written submissions to the U.S. International Trade Commission (Commission) in the course of this investigation and to provide summaries of the views expressed in the submissions for inclusion in this report. This appendix contains these written summaries, provided that they meet certain requirements set out in the notice of investigation (see appendix B). The Commission has not edited these summaries. This appendix also contains the names of interested persons who filed written submissions during this investigation but did not provide written summaries. A copy of each written submission is available on the Commission's Electronic Document Information System (EDIS), https://www.edis.usitc.gov, by searching for submissions related to Investigation No. 332-600. In addition, the Commission held a public hearing in connection with this investigation on October 8, 2024. The full transcript of the Commission's hearing is also available on EDIS.

# Summaries Included with Written Submission

## Aluminum Extruders Council

The Aluminum Extruders Council ("AEC") is a trade association dedicated to serving the needs of U.S. aluminum extruders. AEC members account for 80% of U.S. aluminum extrusion production and represent extrusion operations across 31 U.S. states. In 2010, several AEC members formed the AEFTC—an ad hoc coalition of U.S. aluminum extrusions manufactures—to file antidumping and countervailing duty ("AD/CVD") petitions with the U.S. Department of Commerce ("Commerce") and U.S. International Trade Commission in order to curtail dumped and/or subsidized imports of aluminum extrusions from China that were crippling the U.S. extrusions industry.

AEC believes it is necessary that the United States-Mexico-Canada Agreement ("USMCA") automotive rules of origin ("ROO") provisions be amended to add a North American smelted and cast provision with respect to aluminum to address unfair excess capacity, including from China. Additionally, the USMCA automotive ROOs provision should update and amend the lists of automotive parts and components to include additional electric vehicle parts, and also create two distinct part and component lists: one for electric vehicles and one for internal combustion engine parts.

The Chinese government and other non-market economy countries are taking advantage of our trade agreements and injuring U.S. manufacturers. First, the Chinese government is providing huge subsidies to spur Chinese investment in countries like Mexico to move production. This threatens the U.S. aluminum extrusion industry, including U.S. producers of automotive parts, future viability. For instance, Chinese companies are setting up automotive operations in Mexico to gain back door access to the U.S. market. These companies use Chinese aluminum to assemble the vehicles in Mexico and export to the United States with USMCA benefits. More importantly, there is an enormous amount of Chinese investment directly in extrusion presses in Mexico to avoid AD/CVD duties on Chinese extrusions. Second, local Mexican extruders are using highly subsidized Chinese and Russian unwrought aluminum to gain an advantage in the U.S. market and take market share, but these third-country subsidies have not been countervailed by Commerce. Such aluminum is also illegally entering the U.S. market duty free due to the Mexican government's lack of a proper aluminum import monitoring system.

# Century Aluminum Company

Century Aluminum Company ("Century") is the largest primary aluminum producer in the United States. Century operates two U.S. aluminum smelters that provide 1,200 good U.S. manufacturing jobs – a majority of which are union jobs – in Sebree, Kentucky and Mt. Holly, South Carolina. Primary aluminum is a critical mineral with a multitude of applications essential to U.S. infrastructure, renewable energy, national defense and U.S. automotive manufacturing. The U.S. Government must strengthen U.S. trade tools, including adding a smelted and cast provision for aluminum in the United States-Mexico-Canada Agreement ("USMCA") automotive rules of origin ("ROO") provisions. A smelted and cast provision is critical to secure the domestic aluminum supply chain necessary for the U.S. automotive industry and increased U.S. manufacturing competitiveness. Adding a smelted and cast provision is necessary for the effective operation of the USMCA ROOs and will increase U.S. production and trade competitiveness in automotive goods.

Given global excess aluminum capacity fueled by NME subsidies, China and other NMEs use the USMCA to circumvent U.S. trade measures – putting the U.S. aluminum value chain at risk. To maintain competitiveness, the United States must develop policies that support the whole aluminum value chain. Pursuing a smelted and cast provision in USMCA is one such policy. To help support the aluminum industry, the U.S. government also should otherwise strengthen certain aspects of its trade agreements to address adverse impacts caused by unlawful subsidies and non-market capacity expansions from China and other NMEs. Additionally, the USMCA automotive ROOs provision should update and amend the lists of automotive parts and components to include additional electric vehicle parts, and also create two distinct lists – one for electric vehicles and one for internal combustion engine vehicles. This is contemplated by the Agreement and will ensure that the list of parts used to calculate the regional value content of vehicles for purposes of receiving USMCA benefits reflects the realities of the market.

# Industrial Fasteners Institute (IFI)

The Industrial Fasteners Institute (IFI) represents the North American fastener industry, which is critical to all segments of the U.S. manufacturing industrial base, including the automotive industry. All automotive vehicles require many fasteners to hold them together. There are fasteners in the power train; the structural assembly; steering, braking and control mechanisms; and the electronics. The U.S. fastener industry employs approximately 42,000 people working at roughly 850 different manufacturing facilities. Individual companies range in size, but are often family-owned, small to medium-sized businesses.

The automotive rules of origin (ROO) in the U.S.-Mexico-Canada Trade Agreement (USMCA) were designed to benefit the North American automotive industry. While there may be some data available that shows that this benefit has occurred, IFI member experience shows that it is not that simple. Fasteners are not considered "core" parts in the USMCA so there are no specific North American content percentages that apply to them. It is possible that an original equipment manufacturer (OEM) could use fasteners in its overall calculations of North American iron and steel content, but it is not a requirement. That creates a situation where fasteners made in China, and subject to the U.S. 301 China tariff of 25%, can enter the U.S. via Mexico. The U.S. 301 China tariffs were designed to counteract unfair trade practices in China and help U.S. manufacturers continue to be globally competitive. Instead, IFI member experience is to lose business because the customer stops importing the U.S. part into Mexico (for re-export into the U.S. as a finished product) and begins to import a Chinese part into Mexico to avoid tariffs while continuing to benefit from USMCA treatment.

IFI understands that current trade law and the USMCA allow for parts to be imported into Mexico, “substantially transformed”, and then exported to the U.S. tariff-free. That practice seems to allow for a violation of the USMCA automotive ROO at least in spirit. Another scenario is the customer imports the part from China into Mexico tariff-free, and then chooses to pay the very low 2.5% tariff rate rather than claim USMCA status. The result is still the same: non-North American automotive parts are coming into the U.S. from Mexico and the China 301 tariffs are being avoided. Recent Biden Administration action to try and prevent non-North American steel and aluminum from being used in Mexico under the USMCA is a great start, but it does not address parts made of steel and aluminum, only the raw materials. IFI strongly recommends that any review of the automotive ROO as part of the USMCA review process address all potential scenarios of Chinese involvement in the trade of automotive parts into and out of Mexico. There must be adequate discussion of how best to ensure that all automotive parts, not just core parts, are made in North America to be granted USMCA treatment.

# U.S. Steel Corporation

USMCA establishes strict ROOs for qualifying automotive products, including heightened RVC requirements, phased-in LVC requirements, and steel-specific 70 percent North American origin—eventually North American “melted-and-poured” origin—purchasing thresholds. These requirements are designed to, inter alia, support and incentivize use of North American-made steel in North American-made vehicles. In this regard, USMCA’s automotive ROOs are already succeeding. As automotive supply chains shift to and within North America, the U.S. steel industry is experiencing positive commercial impacts and, in turn, is responding with significant ongoing investments in new and upgraded production capabilities. U. S. Steel alone has announced more than $4 billion worth of investments in new technology, facilities, and skilled workers since July 2020, including $270 million for a new dual corrosion-resistant steel coating line, $450 million for a new non-grain oriented electrical steel line, and $3 billion to construct an entirely new electric arc furnace mill in Osceola, Arkansas. The electrical steel line, which began operation in 2023, will serve the growing North American market for all-electric vehicles; and, collectively, these investments further U. S. Steel’s more sustainable steelmaking initiatives and efforts to achieve net-zero carbon emissions by 2050.

In the United States, Canada, and Mexico, MFN duty rates for imported vehicles are as high as 25 percent, whereas MFN duty rates for steel products are generally zero percent. Moreover, standard (i.e., not automotive) USMCA ROOs continue to confer preferential origin to certain steel products (i.e., hot-rolled, non-alloy steel) made from steel melted and poured overseas that undergoes minimal processing in North America. Without the USMCA automotive ROOs or—perhaps more effectively—an across-the-board increase of MFN duty rates for steel and steel-intensive goods, there is no tariff-reduction incentive for North American manufacturers to prioritize steel inputs melted and poured in North America. As such, compliance with USMCA’s requirements for qualifying automotive products must be regularly verified and strongly enforced to prevent steel melted and poured overseas from improperly claiming preferential treatment.

USMCA creates a straightforward and flexible certification framework. Steel producers work closely with automotive customers and OEMs throughout North America to prepare all requisite USMCA-related documentation for compliance and traceability, and the administrative burden is minor relative to USMCA's benefits. New reporting regulations/forms announced separately by customs authorities in the United States, Canada, and Mexico during 2023 and 2024 require importers to identify melt-and-pour country for all steel entries, irrespective of USMCA automotive ROOs.

Since USMCA went into effect, U. S. Steel has significantly increased shipments to both existing and new automotive customers operating in Mexico and has available capacity to further increase supply of its high-performing and increasingly sustainable automotive-grade steels as it strengthens long-term OEM partnerships and logistical supply chains throughout North America. Diligent enforcement of USMCA's automotive ROOs is critical for U.S.-based, high-wage manufacturers like U. S. Steel to continue effectively competing for major automotive customer accounts and, furthermore, will maximize USMCA-related economic, operational, and employment benefits at all levels of the North American automotive supply chain.

# Written Submissions Without Summaries

The following interested persons filed written submissions without summaries. Please see EDIS for full submissions.

Alliance for American Manufacturing

American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)

American Iron and Steel Institute

Cámara Nacional de la Industria del Hierro y del Acero (CANACERO, also known as the Mexican National Chamber of Iron and Steel Industry)

Carpenter Technology

Citizens Trade Campaign

Desirée LeClercq

Economic Policy Institute

Ford Motor Company

Forging Industry Association

International Union, United Automobile, Aerospace and Agricultural Implement Workers of America (UAW)

Mexican Association of the Automotive Industry (AMIA)

Steel Manufacturers Association

Volkswagen Group of America, Inc.

# Appendix E
# Technological Change, the Harmonized System, and Trade Agreements

The *Harmonized Commodity Description and Coding System* (*Harmonized System* or HS) is implemented under the International Convention on the *Harmonized Commodity Description and Coding System* (HS Convention) and maintained by the World Customs Organization in Brussels, Belgium. HS codes, which are applied by more than 200 countries and cover nearly all global trade in goods, are composed of a chapter (first two digits), a heading (first four digits), and a subheading (first six digits).[525] National tariff codes, including the *Harmonized Tariff Schedule of the United States* (HTS), provide additional digits at the end of an HS code to set rates of duty or provide product granularity information (figure E.1). Because HS codes are aligned, or "harmonized," across borders, they serve as a universal economic language and code for goods and provide the means to formulate rules of origin (ROOs) in trade agreements.[526]

Products may be specifically provided for or identified by their common, commercial, or technical names in an article or product description (i.e., the text to a heading or subheading).[527] For example, "windshield wipers, defrosters, and demisters" are specifically named in subheading 8512.40. When products are not specifically identified by name in the HS, they are classified in a "residual" subheading under the appropriate 4-digit heading, commonly identified by the article description "Other." Some vehicle parts, for instance, like door assemblies and drive shafts, are provided for in subheadings 8708.29 and 8708.99, respectively, which are residual subheadings under heading 8708, "Parts and accessories of the motor vehicles of headings 8701 to 8705."[528] Goods provided for in residual subheadings are grouped together with a wide variety of other goods not specifically provided for in the respective heading, which can pose challenges in terms of classification and data collection. However, products need not be classified in a residual subheading indefinitely because the HS Convention provides a process whereby new subheadings can be created.

[525] The United States and other major trading countries subdivide their tariff codes further at the 8-digit level, supported by legal notes. The United States sometimes subdivides some of its 8-digit codes further at the 10-digit level for statistical purposes.
[526] The HS currently has more than 1,200 headings at the 4-digit level, which are subdivided into more than 5,600 subheadings at the 6-digit level. WCO, "Frequently Asked Questions Related to the Harmonized System," accessed January 6, 2025. The HTS has more than 11,400 subheadings at the 8-digit level and more than 19,500 statistical reporting numbers at the 10-digit level. USITC, "The 2025 Harmonized Tariff Schedule of the United States (HTS) Item Count" accessed April 22, 2025.
[527] CBP, "Informed Compliance on Tariff Classification," May 2004.
[528] CBP, CROSS database, "NY Ruling Letter N315132, The Tariff Classification of Back Door and Trunk Lid Assemblies from Japan," October 26, 2020; CBP, CROSS database, "NY Ruling Letter N267894, The Tariff Classification of Drive Shaft Assembly from South Korea," August 28, 2015.

**Figure E.1** Comparing Harmonized Commodity Description and Coding System (HS) and Harmonized Tariff Schedule of the United States (HTS) codes

## Comparing the HTS to the HS

(HTS code example)

8507.10.0060

| HTS | | HS |
|---|---|---|
| 85<br>Chapter | ← Identical → | 85<br>Chapter |
| 8507<br>Heading | ← Identical → | 8507<br>Heading |
| 8507.10<br>Subheading (HS Code) | ← Identical → | 8507.10<br>Subheading (HS Code) |
| 8507.10.00<br>Subheading (determines Duty) | | |
| 8507.10.0060<br>Statistical suffix (further definition and makeup) | | |

Source: USITC, "A Guide to the HTS," accessed January 15, 2025.

# The Amendment Process for New HS Codes

The HS is subject to continually rotating review cycles, with each cycle resulting in a new edition of the HS every five to six years containing a set of amendments.[529] Since its establishment in 1988, the HS has been amended six times. The current version came into force in 2022, and the next version will enter into force in 2028. Amending the HS on a continual basis provides the opportunity to account for new types of technologies and changing patterns and volumes of international trade. Figure E.2 provides a brief outline of the HS amendment process.[530]

**Figure E.2** HS amendment process

HS = *Harmonized Commodity Description and Coding System*; WCO = World Customs Organization.

**Develop proposals**

- Customs administrations, in consultation with countries' industry, trade, and other government agencies (such as ministries of agriculture, etc.) develop proposals on how to amend the HS and send them to the WCO.

**Examine proposals**

- Next, the WCO examines the proposals submitted by Customs administrations and relevant international organizations, and develops amendments to the HS. All accepted amendments are included in new versions of the HS, which are adopted generally every five years.

**Implement the new HS**

- Customs administrations then implement the new version of the HS by updating national tariffs, while other government agencies update tariff-based laws and regulations, and trade and industry update their product databases and other tools, which is how the new version is implemented at the national level.

Source: WCO, "CLiKC!," accessed December 17, 2024.

For example, rechargeable batteries are currently provided for in HS heading 8507 and classified at the subheading level according to their chemistry. However, in 2007, HS heading 8507 did not include subheadings for lithium-ion batteries and nickel-metal hydride batteries, two chemistries that have since become increasingly common. Instead, these two batteries were grouped together with other batteries

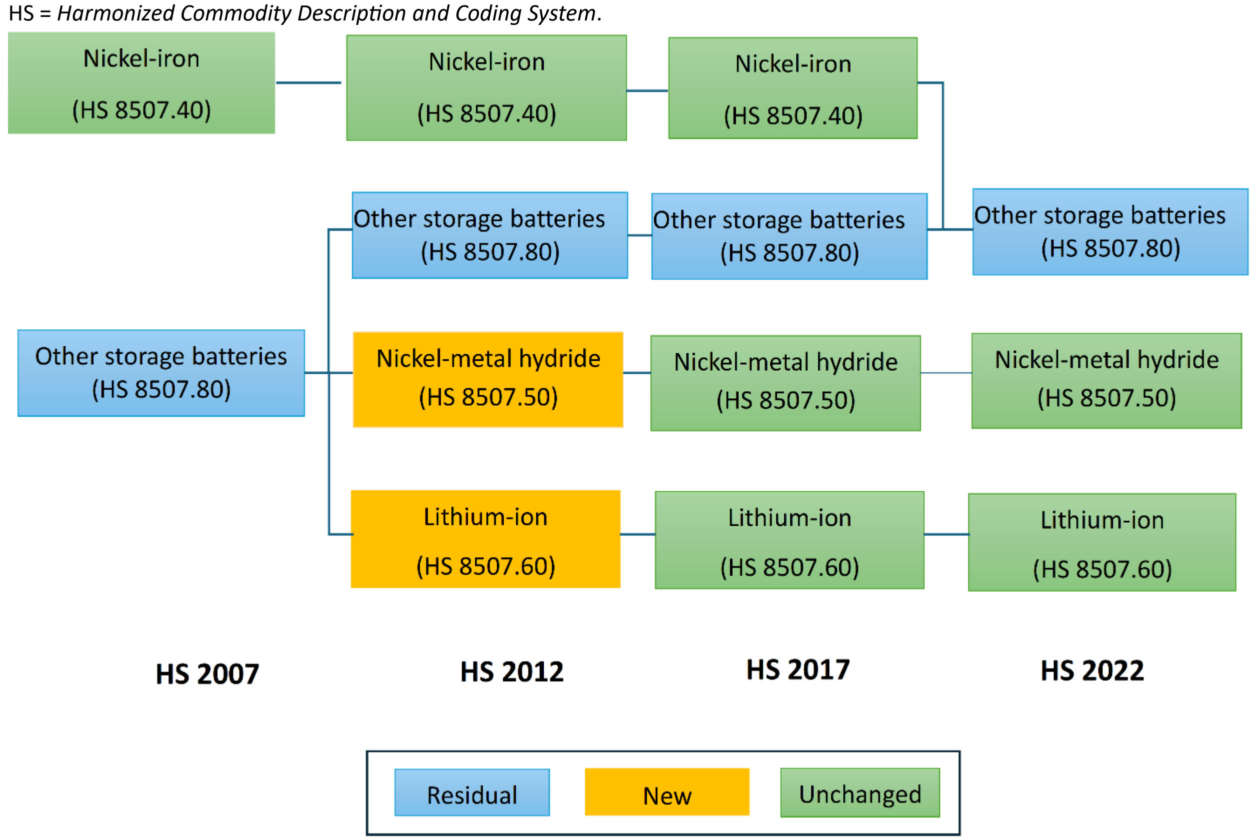
[529] Previous versions of the HS include HS 1992, HS 1996, HS 2002, HS 2007, HS 2012, and HS 2017.
[530] WCO, "Guidance on How to Submit a HS Change Proposal," accessed December 3, 2024.

(including sodium-ion and lithium metal batteries, which are discussed in chapter 5) not specifically provided for, in the residual subheading 8507.80.

As part of the 2012 cycle, proposals to create new subheadings for nickel-metal hydride (8507.50) and lithium-ion batteries (8507.60) were introduced and adopted (figure E.3).[531] When these two new subheadings were adopted, it changed the scope of the residual subheading 8507.80; however, as part of the 2022 cycle, nickel-iron batteries of subheading 8507.40 were merged into subheading 8507.80 (effectively increasing the scope of the residual subheading) because of low trade in that product.[532] Therefore, the scope of headings and subheadings can change from one version of the HS to another.

**Figure E.3** HS changes for certain batteries, HS 2007 to HS 2022

HS = *Harmonized Commodity Description and Coding System*.




Source: WTO, "HS Tracker," 2023.

Creating specific subheadings from residual subheadings via the HS amendment process, as in the example of batteries in heading 8507, allows Customs administrations to identify and classify these

[531] Proposals to amend the HS are typically introduced at the Harmonized System Review Sub-Committee. Proposals identify the following information: the types of goods covered and how they are defined, where the goods are currently classified in the HS, and the rationale for making the proposal (e.g., increasing levels of trade, environmental concerns, clarification on classification, etc.). WCO, "Guidance on How to Submit a HS Change Proposal," accessed December 3, 2024.

[532] Chapter 5 of this report notes that nickel-iron batteries, formerly classified in HS subheading 8507.40, are listed in United States-Mexico-Canada Agreement, 19 C.F.R. Appendix A to Part 182, Table C, even though they are no longer used for battery-electric vehicles.

goods more easily.[533] Amendments such as these also enable more accurate trade data to be collected on products of increasing importance in international trade. Furthermore, establishing specific HS subheadings allows negotiators to craft specific ROOs following the specifications of those products and not those of a wide range of products that are found in residual subheadings. However, if these specific and updated subheadings are not accounted for in the ROOs of trade agreements, then the ROOs will not adequately address those specific products.[534]

[533] Conversely, removing subheadings for products no longer traded in large volumes, such is nickel-iron batteries, provides space for new technologies for subheadings in the future.

[534] The "battery chemistries" section in chapter 5 examines the increasing use of other battery chemistries, including sodium-ion batteries, which are currently classified in the residual HS subheading 8507.80.

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# Appendix F
# Relevant Automotive HTS Subheadings and Statistical Reporting Numbers

Unless otherwise stated, this report uses the following *Harmonized Commodity Description and Coding System* (HS) subheadings (imports and exports), *Harmonized Tariff Schedule of the United States* (HTS) statistical reporting numbers (U.S. imports), and U.S. Census Bureau Schedule B statistical reporting numbers (U.S. exports) whenever discussing one of the following terms or categories of motor vehicles or automotive parts.

**Table F.1** *Harmonized Commodity Description and Coding System* (HS) subheadings for light vehicles

| HS subheading | Vehicle category | HS description |
|---|---|---|
| 8703.21 | Passenger vehicle | Vehicles for the transport of persons with only a spark-ignition internal combustion piston engine of a cylinder capacity not exceeding 1,000 cc |
| 8703.22 | Passenger vehicle | Vehicles for the transport of persons with only a spark-ignition internal combustion piston engine of a cylinder capacity exceeding 1,000 cc but not exceeding 1,500 cc |
| 8703.23 | Passenger vehicle | Vehicles for the transport of persons with only a spark-ignition internal combustion piston engine of a cylinder capacity exceeding 1,500 cc but not exceeding 3,000 cc |
| 8703.24 | Passenger vehicle | Vehicles for the transport of persons with only a spark-ignition internal combustion piston engine of a cylinder capacity exceeding 3,000 cc |
| 8703.31 | Passenger vehicle | Vehicles for the transport of persons with only a compression-ignition internal combustion piston engine of a cylinder capacity not exceeding 1,500 cc |
| 8703.32 | Passenger vehicle | Vehicles for the transport of persons with only a compression-ignition internal combustion piston engine of a cylinder capacity exceeding 1,500 cc but not exceeding 2,500 cc |
| 8703.33 | Passenger vehicle | Vehicles for the transport of persons with only a compression-ignition internal combustion piston engine of a cylinder capacity exceeding 2,500 cc |
| 8703.40 | Passenger vehicle | Vehicles for the transport of persons with both spark-ignition internal combustion piston engine and electric motor as motors for propulsion, other than those capable of being charged by plugging to external source of electric power |
| 8703.50 | Passenger vehicle | Vehicles for the transport of persons with both compression-ignition internal combustion piston engine and electric motor as motors for propulsion, other than those capable of being charged by plugging to external source of electric power |
| 8703.60 | Passenger vehicle | Vehicles for the transport of persons with both spark-ignition internal combustion piston engine and electric motor as motors for propulsion, capable of being charged by plugging to external source of electric power |
| 8703.70 | Passenger vehicle | Vehicles for the transport of persons with both compression-ignition internal combustion piston engine and electric motor as motors for propulsion, capable of being charged by plugging to external source of electric power |
| 8703.80 | Passenger vehicle | Vehicles for the transport of persons with only electric motors for propulsion |
| 8703.90 | Passenger vehicle | Other vehicles designed for the transport of persons (other than those of heading 8702) |
| 8704.21 | Light truck | Vehicles for the transport of goods with only a compression-ignition internal combustion engine not exceeding 5 metric tons |

| HS subheading | Vehicle category | HS description |
|---|---|---|
| 8704.31 | Light truck | Vehicles for the transport of goods with only a spark-ignition internal combustion engine not exceeding 5 metric tons |

Source: World Customs Organization. (2022). *HS Nomenclature 2022 edition*.

**Table F.2** *Harmonized Commodity Description and Coding System* **(**HS) subheadings for heavy trucks

| HS subheading | HS description |
|---|---|
| 8701.21 | Road tractor with only a compression-ignition internal combustion piston engine (diesel or semi-diesel) |
| 8701.22 | Road tractor with both a compression-ignition internal combustion piston engine (diesel or semi-diesel) and electric motor as motors for propulsion |
| 8701.23 | Road tractor with both a spark-ignition internal combustion piston engine and electric motor as motors for propulsion |
| 8701.24 | Road tractor with only electric motor as motors for propulsion |
| 8701.29 | Other road tractors |
| 8704.22 | Vehicles for the transport of goods with only a compression-ignition internal combustion piston engine exceeding 5 metric tons but not exceeding 20 metric tons |
| 8704.23 | Vehicles for the transport of goods with only a compression-ignition internal combustion piston engine exceeding 20 metric tons |
| 8704.32 | Vehicles for the transport of goods with only a spark-ignition internal combustion piston engine exceeding 5 metric tons |
| 8704.41 | Vehicles for the transport of goods with both compression-ignition internal combustion piston engine and electric motor as motors for propulsion not exceeding 5 metric tons |
| 8704.42 | Vehicles for the transport of goods with both compression-ignition internal combustion (diesel or semi-diesel) piston engine and electric motor as motors for propulsion exceeding 5 metric tons but not exceeding 20 metric tons |
| 8704.43 | Vehicles for the transport of goods with both compression-ignition internal combustion piston engine and electric motor as motors for propulsion exceeding 20 metric tons |
| 8704.51 | Vehicles for the transport of goods with both spark-ignition internal combustion piston engine and electric motor as motors for propulsion not exceeding 5 metric tons |
| 8704.52 | Vehicles for the transport of goods with both spark-ignition internal combustion piston engine and electric motor as motors for propulsion exceeding 5 metric tons |
| 8704.60 | Vehicles for the transport of goods with only electric motor for propulsion |
| 8704.90 | Other vehicles for the transport of goods |

Source: World Customs Organization. (2022). *HS Nomenclature 2022 edition*.

Notes: The heavy truck category in the United States-Mexico-Canada Agreement (USMCA) also includes any chassis fitted with an engine of heading 87.06 that is for use in a vehicle of subheading 8701.21, 8704.22, 8704.23, 8704.32, or 8704.90, except for a vehicle that is solely or principally for off-road use. Additionally, some of these subheadings (8701.21, 8701.22, 8701.23, 8701.24, 8701.29, 8704.41, 8704.42, 8704.43, 8704.51, 8704.52, and 8704.60), which cover electric vehicles and hybrid trucks, do not appear in the USMCA automotive rules of origin or the USMCA Uniform Regulations because they were new HS subheadings from the 2022 edition and the USMCA is written in nomenclature from the 2012 edition. Vehicles of these subheadings would have previously been classified in 8701.20 or 8704.90 in HS 2012, and both those subheadings are classified under heavy trucks in the USMCA. For more information on these new electric vehicle and hybrid truck subheadings, see chapter 5.

**Table F.3** U.S. *Harmonized Tariff Schedule of the United States* (HTS) statistical reporting numbers for vehicle parts

— (em dash) = not applicable.

| HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number |
|---|---|---|---|---|---|
| 3819.00.0000 | 4016.99.5010 | 8415.83.0040 | 8525.20.9020 | 8708.40.1000 | 8708.99.5045 |
| 3819.00.0010 | 4016.99.5500 | 8415.90.0040 | 8525.60.1010 | 8708.40.1110 | 8708.99.5060 |
| 3819.00.0090 | 4016.99.6010 | 8415.90.8040 | 8527.21.1005 | 8708.40.1150 | 8708.99.5070 |
| 3820.00.0000 | 6813.10.0050 | 8415.90.8045 | 8527.21.1010 | 8708.40.2000 | 8708.99.5080 |
| 4009.12.0020 | 6813.20.0015 | 8421.23.0000 | 8527.21.1015 | 8708.40.5000 | 8708.99.5085 |
| 4009.22.0020 | 6813.20.0025 | 8421.31.0000 | 8527.21.1020 | 8708.40.7000 | 8708.99.5090 |
| 4009.32.0020 | 6813.81.0050 | 8421.32.0000 | 8527.21.1025 | 8708.40.7500 | 8708.99.5200 |
| 4009.42.0020 | 6813.89.0050 | 8421.39.4000 | 8527.21.1030 | 8708.40.7570 | 8708.99.5025 |
| 4009.50.0020 | 6813.90.0050 | 8425.49.0000 | 8527.21.4000 | 8708.40.7580 | 8708.99.5300 |
| 4010.10.1020 | 7007.11.0000 | 8426.91.0000 | 8527.21.4040 | 8708.50.3000 | 8708.99.5500 |
| 4011.10.0010 | 7007.11.0010 | 8431.10.0090 | 8527.21.4080 | 8708.50.5000 | 8708.99.5800 |
| 4011.10.0050 | 7007.21.1000 | 8482.10.1000 | 8527.21.1500 | 8708.50.5110 | 8708.99.6100 |
| 4011.10.1000 | 7007.21.1010 | 8482.10.1040 | 8527.21.2510 | 8708.50.5150 | 8708.99.6400 |
| 4011.10.1010 | 7007.21.1110 | 8482.10.1080 | 8527.21.2525 | 8708.50.6100 | 8708.99.6700 |
| 4011.10.1020 | 7007.21.5000 | 8482.10.5044 | 8527.29.0020 | 8708.50.6500 | 8708.99.6710 |
| 4011.10.1030 | 7007.21.5100 | 8482.10.5048 | 8527.29.0040 | 8708.50.7900 | 8708.99.6720 |
| 4011.10.1040 | 7009.10.0000 | 8482.20.0010 | 8527.29.0060 | 8708.50.8000 | 8708.99.6790 |
| 4011.10.1050 | 7315.11.0005 | 8482.20.0020 | 8527.29.4000 | 8708.50.8100 | 8708.99.6805 |
| 4011.10.1060 | 7318.16.0010 | 8482.20.0030 | 8527.29.8000 | 8708.50.8500 | 8708.99.6810 |
| 4011.10.1070 | 7318.16.0015 | 8482.20.0040 | 8527.29.8020 | 8708.50.8900 | 8708.99.6820 |
| 4011.10.5000 | 7318.16.0030 | 8482.20.0050 | 8527.29.8060 | 8708.50.9110 | 8708.99.6890 |
| 4011.20.0005 | 7318.16.0045 | 8482.20.0060 | 8531.80.0038 | 8708.50.9150 | 8708.99.7030 |
| 4011.20.0010 | 7320.10.0015 | 8482.20.0061 | 8531.80.8038 | 8708.50.9300 | 8708.99.7060 |
| 4011.20.0015 | 7320.10.3000 | 8482.20.0064 | 8531.80.9031 | 8708.50.9500 | 8708.99.7330 |
| 4011.20.0020 | 7320.10.6015 | 8482.20.0070 | 8531.80.9038 | 8708.50.9900 | 8708.99.7360 |
| 4011.20.0025 | 7320.10.6060 | 8482.20.0080 | 8536.41.0005 | 8708.60.5000 | 8708.99.8005 |
| 4011.20.0030 | 7320.20.1000 | 8482.20.0081 | 8536.90.6000 | 8708.60.8010 | 8708.99.8015 |
| 4011.20.0035 | 8301.20.0000 | 8482.20.0090 | 8539.10.0010 | 8708.60.8050 | 8708.99.8045 |
| 4011.20.0050 | 8301.20.0030 | 8482.40.0000 | 8539.10.0020 | 8708.70.4530 | 8708.99.8060 |
| 4011.20.1005 | 8301.20.0060 | 8482.50.0000 | 8539.10.0040 | 8708.70.4545 | 8708.99.8080 |
| 4011.20.1015 | 8302.10.3000 | 8483.10.1030 | 8539.10.0050 | 8708.70.4560 | 8708.99.8105 |
| 4011.20.1025 | 8302.30.3000 | 8483.10.3010 | 8539.21.2040 | 8708.70.6030 | 8708.99.8115 |
| 4011.20.1035 | 8302.30.3010 | 8501.32.4500 | 8544.30.0000 | 8708.70.6045 | 8708.99.8160 |
| 4011.20.5010 | 8302.30.3060 | 8507.10.0060 | 8707.10.0020 | 8708.70.6060 | 8708.99.8180 |
| 4011.20.5020 | 8302.30.6000 | 8507.30.4000 | 8707.10.0040 | 8708.70.8010 | 8716.90.5010 |
| 4011.20.5030 | 8407.34.1400 | 8507.40.4000 | 8707.90.5020 | 8708.70.8015 | 8716.90.5030 |
| 4011.20.5050 | 8407.34.1540 | 8507.60.0010 | 8707.90.5040 | 8708.70.8025 | 8716.90.5035 |
| 4012.10.4005 | 8407.34.1580 | 8507.80.4100 | 8707.90.5060 | 8708.70.8030 | 8716.90.5050 |
| 4012.10.4015 | 8407.34.1800 | 8507.90.4000 | 8707.90.5080 | 8708.70.8035 | 8716.90.5040 |
| 4012.10.4025 | 8407.34.2040 | 8507.90.8000 | 8708.10.0010 | 8708.70.8045 | 8716.90.5045 |
| 4012.10.4035 | 8407.34.2080 | 8511.10.0000 | 8708.10.0050 | 8708.70.8050 | 8716.90.5055 |
| 4012.10.5005 | 8407.34.4400 | 8511.20.0000 | 8708.10.3010 | 8708.70.8060 | 8716.90.5056 |

| HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number | HTS statistical reporting number |
|---|---|---|---|---|---|
| 4012.10.5009 | 8407.34.4540 | 8511.30.0040 | 8708.10.3050 | 8708.70.8075 | 8716.90.5059 |
| 4012.10.5015 | 8407.34.4580 | 8511.30.0080 | 8708.10.6010 | 8708.80.1300 | 8716.90.5060 |
| 4012.10.5019 | 8407.34.4800 | 8511.40.0000 | 8708.10.6050 | 8708.80.1600 | 9029.10.4000 |
| 4012.10.5025 | 8408.20.2000 | 8511.50.0000 | 8708.21.0000 | 8708.80.3000 | 9029.10.8000 |
| 4012.10.5029 | 8409.91.1040 | 8511.80.2000 | 8708.22.0000 | 8708.80.4500 | 9029.20.4080 |
| 4012.10.5035 | 8409.91.3000 | 8511.80.6000 | 8708.29.0010 | 8708.80.5000 | 9029.90.2000 |
| 4012.10.5050 | 8409.91.5010 | 8511.90.2000 | 8708.29.0025 | 8708.80.6000 | 9029.90.8040 |
| 4012.10.8009 | 8409.91.5080 | 8511.90.6020 | 8708.29.0050 | 8708.80.6510 | 9029.90.8080 |
| 4012.10.8019 | 8409.91.5081 | 8511.90.6040 | 8708.29.0060 | 8708.80.6590 | 9104.00.2510 |
| 4012.10.8029 | 8409.91.5085 | 8512.20.2000 | 8708.29.1000 | 8708.91.5000 | 9104.00.4000 |
| 4012.10.8050 | 8409.91.9110 | 8512.20.2040 | 8708.29.1500 | 8708.91.7000 | 9104.00.4510 |
| 4012.11.4000 | 8409.91.9190 | 8512.20.4000 | 8708.29.2000 | 8708.91.7510 | 9401.20.0000 |
| 4012.11.8000 | 8409.91.9910 | 8512.20.4040 | 8708.29.2500 | 8708.91.7550 | 9401.20.0010 |
| 4012.12.4015 | 8409.99.1040 | 8512.30.0020 | 8708.29.5010 | 8708.92.5000 | 9401.20.0090 |
| 4012.12.4025 | 8409.99.9110 | 8512.30.0030 | 8708.29.5025 | 8708.92.7000 | 9401.90.1000 |
| 4012.12.4035 | 8409.99.9190 | 8512.30.0040 | 8708.29.5060 | 8708.92.7500 | 9401.90.1010 |
| 4012.12.8019 | 8413.30.1000 | 8512.40.2000 | 8708.29.5110 | 8708.93.5000 | 9401.90.1020 |
| 4012.12.8029 | 8413.30.9000 | 8512.40.4000 | 8708.29.5125 | 8708.93.6000 | 9401.90.1080 |
| 4012.12.8050 | 8413.30.9030 | 8512.90.2000 | 8708.29.5160 | 8708.93.7500 | 9401.90.1085 |
| 4012.19.4000 | 8413.30.9060 | 8512.90.6000 | 8708.30.1090 | 8708.94.5000 | 9401.91.1500 |
| 4012.19.8000 | 8413.30.9090 | 8512.90.7000 | 8708.30.5020 | 8708.94.7000 | 9401.99.1010 |
| 4012.20.5000 | 8413.91.1000 | 8512.90.9000 | 8708.30.5030 | 8708.94.7510 | 9401.99.1020 |
| 4012.20.6000 | 8413.91.9010 | 8517.12.0020 | 8708.30.5040 | 8708.94.7550 | 9401.99.1085 |
| 4013.10.0010 | 8414.30.8030 | 8517.14.0020 | 8708.30.5090 | 8708.95.0500 | 9403.90.1040 |
| 4013.10.0020 | 8414.59.3000 | 8519.81.2000 | 8708.31.5000 | 8708.95.2000 | 9403.90.1050 |
| 4016.93.1010 | 8414.59.6040 | 8519.91.0020 | 8708.39.1090 | 8708.99.3000 | 9403.90.1085 |
| 4016.93.1020 | 8414.59.8040 | 8519.91.1000 | 8708.39.5010 | 8708.99.5005 | 9403.99.1040 |
| 4016.93.1050 | 8414.59.6540 | 8519.93.4000 | 8708.39.5020 | 8708.99.5010 | 9403.99.1050 |
| 4016.93.1090 | 8414.80.0500 | 8525.20.1500 | 8708.39.5030 | 8708.99.5020 | 9403.99.1085 |
| 4016.99.3000 | 8415.20.0000 | 8525.20.6020 | 8708.39.5050 | 8708.99.5030 | — |

Source: USDOC, "Automotive Parts Product Codes," accessed March 4, 2025.

**Table F.4** U.S. Schedule B statistical reporting numbers for vehicle parts
— (em dash) = not applicable.

| Schedule B statistical reporting number | Schedule B statistical reporting number | Schedule B statistical reporting number | Schedule B statistical reporting number | Schedule B statistical reporting number | Schedule B statistical reporting number |
|---|---|---|---|---|---|
| 3819.00.0000 | 6813.10.0000 | 8425.49.0000 | 8512.30.0030 | 8708.29.0060 | 8708.99.0070 |
| 3820.00.0000 | 6813.20.0000 | 8426.91.0000 | 8512.30.0050 | 8708.29.0110 | 8708.99.0090 |
| 4009.12.0020 | 6813.81.0000 | 8431.10.0090 | 8512.40.2000 | 8708.29.0125 | 8708.99.0095 |
| 4009.22.0020 | 6813.89.0000 | 8482.10.1000 | 8512.40.4000 | 8708.29.0160 | 8708.99.5800 |
| 4009.32.0020 | 6813.90.0000 | 8482.10.5044 | 8512.90.2000 | 8708.29.5025 | 8708.99.6100 |
| 4009.42.0020 | 7007.11.0000 | 8482.10.5048 | 8512.90.5000 | 8708.29.5070 | 8708.99.8015 |
| 4009.50.0020 | 7007.21.1000 | 8482.20.0020 | 8512.90.8000 | 8708.29.5170 | 8708.99.8030 |
| 4011.10.0010 | 7007.21.1100 | 8482.20.0030 | 8517.12.0020 | 8708.30.0010 | 8708.99.8075 |
| 4011.10.0050 | 7007.21.5000 | 8482.20.0040 | 8517.14.0020 | 8708.30.0050 | 8708.99.8115 |
| 4011.10.1000 | 7007.21.5100 | 8482.20.0060 | 8519.81.2000 | 8708.31.0000 | 8708.99.8130 |
| 4011.10.5000 | 7009.10.0000 | 8482.20.0070 | 8525.20.1000 | 8708.39.0000 | 8708.99.8175 |
| 4011.20.0005 | 7320.10.0000 | 8482.20.0080 | 8525.20.6000 | 8708.40.1000 | 8716.90.0000 |
| 4011.20.0010 | 7320.20.1000 | 8482.40.0000 | 8525.20.9020 | 8708.40.1110 | 8716.90.5000 |
| 4011.20.0015 | 8301.20.0000 | 8482.50.0000 | 8525.20.9050 | 8708.40.1150 | 9029.10.0000 |
| 4011.20.0020 | 8302.10.3000 | 8483.10.1020 | 8525.60.1010 | 8708.40.2000 | 9029.20.5000 |
| 4011.20.0025 | 8302.30.0000 | 8483.10.3010 | 8527.19.0000 | 8708.40.3500 | 9029.90.0000 |
| 4011.20.0030 | 8407.34.2000 | 8507.10.0050 | 8527.21.0000 | 8708.40.6000 | 9104.00.0000 |
| 4011.20.0035 | 8407.34.2030 | 8507.10.0060 | 8527.29.0000 | 8708.40.8000 | 9401.20.0000 |
| 4011.20.0050 | 8407.34.2090 | 8507.40.0000 | 8531.80.0038 | 8708.50.0050 | 9401.90.1000 |
| 4011.20.1005 | 8408.20.2000 | 8507.60.0000 | 8531.80.9038 | 8708.50.4110 | 9401.90.1010 |
| 4011.20.1015 | 8409.91.4000 | 8507.80.0100 | 8536.41.0005 | 8708.50.4150 | 9401.90.1080 |
| 4011.20.1025 | 8409.99.4000 | 8507.90.4000 | 8539.10.0020 | 8708.50.7200 | 9401.91.1500 |
| 4011.20.1035 | 8413.30.1000 | 8507.90.4050 | 8539.10.0040 | 8708.60.0050 | 9401.99.1010 |
| 4011.20.5010 | 8413.30.9000 | 8507.90.8000 | 8544.30.0000 | 8708.70.0050 | 9401.99.1080 |
| 4011.20.5020 | 8413.91.1000 | 8511.10.0000 | 8707.10.0020 | 8708.80.0050 | 9403.90.0100 |
| 4011.20.5030 | 8413.91.9010 | 8511.20.0000 | 8707.10.0040 | 8708.80.5000 | 9403.90.0550 |
| 4011.20.5050 | 8414.30.8030 | 8511.30.0040 | 8707.90.5020 | 8708.80.7000 | 9403.99.9100 |
| 4012.10.5020 | 8414.59.3000 | 8511.30.0080 | 8707.90.5040 | 8708.91.5000 | 9403.99.9350 |
| 4012.10.6000 | 8414.59.6040 | 8511.40.0000 | 8707.90.5060 | 8708.91.8000 | — |
| 4012.11.0000 | 8414.59.8040 | 8511.50.0000 | 8707.90.5080 | 8708.92.5000 | — |
| 4012.12.0000 | 8414.80.0500 | 8511.80.2000 | 8708.10.0010 | 8708.92.8000 | — |
| 4012.19.0000 | 8415.20.0000 | 8511.80.6000 | 8708.10.0050 | 8708.93.5000 | — |
| 4012.20.0000 | 8415.83.0040 | 8511.90.6020 | 8708.21.0000 | 8708.94.5000 | — |
| 4013.10.0010 | 8421.23.0000 | 8511.90.8000 | 8708.22.0000 | 8708.94.8000 | — |
| 4013.10.0020 | 8421.31.0000 | 8512.20.2000 | 8708.29.0010 | 8708.95.0000 | — |
| 4013.90.0000 | 8421.32.0000 | 8512.20.4000 | 8708.29.0025 | 8708.99.0045 | — |
| 4016.99.5010 | 8421.39.4000 | 8512.30.0000 | 8708.29.0050 | 8708.99.0050 | — |

Source: USDOC, "Automotive Parts Product Codes," accessed March 4, 2025.

**Table F.5** *Harmonized Commodity Description and Coding System* (HS) auto parts HS subheadings
— (em dash) = not applicable.

| HS subheading | HS subheading | HS subheading | HS subheading | HS subheading | HS subheading |
|---|---|---|---|---|---|
| 4011.10 | 8301.20 | 8511.20 | 8527.29 | 8708.30 | 8716.90 |
| 4011.20 | 8302.30 | 8511.30 | 8539.10 | 8708.40 | 9029.10 |
| 4012.11 | 8407.34 | 8511.40 | 8539.21 | 8708.50 | 9029.20 |
| 4012.12 | 8408.20 | 8511.50 | 8539.21 | 8708.70 | 9029.90 |
| 4012.19 | 8409.91 | 8511.80 | 8544.30 | 8708.80 | 9104.00 |
| 4013.10 | 8409.99 | 8511.90 | 8707.10 | 8708.91 | 9401.20 |
| 4016.93 | 8414.30 | 8512.20 | 8707.90 | 8708.92 | 9401.90 |
| 7007.11 | 8415.20 | 8512.30 | 8708.10 | 8708.93 | 9401.99 |
| 7007.21 | 8425.49 | 8512.40 | 8708.21 | 8708.94 | — |
| 7009.10 | 8426.91 | 8512.90 | 8708.22 | 8708.95 | — |
| 7320.10 | 8511.10 | 8527.21 | 8708.29 | 8708.99 | — |

Source: Compiled by USITC staff from USDOC, "Automotive Parts Product Codes," accessed April 7, 2023. Due to data refinement, this table differs from the corresponding table in the Commission's 2023 report.

# Appendix G
# Description of the Commission's Survey Methodology

Under the United States-Mexico-Canada Agreement (USMCA) Implementation Act, the U.S. International Trade Commission (Commission) is required to submit a series of reports on the estimated effects of the USMCA automotive rules of origin (ROOs) on sourcing changes and related production costs involving established supply chains and motor vehicle production, new motor vehicle production, and motor vehicle parts and materials. The report analyzes how the ROOs impact the U.S. economy and automotive industry, how the ROOs affect U.S. competitiveness, and whether the ROOs remain relevant in light of technological changes.

The first of the reports was delivered on June 30, 2023. For this second report, the Commission issued a questionnaire to conduct a survey of motor vehicle producers that have manufactured and assembled motor vehicles in the United States since January 1, 2018. Using the data collected via the questionnaire along with data from external sources, the Commission estimated the effects of ROOs on the aforementioned factors. This appendix discusses the Commission's approach to compiling the survey population, drafting its questionnaire, collecting data and analyzing questionnaire responses, and presenting findings in this report.

# Survey Process

The survey process for this investigation consisted of three major steps. First, the Commission identified motor vehicle producers that have manufacturing and assembly operations in the United States (i.e., the survey population). Second, the Commission developed and sent out a questionnaire to all firms identified. Third, the Commission combined individual responses to produce statistics relevant to the full population. The Commission also used individual responses in its economic model, described in chapter 4 and appendix I of this report.

# Survey Population Development

The survey population for this report is composed of motor vehicle producers that have manufacturing and assembly operations in the United States, regardless of whether they are U.S.-owned or foreign-owned. The Commission identified the population for this survey using automotive trade associations' lists of motor vehicle manufacturers and Commission research. In May 2024, the Commission sent a prenotification letter to these firms to notify them that they would be emailed instructions to complete a questionnaire in July 2024 and their responses would be due a month later. The letter also emphasized that responses to the questionnaire were mandatory under 19 U.S.C. § 1333(a). The final population included 22 motor vehicle producers in the United States.[535]

[535] Firms identified as exclusively automotive parts suppliers were excluded from the population.

# Questionnaire Development

The questionnaire collected information on several topics, including the following:

- Whether firms attempt to qualify for USMCA duty-free treatment under the ROOs statute;
- Sourcing changes after the USMCA entry into force, on July 1, 2020;[536]
- Whether new vehicle models will attempt to qualify for USMCA duty-free treatment under the ROOs statute;
- Regional value content and labor value content allocations that were submitted to U.S. Customs and Border Protection after entry into force;
- The value of duties paid over the years after entry into force; and
- Technological changes, in light of the ROOs.

As required under U.S. Office of Management and Budget (OMB) guidelines, the Commission held a 60-day public comment period from February 22 to April 22, 2024, during which the public could provide feedback on the Commission's draft questionnaire

Additionally, the Commission conducted field testing and cognitive interviews during the public comment period.[537] The participants in each included up to nine motor vehicle producers in the United States—or associations representing motor vehicle producers in the United States—of various sizes. This allowed the Commission to get feedback on the draft questionnaire from most survey participants and automotive trade associations.

After incorporating comments received during the public comment period and feedback from field testing and cognitive interviews, the Commission submitted its proposed data collection package, which included the questionnaire, to the OMB for approval in April 2024. The Commission then conducted extensive internal testing of the questionnaire's online interface to ensure smooth operation of online data collection and that the questions displayed were tailored to a specific respondent's operations. The Commission began data collection for this investigation in late July 2024, shortly after receiving OMB approval.

# Data Collection and Response Rate

The 22 identified manufacturers in the survey population received an email containing instructions for completing the questionnaire. Responses to the questionnaire were due one month after the data

[536] The questionnaire collected data only on sourcing changes that were at least partially attributed to the ROOs. The questionnaire also asked respondents to indicate whether a sourcing change was fully or partially attributed to the ROOs.

[537] The Commission undertakes several widely accepted best practices for surveys associated with its factfinding investigations to ensure the quality of the data collected and the compliance of the collection process with OMB guidelines. Two of these practices are field testing and cognitive interviews. Field testing allows potential respondents to review the draft questionnaire and provide feedback on specific topics such as completeness and burden. Cognitive interviews are conducted with potential respondents with a focus on content validity and understanding of the questions. Sunstein, "Information Collection under the PRA," April 7, 2010.

collection period started in late July 2024.[538] Respondents were provided extensions to questionnaire submission deadlines upon request. Throughout the data collection process, the Commission answered questions to help respondents navigate the questionnaire and performed quality assurance by contacting respondents to resolve any data-reporting issues. All 22 manufacturers responded to the questionnaire, resulting in a response rate of 100 percent.

# Analysis of Responses

## Data Cleaning

The Commission reviewed each submitted questionnaire to ensure respondents had properly reported all required data for the analysis. In cases where data were missing, appeared inconsistent, or were found to contain extreme values, the Commission attempted to verify or revise submitted data by contacting the respondent via phone, video conference, or email, depending on the level of complexity and detail needed. A minimal number of initial responses needed to be revised. Building on experience reviewing questionnaires and industry knowledge, the Commission made simple corrections to data (e.g., obvious typographical mistakes, unit errors, common terminology misunderstandings).

## Use of Survey Data in Report

The survey data are dispersed throughout all chapters of the report. The survey data, through the variable costs and attribution to the ROOs (full vs. partial), reported for the sourcing changes of existing vehicle models served as the primary inputs of the economic model discussed in chapter 4 of this report.[539] Data on regional value content and labor value content aggregations and steel and aluminum purchasing requirements and variable costs for those sourcing changes are mentioned in chapters 3, 4, and 5.[540] Data pertinent to the relevancy of the ROOs in the light of technological changes are highlighted in chapter 5.[541]

## Response Coverage

The Commission is confident that questionnaire respondents comprise all firms that had motor vehicle manufacturing and assembly operations in the United States from 2020 to 2024.

[538] A copy of the Commission's questionnaire is included in appendix H.

[539] See section 2 of the questionnaire.

[540] See section 3 of the questionnaire.

[541] See section 4 of the questionnaire.

# Data Disclosure Review

Under the USMCA Implementation Act, the Commission is required to submit a public report and, therefore, not include any confidential information. A comprehensive disclosure review was conducted for all survey results presented in this report and appendix tables. The Commission has designated the information provided in response to the questionnaire as confidential business information unless such information is otherwise available to the public. Therefore, the Commission is obligated to withhold any data that would reveal a firm's information or allow it to be reasonably estimated by the public.

Survey data presented in the report were assessed by reviewing questionnaire responses (e.g., number of sourcing changes per core part). Cell suppression was used to protect the data that were determined to be sensitive to a disclosure of information. Data such as a motor vehicle producer's name, number of employees, costs associated with sourcing changes by core part, and duties paid on imports were determined to be sensitive and were subject to disclosure controls.

Using agency standards, data cells were determined to be sensitive to a disclosure of information if they failed either of two rules—the threshold rule or the dominance rule. A data cell failed the threshold rule if the cell contained fewer than three firms. For example, if only one firm experienced a sourcing change for a particular core part (e.g., engine, transmission, or steel sourcing), the Commission could not publish the count of sourcing change for that core part without disclosing that firm's information. A data cell failed the dominance rule if the distribution of the data within the cell allowed a data user to estimate any respondent's data too closely. For example, if many firms reported sourcing changes for steel and some of them were large enough to dominate the cell total, the Commission could not publish the number of sourcing changes attributed to steel without risking disclosing an individual respondent's data. Any data violating the threshold rule or the dominance rule also were not presented in figures.

# Bibliography

Sunstein, Cass R. "Information Collection Under the Paperwork Reduction Act." Executive Office of the President. Office of Management and Budget. Memorandum for the heads of executive departments and agencies, and independent regulatory agencies, April 7, 2010.

# Appendix H
# Questionnaire

# THE USMCA AUTOMOTIVE RULES OF ORIGIN MOTOR VEHICLE PRODUCER QUESTIONNAIRE

U.S. INTERNATIONAL TRADE COMMISSION

USMCAAutoROO@usitc.gov

**You are receiving this questionnaire because the U.S. International Trade Commission (Commission or USITC) has identified your firm as a motor vehicle producer in the United States (see "motor vehicle production" in the Definitions/Glossary, which begins on page 5). Your response will be treated as confidential and will be referenced only if we can ensure anonymity.**

The information requested by this questionnaire is for use by the Commission in the report its required to prepare under section 202A(g)(2) of the United States-Mexico-Canada Agreement Implementation Act (19 U.S.C. § 4532(g)(2)) (the Act). The Act requires the Commission to prepare a series of five biennial reports on the economic impact of the automotive rules of origin (ROOs) in the United States-Mexico-Canada Agreement (USMCA), and to provide those reports to the President, the House Committee on Ways and Means, and the Senate Committee on Finance. The first of the reports was delivered on June 30, 2023, with four additional reports due in 2025, 2027, 2029, and 2031. Under 202A(g)(4)(A) of the Act, the Commission shall "solicit information relating to matters that will be addressed in the report." The Commission is conducting a survey of U.S. motor vehicle producers for the 2025 report.

Answers to this questionnaire will provide information about motor vehicle producers that will assist the Commission in preparing its report in its factfinding investigation on the economic impact of the USMCA automotive ROOs (Inv. No. 332-600). You can learn more about this investigation at the following website: http://www.usitc.gov/USMCAAutoROO.

**Your firm is required by law to respond to this questionnaire**.
Follow all instructions and submit your response
to the web-based questionnaire no later than August 23, 2024.

OMB number: 3117-0235; Expiration date: 07/31/2027
No response is required if a currently valid OMB control number is not displayed.

The Commission is requesting this information under the authority of section 332(g) of the Tariff Act of 1930 (19 U.S.C. § 1332(g)). Completing the questionnaire is mandatory, and failure to reply as directed can result in a subpoena or other order to compel the submission of records or information in your possession (19 U.S.C. § 1333(a)).

For more information on this questionnaire, contact the project team at USMCAAutoROO@usitc.gov.

## Confidentiality

The Commission has designated the information you provide in response to this questionnaire as "confidential business information," unless such information is otherwise available to the public. The Commission may aggregate the information you provide with information from other questionnaire responses. The Commission will not publish information obtained from your questionnaire response or an aggregation of your and other questionnaire responses in a manner that would identify your firm or reveal the operations of your firm. Section 332(g) of the Tariff Act of 1930 (19 U.S.C. § 1332(g)) provides that the Commission may not release information which it considers to be confidential business information unless the party submitting such information had notice, at the time of submission, that such information would be released by the Commission, or such party subsequently consents to the release of the information.

## Instructions

1. **Accessing and completing the questionnaire**. To provide your firm's response to this questionnaire, use the secure interactive website version, accessible at this link:

   USMCAAutoROO@usitc.gov

   **For the purposes of viewing the full questionnaire, a PDF version is available at this link: https://www.usitc.gov/usmcaautoroo.**

   We sent your firm a notification letter that includes a website link and a 10-digit questionnaire token. Type the website link in an internet browser and access the questionnaire for online completion using your 10-digit questionnaire token. If you have issues with your token or accessing the questionnaire, please email USMCAAutoROO@usitc.gov for assistance.

2. **Entering information.** Answer each question that applies to your firm. Some questions require you to answer by using the provided checkboxes, while others require you to type a response into entry areas. You will have an opportunity to review your responses, edit them, and download a copy before submitting.

3. **Entering numeric data.** Enter data for revenue/sales, employees, etc. in actual units, not in thousands, millions, or other multiples of units. For example, for $123.4 million, enter "123400000," not "123400" or "123.4." (Do not add commas between digits; they will appear automatically after you enter the numbers.)

4. **Questionnaire structure.** This questionnaire is composed of six sections. First, read and respond to section 1 questions carefully. Your responses in section 1 will determine whether you must complete every section that follows.

5. **Submitting the questionnaire.** After you have completed all applicable sections, you may download a copy before submitting. Select the "submit" button to send your final response.

## How to report information about your firm

1. **Coordinating your firm's response.** Only one questionnaire per firm may be submitted. If individuals or departments within your firm will share responsibility for completing this questionnaire, please coordinate and combine their responses. This will minimize our need to contact your firm for clarification.

2. **Relationship to corporate structure.** Provide a single response for your firm's activities and experiences and, to the extent possible, the experiences of its subsidiaries and affiliates.

   If your firm is a holding company without operations, please contact the project team at USMCAAutoROO@usitc.gov for further instruction.

   **For U.S. affiliates of foreign companies,** please respond as if the affiliate were an independent firm operating in the United States. For example, for an affiliate in the United States, report estimated total U.S. and North American costs for the affiliate and not for the foreign parent company.

## Definitions/Glossary

**Advanced battery –** a battery of a kind used as the primary source for the generation of electric power for electrically powered vehicles. Components include cells, modules/arrays, and assembled packs, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**Axle –** a drive-axle with differential, whether or not provided with other transmission components, and non-driving axles. Components include axle shafts, axle housings, axle hubs, carriers, and differentials, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**Body and chassis –** Major stampings that form the "body in white" or chassis frame. Components include major body panels, secondary panels, structural panels, and frames, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**Complementary part –** a motor vehicle part that is subject to USMCA automotive ROOs (e.g., small electric motor, headlight, and wiring set) that is not a core part or principal part. The HS 2012 subheadings and descriptions for complementary parts are included in the USMCA, Appendix to Annex 4-B, Complementary Parts for Passenger Vehicles and Light Trucks, table C and Complementary Parts for Heavy Trucks, table E.

| HS 2012 subheading (passenger vehicles and light trucks) | Description |
|---|---|
| 4009.12 | Tubes, pipes and hoses of vulcanised rubber other than hard rubber, not reinforced or otherwise combined with other materials, with fittings |
| 4009.22 | Tubes, pipes and hoses of vulcanised rubber other than hard rubber, reinforced or otherwise combined only with metal, with fittings |
| 4009.32 | Tubes, pipes and hoses of vulcanised rubber other than hard rubber, reinforced or otherwise combined only with textile materials, with fittings |
| 4009.42 | Tubes, pipes and hoses of vulcanised rubber other than hard rubber, reinforced or otherwise combined with other materials, with fittings |
| 8301.20 | Locks of a kind used for motor vehicles |
| Ex 8421.39 | Catalytic converters |
| 8481.20 | Valves for oleohydraulic or pneumatic transmissions |
| 8481.30 Check | Check (nonreturn) valves |
| 8481.80 | Other taps, cocks, valves and similar appliances, including pressure-reducing valves and thermostatically controlled valves |
| 8501.10 | Electric motors of an output not exceeding 37.5 W |
| 8501.20 | Universal AC/DC motors of an output exceeding 37.5 W 8501.31 Other DC motors and generators of an output not exceeding 750 W |
| Ex 8507.20 | Other lead-acid batteries of a kind used for the propulsion of motor vehicles of Chapter 87 |
| Ex 8507.30 | Nickel-cadmium batteries of a kind used for the propulsion of motor vehicles of Chapter 87 |

| | |
|---|---|
| Ex 8507.40 | Nickel-iron batteries of a kind used for the propulsion of motor vehicles of Chapter 87 |
| Ex 8507.80 | Other batteries of a kind used for the propulsion of motor vehicles of Chapter 87 |
| 8511.30 | Distributors; ignition coils 8512.20 Other lighting or visual signalling equipment |
| 8512.40 | Windshield wipers, defrosters and demisters |
| Ex 8519.81 | Cassette decks 8536.50 Other electrical switches, for a voltage not exceeding 1,000 V |
| Ex 8536.90 | Junction boxes |
| 8539.10 | Sealed beam lamp units |
| 8539.21 | Tungsten halogen filament lamp |
| 8544.30 | Ignition wiring sets and other wiring sets of a kind used in motor vehicles |
| 9031.80 | Other measuring and checking instruments, appliances & machines |
| 9032.89 | Other automatic regulating or controlling instruments and apparatus |

Note: 'Ex' denotes that only a subset of the HS subheading is covered by the USMCA automotive ROOs.

| **HS 2012 subheading (heavy trucks)** | **Description** |
|---|---|
| 8413.50 | Other reciprocating positive displacement pumps |
| Ex 8479.89 | Electronic brake systems, including ABS and ESC systems |
| 8482.10 | Ball bearings |
| 8482.20 | Tapered roller bearings, including cone and tapered roller assemblies |
| 8482.30 | Spherical roller bearings |
| 8482.40 | Needle roller bearings |
| 8482.50 | Other cylindrical roller bearings |
| 8483.20 | Bearing housings, incorporating ball or roller bearings |
| 8483.30 | Bearing housings, not incorporating ball or roller bearings; plain shaft bearings |
| 8483.60 | Clutches and shaft couplings (including universal joints) |
| 8505.20 | Electro-magnetic couplings, clutches and brakes |
| 8505.90 | Other electro-magnets; electro-magnetic or permanent magnet chucks, clamps and similar holding devices; electro-magnetic lifting heads; including parts |

Note: 'Ex' denotes that only a subset of the HS subheading is covered by the USMCA automotive ROOs.

**Core part –** an engine, transmission, body and chassis, axle, suspensions system, steering system, or advanced battery for passenger vehicles and light trucks, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2. There is no list of core parts for heavy trucks. The HS 2012 subheadings and descriptions for core parts for passenger vehicle and light trucks are included in the USMCA, Appendix to Annex 4-B, Core Parts for Passenger Vehicles and Light Trucks, table A.1, and are:

| **HS 2012 subheading** | **Description** |
|---|---|
| 8407.31 | Reciprocating piston engines of a kind used for the propulsion of passenger vehicles of Chapter 87, of a cylinder capacity not exceeding 50 cc |
| 8407.32 | Reciprocating piston engines of a kind used for the propulsion of vehicles of Chapter 87, of a cylinder capacity exceeding 50 cc but not exceeding 250 cc |

| | |
|---|---|
| 8407.33 | Reciprocating piston engines of a kind used for the propulsion of vehicles of Chapter 87, of a cylinder capacity exceeding 250 cc but not exceeding 1,000 cc |
| 8407.34 | Reciprocating piston engines of a kind used for the propulsion of vehicles of Chapter 87, of a cylinder capacity exceeding 1,000 cc |
| Ex 8408.20 | Compression-ignition internal combustion piston engines of a kind used for the propulsion of vehicles of subheading 8704.21 or 8704.31 |
| 8409.91 | Parts suitable for use solely or principally with the engines of heading 8407 or 8408, suitable for use solely or principally with spark-ignition internal combustion piston engines |
| 8409.99 | Parts suitable for use solely or principally with the engines of heading 8407 or 8408, other |
| 8507.60 | Lithium-ion batteries |
| 8706.00 | Chassis fitted with engines, for the motor vehicles of heading 8703 or subheading 8704.21 or 8704.31 |
| 8707.10 | Bodies for the vehicles of heading 8703 |
| 8707.90 | Bodies for the vehicles of subheading 8704.21 or 8704.31 |
| Ex 8708.29 | Body stampings |
| 8708.40 | Gear boxes and parts thereof |
| 8708.50 | Drive axles with differential, whether or not provided with other transmission components, and non-driving axles; parts thereof |
| 8708.80 | Suspension systems and parts thereof (including shock absorbers) |
| 8708.94 | Steering wheels, steering columns, and steering boxes; parts thereof |
| Ex 8708.99 | Chassis frames |

Note: 'Ex' denotes that only a subset of the HS subheading is covered by the USMCA automotive ROOs.



**Engine –** spark-ignition reciprocating or rotary internal combustion piston engine and compression-ignition internal combustion engine (diesel or semi-diesel engine). Components include heads, blocks, crankshafts, crankcases, pistons, rods, and head subassemblies, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**Entry into force –** the date that the USMCA took effect: July 1, 2020.

**Heavy truck –** a motor vehicle of HS 2012 subheading 8701.20, 8704.22, 8704.23, 8704.32, 8704.90, or heading 8706,[1] except for a motor vehicle that is solely or principally for off-road use.[2]

[1] USMCA rules were written using HS 2012 nomenclature. Heavy trucks under USMCA are those that would have been classified under the listed codes using that nomenclature, even though in many cases those codes have changed (e.g., 8701.20 was replaced in HS 2022 with 8701.21–8701.29). To check how HS 2012 codes correspond to HS 2022 codes, see https://hstracker.wto.org/?_inputs_&sidebarCollapsed=false&page=%22visualizer%22; USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, 4-B-1-1. As defined in the USMCA, a good of heading 8706, for the purposes of this definition, means a chassis fitted with engines for a motor vehicle under subheading 8701.20, 8704.22, 8704.23, 8704.32, 8704.90, except for a motor vehicle that is solely or principally designed for off-road use.

[2] Related to the explanation in footnote 1, HS subheading 8704.90 (other trucks) had six new subheadings (8704.41, 8704.42, 874.43, 8704.51, 8704.52, and 8704.60) broken out from it as of the 2022 HS revisions. Products classified under any of these subheadings follow the product-specific ROOs for subheading 8704.90, and are thus also classified as heavy trucks under the USMCA.

**Ingot –** a block of relatively pure metal.

**Labor value content (LVC) –** the share of the value of a motor vehicle or motor vehicle production that is comprised of qualifying labor and other qualifying expenditures, expressed as a percentage. Qualifying labor and LVC requirements in the USMCA automotive ROOs are found in the USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Article 7.

**Light truck –** a motor vehicle of subheading 8704.21 or 8704.31, except for a motor vehicle that is solely or principally for off-road use.

**Model line –** a group of motor vehicles having the same platform or model name.

**Motor vehicle –** a passenger vehicle, light truck, or heavy truck (on-road vehicles from subheadings 8701.10 through 8701.90,[3] 8702.10, 8702.90, 8703.21 through 8703.90, 8704.10, 8704.21, 8704.22, 8704.23, 8704.31, 8704.32, 8704.90, or heading 8705 or 8706).[4]

**Motor vehicle assembly –** the process of combining separate constituent parts into a finished motor vehicle, usually along an assembly line.

**Motor vehicle production –** the manufacturing and assembly of motor vehicles.

**Non-originating good or non-originating material –** a good or material that does not qualify for duty-free treatment under the USMCA.

**Nontraditional motor vehicle input –** an input that is historically not uniquely associated with motor vehicles, such as electronic components or electrical inputs, but is still frequently part of the finished motor vehicle.

**Overhead cost –** a cost that generally does not increase with the number of vehicles produced, also referred to as a fixed cost.

**Originating good** or **originating material –** a good or material that qualifies as originating under the USMCA.

**Passenger vehicle –** a motor vehicle of any subheading from 8703.21 through 8703.90.

**Party –** Canada, Mexico, or the United States.

**Platform –** a consolidated group of components and systems shared across multiple models (e.g., powertrain, underbody, seat structure, thermal system, etc.).

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[3] Related to the explanation in footnote 2, HS subheading 8701.90 (other tractors) was split up into five new subheadings (8701.91, 8701.92, 8701.93, 8701.94, and 8701.95) as of the 2017 HS revisions. Products classified under any of these subheadings follow the product-specific ROOs for subheading 8701.90.

[4] Related to the explanation in footnote 3, a good of heading 8706, for the purposes of this definition, means a chassis fitted with engines for a motor vehicle under subheading 8701.20, 8704.22, 8704.23, 8704.32, 8704.90, except for a motor vehicle that is solely or principally designed for off-road use.

**Principal part –** a significant motor vehicle part not included in core parts, including such parts as air conditioners, seats, air bags, and major components of core parts (e.g., transmission shafts, electronic brake systems, and clutches). The HS 2012 subheadings and descriptions for principal parts are included in the USMCA, Appendix to Annex 4-B, Principal Parts for Passenger Vehicles and Light Trucks, table B and Principal Parts for Heavy Trucks, table D, and are:

| HS 2012 subheading (passenger vehicles and light trucks) | Description |
|---|---|
| 8413.30 | Fuel, lubricating or cooling medium pumps for internal combustion piston engines |
| 8413.50 | Other reciprocating positive displacement pumps |
| 8414.59 | Other fans |
| 8414.80 | Other air or gas pumps, compressors and fans |
| 8415.20 | Air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, including those machines in which humidity cannot be separately regulated, of a kind used for persons, in motor vehicles |
| Ex 8479.89 | Electronic brake systems, including ABS and ESC systems |
| 8482.10 | Ball bearings |
| 8484.20 | Tapered roller bearings, including cone and tapered roller assemblies |
| 8482.30 | Spherical roller bearings |
| 8482.40 | Needle roller bearings |
| 8482.50 | Other cylindrical roller bearings |
| 8482.80 | Other ball or roller bearings, including combined ball/roller bearings |
| 8483.10 | Transmission shafts (including cam shafts and crank shafts) and cranks |
| 8483.20 | Bearing housings, incorporating ball or roller bearings |
| 8483.30 | Bearing housings, not incorporating ball or roller bearings; plain shaft bearings |
| 8483.40 | Gears and gearing, other than toothed wheels, chain sprockets and other transmission elements presented separately; ball or roller screws; gear boxes and other speed changers, including torque converters |
| 8483.50 | Flywheels and pulleys, including pulley blocks |
| 8483.60 | Clutches and shaft couplings (including universal joints) |
| 8501.32 | Other DC motors and generators of an output exceeding 750W but not exceeding 75 kW |
| 8501.33 | Other DC motors and generators of an output exceeding 75 kW but not exceeding 375 kW |
| 8505.20 | Electro-magnetic couplings, clutches and brakes |
| 8505.90 | Other electro-magnets; electro-magnetic or permanent magnet chucks, clamps and similar holding devices; electro-magnetic lifting heads; including parts |
| 8511.40 | Starter motors and dual purpose starter-generators of a kind used for spark ignition or compression-ignition internal combustion engines |
| 8511.50 | Other generators |
| 8511.80 | Other electrical ignition or starting equipment of a kind used for spark-ignition or compression-ignition internal combustion engines |

| | |
|---|---|
| Ex 8511.90 | Parts of electrical ignition or starting equipment of a kind used for spark-ignition or compression-ignition internal combustion engines |
| 8537.10 | Electric controls for a voltage not exceeding 1,000 V |
| 8708.10 | Bumpers and parts thereof |
| 8708.21 | Safety seat belts |
| Ex 8708.29 | Other parts and accessories of bodies (including cabs) of motor vehicles (excluding body stampings) |
| 8708.30 | Brakes and servo-brakes; parts thereof |
| 8708.70 | Road wheels and parts and accessories thereof |
| 8708.91 | Radiators and parts thereof |
| 8708.92 | Silencers (mufflers) and exhaust pipes; parts thereof |
| 8708.93 | Clutches and parts thereof |
| 8708.95 | Safety airbags with inflator system; parts thereof |
| 8708.99 | Other parts and accessories of motor vehicles of headings 8701 to 8705 (excluding chassis frames) |
| 9401.20 | Seats of a kind used for motor vehicles |

Note: 'Ex' denotes that only a subset of the HS subheading is covered by the USMCA automotive ROOs.

| **HS 2012 subheading (heavy trucks)** | **Description** |
|---|---|
| 8407.31 | Reciprocating piston engines of a kind used for the propulsion of passenger vehicles of Chapter 87, of a cylinder capacity not exceeding 50 cc |
| 8407.32 | Reciprocating piston engines of a kind used for the propulsion of vehicles of Chapter 87, of a cylinder capacity exceeding 50 cc but not exceeding 250 cc |
| 8407.33 | Reciprocating piston engines of a kind used for the propulsion of vehicles of Chapter 87, of a cylinder capacity exceeding 250 cc but not exceeding 1,000 cc |
| 8407.34 | Reciprocating piston engines of a kind used for the propulsion of vehicles of Chapter 87, of a cylinder capacity exceeding 1,000 cc |
| 8408.20 | Compression-ignition internal combustion piston engines of a kind used for the propulsion of vehicles of Chapter 87 |
| 8409.91 | Parts suitable for use solely or principally with the engines of heading 8407 or 8408, suitable for use solely or principally with spark-ignition internal combustion piston engines |
| 8409.99 | Parts suitable for use solely or principally with the engines of heading 8407 or 8408, other |
| 8413.30 | Fuel, lubricating or cooling medium pumps for internal combustion piston engines |
| Ex 8414.59 | Turbochargers and superchargers |
| 8414.80 | Other air or gas pumps, compressors and fans |
| 8415.20 | Air conditioning machines, comprising a motor-driven fan and elements for changing the temperature and humidity, including those machines in which humidity cannot be separately regulated, of a kind used for persons, in motor vehicles |
| 8483.10 | Transmission shafts (including cam shafts and crank shafts) and cranks |
| 8483.40 | Gears and gearing, other than toothed wheels, chain sprockets and other transmission elements presented separately; ball or roller screws; gear boxes and other speed changers, including torque converters |

| | |
|---|---|
| 8483.50 | Flywheels and pulleys, including pulley blocks |
| Ex 8501.32 | Other DC motors and generators of an output exceeding 750W but not exceeding 75 kW, of a kind used for the propulsion of motor vehicles of Chapter 87 |
| 8511.40 | Starter motors and dual purpose starter-generators of a kind used for spark ignition or compression-ignition internal combustion engines |
| 8511.50 | Other generators |
| 8537.10 | Electric controls for a voltage not exceeding 1,000 V |
| 8706.00 | Chassis fitted with engines, for the motor vehicles of heading 8701 through 8705 |
| 8707.90 | Bodies for the vehicles of heading 8701, 8702, 8704 or 8705 |
| 8708.10 | Bumpers and parts thereof |
| 8708.21 | Safety seat belts |
| 8708.29 | Other parts and accessories of bodies (including cabs) of motor vehicles |
| 8708.30 | Brakes and servo-brakes; parts thereof |
| 8708.40 | Gear boxes and parts thereof |
| 8708.50 | Drive axles with differential, whether or not provided with other transmission components, and non-driving axles; and parts thereof |
| 8708.70 | Road wheels and parts and accessories thereof |
| 8708.80 | Suspension systems and parts thereof (including shock absorbers) |
| 8708.91 | Radiators and parts thereof |
| 8708.92 | Silencers (mufflers) and exhaust pipes; parts thereof |
| 8708.93 | Clutches and parts thereof |
| 8708.94 | Steering wheels, steering columns and steering boxes; parts thereof |
| 8708.95 | Safety airbags with inflator system; parts thereof |
| 8708.99 | Other parts and accessories of motor vehicles of headings 87.01 to 87.05 |
| 9401.20 | Seats of a kind used for motor vehicles |

Note: 'Ex' denotes that only a subset of the HS subheading is covered by the USMCA automotive ROOs.

**Production motor vehicle** – a mass-produced motor vehicle that is offered for sale to the public.

**Regional value content (RVC) –** the share of the motor vehicle value based on its transaction value or net cost that is made up of originating material, expressed as a percentage. RVC requirements in the USMCA automotive ROOs are found in the USMCA, Appendix to Annex 4-B, Provisions Related to the Product-Specific Rules of Origin for Automotive Goods, Articles 3, 4, and 10.

**Rules of origin (ROOs) –** the USMCA automotive ROOs as defined in 19 C.F.R. Appendix A to part 182; USMCA, Appendix to Annex 4-B, 4-B-1-1 through 4-B-1-47.

**Steering system –** the system that controls the movement of a motor vehicle along its vertical axis. Components tracked for USMCA include steering columns, steering gear/racks, and control units, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**Suspension system –** the system that connects a motor vehicle to its wheels, allowing for relative motion between the two. Components tracked for USMCA include shock absorbers, struts, control arms, sway bars, knuckles, coil springs, and leaf springs, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**Tariff classification –** the determination of which subheading and/or statistical reporting number a specific good is provided for in the Harmonized System (HS) or Harmonized Tariff Schedule (HTS)

**Territory of a party –** as defined in Chapter 1, Section C: Country-Specific Definitions of the USMCA:

(a). for Canada,
   i. the land territory, air space, internal waters, and territorial sea of Canada,
   ii. the exclusive economic zone of Canada, and
   iii. the continental shelf of Canada, as determined by its domestic law and consistent with international law,

(b). for Mexico,
   i. the land territory, including the states of the Federation and Mexico City,
   ii. the air space, and
   iii. the internal waters, territorial sea, and any areas beyond the territorial seas of Mexico within which Mexico may exercise sovereign rights and jurisdiction, as determined by its domestic law, consistent with the *United Nations Convention on the Law of the Sea*, done at Montego Bay on December 10, 1982; and

(c). for the United States,
   i. the customs territory of the United States, which includes the 50 states, the District of Columbia, and Puerto Rico,
   ii. the foreign trade zones located in the United States and Puerto Rico, and
   iii. the territorial sea and air space of the United States and any area beyond the territorial sea within which, in accordance with the customary international law as reflected in the *United Nations Convention on the Law of the Sea*, the United States may exercise sovereign rights or jurisdiction.

**Transmission –** a gear box. Components include transmission cases, torque converters, torque converter housings, gears and gear blanks, clutches, and valve body assemblies, according to the USMCA, Appendix to Annex 4-B, Parts and Components for Determining the Origin of Passenger Vehicles and Light Trucks Under Article 3 of This Appendix, table A.2.

**USMCA –** the United States-Mexico-Canada Agreement.

**Variable cost of production –** a cost that changes based on the number of vehicles produced.

## SECTION 1. Firm Information

Enter the 10-digit questionnaire token that was in the notification letter we sent to your firm. This will allow the project team to track your response. If you do not know this token, contact the project team at USMCAAutoROO@usitc.gov.

Questionnaire token: ___________________

1.1 Enter your firm's U.S. headquarters' address and the name of a person that we may contact if we have any questions regarding your response.

| | | | |
|---|---|---|---|
| | | | |
| Business name | | | |
| | | | |
| Address | | | |
| | | | |
| City | State | Zip code | Website address |
| | | | |
| Contact person's name | | Contact person's job title | |
| | | | |
| Contact person's telephone number | | Contact person's email | |

1.2 List your firm's full-time equivalent (FTE) employment, including non-production workers and contractors, at manufacturing and assembly facilities in the United States for 2018 through 2023.

| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| FTE employment | | | | | | |

1.3

a. Does your firm produce motor vehicles in North America?
- ○ Yes
- ○ No

b. [If yes to 1.3.a] In which countries does your firm produce motor vehicles (select all that apply)?
- ☐ Canada
- ☐ Mexico
- ☐ United States

1.4 [If 'yes' to 1.3.a] Provide the list of subsidiaries or affiliates that will be included in your firm's responses.

1.5

a. [If ‘yes’ to 1.3.a] Are there any motor vehicles that your firm produced in North America that qualified for duty-free treatment under the USMCA between July 1, 2020 and July 1, 2024?
   - o Yes
   - o No

b. [If ‘no’ to 1.5.a] If no, please explain: ___________________

1.6

a. Are there any motor vehicles that your firm plans to produce in North America (but does not yet) for which it will attempt to qualify for duty-free treatment under the USMCA?
   - o Yes
   - o No

b. Please explain: ___________________

1.7

a. [If ‘no’ to 1.5.a and 1.6.a] Since January 1, 2018, the beginning of the year in which the USMCA draft text was released, did your firm make any changes to its North American supply chain in an attempt to qualify for duty-free treatment under the USMCA?
   - o Yes, and did qualify
   - o Yes, but did not qualify
   - o No

b. Please explain: ___________________

[If ‘no’ to 1.3a, skip to Section 5]

## SECTION 2. Sourcing Changes

This section asks about decisions and changes made to motor vehicle assembly and motor vehicle parts sourcing since January 1, 2018, and the extent to which the USMCA automotive ROOs led to the change. For each question below, to the extent possible, describe the impact of changes by model line of motor vehicle. Only include changes that have already been made, and do not include planned future changes.

## 2.1 USMCA automotive ROOs effects on existing supply chains and production

This section asks about the impact of USMCA automotive ROOs on existing assembly locations and supply chains for motor vehicles that have been in place since January 1, 2018. The questions below are for model lines of motor vehicles that were sold in the North American market beginning before the USMCA entered into force on July 1, 2020. Effects of the ROOs on new model lines that were introduced after July 1, 2020, should be included in section 2.3.

2.1.1

a. Were there any assembly relocation decisions in which the USMCA automotive ROOs led your firm to continue assembly in North America instead of moving assembly outside of North America?
   - o Yes
   - o No

b. [If 'yes' to 2.1.1.a.] List and describe the assembly relocation decisions in which the USMCA automotive ROOs led your firm to continue assembly in North America in the table below. For each assembly relocation decision, provide a brief explanation of the decision, the impacted model line of motor vehicle, select the attribution to ROOs, indicate whether the decision was attributed to the RVC, LVC, or both, and list any non-USMCA factors which may have contributed to the decision. Note: full attribution to the ROOs is appropriate if the assembly relocation decision was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the assembly relocation decision was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the assembly relocation decision (e.g., firm would have shifted assembly location from United States to | Provide a brief explanation for the assembly relocation decision | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs [dropdown: full, partial] | Indicate if the assembly relocation decision is attributable to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 4] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| South Korea) | | | | | |
| | | | | | |

2.1.2

a. Were there any sourcing decisions in which the USMCA automotive ROOs contributed to your firm deciding to continue sourcing motor vehicle core parts or materials from a plant or supplier located in North America instead of switching to a non-North American supplier?
   - Yes
   - No

b. [If 'yes' to 2.1.2.a.] List the sourcing decisions in which the USMCA automotive ROOs led your firm to continue sourcing core parts or materials from North America in the table below. Provide a brief explanation of the decisions, select the core part or material impacted, provide the impacted model line of motor vehicle, select the attribution of the decision to the ROOs, indicate whether the decision was attributed to the RVC, LVC, both RVC and LVC, or steel or aluminum purchasing requirements, and list any non-ROOs factors which may have contributed to the decision. Note: full attribution to the ROOs is appropriate if the sourcing decision was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing decision was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing decision (e.g., firm would have shifted sourcing of aluminum from United States to South Korea) | Provide a brief explanation for the sourcing decision | Core part or material impacted [dropdown: engine, transmission, body and chassis, axle, suspension system, steering system, advanced battery, steel, aluminum] | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs [dropdown: full, partial] | Indicate if sourcing decision is attributable to RVC, LVC, both RVC and LVC, or steel or aluminum purchasing requirements [dropdown: RVC, LVC, both RVC and LVC, steel purchasing requirements, aluminum purchasing requirements] | [If 'partial' from column 5] List any non-ROOs factors contributing to the sourcing decision |
|---|---|---|---|---|---|---|
| | | | | | | |

## 2.2 Changes to motor vehicle assembly and parts and materials sourcing

This section asks about changes made to motor vehicle assembly and motor vehicle parts and materials sourcing to meet the USMCA automotive ROOs.[5] The questions below are for model lines of motor vehicles that were sold in the North American market beginning before the USMCA entered into force on July 1, 2020. Effects of the ROOs on new model lines that were introduced after July 1, 2020, should be included in section 2.3.

The intent of this section is to collect vehicle-specific information about changes made to motor vehicle assembly and parts and materials sourcing. Only include sourcing changes that were made to meet the USMCA automotive ROOs, not a complete list of all sourcing changes. Additionally, only include a sourcing change of the listed core part and not components of the core part. To the extent possible, include all sourcing changes that resulted in a change to country location to, from, or within North America (Canada, Mexico, and the United States).

2.2.1

a. Since January 1, 2018, has your firm **<u>relocated assembly</u>** of a model line of motor vehicle to North America (either from outside North America or between North American countries) to meet the USMCA automotive ROOs? An assembly relocation may be a relocation of an entire factory, or a partial shift in output from one factory to another.
   - o Yes
   - o No

b. [If 'yes' to 2.2.1.a.] List and describe the assembly relocations in which the USMCA automotive ROOs led your firm to relocate assembly in the table below. For each assembly relocation, provide the impacted model line of motor vehicle, select the attribution of the relocation to the ROOs, indicate whether the decision was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the decision. Note: full attribution to the ROOs is appropriate if the assembly relocation was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the assembly relocation was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the assembly relocation (e.g., from city, state, country to city, state, country) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs [dropdown: full, partial] | Indicate if the assembly relocation can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the assembly relocation |
|---|---|---|---|---|
| | | | | |

c. [If 'yes' to 2.2.1.a.] For each assembly relocation attributed to the USMCA automotive ROOs, provide a brief explanation, the month and year of the assembly relocation, and a percentage of the model line impacted by the assembly relocation.



[5] The later questions in section 2.2 are broken up into nine subsections which ask about the seven core parts under the USMCA, as well as steel and aluminum purchases. For more information on any of the core parts, see USMCA, Appendix to Annex 4-B, Core Parts for Passenger Vehicles and Light Trucks, table A.1.

| Describe the assembly relocation (e.g., from city, state, country to city, state, country) | Model line of motor vehicle impacted | Provide a brief explanation for the assembly relocation | Month and year of the assembly relocation | Percent of model line of motor vehicle impacted | [If <100 percent in column 5] Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above } | {carried forward from above } | | | | |
| | | | | | |

d. [If ‘yes’ to 2.2.1.a.] For each assembly relocation attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs due to assembly relocation?

| Description of the assembly relocation | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of assembly (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

2.2.2 Select the motor vehicle parts and materials for which your firm has made sourcing changes to meet the USMCA automotive ROOs since January 1, 2018, for its North American production (select all that apply).[6]

- ☐ Engines
- ☐ Transmissions
- ☐ Bodies and chassis
- ☐ Axles
- ☐ Suspension systems
- ☐ Steering systems
- ☐ Advanced batteries
- ☐ Steel
- ☐ Aluminum

[If ‘engines’ is selected in 2.2.2]
**Engines**

[6] For heavy trucks, sourcing changes are only needed for steel and aluminum materials, not the core parts.

2.2.3

a. List the **engine** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of engines from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **engine** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **engine** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

[If 'transmissions' is selected in 2.2.2]

**Transmissions**

2.2.4

a. List the **transmission** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of transmissions from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **transmission** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **transmission** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | | sign for a decrease in costs) | |
| {carried forward from above} | {carried forward from above} | | |

[If 'bodies and chassis' is selected in 2.2.2]

**Bodies and chassis**

2.2.5

a. List the **<u>bodies and chassis</u>** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of bodies and chassis from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **<u>body and chassis</u>** sourcing change attributed to the USMCA automotive ROOs In the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **<u>body and chassis</u>** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

[If 'axles' is selected in 2.2.2]

**Axles**

2.2.6

a. List the **axle** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of axles from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **axle** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **axle** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

[If 'suspension systems' is selected in 2.2.2]

**Suspension systems**

2.2.7

a. List the **suspension system** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of suspension systems from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **suspension system** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **<u>suspension system</u>** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

[If ‘steering systems’ is selected in 2.2.2]

**Steering systems**

2.2.8

a. List the **<u>steering system</u>** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs | Indicate if the sourcing change can be attributed to RVC, LVC, or | [If ‘partial’ from column 3] List any non-ROOs factors |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| steering systems from South Korea to United States) | | ([dropdown: full, partial]) | both [dropdown: RVC, LVC, both] | contributing to the sourcing change |
| | | | | |

b. Provide additional information about each **steering system** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **steering system** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

[If 'advanced batteries' is selected in 2.2.2]

**Advanced batteries**

2.2.9

a. List the **advanced battery** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors. Indicate the level of attribution to the ROOs and attribution to regional value content (RVC) requirements and labor value content (LVC) requirements in the table below.

| Describe the sourcing change (e.g., shifted sourcing of advanced batteries from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, or both [dropdown: RVC, LVC, both] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **advanced battery** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **advanced battery** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

[If 'steel' is selected in 2.2.2]

**Steel**

2.2.10

a. List the **steel** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, both RVC and LVC, or steel purchasing requirements, and list any non-ROOs factors which may have contributed to the change. Note: Full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of steel from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, both RVC and LVC, or steel purchasing requirements [dropdown: RVC, LVC, both RVC and LVC, or steel purchasing requirements] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **steel** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **steel** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of | Change in overhead costs (in dollars, use |
|---|---|---|---|

| | | | |
|---|---|---|---|
| | | production (in dollars, use minus sign for a decrease in costs) | minus sign for a decrease in costs) |
| {carried forward from above} | {carried forward from above} | | |

[If 'aluminum' is selected in 2.2.2]

**Aluminum**

2.2.11

a. List the **aluminum** sourcing changes that were made to meet the USMCA automotive ROOs in the table below. For each sourcing change, provide the impacted model line of motor vehicle, select the attribution of the change to the ROOs, indicate whether the change was attributed to the RVC, LVC, both RVC and LVC, or aluminum purchasing requirements, and list any non-ROOs factors which may have contributed to the change. Note: full attribution to the ROOs is appropriate if the sourcing change was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing change was made in part to meet the ROOs, in addition to influences from other factors.

| Describe the sourcing change (e.g., shifted sourcing of aluminum from South Korea to United States) | Model line of motor vehicle impacted | Attribution to the USMCA automotive ROOs ([dropdown: full, partial]) | Indicate if the sourcing change can be attributed to RVC, LVC, both RVC and LVC, or aluminum purchasing requirements [dropdown: RVC, LVC, both RVC and LVC, or aluminum purchasing requirements] | [If 'partial' from column 3] List any non-ROOs factors contributing to the sourcing change |
|---|---|---|---|---|
| | | | | |

b. Provide additional information about each **aluminum** sourcing change attributed to the USMCA automotive ROOs in the table below.

| Description of the sourcing change | Model line of motor vehicle impacted | Provide a brief explanation for the sourcing change | Month and year of the sourcing change | Percent of model line of motor vehicle impacted | Provide a brief explanation if less than 100 percent of the model line of motor vehicle was impacted |
|---|---|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | | | |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |

c. For each **aluminum** sourcing change attributed to the USMCA automotive ROOs, what was the change in per-motor vehicle variable costs of production and one-time overhead costs?

| Description of the sourcing change | Model line of motor vehicle impacted | Change in per-motor vehicle variable costs of production (in dollars, use minus sign for a decrease in costs) | Change in overhead costs (in dollars, use minus sign for a decrease in costs) |
|---|---|---|---|
| {carried forward from above} | {carried forward from above} | | |

## 2.3 USMCA automotive ROOs effects on new production

This section asks about the effects of the USMCA automotive ROOs on new model lines of motor vehicles that were introduced to the North American market after the USMCA entered into force on July 1, 2020. For model lines of motor vehicles that were sold in the North American market beginning before the USMCA entered into force, responses should be included in sections 2.1 and 2.2.

2.3.1

a. Since the USMCA entered into force on July 1, 2020, did your firm sell any **new model lines of motor vehicles**?
   - Yes
   - No

b. [If 'yes' to 2.3.1.a.] Did the USMCA automotive ROOs affect decisions about the location of assembly for new model lines of motor vehicles?
   - Yes
   - No

c. [If 'yes' to 2.3.1.b.] List the model line(s) of motor vehicles whose assembly location decision was affected by the USMCA automotive ROOs in the table below. For each model line of motor vehicle, provide the assembly location decision, select the attribution of the decision to the ROOs, indicate whether the decision was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the decision. Note: full attribution to the ROOs is appropriate if the assembly location decision was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the assembly location decision was made in part to meet the ROOs, in addition to influences from other factors.

| Model line of motor vehicle impacted | Assembly location decision ([dropdown: Assemble within North America, Assemble outside North America) | Attribution to the USMCA automotive ROOs [dropdown: full, partial] | Indicate if assembly location decision is attributable to RVC, LVC, or both [dropdown: RVC, LVC, both] | List any non-ROOs factors contributing to the assembly location decision |
|---|---|---|---|---|
| | | | | |

2.3.2

a. [If 'yes' to 2.3.1.a.] Did the USMCA automotive ROOs affect decisions about the sourcing of parts or materials when the new model lines of motor vehicle were brought into production?
   - o Yes
   - o No

b. [If 'yes' to 2.3.2.a.] List the new model line(s) of motor vehicles that were sold since July 1, 2020 for which the USMCA automotive ROOs affected sourcing decisions in the table below. For each model line of motor vehicle, provide the first sales date and country of vehicle assembly, select the attribution of the decision to the ROOs, indicate whether the decision was attributed to the RVC, LVC, or both, and list any non-ROOs factors which may have contributed to the decision. Note: full attribution to the ROOs is appropriate if the sourcing decision was only made to meet the ROOs. Partial attribution to the ROOs is appropriate if the sourcing decision was made in part to meet the ROOs, in addition to influences from other factors.

| Model line of motor vehicle added | Month and year of first sale | Country of vehicle assembly | Attribution of sourcing decision to the USMCA automotive ROOs [dropdown: full, partial] | Indicate if sourcing decision is attributable to RVC, LVC, or both [dropdown: RVC, LVC, both] | List any non-ROOs factors contributing to the sourcing decisions |
|---|---|---|---|---|---|
| | | | | | |

## SECTION 3. Effects of the USMCA automotive ROOs

3.1

a. Provide the USMCA automotive RVC and LVC, in percent, for all models for which your firm calculated RVC and LVC pursuant to the USMCA between 2020 and 2023. In answering this question, first indicate whether you will provide this information for all models at once or use the aggregations that you reported to U.S. Customs and Border Protection (CBP).
   - o All models
   - o Use aggregations reported to CBP

b. For question 3.1, indicate if your firm will be providing information on a calendar year basis or fiscal year basis.
   - ☐ Calendar year
   - ☐ Fiscal year

c. [If 'fiscal year' is selected in 3.1.b.] Indicate the starting month of your firm's fiscal year.
   _______________

d. [If 'all models' is selected in 3.1.a. provide table below] Provide the aggregate USMCA automotive RVC and LVC, in percent, for all models for which your firm calculated RVC and LVC pursuant to the USMCA for 2020 through 2023.

| Metric | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| RVC (%) | | | | |
| LVC (%) | | | | |

e. [if 'use aggregations reported to CBP' is selected in 3.1.a.] For the purposes of calculating USMCA automotive RVC and LVC, how many aggregations did you report to CBP? __________ [max of 50]

f. [If 'use aggregations reported to CBP' is selected in 3.1.a.] For each aggregation listed in 3.1.d., include the amount of production, list the model lines of motor vehicles included in the aggregation, and the RVC and LVC, in percent, for 2020 through 2023.

List
[One table for each aggregation listed in 3.1.e.]

| Metric | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| Production (in units) | | | | |
| Included model lines of motor vehicles | | | | |
| RVC (%) | | | | |
| LVC (%) | | | | |

g. Provide your firm-level percent of steel and aluminum (by value) that was sourced from North America between 2020 and 2023.

| Metric | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| Steel | | | | |
| Aluminum | | | | |

3.2

a. Has your firm increased wages at any of its North American parts or assembly plants so that they qualify for LVC certification?
   - o Yes
   - o No, raised wages for reasons other than LVC
   - o No, did not raise wages

b. [If 'yes' to 3.2.a.] Please explain: ___________________

3.3

a. How have production changes made to meet USMCA labor value content requirements (and any related labor cost changes) changed your firm's use of automation in the production process?
   - o Increased use of automation
   - o Minimal change in use of automation
   - o Decreased use of automation
   - o Not applicable

b. Please explain: ___________________

3.4

a. How have the USMCA automotive ROOs affected innovation at your firm (e.g., resulted in changes to R&D investment, increased or decreased ability to bring new products to market, changes in design or production processes, etc.)?
   - o Increased innovation
   - o Minimal change in innovation
   - o Decreased innovation
   - o Not applicable

b. Please explain: ____________________

3.5 Resilience

3.5.1

a. Have the changes that your firm made to its supply chain in response to the USMCA automotive ROOs affected your firm's ability to maintain motor vehicle production operations when facing **non-North American** supply chain disruptions (for example, if a non-North American supplier is temporarily unable to supply at the expected level)?

- ○ Our firm is **<u>better able</u>** to maintain motor vehicle production because of the changes it made to its supply chain in response to the USMCA automotive ROOs.
- ○ Our firm is **<u>less able</u>** to maintain motor vehicle production because of the changes it made to its supply chain in response to the USMCA automotive ROOs.
- ○ No change in ability to maintain motor vehicle production operations.
- ○ Unclear due to complexity of supply chain.

b. Please explain: ____________________

3.5.2

a. Have the changes your firm made to its supply chain in response to the USMCA automotive ROOs affected your firm's ability to maintain motor vehicle production operations when facing **<u>North American</u>** supply chain disruptions (for example, if a North American supplier is temporarily unable to supply at the expected level)?

- ○ Our firm is **<u>better able</u>** to maintain motor vehicle production because of the changes it made to its supply chain in response to the USMCA automotive ROOs.
- ○ Our firm is **<u>less able</u>** to maintain motor vehicle production because changes it made to its supply chain in response to the of the USMCA automotive ROOs.
- ○ No change in ability to maintain motor vehicle production operations.
- ○ Unclear due to complexity of supply chain.

b. Please explain: ____________________



3.6 Trade

3.6.1

a. Have the USMCA automotive ROOs affected your firm's U.S. exports since entry into force of the USMCA?

- ○ Yes
- ○ No

b. [If 'yes' to 3.6.1a] How have the USMCA automotive ROOs affected your firm's U.S. exports since entry into force of the USMCA?

| Export market | Effect of the USMCA automotive ROOs on exports [dropdown: decrease in exports of greater than 5 percent, decrease in exports of 0 to 5 percent, no effect in exports, increase in exports of 0 to 5 percent, increase in exports of greater than 5 percent] |
|---|---|
| Exports to Canada and Mexico | |
| Exports to other countries | |

3.6.2

a. Since the USMCA entered into force, did your firm pay the most-favored-nation rate of duty for **<u>passenger vehicles</u>**, **<u>light trucks</u>**, or **<u>heavy trucks</u>** when importing **<u>production motor vehicles</u>** into Canada, Mexico, or the United States from a USMCA partner country rather than meet the USMCA automotive ROOs?

- Yes
- No

b. [If yes to 3.6.2a] Provide the following information by model line of motor vehicle:

| Model line of motor vehicle for which duty was paid | Importing country [dropdown: Canada, Mexico, United States] | Year(s) additional duty paid | Number of vehicles |
|---|---|---|---|
| | | | |

c. [If yes to 3.6.2a] Please explain:______________

3.6.3

a. Since the USMCA entered into force, did your firm pay the most-favored-nation rate of duty for those parts listed in section 2.2 (i.e., those listed in Table A.1 of the agreement) when importing those parts into Canada, Mexico, or the United States from a USMCA partner country rather than meet the USMCA automotive ROOs?
   - Yes
   - No

b. [If yes to 3.6.3a] Provide the following information by part and model line of motor vehicle:

| Part for which duty was paid [dropdown: engine, transmission, body and chassis, axle, suspension system, steering system, advanced battery] | Model line of motor vehicle impacted | Importing country [dropdown: Canada, Mexico, United States] | Year(s) additional duty paid | Number of parts |
|---|---|---|---|---|
| | | | | |

c. [If yes to 3.6.3a] Please explain:______________

## SECTION 4. Technological Changes

This section asks about the extent to which the USMCA automotive ROOs remain relevant in light of technological changes occurring in the automotive industry. Section 4 is broken up into two subsections; the first asks about the five technological changes that the Commission examined in its 2023 report, while the second asks for information related to any additional technological changes that may impact the continued relevancy of the USMCA automotive ROOs.

### 4.1 Impact on the overall continued relevancy of the USMCA automotive ROOs

In its first report, the Commission identified technological changes in the U.S. automotive industry that have occurred since the negotiation of the USMCA, or are in the process of occurring, and evaluated the extent to which these technological changes affect the application of the USMCA automotive ROOs in the U.S. automotive industry.[7] For each of these five topics below, indicate the extent to which the specified technological change has any impact on the overall continued relevancy of the USMCA automotive ROOs, as those changes pertain to your firm.[8]

**The tariff classification of electric vehicles (EV) and hybrid light trucks:**

Brief description of the technological change and the potential impact on the relevancy of the USMCA automotive ROOs: The production of EV and hybrid pickup trucks and work vans has increased significantly since the negotiation of the USMCA. However, there is a divergence in the tariff classification of these vehicles compared to internal combustion engine counterparts. The USMCA was written in HS 2012 nomenclature, and HS subheading 8704.90 was classified as a heavy truck under the USMCA. HS subheading 8704.90, in HS 2012 nomenclature, is where EV and hybrid trucks are classified, regardless of their size. This means that EV and hybrid trucks under five tons (those classified under 8704.41, 8704.51, and 8704.60 in more recent HS nomenclature), which most would consider light trucks, are classified as heavy trucks under the USMCA. [9] This results in a different set of ROOs for EV and hybrid trucks compared to light trucks with internal combustion engines. As the volume of EV and hybrid pickup trucks and work vans continues to increase, this means that the share of trucks weighing less than five tons treated as heavy trucks will continue to increase.[10]

4.1.1

a. Does your firm currently produce any EV or hybrid light trucks (e.g., a hybrid or electric pickup truck or work van) in North America that are classified as a heavy truck under the USMCA?
   - ○ Yes
   - ○ No

b. Has your firm publicly announced future plans to produce any EV or hybrid light trucks in North America that will be classified as a heavy truck under the USMCA?
   - ○ Yes
   - ○ No

c. [If 'yes' to 4.1.1.a or 4.1.1.b] List those model line(s) of motor vehicle: ___________________

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[7] Section 202A(g)(2)(C) of the Act (19 U.S.C. § 4532(g)(2)(C)) directs the Commission in its report to examine "whether the automotive rules of origin are relevant in light of technological changes in the United States." The Act does not define "relevant."
[8] Each of these topics was discussed in more detail in chapter 4 of the Commission's *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, which can be found here.
[9] In February 2024, CBP published a CROSS ruling that certain hybrid pickup trucks would have been classified under a light truck subheading (8704.31) using 2012 nomenclature. U.S. Customs and Border Protection, "N337574: The tariff classification of a Toyota Tacoma i-FORCE MAX hybrid pick-up truck from Mexico," February 8, 2024.
[10] For more information, see *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, 88–90.

d. [If ‘yes’ to 4.1.1.a or 4.1.1.b] How impactful is the increase in production of EV and hybrid pickup trucks and work vans and their classification as heavy trucks on the continued relevancy of the USMCA automotive ROOs related to these goods?

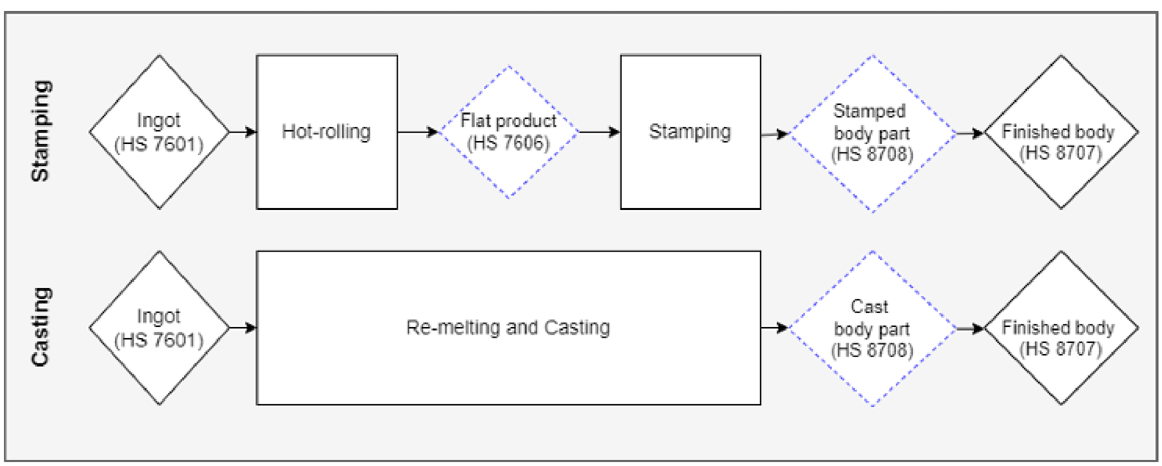
| Factor | No impact | Minimal impact | Some impact | Large impact |
|---|---|---|---|---|
| Classification of EV and hybrid pickup trucks and work vans as a heavy truck | | | | |

e. [If ‘yes’ to 4.1.1.a or 4.1.1.b] Please explain: ____________________

**Differences between tariff-shift rules for stamped vs. cast aluminum motor vehicle body parts**

Brief description of the technological change and the potential impact on the relevancy of the USMCA automotive ROOs: Aluminum automotive bodies were traditionally made from stamped aluminum body parts, but aluminum casting is increasingly becoming an alternative method of production for automotive bodies, and offers certain advantages compared to stamping. The USMCA automotive ROOs for aluminum are such that stamped aluminum motor vehicle body parts can qualify as originating if certain intermediate production steps are performed within the USMCA region, even if the process uses non-originating aluminum ingots. However, since the casting production process does not have an equivalent intermediate production step, producers cannot qualify comparable cast body parts as originating, unless the ingot itself was originating (see figure below).[11]

**Figure 4.1** A comparison of stamping and casting automotive body manufacturing processes




Source: USITC-generated graphic.
Note: The figure shows the difference in automotive body production processes and when tariff code shifts occur. Diamonds represent various aluminum goods. Diamonds with solid boundaries represent the initial and final goods. Diamonds with dashed boundaries represent intermediate goods, which are consumed to produce the final goods. The blue coloration indicates where the tariff shift occurs. Squares and rectangles represent production processes. The figure’s takeaway is that aluminum inputs subject to stamping experience a tariff shift, but aluminum inputs for casting do not qualify for a tariff shift.



[11] For more information, see *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, 91–93.

Source: USITC, *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, June 2023, 92.

4.1.2

a. Does your firm cast aluminum body parts for production of motor vehicles in North America?
   - Yes
   - No

b. [If 'no' to 4.1.2.a] Does your firm currently have plans to cast aluminum body parts for the production of motor vehicles in North American by December 31, 2025?
   - Yes
   - No

c. [If 'yes' to 4.1.2.a or 4.1.2.b] Please explain the extent to which your firm casts aluminum body parts or plans to do so in the future (e.g., use in a few vehicle models, most vehicles, etc.): ____________________

d. [If 'yes' to 4.1.2.a or 4.1.2.b] How impactful is the use of cast versus stamped aluminum body parts on the continued relevancy of the USMCA automotive ROOs related to these goods?

| Factor | No impact | Minimal impact | Some impact | Large impact |
|---|---|---|---|---|
| Differences between tariff-shift rules for stamped vs. cast aluminum body parts | | | | |

e. [If 'yes' to 4.1.2.a or 4.1.2.b] Please explain: ____________________

**The increasing importance of nontraditional motor vehicle inputs**

Brief description of the technological change and the potential impact on the relevancy of the USMCA automotive ROOs: The value of nontraditional motor vehicle inputs in the motor vehicle supply chain continues to rise, as does the share of the final motor vehicle cost encompassed by these inputs. However, these inputs are typically not classified as motor vehicle parts in the Harmonized System and are typically not subject to any product-specific automotive rules of origin under the USMCA. Examples of these inputs include semiconductors, sensors, cameras, and touch screens.[12]

4.1.3

a. How impactful is the increasing importance of nontraditional motor vehicle inputs (and the lack of USMCA automotive ROOs for these goods) on the continued relevancy of the USMCA automotive ROOs?

[12] For more information, see *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, 96–99.

| Factor | No impact | Minimal impact | Some impact | Large impact |
|---|---|---|---|---|
| Increased importance of nontraditional motor vehicle inputs | | | | |

b. Please explain: ____________________

**The lack of recycling specific provisions for advanced batteries in the USMCA Automotive ROOs**

Brief description of the technological change and the potential impact on the relevancy of the USMCA automotive ROOs: As the first generation of EV and hybrid vehicles reach their end-of-life cycle for the batteries powering those vehicles, battery recycling will be an increasingly important part of the automotive supply chain. However, the USMCA does not provide recycling-specific provisions for advanced batteries in the USMCA automotive ROOs. This means that the determination of whether the advanced battery made using recycled materials (e.g., cathode active material, black mass) qualifies as originating under the USMCA is made on the basis of the same ROOs for the original battery, whether or not the cells were created with recycled material. This lack of recycling-specific provisions will continue to increase in importance as more first generation EV batteries reach their end-of-life cycle.[13]

4.1.4

a. Does your firm currently use advanced batteries with recycled inputs in its North American supply chain (e.g., recycled cathode active material, black mass)?
   - Yes
   - No

b. [If 'no' to 4.1.4.a] Does your firm plan to use advanced batteries with recycled inputs in its North American supply chain by December 31, 2025?
   - Yes
   - No

c. [If 'yes' to 4.1.4.a or 4.1.4.b] Where does (or will) this recycling occur (city, state/province/territory, country)? ____________________

d. [If 'yes' to 4.1.4.a or 4.1.4.b] How impactful is the lack of recycling specific provisions for advanced batteries in the USMCA on the relevancy of the USMCA automotive ROOs related to these goods?

| Factor | No impact | Minimal impact | Some impact | Large impact |
|---|---|---|---|---|
| Lack of recycling specific provisions | | | | |

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[13] For more information, see *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, 99.

| | | | | |
|---|---|---|---|---|
| for advanced batteries | | | | |

e. [If 'yes' to 4.1.4.a or 4.1.4.b] Please explain: ____________________

**The continued relevancy of the various USMCA motor vehicle parts lists**

Brief description of the technological change and the potential impact on the relevancy of the USMCA automotive ROOs: There are many differences in the composition of an EV or hybrid vehicle compared to traditional vehicles powered by internal composition engines, and these differences are becoming increasingly important as a larger and larger share of vehicles in North America are increasingly EVs or hybrid vehicles. During the course of conducting the Commission's 2023 investigation, which produced *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, stakeholders disagreed about the extent to which the core, principal, and complementary parts lists in the USMCA remain relevant in light of the shift to electric vehicles, as well as the need for continued monitoring and potential updating of the USMCA's various motor vehicle parts lists.[14]

4.1.5

a. Does your firm view the USMCA motor vehicle parts lists (core, principal, and complementary) as still maintaining relevancy in light of the shift to EVs and hybrid vehicles and any other industry shifts since entry into force of the USMCA?
   - Yes
   - Maybe
   - No

b. Please explain: ___________________

c. How impactful is the continued shift to EVs and hybrid vehicles on the continued relevancy of the USMCA automotive ROOs related to these vehicles?

| Factor | No impact on relevancy | Minimal impact on relevancy | Some impact on relevancy | Large impact on relevancy |
|---|---|---|---|---|
| Continued shift to EVs and hybrid vehicles | | | | |

d. Please explain: ____________________

e. How impactful would the continued monitoring of the USMCA parts lists, and potential updates to those lists, be on your firm's ability comply with the USMCA automotive ROOs?

| Factor | No impact on compliance | Minimal impact on compliance | Some impact on compliance | Large impact on compliance |
|---|---|---|---|---|

[14] For more information, see *USMCA Automotive Rules of Origin: Economic Impact and Operation, 2023 Report*, 94–96.

| | | | | |
|---|---|---|---|---|
| Continued monitoring of, and potential updates to, the USMCA parts lists | | | | |

f. Please explain: ____________________

## 4.2 Impact on the future relevancy of the USMCA automotive ROOs

In addition to the five topics covered in the first report, the Commission is tasked with continuing to monitor and analyze technological changes that may impact the future relevancy of the USMCA automotive ROOs.

4.2.1 Describe any other technological changes that have occurred since January 1, 2018, in the North American automotive industry that may have impacted the relevancy of the USMCA automotive ROOs. This includes changes in the composition of motor vehicles, changes to key parts of motor vehicles, changes in production processes, etc. ____________________

4.2.2 Describe any other technological changes you expect to occur in the North American automotive industry between now and the end of 2025 that may impact the relevancy of the USMCA automotive ROOs. This includes changes in the composition of motor vehicles, changes to key parts of motor vehicles, changes in production processes, etc. ____________________

## SECTION 5. Other Information [NARRATIVE RESPONSE PROMPT]

5.1 If your firm would like to further explain any of the responses in this questionnaire or provide additional information about impacts of the USMCA automotive ROOs to your firm, use the space below. As with all answers to this questionnaire, your response will be confidential and will only be referenced if we can ensure anonymity.

## SECTION 6. Certification

The undersigned certifies that the information supplied herein in response to this questionnaire is complete and accurate to the best of their knowledge and belief. Section 332(g) of the Tariff Act of 1930 (19 U.S.C. § 1332(g)) provides that the Commission may not release information which it considers to be confidential business information unless the party submitting such information had notice, at the time of submission, that such information would be released by the Commission, or such party subsequently consents to the release of the information.

The undersigned acknowledges that all information, including confidential business information, submitted in this questionnaire response and throughout this investigation may be disclosed to and used by:

(i) the Commission, its employees and Offices, and contract personnel
  (a) for developing or maintaining the records of this or a related proceeding, or
  (b) in internal investigations, audits, reviews, and evaluations relating to the programs, personnel, and operations of the Commission including under 5 U.S.C. Appendix 3; or

(ii) U.S. government employees and contract personnel
  (a) for cybersecurity purposes or
  (b) in monitoring user activity on U.S. government classified networks.

The undersigned understands that all contract personnel will sign appropriate nondisclosure agreements. The Commission will not disclose any confidential business information, unless such information is otherwise available to the public. The Commission may aggregate the information you provide with information from other questionnaire responses, but the Commission will not publish information obtained from your questionnaire or an aggregation of your and other questionnaire responses in a manner that would identify your firm or reveal the operations of your firm.

| | |
|---|---|
| Certifier's name and title | Date of certification |

Check the box below in place of a written signature to indicate that the authorized official listed above has certified the information provided.

☐ Certified

Before submitting your firm's completed questionnaire, report the actual number of hours required and the cost to your business of completing this questionnaire, including all preparatory activities.

Number of hours: _____
Cost ($): ____

# Appendix I
# Economic Modeling

# Introduction

This appendix provides a technical description of the economic simulation model used to estimate the impact of the United States-Mexico-Canada Agreement (USMCA) automotive rules of origin (ROOs), the results for which are presented in chapter 3. It also includes an analysis of the sensitivity of model estimates to underlying modeling assumptions.

# Description of the Economic Model

To estimate the effects of the USMCA automotive ROOs on the U.S. automotive industry and economy, the U.S. International Trade Commission (Commission or USITC) built a partial equilibrium simulation model of the North American automotive industry at the vehicle-model level. The model includes the 21 vehicle manufacturers and over 300 vehicle-model lines sold in the market in 2024, organized into eight vehicle segments.[542] The model estimates the effects of the automotive ROOs on passenger vehicles and light trucks (light vehicles); heavy trucks are not modeled. The analysis proceeded in three steps: collection of model inputs, model simulation to estimate industry-level effects, and analysis of economy-wide effects. Each step is detailed below.

The first step of the estimation analyzed two types of adjustments that were attributed to the USMCA automotive ROOs. The first type is changes in the tariffs collected on trade in vehicles among USMCA countries. These data were collected directly from vehicle producers as part of the Commission's questionnaire.[543] Tariffs paid on USMCA trade as a result of not meeting the ROOs may occur because manufacturers did not and do not intend to shift sourcing of core parts and materials to meet the ROOs. They may also occur because manufacturers intend to meet the ROOs, but their vehicles are not yet in full compliance with the ROO requirements. These vehicles might be subject to normal staging of the ROOs and still not be in compliance after normal staging ended in 2023. These vehicles might also be subject to an alternative staging regime plan on only a fraction of production and pay tariffs on noncovered vehicles. For vehicles produced in Canada or Mexico and imported into the United States, the 2024 normal trade relations (NTR) tariff rate is 2.5 percent.[544] For vehicles produced in the United States or Mexico and imported into Canada, the 2024 NTR tariff rate is 6.1 percent.[545] These tariff data, by vehicle model, are included in the economic model as an ad valorem tariff rate applied to that vehicle's price.

The second type of adjustment is changes in sourcing and assembly location due to the ROOs. This analysis examines whether sourcing of core parts, steel, and aluminum for each vehicle-model line

[542] The eight segments are small cars, midsize to large cars, luxury cars, small crossover utility vehicles (CUVs), midsize to large CUVs, sport utility vehicles, vans, and pickup trucks.

[543] The Commission did not collect data via a questionnaire for its 2023 report, USITC, USMCA Automotive Rules of Origin, July 2023, and tariff data were estimated for that report using confidential data on vehicle imports of individual manufacturers. In this report, data on tariffs paid on USMCA trade are obtained directly from the vehicle manufacturers in their responses to the Commission's questionnaire. USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in section 3.6.2.

[544] USITC, *HTS (2024) Basic Edition,* January 2024.

[545] Canada Border Services Agency, *Customs Tariff Schedule, Chapter 87,* 2024. The effects of tariffs on Mexican imports of vehicles are not quantified in this analysis.

shifted to USMCA countries between 2018 and 2024. The data were collected directly from vehicle producers via the Commission's questionnaire, and responses were at the vehicle-model-line level.[546] Manufacturers were asked to list sourcing changes made on all seven core parts and steel and aluminum materials related to the USMCA automotive ROOs, indicating whether the change could be either partially or fully attributed to the ROOs and describing the other factors that affected the decision. The questionnaire also asked manufacturers to provide the percentage of the model line affected and the dollar value change in per-vehicle variable costs of production associated with the sourcing change. These variable cost shocks were used in the model to estimate the industry-level impact of the ROOs from the sourcing changes made. If manufacturers indicated that the sourcing change was fully attributed to the ROOs, 100 percent of the variable cost shock was used in the economic model. If manufacturers indicated that the sourcing change was partially attributed to the ROOs, a customized partial attribution share was estimated using interviews with the manufacturers and other industry information.

The second step of the analysis used an economic simulation model with multiproduct firms.[547] Each vehicle manufacturer sets the prices of all its light vehicle models in an oligopolistic competition on the basis of changes in the tariffs it faces, its costs of production, and the price responses of its competitors within and across industry segments.[548] Two national markets are included in the industry-specific economic simulation models: the United States and Canada.

The demands for the differentiated vehicle models are represented by a nested logit demand structure.[549] The demand structure contains eight nests, or consumer segments, with substitution across

[546] In its 2023 report, the Commission estimated sourcing changes using observed shifts in engines and transmissions recorded in the American Automotive Labeling Act (AALA) reports, and confidential data on shifts in sourcing of steel and aluminum from vehicle manufacturers. USITC, USMCA Automotive Rules of Origin, July 2023. Because of data limitations, sourcing-change information for the other five core parts was not available and was not analyzed in the 2023 report. In this report, sourcing changes of all seven core parts and steel and aluminum are included. USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions in sections 2.2 and 2.3.

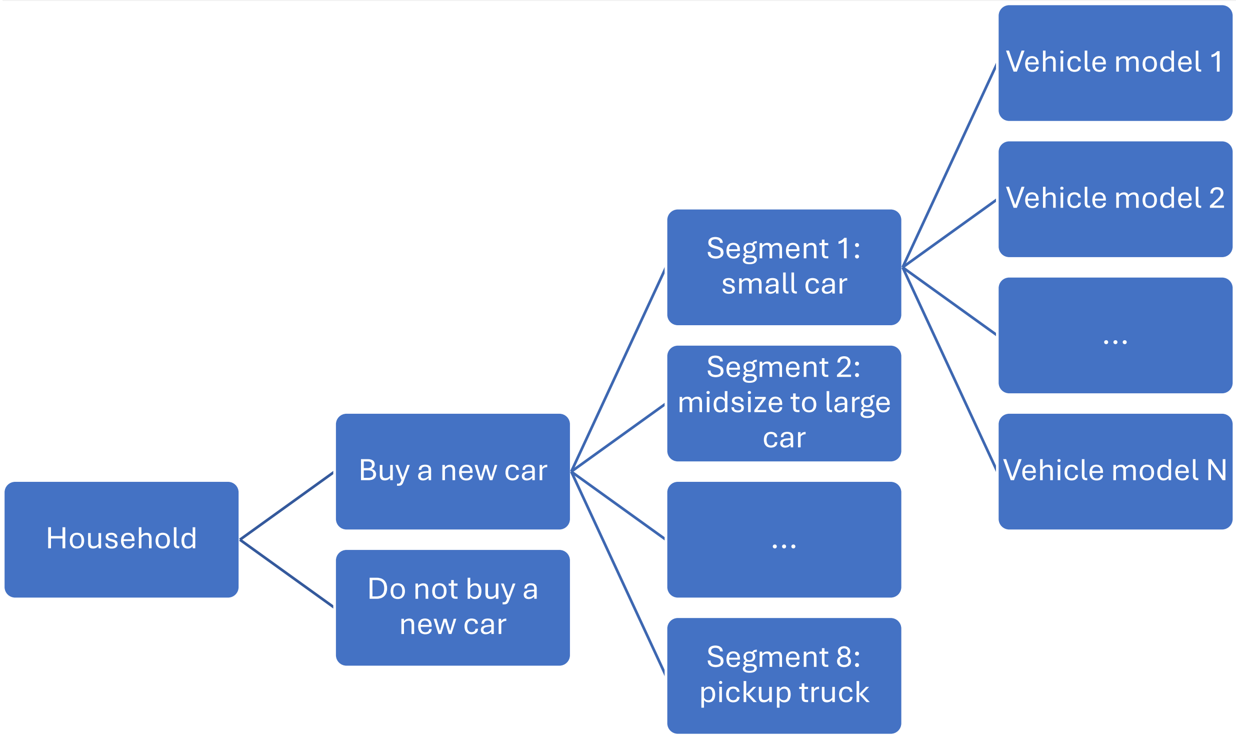
[547] The model is an extension and refinement of the model in the Commission's 2019 and 2023 USMCA reports. USITC, *U.S.-Mexico-Canada Trade Agreement: Likely Impact*, April 2019; USITC, *USMCA Automotive Rules of Origin*, July 2023.

[548] The equations of the model used in this report are similar to the equations in the Bertrand-Nash oligopolistic competition model in Montgomery and Riker (2020). In this model, there are a small number of companies that sell multiple products, in this case vehicle models, and face constant elasticity of substitution (CES) demand and Bertrand price competition. The companies choose their prices to jointly maximize profits from the revenue streams associated with the different brands. Montgomery and Riker, "Concentrated Markets with Cross Border Ownership," January 2020.

[549] Nested logit is an appropriate demand structure for the automotive industry for several reasons. First, as in Goldberg (1995), Berry et al. (1999), and Grieco et al. (2023), it allows for an alternative outside option to new car purchases. Consumers have discrete choice logit demand for the many differentiated vehicle-model lines available in North America. Alternatives are grouped into nests, or segments, where vehicle choices inside a segment are more substitutable compared to vehicles in other segments. Goldberg, "Product Differentiation and Oligopoly in International Markets," July 1995; Berry et al., "Voluntary Export Restraints on Automobiles," June 1999; Grieco et al., "The Evolution of Market Power," May 2024.

vehicle models within the same nest and some (limited) substitution across nests (figure I.1).[550] Households first determine whether they would like to buy a new car or choose the option of not purchasing a new car. They then choose their segment and vehicle-model line within the segment.

**Figure I.1** Illustration of nested demand structure




Source: USITC illustration.
Note: From left to right, the two nodes labeled "…" refer to vehicle segment nests 3 through 7 and vehicle models 3 and beyond, respectively.

The model fits the parameters of the nested logit demand model by selecting values where the median price-cost margin in the model matches the median price-cost margin reported for the U.S. automotive industry in Grieco et al. (2024).[551]

Bertrand-Nash oligopolistic competition exists among the vehicle manufacturers across the eight segments in each national market; each firm sets its own prices to maximize its profits across all its vehicle models, taking the prices of its competitors as given.[552] An oligopolistic competition model is appropriate for the automotive industry because a small number of manufacturers produce

[550] The nested logit equations build on the model equations in Riker (2024). This demand structure is an improvement to the Commission's 2023 report, which used a linear demand structure and full segmentation of vehicle classes. Riker, "Imports and the Location of Vehicle Production," February 2024.
[551] Grieco et al., "The Evolution of Market Power," May 2024. The median margin of sales prices over variable costs in the model is 0.185.
[552] The modeling approach follows the academic literature on estimating demand and simulating the effects of trade policy, including Goldberg, "Product Differentiation and Oligopoly in International Markets," 1995; Berry et al., "Automobile Prices in Market Equilibrium," 1995; "Voluntary Export Restraints on Automobiles," June 1999; "Differentiated Products Demand Systems," February 2004.

differentiated products and each manufacturer sets its own prices to maximize its profits. The economic simulation model assumes a fixed number of vehicle models competing in each industry segment in the short run to reduce computational complexity.

The variable cost of producing each vehicle model is assumed to be constant and is calibrated to prices and market shares in 2024—using the first-order price setting conditions the manufacturer needs to meet to maximize profits—because these variable costs are not directly measured in available data.[553] Some manufacturers respond to the USMCA automotive ROOs by adjusting their sourcing of core parts and materials. A shift to sourcing from the USMCA parties changes their costs of vehicle production. The simulated changes in equilibrium prices imply changes to vehicle sales, international trade, production, wage payments, sales, employment, capital expenditures, profits, and inventories.[554]

Several of the modeling features in this report are improvements on the Commission's prior modeling analysis of the ROOs in its 2023 report.[555] Most importantly, the information in the Commission's questionnaire provides more extensive and detailed data on sourcing shifts and associated changes in production costs—including what portion is attributable to the USMCA automotive ROOs—and tariffs actually paid on trade within the USMCA region. The nested logit demand specification in the model is a significant improvement over the prior linear demand specification, as explained above. In addition, the model includes the effects for vehicle models introduced before the USMCA and estimates of upstream effects on steel workers.

# Sensitivity of the Model Estimates

Tables I.1–I.6 provide alternative estimates to the simulation model estimates reported in chapter 3. The tables were created using alternative partial attribution shares to test the sensitivity of the simulation model's results. For sourcing-change data collected from the Commission's questionnaire that were indicated as "partially" attributed to the ROOs, a customized partial attribution share was estimated using information from interviews with automotive manufacturers and other industry information. The alternative estimates below test the sensitivity of model results to these partial attribution shares by assigning a 25 percent or 75 percent attribution share to the "partially" attributed changes, to establish a sensitivity range, instead of the customized value used in the simulations reported in chapter 3. Results of the sensitivity analysis are presented below.

[553] This step of calibrating variable costs from the first-order conditions from the manufacturers' profit-maximizing pricing follows the academic literature, including Berry et al., "Automobile Prices in Market Equilibrium," 1995.
[554] Estimated employment effects assume constant variable labor requirements and a separate set of workers involved in parts production and vehicle assembly.
[555] USITC, *USMCA Automotive Rules of Origin: Economic Impact*, July 2023.

**Table I.1** Estimated impact on USMCA imports of core parts from non-USMCA countries, 2024
In number of parts.

| Economic outcome | Change with 25 percent partial shares | Change reported in chapter 3 of this report, customized partial shares | Change with 75 percent partial shares |
|---|---|---|---|
| Engines | −369,556 | −436,640 | −531,770 |
| Transmissions | −575,329 | −607,478 | −649,322 |
| Bodies and chassis | −246,765 | −246,719 | −246,717 |
| Axles | −398,902 | −398,852 | −398,819 |
| Suspension systems | −91,137 | −91,124 | −91,107 |
| Steering systems | −258,714 | −258,699 | −258,680 |
| Advanced batteries | 0 | 0 | 0 |

Source: USITC estimates.

**Table I.2** Estimated impact on U.S. imports of light vehicles, 2024
In number of vehicles.

| Economic outcome | Change with 25 percent partial shares | Change reported in chapter 3 of this report, customized partial shares | Change with 75 percent partial shares |
|---|---|---|---|
| U.S. imports from other USMCA countries | −36,066 | −37,591 | −37,578 |
| U.S. imports from non-USMCA countries | 13,672 | 14,314 | 14,635 |

Source: USITC estimates.

**Table I.3** Estimated impact on employment in the U.S. industry, 2024
In number of workers.

| Economic outcome | Change with 25 percent partial shares | Change reported in chapter 3 of this report, customized partial shares | Change with 75 percent partial shares |
|---|---|---|---|
| Parts: employment in U.S. production | 4,846 | 5,387 | 6,134 |
| Vehicles: employment in U.S. production | -287 | -302 | -332 |

Source: USITC estimates.

**Table I.4** Estimated impact on wages and capital expenditures in the United States, 2024
In millions of dollars.

| Economic outcome | Change with 25 percent partial shares | Change reported in chapter 3 of this report, customized partial shares | Change with 75 percent partial shares |
|---|---|---|---|
| Parts: wages in U.S. production | 302.1 | 335.8 | 382.4 |
| Parts: capital expenditures on U.S. production | 85.9 | 94.2 | 105.5 |
| Vehicles: wages in U.S. production | −22.6 | −23.8 | −26.1 |
| Vehicles: capital expenditures on U.S. production | −14.9 | −15.7 | −17.3 |

Source: USITC estimates.

**Table I.5** Estimated impact on revenue from U.S. vehicle and parts production, 2024
In millions of dollars.

| Economic outcome | Change with 25 percent partial shares | Change reported in chapter 3 of this report, customized partial shares | Change with 75 percent partial shares |
|---|---|---|---|
| Revenue from U.S. vehicle production | −221.9 | −250.8 | −299.7 |
| Revenue from U.S. parts production | 2,963.9 | 3,419.1 | 4,042.8 |

Source: USITC estimates.

**Table I.6** Estimated impact on the prices and production of light vehicles in the United States, 2024
In dollars and number of vehicles.

| Economic outcome | Change with 25 percent partial shares | Change reported in chapter 3 of this report, customized partial shares | Change with 75 percent partial shares |
|---|---|---|---|
| Average vehicle prices | 32 | 33 | 35 |
| Vehicle production | −14,266 | −15,037 | −16,502 |

Source: USITC estimates.

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# Appendix J
# Data Tables for Figures and Additional Data

# Underlying tables for figures

**Table J.1** Share of motor vehicle production in the United States, by regions, 2023

In units and percentages. Corresponds to figure 2.1.

| Region | Units | Share (%) |
|---|---|---|
| Midwest | 5,103,352 | 48.0 |
| Southeast | 4,194,972 | 39.4 |
| Rest of the U.S. | 1,341,759 | 12.6 |
| Total U.S motor vehicle production | 10,640,083 | 100.0 |

Source: Wards Intelligence, “North America Vehicle Production by State and Plant, 2019–2023,” January 2023.

Notes: Production in the Midwest is located in Illinois, Indiana, Kansas, Michigan, Missouri, and Ohio. The Southeast includes Alabama, Georgia, Kentucky, Maryland, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. The rest of the United States has reported vehicle production in only three states: Arizona, California, and Texas. Additional regional analysis is available in appendix G.

**Table J.2** Indexes of currency exchange rates for Canada and Mexico relative to the U.S. dollar (USD) Index, January 2019–December 2024

January 2019 = 100.0. Corresponds to figure 2.3.

| Year | Month | Canadian dollar | Mexican peso | U.S. dollar Index |
|---|---|---|---|---|
| 2019 | January | 100.0 | 100.0 | 100.0 |
| 2019 | February | 99.3 | 100.1 | 100.0 |
| 2019 | March | 100.5 | 100.4 | 100.3 |
| 2019 | April | 100.6 | 98.9 | 100.4 |
| 2019 | May | 101.2 | 99.7 | 101.3 |
| 2019 | June | 99.9 | 100.5 | 100.9 |
| 2019 | July | 98.5 | 99.3 | 100.6 |
| 2019 | August | 99.8 | 102.7 | 102.3 |
| 2019 | September | 99.6 | 102.0 | 102.5 |
| 2019 | October | 99.2 | 100.8 | 102.0 |
| 2019 | November | 99.5 | 100.8 | 101.9 |
| 2019 | December | 99.0 | 99.6 | 101.3 |
| 2020 | January | 98.4 | 98.1 | 100.7 |
| 2020 | February | 99.9 | 98.3 | 102.0 |
| 2020 | March | 105.0 | 116.7 | 105.8 |
| 2020 | April | 105.6 | 126.1 | 107.7 |
| 2020 | May | 105.1 | 122.7 | 107.2 |
| 2020 | June | 101.9 | 116.4 | 104.6 |
| 2020 | July | 101.5 | 116.8 | 103.7 |
| 2020 | August | 99.5 | 115.8 | 102.2 |
| 2020 | September | 99.5 | 113.0 | 101.7 |
| 2020 | October | 99.4 | 111.0 | 101.2 |
| 2020 | November | 98.3 | 106.7 | 99.7 |
| 2020 | December | 96.3 | 104.1 | 97.8 |
| 2021 | January | 95.7 | 104.0 | 97.4 |
| 2021 | February | 95.5 | 106.0 | 97.9 |
| 2021 | March | 94.5 | 108.2 | 99.0 |
| 2021 | April | 93.9 | 104.5 | 98.4 |
| 2021 | May | 91.2 | 104.1 | 97.2 |
| 2021 | June | 91.9 | 104.5 | 97.5 |

| Year | Month | Canadian dollar | Mexican peso | U.S. dollar Index |
|---|---|---|---|---|
| 2021 | July | 94.2 | 104.2 | 98.8 |
| 2021 | August | 94.7 | 104.7 | 99.1 |
| 2021 | September | 95.3 | 104.6 | 99.1 |
| 2021 | October | 93.5 | 106.6 | 99.7 |
| 2021 | November | 94.5 | 108.9 | 100.5 |
| 2021 | December | 96.2 | 109.2 | 101.2 |
| 2022 | January | 94.9 | 107.0 | 100.5 |
| 2022 | February | 95.6 | 106.7 | 100.5 |
| 2022 | March | 95.2 | 107.2 | 101.6 |
| 2022 | April | 94.9 | 104.8 | 102.4 |
| 2022 | May | 96.7 | 104.6 | 104.6 |
| 2022 | June | 96.3 | 104.4 | 104.9 |
| 2022 | July | 97.3 | 107.2 | 107.3 |
| 2022 | August | 97.1 | 104.9 | 106.9 |
| 2022 | September | 100.3 | 104.7 | 109.8 |
| 2022 | October | 102.9 | 104.2 | 111.4 |
| 2022 | November | 101.2 | 101.5 | 109.1 |
| 2022 | December | 102.1 | 102.3 | 106.8 |
| 2023 | January | 100.9 | 99.0 | 104.7 |
| 2023 | February | 101.2 | 97.2 | 105.2 |
| 2023 | March | 102.9 | 95.9 | 105.6 |
| 2023 | April | 101.4 | 94.4 | 104.3 |
| 2023 | May | 101.6 | 92.6 | 104.7 |
| 2023 | June | 99.9 | 89.9 | 104.5 |
| 2023 | July | 99.3 | 88.1 | 103.5 |
| 2023 | August | 101.3 | 88.6 | 105.0 |
| 2023 | September | 101.7 | 90.3 | 106.6 |
| 2023 | October | 103.1 | 94.2 | 108.2 |
| 2023 | November | 103.1 | 90.6 | 106.2 |
| 2023 | December | 100.9 | 89.7 | 105.0 |
| 2024 | January | 100.9 | 89.2 | 105.4 |
| 2024 | February | 101.5 | 89.2 | 106.1 |
| 2024 | March | 101.8 | 87.5 | 105.8 |
| 2024 | April | 102.8 | 87.6 | 107.1 |
| 2024 | May | 102.8 | 87.7 | 106.8 |
| 2024 | June | 103.0 | 94.9 | 108.4 |
| 2024 | July | 103.1 | 94.4 | 108.1 |
| 2024 | August | 102.7 | 99.8 | 107.4 |
| 2024 | September | 101.8 | 102.2 | 106.7 |
| 2024 | October | 103.4 | 102.9 | 108.2 |
| 2024 | November | 105.1 | 106.1 | 110.6 |
| 2024 | December | 107.1 | 105.7 | 111.7 |

Source: Federal Reserve Board.

Note: The U.S. Dollar Index is a trade weighted index that measure the value of the U.S. dollar relative to a basket of six foreign currencies. Each currency is measured relative to the U.S. dollar. Therefore, if the graph increases for any currency, the U.S. dollar is relatively stronger and the foreign currency relatively weaker.

**Table J.3** Share of U.S. light vehicles that are dutiable, from Canada and Mexico, 2019–24

In units and percentages of vehicles. Corresponds to figure 4.1.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| U.S. dutiable imports from Canada (units) | 5,949 | 28,063 | 26,360 | 19,860 | 11,564 | 24,250 |
| U.S. dutiable imports from Mexico (units) | 66,055 | 166,823 | 239,008 | 313,033 | 445,374 | 307,522 |
| Share of U.S. dutiable imports from Canada (%) | 0.4 | 2.4 | 2.8 | 1.9 | 0.9 | 2.2 |
| Share of U.S. dutiable imports from Mexico (%) | 2.2 | 6.9 | 10.0 | 12.6 | 15.4 | 10.0 |

Source: USITC DataWeb/Census, Imports for Consumption for HS subheadings for light vehicles, accessed February 12, 2025.

Note: *Harmonized Commodity Description and Coding System* (HS) subheadings for light vehicles are defined in appendix F, table F.1. The share of dutiable vehicles imported into the United States is largely passenger vehicles. Less than 1 percent of light trucks imported from Mexico are dutiable.

**Table J.4** Vehicle manufacturer announced USMCA investments, by country, 2019–24

In millions of dollars. — (em dash) = not applicable. Corresponds to figure 4.2.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States | 21,437 | 5,581 | 26,302 | 40,068 | 56,614 | 9,128 |
| Mexico | — | 295 | 1,261 | 679 | 11,680 | 7,260 |
| Canada | 476 | 2,461 | 933 | 10,700 | 9,013 | 13,300 |

Source: CAR, "Automotive Communities Partnership", accessed January 14, 2025.

Note: No announced investment from Mexico in 2019.

**Table J.5** Parts supplier announced USMCA investments, by country, 2019–24

In millions of dollars. — (em dash) = not applicable. Corresponds to figure 4.3.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States | 6,415 | 5,352 | 4,029 | 55,231 | 31,173 | 24,967 |
| Mexico | 586 | 681 | 1,287 | 2,745 | 16,209 | 8,341 |
| Canada | 173 | — | 185 | 69 | 7,791 | 1,920 |

Source: CAR, "Automotive Communities Partnership," accessed January 14, 2025.

Note: No reported investment from Canada in 2020.

**Table J.6** Automotive manufacturer announced U.S. investments, by powertrain, 2019–24

In millions of dollars and percentages. Corresponds to figure 4.4.

| Powertrain | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Electrification (million $) | 14,330 | 5,541 | 27,108 | 83,727 | 75,842 | 27,430 |
| Other (non-EV) (million $) | 13,522 | 5,392 | 3,223 | 11,572 | 11,946 | 6,665 |
| Share of electrification (%) | 51.5 | 50.7 | 89.4 | 87.9 | 86.4 | 80.5 |

Source: CAR, "Automotive Communities Partnership," accessed January 14, 2025.

**Table J.7** U.S. light vehicle sales, by origin and U.S. market share, 2019–24

In thousands of units and percentages. Corresponds to figure 4.5.

| Country or region | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (1,000 units) | 9,247 | 7,807 | 8,182 | 7,998 | 8,768 | 8,535 |
| Mexico (1,000 units) | 1,429 | 1,196 | 1,652 | 843 | 1,077 | 1,055 |
| Canada (1,000 units) | 2,458 | 2,168 | 2,104 | 1,990 | 2,189 | 2,438 |
| USMCA, total (1,000 units) | 13,135 | 11,171 | 11,938 | 10,832 | 12,034 | 12,028 |
| non-USMCA (1,000 units) | 3,794 | 3,268 | 3,536 | 2,831 | 3,334 | 3,670 |
| Total (1,000 units) | 16,929 | 14,439 | 15,474 | 13,663 | 15,368 | 15,697 |
| U.S. market share (%) | 54.6 | 54.1 | 52.9 | 58.5 | 57.1 | 54.4 |

Source: Wards Intelligence, "Light Vehicle Sales" for years 2019–24, accessed January 13, 2025; Wards Intelligence, "North America Vehicle Production by State and Plant, 2019-2023," March 29, 2024; Wards Intelligence, "North American Production, December 2024," accessed January 21, 2025.

Note: Source country of vehicles was determined using production data.

**Table J.8** U.S. vehicle parts production and share of U.S. consumption, 2019–24

In billions of dollars and percentages. Corresponds to figure 4.6.

| Item | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| U.S. parts production (billion $) | 311.8 | 268.4 | 300.3 | 338.1 | 346.7 | 349.0 |
| U.S. parts production for export (billion $) | 58.2 | 46.2 | 49.0 | 57.5 | 65.0 | 57.6 |
| U.S. parts production for U.S. consumption (billion $) | 253.6 | 222.3 | 251.4 | 280.6 | 281.8 | 291.4 |
| U.S. producers' share of U.S. consumption (%) | 68.4 | 69.0 | 67.5 | 67.1 | 66.1 | 66.5 |

Source: U.S. Census, "Manufacturers' Shipments, Inventory, and Orders (M3) Survey", February 4, 2025; USITC DataWeb/Census, U.S. Imports for consumption and U.S. Domestic exports, NAICS 3362 and 3363, accessed February 4, 2025.

Notes: Data for U.S. parts production represent parts classified under North American Industry Classification System (NAICS) codes 3362 (Motor vehicle body and trailer manufacturing) and 3363 (Motor vehicle part manufacturing). The presented share is based on U.S. parts production for U.S. consumption, which is derived by subtracting domestic exports from U.S. production.

**Table J.9** Changes in the source of motor vehicle parts and materials attributable to the rules of origin

In number of sourcing changes. Corresponds to figure 4.7.

| Origin country or region | New source country | Number of sourcing changes |
|---|---|---|
| South Korea | Mexico | 22 |
| Japan | United States | 16 |
| All other countries | Mexico | 14 |
| South Korea | United States | 12 |
| All other countries | United States | 12 |
| All other countries | Canada | 8 |
| Mexico | United States | 8 |
| Japan | Mexico | 7 |
| Canada | Mexico | 3 |

Source: USITC, *USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 2.2.2 – 2.2.11.

Notes: The Commission's survey identified 68 motor vehicle part sourcing changes. The 68 sourcing changes had a total of 102 sourcing change flows (sourcing change of core part from original source country to new source country), as several sourcing change descriptions had multiple original source countries and new source countries. Sourcing change flows are based on production of existing models. Respondents partially attributed some sourcing changes to the rules of origin.

**Table J.10** New orders of U.S. producers of iron and steel and of aluminum and nonferrous metal products, by month and year, January 2018–October 2024

In millions of dollars, monthly, seasonally adjusted. USMCA entry into force occurred on July 1, 2020. Corresponds to figure 4.8.

| Year | Month | Iron and steel mills and ferroalloy and steel product manufacturing | Aluminum and nonferrous metal products |
|---|---|---:|---:|
| 2018 | January | 9,817 | 8,596 |
| 2018 | February | 10,038 | 8,703 |
| 2018 | March | 10,399 | 8,775 |
| 2018 | April | 10,755 | 8,988 |
| 2018 | May | 10,905 | 8,833 |
| 2018 | June | 11,160 | 8,777 |
| 2018 | July | 11,219 | 8,858 |
| 2018 | August | 11,279 | 8,718 |
| 2018 | September | 11,179 | 8,798 |
| 2018 | October | 11,103 | 8,786 |
| 2018 | November | 11,202 | 8,824 |
| 2018 | December | 10,897 | 8,666 |
| 2019 | January | 10,683 | 8,578 |
| 2019 | February | 10,779 | 8,442 |
| 2019 | March | 10,698 | 8,579 |
| 2019 | April | 10,594 | 8,486 |
| 2019 | May | 10,359 | 8,518 |
| 2019 | June | 9,838 | 8,642 |
| 2019 | July | 9,681 | 8,340 |
| 2019 | August | 9,456 | 8,271 |
| 2019 | September | 9,367 | 8,450 |
| 2019 | October | 9,157 | 8,128 |
| 2019 | November | 8,931 | 8,019 |
| 2019 | December | 8,776 | 7,842 |
| 2020 | January | 9,050 | 7,508 |
| 2020 | February | 8,814 | 7,607 |
| 2020 | March | 8,461 | 6,996 |
| 2020 | April | 7,046 | 6,043 |
| 2020 | May | 6,908 | 6,312 |
| 2020 | June | 7,476 | 6,810 |
| 2020 | July | 7,687 | 7,059 |
| 2020 | August | 7,889 | 7,447 |
| 2020 | September | 8,117 | 7,642 |
| 2020 | October | 8,442 | 8,011 |
| 2020 | November | 8,915 | 8,510 |
| 2020 | December | 9,566 | 9,001 |
| 2021 | January | 10,596 | 9,353 |
| 2021 | February | 10,657 | 9,601 |
| 2021 | March | 11,139 | 7,460 |
| 2021 | April | 11,368 | 8,240 |
| 2021 | May | 11,829 | 8,614 |
| 2021 | June | 12,430 | 9,049 |
| 2021 | July | 13,049 | 9,783 |

| Year | Month | Iron and steel mills and ferroalloy and steel product manufacturing | Aluminum and nonferrous metal products |
|---|---|---|---|
| 2021 | August | 13,409 | 9,753 |
| 2021 | September | 13,975 | 9,990 |
| 2021 | October | 14,182 | 10,387 |
| 2021 | November | 14,257 | 10,328 |
| 2021 | December | 14,216 | 11,046 |
| 2022 | January | 14,284 | 10,645 |
| 2022 | February | 14,268 | 10,755 |
| 2022 | March | 14,221 | 11,579 |
| 2022 | April | 14,641 | 11,178 |
| 2022 | May | 15,075 | 11,268 |
| 2022 | June | 15,248 | 11,310 |
| 2022 | July | 15,474 | 9,983 |
| 2022 | August | 15,318 | 10,313 |
| 2022 | September | 15,096 | 9,983 |
| 2022 | October | 14,894 | 10,177 |
| 2022 | November | 14,613 | 10,106 |
| 2022 | December | 14,643 | 10,155 |
| 2023 | January | 14,659 | 10,557 |
| 2023 | February | 14,775 | 10,240 |
| 2023 | March | 15,012 | 10,217 |
| 2023 | April | 14,719 | 10,217 |
| 2023 | May | 14,920 | 10,313 |
| 2023 | June | 14,990 | 10,327 |
| 2023 | July | 14,696 | 10,336 |
| 2023 | August | 14,521 | 10,313 |
| 2023 | September | 14,581 | 10,317 |
| 2023 | October | 14,509 | 10,126 |
| 2023 | November | 14,695 | 10,173 |
| 2023 | December | 15,095 | 9,922 |
| 2024 | January | 14,846 | 9,976 |
| 2024 | February | 14,826 | 10,101 |
| 2024 | March | 14,715 | 10,160 |
| 2024 | April | 14,597 | 10,373 |
| 2024 | May | 14,319 | 10,633 |
| 2024 | June | 14,458 | 10,402 |
| 2024 | July | 14,367 | 10,346 |
| 2024 | August | 14,333 | 10,344 |
| 2024 | September | 14,501 | 10,416 |
| 2024 | October | 14,522 | 10,568 |

Source: Census, “Manufacturers’ Shipments, Inventory, and Orders (M3) Survey,” New Orders, seasonally adjusted for 31A and ANM, November 5, 2024.

Note: A new order is a communication of an intention to buy for immediate or future delivery. The survey combines manufacturers related to iron and steel mills and ferroalloy and steel product manufacturing under code 31A (NAICS codes 3311 and 3312) and combines manufacturers of aluminum and nonferrous metal products under code ANM (NAICS code 3313). Thus, the figure above depicts new orders of these other categories.

**Table J.11** Canadian light vehicle sales, by origin and U.S. market share, 2019–24
In units and percentages. Corresponds to figure 4.9.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (units) | 753,425 | 602,612 | 621,222 | 586,999 | 617,779 | 793,966 |
| Mexico (units) | 373,645 | 306,163 | 321,680 | 302,285 | 333,424 | 354,167 |
| Canada (units) | 290,720 | 233,281 | 240,130 | 224,031 | 259,858 | 269,742 |
| USMCA, total (units) | 1,417,790 | 1,142,056 | 1,183,032 | 1,113,315 | 1,211,061 | 1,417,875 |
| non-USMCA, total (units) | 506,696 | 405,999 | 479,847 | 407,345 | 507,748 | 554,827 |
| Total (units) | 1,924,486 | 1,548,055 | 1,662,879 | 1,520,660 | 1,718,809 | 1,972,702 |
| U.S. market share (%) | 39.1 | 38.9 | 37.4 | 38.6 | 35.9 | 40.2 |

Source: Wards Intelligence, "North American Production by State and Plant 2019–2023," March 29, 2024; Wards Intelligence, "North American Production by State and Plant 2017–2021," April 11, 2022; Wards Intelligence, "Canada Vehicle Sales by Model 2019-2023," accessed August 1, 2024; Wards Intelligence, "Canada Light Vehicle Sales by Brand and Company December 2024," accessed January 2, 2024.
Note: This table assumes that if a model was produced in two USMCA countries, that domestic production would first be used to fulfil sales. The remainder would then be for export.

**Table J.12** Canada's imports of light vehicles, by source, 2019–24
In units and percentages. Corresponds to figure 4.10.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (units) | 936,837 | 713,372 | 743,588 | 795,071 | 765,074 | 693,466 |
| Mexico (units) | 246,210 | 188,627 | 222,358 | 258,804 | 315,933 | 337,314 |
| USMCA, total (units) | 1,183,047 | 901,999 | 965,946 | 1,053,875 | 1,081,007 | 1,030,780 |
| non-USMCA (units) | 528,890 | 434,766 | 498,535 | 479,662 | 682,839 | 669,064 |
| Total (units) | 1,711,937 | 1,336,765 | 1,464,481 | 1,533,537 | 1,763,846 | 1,699,844 |
| U.S. import share (%) | 54.7 | 53.4 | 50.8 | 51.8 | 43.4 | 40.8 |

Source: S&P Global, GTAS database, HS subheadings for light vehicles, accessed March 24, 2025.
Note: HS subheadings for light vehicles are defined in appendix F, table F.1.

**Table J.13** Mexican light vehicle sales, by origin, and U.S. market share, 2019–24
In units and percentages. Corresponds to figure 4.11.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (units) | 103,089 | 68,676 | 81,101 | 88,569 | 92,373 | 110,710 |
| Mexico (units) | 460,043 | 367,727 | 373,213 | 358,453 | 461,999 | 518,353 |
| Canada (units) | 32,514 | 19,527 | 18,574 | 28,699 | 36,569 | 34,565 |
| USMCA, total (units) | 595,646 | 455,930 | 472,888 | 475,721 | 590,941 | 663,628 |
| non-USMCA (units) | 720,412 | 491,985 | 540,261 | 608,914 | 769,205 | 831,373 |
| Total (units) | 1,316,058 | 947,915 | 1,013,149 | 1,084,635 | 1,360,146 | 1,495,001 |
| U.S. market share (%) | 7.8 | 7.2 | 8.0 | 8.2 | 6.8 | 7.4 |

Source: Wards Intelligence, "North American Production by State and Plant 2019–2023," accessed August 1, 2024; Wards Intelligence, "North American Production by State and Plant 2017–2021," accessed August 1, 2024; Wards Intelligence, "Mexico Vehicle Sales by Segment 2019–2023," accessed August 1, 2024; Wards Intelligence, "Mexico Light Vehicle Sales, December 2024," accessed January 2, 2024.
Note: This table assumes that if a model were produced in two USMCA countries, that domestic production would be used first to fulfill domestic sales. The remainder would then be exported.

**Table J.14** Mexico's imports of light vehicles, by source, and U.S. market share, 2019–24
In units and percentages. Corresponds to figure 4.12.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (units) | 239,707 | 166,450 | 200,641 | 218,060 | 269,963 | 284,014 |

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Canada (units) | 1,444 | 3,062 | 20,011 | 28,271 | 34,824 | 23,708 |
| USMCA, total (units) | 241,151 | 169,512 | 220,652 | 246,331 | 304,787 | 307,722 |
| non-USMCA (units) | 382,919 | 228,289 | 248,384 | 379,422 | 727,611 | 689,484 |
| Total (units) | 624,070 | 397,801 | 469,036 | 625,753 | 1,032,398 | 997,206 |
| U.S. import share (%) | 38.4 | 41.8 | 42.8 | 34.8 | 26.1 | 28.5 |

Source: S&P Global, GTAS database, HS subheadings for light vehicles, accessed March 24, 2025.
Note: HS subheadings for light vehicles are defined in appendix F, table F.1.

**Table J.15** Canada's imports of motor vehicle parts, by source, and U.S. import share, 2019-24
In millions of dollars and percentages. Corresponds to figure 4.13.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (million $) | 23,476 | 17,272 | 16,687 | 19,565 | 24,660 | 23,750 |
| Mexico (million $) | 5,779 | 4,064 | 3,534 | 4,353 | 5,409 | 4,183 |
| USMCA, total (million $) | 29,255 | 21,337 | 20,221 | 23,918 | 30,069 | 27,933 |
| non-USMCA (million $) | 8,684 | 7,218 | 8,440 | 9,431 | 9,257 | 8,931 |
| Total (million $) | 37,939 | 28,555 | 28,661 | 33,349 | 39,326 | 36,864 |
| U.S. import share (%) | 61.9 | 60.5 | 58.2 | 58.7 | 62.7 | 64.4 |

Source: S&P Global, GTAS database, accessed February 26, 2025.
Note: HS subheadings for vehicle parts are defined in appendix F, table F.5, which constitute HS subheadings for which most of the HTS statistical reporting numbers are automotive related.

**Table J.16** Mexico's motor vehicle parts imports, by source and year, 2019–24
In millions of dollars and percentages. Corresponds to figure 4.14.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| United States (million $) | 27,123 | 21,412 | 23,876 | 28,372 | 31,686 | 31,648 |
| Canada (million $) | 1,655 | 1,386 | 1,551 | 2,125 | 2,406 | 2,602 |
| USMCA, total (million $) | 28,777 | 22,798 | 25,427 | 30,497 | 34,091 | 34,251 |
| non-USMCA (million $) | 15,608 | 12,843 | 17,631 | 19,913 | 22,512 | 23,999 |
| Total (million $) | 44,385 | 35,641 | 43,058 | 50,410 | 56,604 | 58,250 |
| U.S. import share (%) | 61.1 | 60.1 | 55.5 | 56.3 | 56.0 | 54.3 |

Source: S&P Global, GTAS database, accessed March 4, 2025.
Note: HS subheadings for vehicle parts are defined in appendix F, table F.5, which constitute HS subheadings for which most of the HTS statistical reporting numbers are automotive related.

**Table J.17** Top 6 light vehicle producers, by country and U.S. share of global production, 2019–24.
In thousands of units and percentages. Corresponds to figure 4.15.

| Country | 2019 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| China (1,000 units) | 23,392 | 23,619 | 25,682 | 28,422 | 29,506 |
| United States (1,000 units) | 10,548 | 8,870 | 9,733 | 10,309 | 10,237 |
| Japan (1,000 units) | 9,169 | 7,328 | 7,319 | 8,501 | 7,768 |
| India (1,000 units) | 4,221 | 4,138 | 5,096 | 5,450 | 5,633 |
| Germany (1,000 units) | 4,947 | 3,309 | 3,678 | 4,109 | 4,069 |
| South Korea (1,000 units) | 3,871 | 3,390 | 3,684 | 4,173 | 4,069 |
| Other (1,000 units) | 31,586 | 25,125 | 26,305 | 28,517 | 27,303 |
| Total (1,000 units) | 87,735 | 75,779 | 81,497 | 89,482 | 88,586 |
| U.S. share (%) | 12.0 | 11.7 | 11.9 | 11.5 | 11.6 |

Source: International Organization of Motor Vehicle Manufacturers (OICA), World motor vehicle production by country/region, accessed May 31, 2025.

Note: Data was unavailable for 2020. Aggregate production is cars + light commercial vehicles. Many countries do not publicly report their production of light commercial vehicles to OICA. Due to data availability, the U.S. share may be overstated. When looking at only cars, the U.S. ranks 8th, instead of 2nd.

**Table J.18** Light vehicle exports to non-USMCA countries, by selected countries and year, 2019–24

In billions of dollars. Corresponds to figure 4.16.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Germany | 126.3 | 112.0 | 127.8 | 131.6 | 154.8 | 143.4 |
| China | 7.0 | 8.7 | 22.6 | 41.7 | 71.4 | 82.7 |
| Japan | 57.7 | 47.7 | 52.7 | 53.2 | 65.8 | 63.4 |
| Spain | 38.4 | 36.1 | 37.3 | 36.1 | 45.5 | 45.0 |
| United States | 40.5 | 34.3 | 39.4 | 39.7 | 45.5 | 40.4 |
| South Korea | 22.9 | 17.9 | 25.3 | 27.4 | 32.4 | 29.5 |

Source: S&P Global, GTAS database, HS subheadings 8704.21, 8704.31, and all HS subheadings under 8703, accessed March 4, 2025.

Note: This graph shows exports to destination markets outside of the USMCA region by the country of origin. The USMCA region is defined as Canada, Mexico, the United States, and U.S. territories.

**Table J.19** Automotive employment in the United States, by segment and year, 2019–24

In thousands of workers. Corresponds to figure 4.17.

| Sector | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Motor vehicle manufacturing | 237 | 206 | 254 | 282 | 296 | 308 |
| Motor vehicle body and trailer manufacturing | 162 | 151 | 164 | 172 | 172 | 176 |
| Motor vehicle parts manufacturing | 594 | 530 | 542 | 552 | 573 | 582 |

Source: USDOL, BLS, Current Employment Statistics for NAICS codes 3361, 3362, and 3363, accessed February 11, 2025.

Note: North American Industry Classification System (NAICS) code 3361 refers to vehicle manufacturing, code 3362 refers to body and chassis manufacturing, and code 3363 refers to vehicle parts manufacturing. Core parts under the United States-Mexico-Canada Agreement include body and chassis, which would be included in body and trailer manufacturing in the NAICS; vehicle parts manufacturing refers to other vehicle parts. Employment includes supervisory and nonsupervisory workers.

**Table J.20** U.S. automotive wages for all employees, by market segment, January 2019–November 2024

In December 2024 inflation-adjusted dollars per hour. Corresponds to figure 4.18.

| Year | Month | Motor vehicle manufacturing | Motor vehicle body and trailer manufacturing | Motor vehicle parts manufacturing |
|---|---|---|---|---|
| 2019 | January | 42.83 | 30.23 | 31.15 |
| 2019 | February | 41.96 | 29.85 | 30.69 |
| 2019 | March | 41.21 | 29.72 | 30.77 |
| 2019 | April | 40.82 | 29.80 | 31.01 |
| 2019 | May | 40.56 | 29.84 | 30.53 |
| 2019 | June | 41.38 | 29.93 | 31.04 |
| 2019 | July | 41.15 | 29.67 | 31.32 |
| 2019 | August | 41.26 | 29.88 | 31.31 |
| 2019 | September | 42.20 | 29.99 | 31.60 |
| 2019 | October | 41.01 | 30.11 | 31.21 |
| 2019 | November | 41.95 | 30.30 | 31.44 |
| 2019 | December | 43.16 | 30.59 | 31.88 |
| 2020 | January | 42.06 | 30.00 | 31.48 |
| 2020 | February | 41.09 | 29.90 | 31.70 |
| 2020 | March | 40.84 | 29.99 | 31.83 |
| 2020 | April | 47.98 | 31.75 | 34.74 |

| Year | Month | Motor vehicle manufacturing | Motor vehicle body and trailer manufacturing | Motor vehicle parts manufacturing |
|---|---|---|---|---|
| 2020 | May | 43.45 | 30.79 | 33.72 |
| 2020 | June | 39.82 | 30.65 | 31.25 |
| 2020 | July | 39.78 | 30.49 | 31.61 |
| 2020 | August | 42.37 | 30.54 | 32.26 |
| 2020 | September | 43.18 | 29.96 | 32.96 |
| 2020 | October | 42.57 | 29.63 | 32.77 |
| 2020 | November | 43.01 | 29.97 | 32.68 |
| 2020 | December | 42.48 | 30.18 | 33.60 |
| 2021 | January | 42.45 | 30.11 | 32.76 |
| 2021 | February | 42.02 | 30.42 | 32.58 |
| 2021 | March | 40.12 | 30.28 | 32.21 |
| 2021 | April | 40.85 | 31.18 | 32.51 |
| 2021 | May | 41.82 | 30.71 | 32.72 |
| 2021 | June | 40.20 | 31.50 | 32.46 |
| 2021 | July | 39.74 | 31.84 | 32.44 |
| 2021 | August | 41.43 | 32.22 | 31.86 |
| 2021 | September | 40.22 | 32.73 | 32.25 |
| 2021 | October | 39.12 | 33.28 | 31.82 |
| 2021 | November | 39.21 | 33.19 | 31.87 |
| 2021 | December | 38.84 | 31.10 | 32.42 |
| 2022 | January | 40.87 | 31.47 | 32.75 |
| 2022 | February | 38.71 | 32.69 | 31.76 |
| 2022 | March | 38.15 | 33.07 | 31.10 |
| 2022 | April | 37.99 | 32.86 | 31.61 |
| 2022 | May | 37.90 | 33.47 | 31.67 |
| 2022 | June | 37.34 | 32.58 | 30.60 |
| 2022 | July | 37.05 | 33.11 | 30.88 |
| 2022 | August | 37.08 | 32.20 | 30.66 |
| 2022 | September | 38.14 | 32.57 | 30.90 |
| 2022 | October | 38.46 | 32.65 | 30.83 |
| 2022 | November | 38.84 | 33.38 | 30.63 |
| 2022 | December | 38.55 | 31.92 | 30.64 |
| 2023 | January | 39.62 | 30.48 | 31.15 |
| 2023 | February | 37.12 | 29.87 | 30.07 |
| 2023 | March | 37.32 | 29.94 | 30.32 |
| 2023 | April | 39.67 | 29.75 | 30.53 |
| 2023 | May | 40.69 | 30.32 | 30.88 |
| 2023 | June | 40.56 | 30.09 | 30.07 |
| 2023 | July | 41.01 | 29.17 | 30.16 |
| 2023 | August | 39.61 | 30.23 | 29.81 |
| 2023 | September | 39.98 | 30.10 | 30.06 |
| 2023 | October | 40.30 | 30.47 | 30.47 |
| 2023 | November | 40.12 | 30.54 | 30.36 |
| 2023 | December | 42.41 | 30.57 | 30.90 |
| 2024 | January | 44.23 | 30.91 | 30.77 |

| Year | Month | Motor vehicle manufacturing | Motor vehicle body and trailer manufacturing | Motor vehicle parts manufacturing |
|---|---|---|---|---|
| 2024 | February | 41.46 | 29.42 | 30.24 |
| 2024 | March | 42.23 | 29.54 | 30.23 |
| 2024 | April | 41.37 | 29.96 | 30.34 |
| 2024 | May | 42.10 | 29.92 | 30.15 |
| 2024 | June | 46.84 | 30.09 | 31.05 |
| 2024 | July | 44.39 | 30.48 | 30.88 |
| 2024 | August | 42.79 | 30.58 | 30.68 |
| 2024 | September | 44.18 | 30.76 | 30.97 |
| 2024 | October | 43.82 | 31.33 | 31.16 |
| 2024 | November | 44.17 | 31.57 | 31.47 |

Source: USDOL, BLS, Current Employment Statistics, Average hourly earnings, accessed February 11, 2025; USDOL, BLS, Consumer Price Index for All Urban Consumers, accessed February 11, 2025.
Note: U.S. automotive wages have been adjusted for inflation using the consumer price index.

**Table J.21** Output per worker in the U.S. automotive industry, by industry segment, 2019–23
In index values (2019 = 100.0). Corresponds to figure 4.19.

| Sector | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| Motor vehicle manufacturing | 100.0 | 100.6 | 85.1 | 82.3 | 82.9 |
| Motor vehicle body and trailer manufacturing | 100.0 | 91.2 | 104.5 | 97.8 | 87.5 |
| Motor vehicle parts manufacturing | 100.0 | 95.9 | 99.6 | 102.9 | 107.2 |

Source: BLS, OPT, accessed November 7, 2024.
Note: Data for this figure were reindexed to 2019 from 2017, which is how BLS originally releases the data.

**Table J.22** New and retained jobs associated with automotive investment, by segment, country and year, 2019–24
In number of jobs. n.a. = not available. — (em dash) = not applicable. Corresponds to figure 4.20.

| Country | Sector | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|---|
| United States | Motor vehicle manufacturers | 34,364 | 15,312 | 45,688 | 47,167 | 27,383 | 2,966 |
| United States | Automotive part suppliers | 22,498 | 12,219 | 20,139 | 46,865 | 28,128 | 31,213 |
| Mexico | Motor vehicle manufacturers | n.a. | 500 | n.a. | 1,328 | 6,665 | 3,065 |
| Mexico | Automotive part suppliers | 14,735 | 16,684 | 13,775 | 30,637 | 46,087 | 27,416 |
| Canada | Motor vehicle manufacturers | 300 | 7400 | n.a. | 6120 | 11145 | 2800 |
| Canada | Automotive part suppliers | 887 | — | 225 | 160 | 5,059 | 1,053 |
| Total | Motor vehicle manufacturers | 34,664 | 23,212 | 45,688 | 54,615 | 45,193 | 8,831 |
| Total | Automotive part suppliers | 38,120 | 28,903 | 34,139 | 77,662 | 79,274 | 59,682 |
| Total | All | 72,784 | 52,115 | 79,827 | 132,277 | 124,467 | 68,513 |

Source: CAR, “Automotive Communities Partnership,” accessed January 14, 2025.

Note: The figures represent reported new and retained jobs associated with announced investments.

**Table J.23** Motor vehicle manufacturers' response to whether the USMCA motor vehicle parts lists are still maintaining relevancy in light of industry shifts

In percentages and count. Corresponds to figure 5.1.

| Response | Percent |
|---|---|
| Yes | 57.1 |
| Maybe | 28.6 |
| No | 14.3 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.a.
Note: The USMCA motor vehicle parts lists include the core, principal, and complementary lists. Industry shifts refer to the shift to EVs, as well as any other industry shifts since the USMCA entry into force.

**Table J.24** U.S. BEV light truck sales, 2021–24

In units and percentages. BEV=Battery-electric vehicle. ** = rounds to 0. Corresponds to figure 5.2.

| Type | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|
| U.S. BEV pickup truck and work van sales (units) | 332 | 39,823 | 54,819 | 117,679 |
| Share of all U.S. pickup truck and work van sales (%) | ** | 1.2 | 1.6 | 3.3 |

Sources: Wards Intelligence, "U.S. Light Vehicle Sales, December 2023," January 3, 2024; Wards Intelligence, "U.S. Light Vehicle Sales, December 2022," January 4, 2023; Wards Intelligence, "U.S. Light Vehicle Sales, December 2021," January 4, 2022.
Notes: BEV pickup trucks and work vans were not sold in the United States until 2021. For 2021, U.S. BEV pickup truck and work van sales accounted for 0.01 percent of the share of all U.S. pickup truck and work van sales.

**Table J.25** U.S. imports of electric motors and other powertrain parts, 2019–24

In millions of dollars. Corresponds to figure 5.4.

| Item | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Other powertrain parts | 3,064 | 2,411 | 2,902 | 3,215 | 2,920 | 2,922 |
| Certain electric motors | 500 | 472 | 389 | 678 | 1,040 | 1,290 |

Source: USITC DataWeb/Census, imports for consumption, HTS statistical reporting numbers 8501.53.8040, 8501.53.8060, and 8708.99.6890, accessed March 21, 2025.

**Table J.26** Impact of the increased importance of nontraditional motor vehicle inputs on the continued relevancy of the USMCA automotive rules of origin

In percentages. Corresponds to figure 5.5.

| Impact | Count | Percent |
|---|---|---|
| No impact | 10 | 45.5 |
| Minimal impact | 6 | 27.3 |
| Some or large impact | 6 | 27.3 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, response to question 4.1.3.a.

**Table J.27** Locations of current, under construction, and announced lithium-ion battery recycling plants in the United States
Corresponds to figure 5.6.

| Company | Facility name | Facility city | Facility state | Status |
|---|---|---|---|---|
| ACE Green Recycling | ACE Green Recycling - Houston | Houston | TX | Announced |
| Agmet LLC | Agmet - Oakwood Village | Oakwood Village | OH | In operation |
| Aleon Renewable Metals | Aleon Renewable Metals (ARM) | Freeport | TX | In operation |
| American Battery Technology Company | Fernley, NV | Fernley | NV | Under construction |
| American Battery Technology Company | ABTC South Carolina | TBD | SC | Announced |
| Aqua Metals LLC | Aqua Metals Innovation Center | McCarran | NV | Announced |
| Aqua Metals LLC | Aqua Metals Sierra ARC Campus | Reno | NV | Under construction |
| Ascend Elements | Base 1 | Covington | GA | In operation |
| Ascend Elements | Recycling Operations | Worcester | MA | In operation |
| Ascend Elements | Apex 1 | Hopkinsville | KY | Under construction |
| ATC Drivetrain | ATC Drive Train | Oklahoma City | OK | In operation |
| Austin Elements | Austin Elements | Houston | TX | Announced |
| B2U Storage Solutions Inc | SEPV Sierra | Lancaster | CA | In operation |
| Bamboo Charge | Bamboo Charge | San Jose | CA | In operation |
| Battery M.D. Inc. | Battery M.D. Inc. | Mc Clellan Park | CA | In operation |
| BBB Industries - Terrepower | BBB Industries | Daphne | AL | In operation |
| Blue Whale Materials | Blue Whale Materials | Bartlesville | OK | In operation |
| Bridge Green Upcycle | Infinity Lab&b Prototype Facility | Endicott | NY | Announced |
| Cirba Solutions | Wixom | Wixom | MI | In operation |
| Cirba Solutions | Recycling Facility | Eloy | AZ | Announced |
| Cirba Solutions | OH HQ/ Recycling Facility | Lancaster | OH | In operation |
| Cirba Solutions | Recycling Facility | Columbia | SC | Announced |
| Clarios | Clarios South Carolina | West Union | SC | Announced |
| Clean Earth Inc. | Mitchell Ave | Allentown | PA | In operation |
| Clean Earth Inc. | West Melbourne | West Melbourne | FL | In operation |
| Coherent Corp. | SHARP Plant #1 | Saxonburg | PA | Announced |
| Cycling Batteries LLC. | Ad Black | Chatham | NY | Announced |
| DJ MexCorp | DJ MexCorp | La Puente | CA | In operation |
| Ecobat | Casa Grande | Casa Grande | AZ | Announced |
| ElectraMet | ElectraMet | Lexington | KY | In operation |
| Element Energy, Inc. | Element Energy, Inc. | Menlo Park | CA | In operation |
| ExPost Technology | San Diego | San Diego | CA | Announced |
| Full Circle Lithium | Full Circle Lithium | Nahunta | GA | In operation |
| Global Battery Solutions | Global Battery Solutions | Holland | MI | In operation |

| Company | Facility name | Facility city | Facility state | Status |
|---|---|---|---|---|
| Green Li-ion | GLMC1 | Atoka | OK | Under construction |
| Higher Wire Inc. | Phoenix | Phoenix | AZ | In operation |
| INMETCO | INMETCO | Ellwood City | PA | In operation |
| Interco - A Metaltronics Recycler | Interco | Madison | IL | In operation |
| Li Industries | Li Industries | Pineville | NC | Announced |
| Li Industries | Li Industries | Charlotte | NC | Under construction |
| Li Industries, Inc | Li Industries, Inc Ohio | Kettering | OH | Announced |
| Li-Cycle Corp. | New York Spoke | Rochester | NY | In operation |
| Li-Cycle Corp. | Arizona Spoke | Gilbert | AZ | In operation |
| Li-Cycle Corp. | Alabama Spoke | Tuscaloosa | AL | In operation |
| Momentum Technologies | Carrollton Lab | Carrollton | TX | Announced |
| Nethers Batteries | Nethers Batteries | North Muskegon | MI | In operation |
| Nth Cycle Inc. | Nth Cycle Inc. | Fairfield | OH | Announced |
| Omega Harvested Metallurgical | Omega Harvested Metallurgical | Winchester | OH | In operation |
| Posh Robotics | Posh Robotics | Hayward | CA | In operation |
| Princeton NuEnergy | Princeton NuEnergy | Bordentown | NJ | Announced |
| Princeton NuEnergy | Lithium-Ion Battery Direct Recycling Pilot Plant | McKinney | TX | Announced |
| Radius Recycling | Radius Recycling | Portland | OR | In operation |
| Recycling Coordinators, Inc. | Recycling Coordinators, Inc. | Akron | OH | In operation |
| Redwood Materials | Redwood Materials - Tahoe Campus | McCarran | NV | Under construction |
| Redwood Materials | Redwood Materials - TRIC | Reno | NV | In operation |
| Redwood Materials | Redwood Materials - SC | Ridgeville | SC | Under construction |
| Redwood Materials - Research and Product Development | Redwood Materials | Carson City | NV | In operation |
| ReElement Technologies | Noblesville Commercialization Facility | Noblesville | IN | Announced |
| Rejoule Energy | Rejoule Energy | Signal Hill | CA | In operation |
| RePurpose Energy, Inc. | RePurpose Energy, Inc. | Fairfield | CA | Announced |
| Robertson’s Auto Salvage | Robertson’s Auto Salvage | Wareham | MA | In operation |
| Second Life Lithium | Second Life Lithium | San Marcos | CA | In operation |
| SK tes | SK tes | Fredericksburg | VA | In operation |
| Smartville Inc. | Smartville | Carlsbad | CA | Announced |
| Spiers New Technologies (SNT) | Spiers New Technologies | Oklahoma City | OK | In operation |
| SungEel HiTech Co., Ltd. | SungEel Recycling Park | Toccoa | GA | Announced |
| Umicore USA | Recycling HQ | Raleigh | NC | In operation |
| Union Battery Disposal, Inc | Union Battery Disposal, Inc | Ontario | CA | In operation |
| United Battery Recyclers Int | United Battery Recyclers Int | Fenton | MI | Announced |

Source: NREL, DOE, “Online NAATBatt Lithium-Ion Battery Supply Chain Database,” February 17, 2025.
Note: Hawaii and Alaska currently have no lithium-ion battery recycling plants.

# Additional trade data

**Table J.28** Value of U.S. imports of light vehicles, by source, inflation-adjusted, 2019–24

In billions of 2019 dollars. $1.00 in 2024 = $0.83 in 2019. Nominal value can be found in Chapter 2, table 2.4.

| Source | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 59.4 | 48.0 | 49.8 | 51.5 | 59.2 | 64.7 |
| Japan | 39.1 | 31.9 | 30.9 | 28.9 | 34.1 | 33.2 |
| South Korea | 15.9 | 16.0 | 16.6 | 19.2 | 26.1 | 31.1 |
| Canada | 39.6 | 28.8 | 23.7 | 25.1 | 32.9 | 26.5 |
| Germany | 17.8 | 12.2 | 14.0 | 17.3 | 20.3 | 21.1 |
| All other sources | 28.4 | 23.2 | 23.8 | 25.6 | 28.6 | 29.2 |
| Total | 200.2 | 160.2 | 158.8 | 167.6 | 201.3 | 205.8 |

Source: USITC DataWeb/Census, general imports, list of HS subheadings corresponding to light vehicles in appendix F, accessed February 12, 2025. St. Louis Fed, FRED, "Gross Domestic Product (Implicit Price Deflator)," March 27, 2025.

Note: Source countries are listed in descending order of 2024 value.

**Table J.29** Value of U.S. imports of vehicle parts, by source, inflation-adjusted, 2019–24

In billions of 2019 dollars. $1.00 in 2024 = $0.83 in 2019. Nominal value can be found in Chapter 2, table 2.5.

| Source | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 60.3 | 50.5 | 56.3 | 60.9 | 66.7 | 67.4 |
| Canada | 16.8 | 13.8 | 15.4 | 16.2 | 17.0 | 16.2 |
| China | 15.4 | 11.2 | 14.2 | 16.3 | 15.3 | 15.2 |
| Japan | 14.9 | 11.9 | 14.0 | 14.4 | 13.1 | 13.1 |
| South Korea | 9.4 | 8.0 | 9.7 | 12.0 | 11.5 | 10.5 |
| All other sources | 38.0 | 33.6 | 40.1 | 42.1 | 41.7 | 41.4 |
| Total | 154.9 | 128.9 | 149.6 | 161.9 | 165.2 | 163.8 |

Source: USITC DataWeb/Census, general imports, list of HS subheadings corresponding to vehicle parts in appendix F, accessed February 12, 2025. St. Louis Fed, FRED database, "Gross Domestic Product (Implicit Price Deflator)," March 27, 2025.

Note: Source countries are listed in descending order of 2024 value.

**Table J.30** Value of U.S. exports of light vehicles, by destination, inflation-adjusted, 2019–24

In billions of 2019 dollars. $1.00 in 2024 = $0.83 in 2019. Nominal value can be found in Chapter 2, table 2.7.

| Destination market | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Canada | 24.7 | 19.0 | 23.4 | 25.8 | 22.7 | 19.9 |
| Germany | 7.1 | 6.7 | 7.3 | 6.7 | 7.6 | 6.6 |
| Mexico | 3.5 | 2.3 | 3.0 | 3.6 | 4.4 | 4.7 |
| China | 7.4 | 6.1 | 6.2 | 5.0 | 5.6 | 4.1 |
| United Arab Emirates | 2.2 | 1.5 | 1.8 | 2.7 | 3.5 | 3.5 |
| All other destination markets | 23.9 | 19.6 | 21.9 | 20.5 | 22.1 | 19.3 |
| Total exports | 68.7 | 55.2 | 63.6 | 64.4 | 65.8 | 58.2 |

Source: USITC DataWeb/Census, total exports, list of HS subheadings corresponding to light vehicles in appendix F, accessed February 12, 2025. St. Louis Fed, FRED database, "Gross Domestic Product (Implicit Price Deflator)," March 27, 2025.

Note: Source countries are listed in descending order of 2024 value.

**Table J.31** Value of U.S. exports of vehicle parts, by source, inflation-adjusted, 2019–24

In billions of 2019 dollars. $1.00 in 2024 = $0.83 in 2019. Nominal value can be found in chapter 2, table 2.8.

| Destination market | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Mexico | 33.4 | 25.2 | 27.4 | 29.3 | 31.5 | 32.3 |
| Canada | 29.4 | 21.7 | 20.4 | 22.7 | 27.0 | 24.5 |
| Australia | 1.3 | 1.2 | 1.4 | 1.4 | 1.7 | 2.2 |
| Germany | 2.2 | 1.7 | 1.9 | 2.0 | 2.2 | 2.0 |
| China | 2.6 | 3.4 | 2.8 | 2.4 | 2.2 | 1.9 |
| All other destination markets | 18.3 | 15.0 | 15.3 | 15.3 | 15.2 | 14.9 |
| Total exports | 87.1 | 68.2 | 69.2 | 72.9 | 79.7 | 77.6 |

Source: USITC DataWeb/Census, imports for consumption and general imports, list of HS subheadings corresponding to vehicle parts in appendix F, accessed February 12, 2025.

Note: Source countries are listed in descending order of 2024 value.

**Table J.32** Value of U.S. imports of vehicle parts, by product category, 2019–24

In billions of dollars.

| Parts category | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Chassis and Drivetrain Parts | 38.7 | 30.9 | 38.6 | 44.9 | 45.8 | 47.0 |
| Electrical and Electric Components | 30.7 | 26.6 | 32.5 | 39.9 | 44.1 | 43.9 |
| Bodies and parts | 30.2 | 25.3 | 30.1 | 34.5 | 37.5 | 38.3 |
| Engine and Parts | 23.9 | 19.6 | 23.6 | 25.8 | 26.5 | 27.3 |
| Automotive Tires and Tubes | 12.6 | 11.2 | 13.2 | 16.0 | 15.9 | 16.2 |
| Miscellaneous Parts | 11.7 | 10.1 | 12.4 | 14.4 | 14.7 | 14.9 |
| Total imports for consumption | 147.8 | 123.6 | 150.5 | 175.7 | 184.5 | 187.7 |
| General imports | 154.9 | 130.6 | 158.5 | 183.7 | 194.3 | 197.3 |

Source: USITC DataWeb/Census, imports for consumption and general imports, list of HS subheadings corresponding to vehicle parts in appendix F, accessed February 12, 2025.

Note: Source countries are listed in descending order of 2024 value.

**Table J.33** Value of U.S. exports of vehicle parts, by product category, 2019–24

In billions of dollars.

| Parts category | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| Chassis and Drivetrain Parts | 20.5 | 16.0 | 17.0 | 19.8 | 21.4 | 19.2 |
| Electrical and Electric Components | 16.6 | 13.6 | 15.0 | 16.3 | 16.4 | 16.3 |
| Bodies and parts | 14.6 | 11.4 | 11.1 | 11.7 | 13.5 | 11.9 |
| Engine and Parts | 8.6 | 6.8 | 8.3 | 10.3 | 14.0 | 13.0 |
| Automotive Tires and Tubes | 9.8 | 7.9 | 7.8 | 9.0 | 10.9 | 13.9 |
| Miscellaneous Parts | 2.9 | 2.3 | 2.6 | 2.8 | 2.9 | 2.9 |
| Domestic exports | 73.0 | 58.1 | 61.9 | 69.9 | 79.1 | 77.1 |
| Re-exports | 14.1 | 11.0 | 11.4 | 12.9 | 14.6 | 16.4 |
| Total exports | 87.1 | 69.1 | 73.3 | 82.8 | 93.7 | 93.5 |

Source: USITC DataWeb/Census, domestic exports and total exports, list of Schedule B HS subheadings corresponding to vehicle parts in appendix F, accessed February 12, 2025.

Note: Source countries are listed in descending order of 2024 value.

# Additional survey data

**Table J.34** Number of full-time equivalent (FTE) employees, including nonproduction workers and contractors, at manufacturing and assembly facilities in the United States, 2018–23
In number of FTE employees.

| Year | FTE employees |
|---|---:|
| 2018 | 378,296 |
| 2019 | 372,480 |
| 2020 | 385,724 |
| 2021 | 404,613 |
| 2022 | 434,581 |
| 2023 | 551,031 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 1.2.

**Table J.35** Count of firms' presence in North American motor vehicle production, by production location
In number of responding firms.

| Production location | Number of firms |
|---|---:|
| Canada | 6 |
| Mexico | 12 |
| United States | 22 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 1.3.a and 1.3.b.

**Table J.36** Count of firms that produced motor vehicles that qualified, or plan to qualify, for duty-free treatment under the USMCA
In number of responding firms.

| Qualification | Number of firms |
|---|---:|
| Duty-free under USMCA between July 1, 2020, and July 1, 2024 | 15 |
| Planned to be duty-free under USMCA after July 1, 2024 | 17 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to questions 1.5.a and 1.6.a.

**Table J.37** Impact to motor vehicle manufacturers of continued monitoring of the USMCA parts lists, potential updates to those lists, on the ability to comply with the ROOs
In percentage.

| Impact | Share of motor vehicle manufacturers (%) |
|---|---:|
| None or minimal impact | 23.8 |
| Some impact | 42.9 |
| Large impact | 33.3 |

Source: USITC, *The USMCA Automotive Rules of Origin Motor Vehicle Producer Questionnaire*, 2024, responses to question 4.1.5.e.

# Other data tables

**Table J.38** Vehicle models available in the United States, by production location, 2019–24
In number of models available.

| Production location | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| USMCA-produced | 174 | 170 | 178 | 172 | 168 | 163 |
| Non-USMCA-produced | 180 | 180 | 190 | 187 | 188 | 187 |

Source: Wards Intelligence, "U.S. Light Vehicle Sales" for December for years 2019–2024.
Note: Domestic refers to North American produced vehicles.

**Table J.39** Customs value and share of U.S. dutiable motor vehicle parts imports from Canada and Mexico, 2019–24
In millions of dollars and share in percentages.

| Country | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|---|
| U.S. dutiable imports from Canada (units) | 1,304 | 1,906 | 2,400 | 3,702 | 3,658 | 3,216 |
| U.S. dutiable imports from Mexico (units) | 5,738 | 7,709 | 10,267 | 12,565 | 16,085 | 17,601 |
| Share of U.S. dutiable imports from Canada (%) | 7.8 | 13.7 | 14.7 | 20.2 | 18.4 | 16.5 |
| Share of U.S. dutiable imports from Mexico (%) | 9.7 | 15.4 | 17.6 | 18.5 | 20.9 | 22.0 |

Source: USITC DataWeb/Census, accessed February 12, 2025.
Note: Parts are as classified on the USDOC Automotive Parts list "Automotive Parts Product Codes," which can be found in appendix F, table F.3.